



Professor Saligram Bhatt is a leading scholar in India on Environmental Law, Space Law, Air Law and Law and Science .He has a B.Sc. Hons. degree in Chemistry, M.A. Political Science, Ph.D. International Law(JNU),post-doctoral Fulbright Scholar in aerospace law, environmental law from School of Law, SMU, Dallas, Texas USA. He has published over 22 books and about 150 articles in leading journals. During last decade, he has been teaching and guiding research in law for sustainable development. Until recently, he was Prof. Emeritus, School of Law, North Cop University, Gurgaon, Haryana. Earlier he served as Hony. Prof. Int. Law, Space Law JNU; Hony Prof. Jamia Hamdard; UN and World Bank Adviser to several Govts in Africa, and Central Asia.He helped set-up Centre for Air Law, Space Law, Nalsar University, where he is presently serving as Adjunct Prof. Law.

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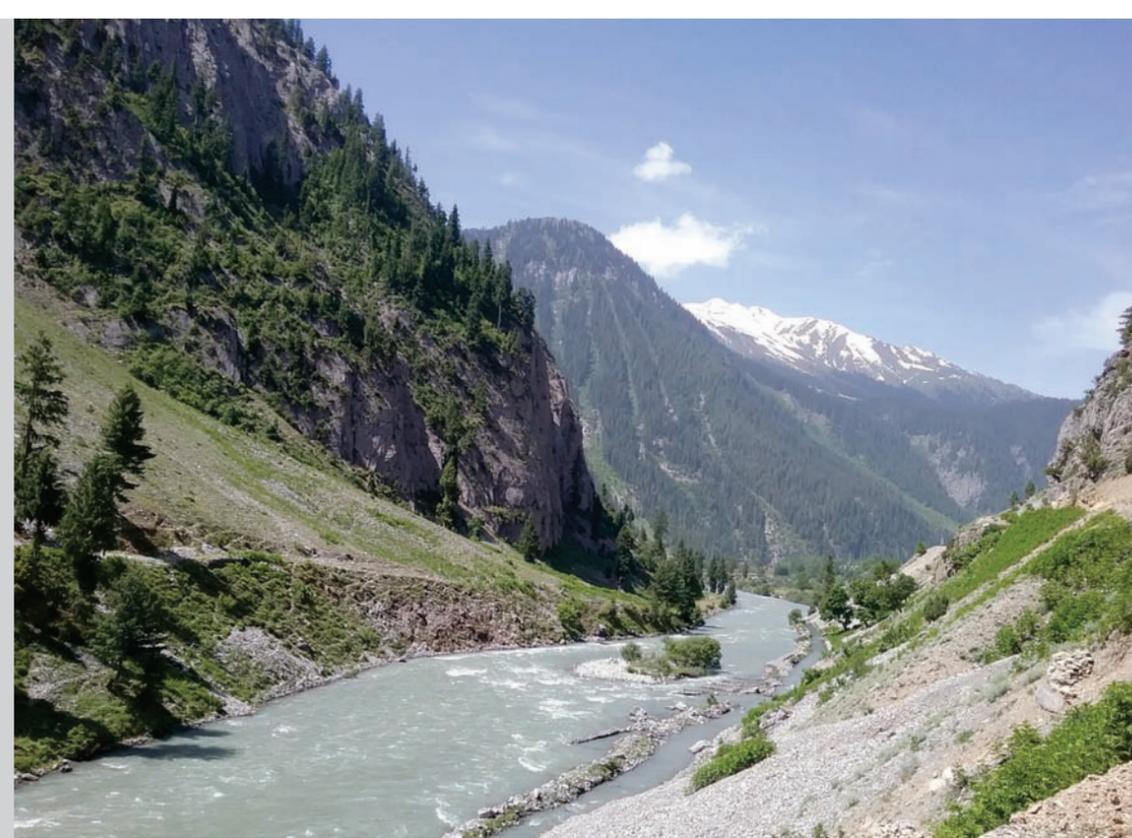
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ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT

Prof. Saligram Bhatt



ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT



Prof. Saligram Bhatt

This book is a collection of my lectures in various universities in India to popularise sustainable development of earth, and, the pathway to world peace. Our earth is undergoing lots of geological changes. There are also ecological changes in all countries. Mankind has realised too late to revive mother earth. Historians speak of crises in our civilisation, likely end of present earth system.

As a scholar of environmental laws, I have been working for past five decade to improve man's relation with earth, look for harmony and spiritual life, to give mother earth a chance to redeem itself, give mankind peace and happiness. The chapters are scattered, without any order. But they speak about mother earth, and mankind's attempt to make earth healthy, liveable. Moreover, the mindset of humankind is changed for anger against each other with no reason. Facing death and destruction seems imminent, unless humans revive love, non-violence. Homo Sapien say anthropologist love living in unity with diversity. Earth has been designed by God as a federal structure. Then why fight between states. Show of force cannot last long. Truth and non-violence only can save earth and humankind.

A few of my autobiographical chapters are added in this book towards the end. They help us realise how mankind lived only 80 years age in peace and without armed might. Technology was very primitive. Air and water were pure. Population itself was about one billion, not over seven billion now that has put all the pressure on mother earth's natural resources. Plato called the primitive stage as the progressive stage of civilisation. Greeks were wise in primitive stage. Today there are poor to live normal life. Call it modern economics.

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ABOUT THE AUTHOR

Prof. Saligram Bhatt was born on 17th January 1931 at Tulamulla, Kashmir that is mother's place. He spent 12 years of his childhood in Gilgit, northern part of Kashmir, and later in Bandipore, Kashmir, his ancestral home and Srinagar where he passed matriculation and intermediate degrees. He later joined Punjab University at Hoshiarpur 1948-51 and graduated with B. sc. Honors Post-Graduate degree in Chemistry from Punjab University Honours School. He then joined the Indian Air Force Academy and graduated in flying branch of IAF and served until 1956.

Later he passed M. A. political science from Punjab University. He joined Jawaharlal Nehru University (JNU) New Delhi and did his Ph. D. in International Law under Dr. Nagendra Singh, Judge of World Court (ICJ). He was selected as Fulbright fellow for Post-doctoral studies during 1969-70 in aerospace law in School of Law, Southern Methodist University, Dallas, Texas, USA. He got the highest grade in Fulbright selection. He was leader of 13-member Fulbright scholars group that had orientation in East-West Centre, Hawaii University USA.

In 1975 Prof. Bhatt served as Legal Specialist and Secretary, National Committee on Environmental Planning and Coordination DST, GOI, a challenging and creative assignment for environment planning for India. His career has been mostly in DGCA, GOI where he worked for long time as Director Aviation Regulations, Legal Advisor to Dept. of Aviation, GOI and retired as Deputy Director General of Civil Aviation in 1988. During this period Prof. Bhatt was Member Legal Committee of ICAO, Panel-Member for Regulation of World Air Transport 1986, and Member of the Air Delegation GOI DGCA that made air agreements with almost 60 countries and travelled abroad

during 1984-88 to almost 30 countries abroad, including Russia, China, USA, Canada, EU, Gulf Countries, South-East Asia countries etc.

Within India, he was Legal Advisor to Air India, Indian Airline etc. and collaborated for GOI with CII, FICCI on aviation and air transport matters etc. Subsequently he was a Member of Committee on National Aviation Policy GOI. He joined JNU as Prof. of Space Law and Honorary Prof. of International Law, during 1992-2002. He held National Chair in Space Law in JNU donated by ISRO in 1992. During 1988-92, Prof. Bhatt was UN-ICAO Consultant and Advisor Civil Aviation to the Govts. of Botswana, Lesotho, and Somalia in Africa. He has travelled all over Africa during this period as ICAO Advisor. Later he was Honorary Prof. Hamdard University New Delhi in 2002-2007. He is associated from 2007 onwards with National Law University, NALSAR, Hyderabad and has helped establish a national and global centre of air and space law 2007. He was appointed as Adjunct Prof. Nalsar University. Last 3 years Prof Bhatt is associated with Northcap University as Professor Emeritus from 2015 onwards. Besides Prof. Bhatt has lectured in prominent Universities and Law Schools in India in Bangalore, Kashmir University, GNLU, NLS Delhi, Baroda Law School, Delhi University etc. He has been regularly contributing to Annual Conferences of Indian Society of International Law, New Delhi. He is a Consultant to ISRO on legal issues. The UN Space Conference, Unispace III in Vienna July 1999 invited Prof. Bhatt as a Commentator for the conference. He presented a paper on space law in 21st century. Prof. Bhatt is a Honorary Member of International Institute of Space Law, Paris, Member India International Centre, Life Member Indian Society of International Law, Former Vice-President Kashmir Education Society New Delhi and former Member of American Society of International Law, and Indian Science Congress.

At present he is actively associated with Nalsar University Hyderabad, GNLU Gandhinagar, and Northcap University, Gurgaon, Haryana. He works and teaches mostly on global warming and climate change, sustainable development, and environmental laws.

He is authored 20 books and about 200 articles published in leading journals in India and abroad.

Chapter-1

INTRODUCTION

I shall ever try to drive all evils away from my heart and keep my love in flower,

Knowing that thou hast thy seat in the inmost shrine of my heart.

Rabindranath Tagore in Gitanjali. 1913.

A hundred years ago, Tagore was in search of spiritual reality. And today humankind world over is in search of nature's reality to be able to live in harmony with nature. Almost same time Einstein was making his attempt to see reality in his theory of relativity that has changed history of mankind as we all know. However, it was the UNESCO who followed the search for world order after Einstein died in 1955. UNESCO called for Biosphere Conference in 1968, and a conference of leading scientists in 1971 on the synthesis in science. Unesco declared a biologist world order to know nature and its laws. The Stockholm Declaration on Human Environment 1972 was a follow up of UNESCO's efforts for the protection of environment. The conference report is a treatise written by Barbara Ward and Renee Dubas called "Only one earth: care and maintenance of a small planet."

1. My present book follows the pathway of UNESCO. Almost same time in 1979, I wrote an article titled "An ecological approach to aerospace law," published in *Annals of Air and Space Law*, McGill University, Canada. Another article was published in same journal in 1980 with title "Contribution of aerospace law to evolution of mankind and society." The latter article is attached in this book as a chapter to remind of our lost years since 1980--46 years in search of establishing harmony with nature. I have cited Prof. Arnold J. Toynbee (died 1970) in this McGill university article that spirituality is one for all mankind, and

it is an inner urge, and is not utilitarian based. Tagore says the same in above cited poem from Gitanjali. Thus we know that mankind is one, and human relations are based on love and non-violence. Mahatma Gandhi demonstrated gospel of love and non-violence. There are many saints including the Saint Theresa or we call Mother Theresa, who have shown path of peace and human love. Removal of global poverty and hunger are outstanding needs of our time. Mother Theresa showed it. Many big entrepreneurs like Bill Gates, Naranamurthy, Premji, Reliance have turned modern saints to help society. It seems the digital revolution made popular to reach society benefits to all has made Narendra Modi the Hon'ble PM of India an international saint. He has also made yoga exercise, meditation, popular in the world to reduce human tension, and make minds peaceful. The UN has declared a day in June 21 as the yoga day.

2. The readers will find chapters mostly devoted to aerospace law, environmental law, law and science, and future studies. The UNGA has told International Court of Justice to keep monitoring aerospace law and environmental law, as these two disciplines have begun a tremendous impact on planet earth. As a result, there are many chapters on what space law is, how does it help global society in space applications. These can be monitoring air pollution, water pollution control, forests laws and management, new economic measures for new skills development to reduce unemployment. New 70 airports are planned, new 100 smart cities being worked out. All by space planning. Space provides education, communication, in remote rural India. Urban India is planned with due facilities to all sections of society. Thus we live today in space age. It has impact on our social, cultural evolution. In the Paris Agreement of 12 December 2015 for reducing global warming and climate change, India had emphasis on four points: mitigation of GHG, adaptation, transfer of technology, and R&D. These four points describes our pathway for sustainable development.
3. Sustainable development (S. D.) is therefore a new paradigm of modern science. It combines environmental law, environmental science and environmental economics, to a great extent. Yet humankind has to be watchful on SD. Some scientists from Leicester University warn that planet earth has lost present ecological structure, and the civilisation is

in danger. My personal belief is that we can respond to challenges in present society. That is the theory of history by Prof. Arnold Toynbee. But it needs to develop human love, non-violence, compassion for poorer sections of society, and faith in new science to comprehend nature, love mother earth, give up our greeds and throw away sense of terror that has made some humans lose normal love and inner peace. The chapters in this small book may surely help revive hope in SD and world peace. The planet earth is small, but beautiful. Let us look after its needs.

Chapter 2

JAMMU UNIVERSITY LECTURES

Prof. Saligram Bhatt, Prof. Emeritus, Northcap University, School Of Law, Sector 23A, Gurgaon, Haryana, India, period 11 January to 15 January, 2016.

Theme Of Three Lectures, Modern International Law For Environment Protection And Environment Management, including problems of global warming and climate change, and response by humankind by sustainable development(SD). SD a new norm of law and science.

- I. First Lecture:** UN Declaration On Human Environment, 1972. Major focus is to protect the global environment.
- II. World Charter for Nature,** 1982 Recommended by the United Nation. Focus on harmony with nature, and, conservation of nature.
- III. The Hague Declaration on the Environment,** 1989. Refers to climate change in atmosphere, warming of atmosphere, deterioration of ozone layer around earth. Also refers to Vienna Convention 1985 for protection of ozone layer, and 1987 Montreal Protocol. Refers to Intergovernmental Panel on Climate Change, IPCC established by UNEP and WMO which has begun work. Also UNGA adopted Resolution 43/53 on the Protection of Global Climate in 1988 recognising climate as common concern of mankind.
- IV. Rio Declaration on Environment and Development,** 1992. Refers to sustainable development and environmental laws for SD. SD defined as a healthy and productive life in harmony with nature.
A Brief Summary Of Above Four UN Declarations Relating To Environmental Laws.

◆ THE UN DECLARATION 1972 ON HUMAN ENVIRONMENT MADE AT STOCKHOLM

This Declaration was the first attempt by humankind to protect mother earth from deterioration. UNESCO had prepared ground for it by holding a Biosphere Conference in 1968, and, another Conference on the unity of science in New York in 1971 with declaration of a biologist world order. Until then, global science was dominated by physics with Einstein being in the lead role. Julian Huxley was the chair for Unesco. His brother wrote that epic titled Brave New World sometime in 1930s and revised in 1954 perhaps. He was looking for human freedom left in man. Today man is to wonder how much freedom is left from technology of cars and so on. Man is born free, but everywhere in chains, wrote a political scientist.

The Stockholm Declaration proclaimed some themes for history of mankind. These themes are seven in all as follows. That man is both creature and moulder of his environment which gives him physical sustenance and opportunity for intellectual, moral, social and spiritual growth, and provides human rights and right to life. (Recently the CJI said in Delhi that pollution of air was against human right to life. Based on this observation, ICMR is making a medical report on diseases caused by GHG.)That protection and improvement of environment is a major issue for well-being of people and for economic development. That man can sum up his experiences, and today man's capability to transform his surroundings if used wisely can benefit in development and enhance the quality of life. Wrongly used can do incalculable harm. There are dangerous levels of pollution in water, air, earth, living beings, major disturbances to ecological balances in the biosphere, destruction of natural resources and gross deficiencies harmful to the physical, mental, and social health of mankind, particularly in living and working environment. That in developing countries, most of environmental problems are caused by underdevelopment. Millions are deprived from minimum levels of a descent human existence, deprived of adequate food, clothing, shelter, education, health, and sanitation. Growth of population at places causes environment issues, whereas, population and people are most precious. (See China is reverting to more children policy now. India seems happy with 2% growth rate to keep population young. Europe, US, Canada have no growth rate and need immigrants to keep economy growing.)That a point has reached in history, when we must

shape our actions throughout the world with more prudent care for their environmental consequences. Through ignorance we can do irreversible harm to the earthly environment (The Delhi air pollution by vehicles is a test for our civilisation to give up private cars, a habit in India only about 50 years old). That to accept responsibility by all citizens of world is essential to protect human environment. This responsibility is for all governments at all levels. International cooperation is necessary to raise resources for the developing countries International organisations have global responsibility to protect common interests of humankind. The Conference calls all governments to make common efforts for preservation and improvement of human environment for the benefits of people and for posterity.

PRINCIPLES OF ENVIRONMENTAL LAWS CONTAINED IN UN DECLARATION 1972 FOR HUMAN ENVIRONMENT

There are 26 environmental principles given in this 1972 Declaration by the UN that forms a charter for regulating global environments. We can compare it with Chicago Convention of 1944 for regulating civil aviation; or Space Treaty of 1967 that provides principles of space law for regulating outer space.

Principle 1

Says that 'man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being; and he bears a solemn responsibility to protect and improve the environment for present and future generations.'

Principle 2

Says that natural resources of earth like air, water, land, flora and fauna and samples of natural ecosystems must be safeguarded for present and future generations.

Principle 3

Says that the capacity of earth to produce vital renewable resources must be maintained, restored, and improved.

Principle 4

Refers to protection of wildlife and nature conservation, including wildlife habitats.

Principle 5

Non-renewable resources of earth must be used in a careful way to avoid their future exhaustion.

Principle 6

Says that discharge of toxic substances into environment must be regulated to the extent the environment is not harmed.

Principle 7

States shall take all steps to prevent pollution of seas by substances that create harm to human health and marine life.

Principle 8

Economic and social development is essential to ensure favourable living and working environment to improve the quality of life.

Principle 9

Environmental deficiencies generated by underdevelopment and natural disasters pose grave problems, and remedial action must be taken by accelerated development through transfer of financial and technological assistance to supplement domestic efforts.

Principle 10

For developing countries, stability of prices is essential, as also raw materials essential for environment management.

Principle 11

Environmental policies of all countries should enhance and not adversely affect the present and future development potential of developing countries.

Principle 12

Resources should be made available to preserve and improve environment taking into consideration the needs of developing countries.

Principle 13

For more rational management of resources and to improve environment, States should adopt an integrated and coordinated approach

to their developmental planning, so that development is compatible with the needs of environment, and to protect and improve the environment.

Principle 14

Rational planning is key to resolve conflict between development needs and environment protection.

Principle 15

Planning must be applied to human settlements and urbanisation so as to avoid harm to environments, and promote maximum social, economic and environmental benefits. (The case of new creating 100 smart towns is a case in present period).

Principle 16

Demographic policies should follow to provide basic human rights, and avoid excessive pockets of growth of population that creates problems for environments and development.

Principle 17

Appropriate national institutions must be established to plan, manage, and control environmental resources.

Principle 18

Science and technology as part of economic, social development must be applied to identify and avoid environmental risks.

Principle 19

Environment education is to be imparted in all levels of human society, especially to younger generations.

Principle 20

Scientific research must be promoted in the context of environmental problems. Media must help in this regard.

Principle 21

States have as per Charter Of UN sovereign right to use environmental resources according to their policies. However, States are required to avoid causing damage to the environment of other countries.

Principle 22

States shall cooperate to promote international law regarding liability and compensation for victims of pollution and other environmental damage caused by states within their jurisdiction to states beyond their jurisdiction.

Principle 23

An international standard may be agreed by international community, yet it will have relevance for application in a state depending upon its values, those values may not be upto standards of advanced countries. (In the Paris Agreement in December 2015, emission mitigation has been left to decisions by states for themselves and determined by their own needs).

Principle 24

International matters concerning the protection and improvement of environment should be handled by all states in a spirit of cooperation and on an equal footing. Due account must be taken for sovereignty and interests of all states.

Principle 25

States shall ensure that international organisation play a coordinated and dynamic role for the protection and improvement of environment. (I recall, IUCN, UNEP, and other concerned organisations like WHO, WMO, ILO, ICAO, Outer Space Division, UNESCO, etc).

Principle 26

Mankind must avoid use of nuclear weapons and all other means of mass destruction. States must ensure their elimination and complete destruction.

WORLD CHARTER FOR NATURE, 1982

This UNGA Charter for nature was adopted in 1982. It provides for harmony with nature and nature conservation. It says mankind is a part of nature and life depends on the uninterrupted functioning of natural systems. That civilization is rooted in nature, and living in harmony with nature gives man the best opportunity for development of his creativity, rest, and recreation. That every form of life is unique

and warrants respect regardless of its worth to man. That man can alter nature and exhaust natural resources, and man must maintain the quality of nature. That lasting benefits come by maintaining the ecological processes and life support systems.

The Charter sets forth some general principles as follows. That nature shall be respected and its essential processes shall not be impaired. General viability of earth shall not be compromised, and population of life forms kept sufficient, and habitats safeguarded. All areas of earth and seas shall be subject to principles of conservation. Ecosystems and organisms as also land, marine and atmosphere resources shall be used with optimum sustainable productivity.

The Charter further calls upon mankind to follow functioning of natural systems. Planning activities for development must ensure conservation of nature. Long term plans must ensure subsistence and settlement of populations. Nature resources shall not be wasted. Living resources not to be used beyond their regeneration. Productivity of soil shall be maintained. Water shall be reused, recycled. Non-renewable resources to be used with restraint. Activities that have impact on nature shall be avoided. Environment impact assessment must be done of planning projects. Discharge of pollutants into nature shall be avoided.

The Charter shall be implemented by reflection in law and practice of states. Knowledge of nature shall be disseminated. Funds for conservation of nature shall be provided. Efforts shall be made to increase knowledge about nature. Military activities shall be avoided. The status of natural processes, ecosystems, and species shall be monitored. Actions in your state boundaries shall not cause damage to other states. Finally, each person has a duty to act in accordance with the provisions of this Charter For Nature

HAGUE DECLARATION ON THE ENVIRONMENT, 1989

(Concerns atmosphere, climate change. and global warming).

The Declaration says that right to live is the right from which all other rights follow. Today conditions of life are threatened by severe attack on earth's atmosphere. There is science evidence that there are dangers due warming of atmosphere, and depletion of ozone layer around the globe. The Vienna Convention of 1985 provides for protection of ozone layer. And 1987 Montreal Protocol that has established Intergovernmental panel IPCC by UNEP and WMO has started work on atmosphere changes. Also the UN passed on the Protection of Global

Climate a Resolution 43/53 in 1988, recognising climate change as a common concern of mankind. These climate changes can impact ecological systems, as well as most vital interests of mankind. To preserve the quality of atmosphere has become vital at global level.

Hague Declaration of 1989 makes the following principles for states to follow. a)Development must be done within framework of UN agency—IPCC. This agency will combat further global warming. b) This institution will conduct global research on warming. c)Decisions by IPCC shall be subject to control of ICJ. d)The countries those are told to repair deterioration of the atmosphere shall receive equitable assistance to compensate for bearing such burden. e)States shall negotiate to lay down legal instruments to follow above principles. In summary, all states and NGOs are to work together under IPCC to protect nature and the environment.

RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT

1992. (This is an important global agreement for Sustainable Development. Today, all economic development is sustainable development.)

Rio Declaration provides for following economic principles:1). Human beings are at centre of concerns for sustainable development(SD). 2. States have under international law and Charter of UN sovereign rights to exploit their own natural resources pursuant to their own environmental and developmental policies. Their national activities are not to cause damage to other countries. 3.) The right to development must meet needs of present and future generation. 4.)For SD, environment protection is integral to planning. 5.)All states must cooperate to eradicate poverty. 6.)Developing and least developed countries shall get international action for environment protection. 7.)States shall cooperate to conserve, protect and restore the health and integrity of Earth's ecosystems. 8.)To achieve SD, states must eliminate unsustainable patterns of development. 9.)States must cooperate to strengthen capacity building for SD by science and technology. 10)All citizens will be involved in solving environmental issues. Access to information on hazardous issues shall be shared by all. 11.)States shall make necessary laws, environment standards, management objectives based on needs of environment and development. 12.)States shall cooperate to promote open economic system that leads to economic growth. 13.)States

shall develop national laws regarding liability and compensation to victims of environmental damage. 14.)States shall not transfer to other states any activity that causes environment damage. 15.)The precautionary principle will be followed to protect the environment. 16)The polluter should pay the cost for repair of environments. 17.) Environment impact assessment must be done for big projects to assess impact on environment. 18.)States must share information on any natural disasters. 19.)States must inform other states who can have impact on environment by their activities, hold discussions in good faith. 20.)Women have a vital role on environment management and development. 21.)Youth should be involved with creative ideas to forge a global partnership for sustainable development. 22.)Indigenous people have vital role in environment management. 23.)Environment resources of people under domination shall be protected. 24,)Warfare is destructive of environment and sustainable development. States shall follow international law to protect environment. 25.)Peace, development and environmental protection are interdependent and indivisible. 26.) States shall resolve all environmental disputes peacefully and according to Charter of UN. 27.)States and people shall cooperate to implement principles contained in this Rio Declaration, 1992.

Second day lecture

Prof. Saligram Bhatt, Emeritus Professor of Law, delivered in Jammu University on New .

Sustainable Development Goals(NSDG) adopted by UNGA on 25 September, 2015

In view of global environmental problems, UNGA adopted after long deliberated discussions the following New Sustainable Development Goals to replace earlier adopted Millenium Development Goals. Along with Paris Agreement dated 12 December 2016, these goals provide a new charter by mankind for living on planet Earth. These NSDG are as follows: 1. End poverty in all forms everywhere in the world. 2. End hunger, achieve food security and nutrition, and promote sustainable agriculture. 3. Promote healthy life. 4. Encourage inclusive and quality education. 5. Achieve gender equality. 6. Ensure access to water. (India is planning in 2016 new water development and uses law and policy.)7. Ensure access to affordable, reliable, sustainable modern energy for

all. 8. Promote inclusive and sustainable economic growth. 9. Build resilient infrastructure, promote sustainable industrialisation, and foster innovation. 10. Reduce inequality within and among countries. 11. Make cities inclusive, safe, resilient and sustainable. (India has plans to develop new 98 smart towns to include population, industries, forests, water resources, free from air pollution, using public transport, infrastructure for science and technology. Chennai has asked for 12 new smart cities after flood disasters. Haryana has listed Faridabad, Karnal and possibly Gurgaon in this list. The criteria for selection is own innovative efforts to turn to smart towns. Chandrababu Naidu has asked top foreign and Indian architectural experts to provide new smart towns in new Andhra Pradesh on bank of Umravati river. Jammu has wonderful hill features of Trikuta, Vaishnav Devi hills and Jammu town itself with water, rain resources, mountain pastures, to design resilient smart towns.)12. Ensure sustainable consumption and production patterns. 13. Combat climate change. (Here we need health measures, new harvest for agriculture due excess rains or draught conditions. Rain harvesting. Use desert land for afforestation, make more forests and biodiversity parks, create citizens councils to ensure peace, respect and provide safety for women. adopt measures to deal with people who disturb public order, help security forces to make cities safe and beautiful. Make accommodation for time of earthquakes, floods, etc.). 14. Conserve and sustainably use oceans, seas, marine resources. (India has plans to develop its coastline for economic development, tourism, marine transport using wind tunnels. Also cooperate with Japan, US in Pacific Ocean peace and disaster management. Have cooperation with Middle East countries for ocean development. Have access to Central Asia via the Iranian sea port that India is rebuilding.)15. Sustainably manage forests, combat desertification, halt land degradation, halt biodiversity loss. (India has donated nearly 10 billion USD a few years in a global conference in Hyderabad on preservation of global diversity.)16. Promote inclusive societies. (This means rich and poorer sections of global society must share their livelihood together. India is a global example of a mixed society of rich and poor, that gives diversity, demand and development to the country. The World Bank has again said that India growing highest economic growth of 7.1 % of GDP. New skills universities are being developed to provide skills labour in India. Young India is able to help with young skills human resources in Middle East,

US, Canada, New Zealand, Australia. At the national level, we are developing federal competitive skills. That is the story of India today.) 17. Revitalize the global partnership for sustainable development. (SD is now a global movement for progress, environment improvement, environment protection, and for maintaining global ecological systems, and balance, with an ecological application to international laws.).

Prof. Saligram Bhatt. Email. bhattsaligram@yahoo.co.in Mb9650969576.

THIRD DAY LECTURE

Prof. Saligram Bhatt. Prof. Emeritus of Law, delivered in Jammu University In the Department of Environmental Sciences on Global Warming And Climate Change: Paris CO21 Agreement dated 12 December, 2015

Reasons for global warming and climate change on planet Earth

We have seen that Hague Convention 1989 first time made reference to adverse changes in atmosphere with changes in climates and impact on Earth's ecosystems. In 1988, the UN passed a Resolution warning mankind to care for climate change. An IPCC was formed to take action. In 1992, UN adopted Rio Declaration for economic development. It was an attempt by mankind for sustainable development. At the same time in 1992 the UN made the United Nations Framework Convention for Climate Change. UNFCCC. This convention calls for financial assistance to developing countries for environment protection measures. The Global Environment Facility and Green Climate Funds are associated with this work. The convention also considered how states can lower global temperature to reduce impact of climate change. By 1995, states realised that not much work was done to reduce global increase in temperatures. Negotiations were made between states. By 1997, states agreed on Kyoto Protocol. Under this Protocol, countries agreed to meet target for lowering emission of GHG like carbon dioxide, methane, nitric oxide etc. Targets were to be determined by states themselves. The principle of common and differentiated responsibility was accepted, when advanced countries had major responsibility for mitigation of GHG. The Protocol allowed states to trade their emission targets to other states; allowed states projects for clean development mechanism; made provisions for joint implementation of emission cuts. The parties to UNFCCC met at various places to review Kyoto Protocol. By 2015 beginning,

States were warned by experts from various countries including India to take drastic measures for mitigation, adaptation to keep global warming at 2 degree centigrade or lower to 1.5 degrees. Thus UN also adopted New Sustainable Development Goals, 17 in number to protect environment, adopt sustainable development, and remove global poverty. The most important global conference of 195 states was held in Paris on 12 December 2015, a historic Paris Pact To Save Earth. Let us see the prominent features of Paris Agreement, of December 2015.

Salient Features of Paris Agreement of 12 December 2015 for global warming and climate change

1. The Agreement is hailed to stop global warming and avert climate change, and start an energy revolution.
2. Hold global warming to 2 degrees Centigrade, 1.5 degrees if possible as compared to 1850 when Industrial Revolution started.
3. Developed world to contribute 100 billion USD a year to developing countries for mitigation, adaptation.
4. Developed countries will review actions in 2023 and thereafter every 5 years. Developing countries to do so voluntarily. India has submitted its action plan for target year 2030. to mitigate 33% of GHG compared to 2005. Other nations responsible for over 90% global emissions have declared their targets. EU will cut their targets by 40% from 1990 levels by 2030. US Will cut its emissions by 26% to 28% from 2005 levels by 2025, China says emissions will peak by 2030 and reduce thereafter. The 2 degree debate has the following background. Earth's average surface temperature today is 15 Centigrade. It is 0.8 degrees Centigrade higher a century ago. 2 degrees centigrade is agreed as bench mark beyond which Earth will experience conditions difficult for survival.
5. There will be science and technology transfer from developed countries to developing countries to mitigate GHG and help in adaptation due climate change and natural disasters.
6. Developing countries will be helped in capacity building.
7. The Paris Agreement is binding when states have agreed to lower emission of GHG and take action post 2020 to deal with climate change.

8. India's concerns are met, with reference to change in lifestyle of this civilisation based on high energy use. India has led a movement of states towards solar energy uses at global level to avoid fossil fuel uses.
9. Sustainable development is key to humankind for present and future generation use of natural resources.
Prof. Saligram Bhatt. bhattsaligram@yahoo.co.in Mb 9650969576.
_End of lectures 1)Four UN Declarations;2)New SD Goals 17;3) Global warming and climate change Paris Agreement, 12Dec, 2016. _

MISCELLANEOUS NOTES ON GLOBAL WARMING AND CLIMATE CHANGE

News from newspapers. Times of India–TOI, Deccan Herald—DH

1. The damage to Aravali forests near Delhi/Gurgaon will get back desert storms with dust. TOI 13Dec15. 2. The Paris Agreement is based on Intended Nationally Determined Contribution. INDC. Javedkar says Post Paris Pact has greater role for public. TOI 3Jan16. 3. If green cover is destroyed in Gurgaon, Delhi will also suffer situated next to Rajasthan deserts. TOI 13Dec15. 4. Govt should act to save Himalayas now. No Prof. G. Bala, Director Centre for Climate Change says in Indian Institute of Science, no in-depth study done for Uttarakhand and Kashmir floods. Whereas in US studies made with success on hurricanes floods due climate change. DH 16Dec15. 5. Livestock causes 15% of all emissions worldwide, say scientists. Need to cut meat, mainly beef intake. TOI 16Dec15. 6. UNDP calls MGNREGS as best job guarantee plan. The scheme provides direct jobs to rural people. TOI 16Dec15. 7. 2625 acres of forest land retrieved in Kashmir. This land was in illegal occupation in Kashmir. Minister of Forest, Ecology and Environment has said recently. 8. India getting ahead to China in air pollution. 15 out of 17 cities under pollution watch have poor air quality. Also red signal from NASA on air pollution in India, China. These cities in India are Mumbai, Hyderabad, Navi Mumbai, Agra, Chandrapur, Pune, Ahmedabad, Faridabad, Bangalore, Varanasi, Chennai, Kanpur, Lucknow, Delhi, Patna, Muzafferpur, Jaipur, TOI 16Dec15. 9. Supreme Court doesn't support odd/even formula for Delhi vehicles. 16Dec15 TOI. 10. IIT Kanpur research says diesel vehicles major

- source of pollution by particular matter PM. Harish Salve referred to diesel vehicles that cause 60% to 90% PM 2.5 (fine respirable pollution particles) Salve told SC that in winter major source of PM
2. 5 are vehicles and biomass burning. And in summer road dust, coal or flyash. Top two sources are road dust 38%, and vehicles 20%. Top two for NO oxide are industry stacks 52%, and vehicles 36%. TOI 16Dec15. 11. Eight groups of Secretaries from GOI are formed to implement New Sustainable Development Goals and COP21 Paris Pact principles. TOI 3Jan 16. 12. Modi gives five Es mantra at Indian Science Congress meet in Mysore on 3Jan16. These are Economy, Environment, Energy, empathy, and Equity. Science research will be made easier, he said. Economy, to finding cost-effective and efficient solutions. Environment, to keep carbon impact lowest, and impact on ecology the least possible. Energy, when our prosperity relies less on energy, and the energy we use keeps our skies blue and earth green. Empathy, when our efforts are in tune with our culture, circumstances, and social challenges. Equity, when science advances inclusive developments and improves the welfare of the weakest. I think above recommendations are most appropriate to develop smart city town (towns) in Jammu.
Prof. Saligram Bhatt <bhattsaligram@yahoo.co.in>.

PERSPECTIVES ON SUSTAINABLE DEVELOPMENT IN JAMMU

Lecture by Prof. Saligram Bhatt, Professor Emeritus, School of Law, Northcap University, Gurgaon. Lecture for students of Environmental Sciences, Jammu University.

Sustainable development is defined as use of natural resources for present generation needs, and needs for future generation. SD is also concerned with combating global warming and climate change. UNGA has on 25 September 2016 adopted 17 New Sustainable Goals to present environments, remove poverty, and improve quality of life.

Physical, geographic features of Jammu and Kashmir State

Area is 222, 236 sq. kms. This includes 78114 sq. kms under illegal occupation of Pakis, 5180 sq kms illegally given to China. At this time news reports are China making New Silk Route via POK to join Indian Ocean from China at cost of 40 billion USD to gain access

to Indian Ocean. Gilgit town is expected to be a port city. There can be great environment impact levelling down hills, connecting water bodies, rivers, and disfiguring large ecosystems.

Population in J&K was 125, 48, 926 in 2011 census. growth rate 23. 71 %. Urban population 25%. Literacy 68%. Capital, Srinagar and Jammu in winter. Languages are Kashmiri, Dogri, Gujri, Punjabi, Urdu, Balti, Pahari, and Ladhaki. Economy of state: 70% depend on agriculture. Paddy, maize, and wheate are main crops. Gram, bajra, jawar and barley are also cultivated. Crops are affected by climate change. New methods are introduced like drip irrigation, and rotation of crops depending on climate. State produces fruits. Horticulture has made progress in recent years. State has 20230 sq kms area of forests which is 15% of area under control of India. India has said in recent COP21 in Paris that its forests cover is increased to 24% of total area of India. The goal is 33% in future. Kashmiri handicraft are a major source of income. The energy projects from water sources are Salal Project, Dulhasti Project, Uri project, and Baglihar Project.

2. Jammu town population is given as 612, 163 in 2011 census

Town is situated on banks on River Tawi. Administration is by Municipal Corporation. Area of town given is 167 sq kms. Elevation 327 meters. Average weather has wind from NE, tempt. can be 3 degrees Celsius minimum and upto 40 degrees maximum, 84% humidity. Jammu has one airport, two major universities—Jammu University, Sher-e-Kashmir Agricultural University. Jammu has more population than Srinagar city. Total area of Jammu is 3097 sq kms. Centre of Science and Environment(CSE), a Delhi based NGO says Jammu city suffers 90% air pollution from nearly 8 lakh registered vehicles. Jammu is a compact town surrounded by hills, Himalayas, Trikuta Hills, Maa Vashnav Devi. That makes it beautiful. But air quality in recent years has made it one of polluted cities. CSE says air pollution is increasing. A survey in 2012 has shown PM matter at more than 120. Safe limit is less than 100. Besides, diesel vehicles need to be stopped at once. They should not pollute Jammu town air quality. J&K Envis—a body to control pollution must act now based on Supreme Court, and NGT recommendations. In general, NGT has asked all states to report steps being taken for control of air pollution. In case of water resources,

there is a state Act for uses of water resources. Yet Floods in 2014 in Kashmir, and partly in Jammu have made necessary to follow new ideas for water resources management being considered by the GOI Ministry of Water Resources. That calls for conservation, recycling, making new storage ponds, lakes, and rain harvesting. It is reported that 27 states have made laws for rain harvesting. State must also plan for climate change. For land use, new ideas are needed for real estate for affordable homes. Land degradation is to be avoided. Forests need vast expansion to lower GHG impact. New smart town around Jammu need to be planned, to avoid Jammu city becoming a megacity like Delhi. Public transport, electric rickshaw, metro railways will keep Jammu green. Jammu has vast potential for tourism, especially at Maa Vashnav Devi Temple. Horses used by pilgrims have created pollution and waste. That needs cleaning. More sports facilities are to be provided to youth in particular. Moreover, links to nearby Himachal Pradesh, Punjab, Rajasthan Haryana are to be promoted by rail, aviation, to develop more tourism, trade and transport. Jammu to Ladakh links are growing. A tunnel to connect Leh town to Kashmir year around has started being made at huge cost. In brief, SD in Jammu is a challenging task. The youth can recall the brave history of Dogras when Dogra leader Zorawar Singh fought Pathans and occupied Kabul. That spirit of enterprise is awakening to make Jammu, Kashmir and Ladakh State a beautiful, brave, smart state with many smart towns where people live in a multicultural heritage, and make state safe from poverty. And safe from ill-fated lawless terrorists coming like thieves from nearby Pakistan, who attempt to harm our peaceful life and economic growth.

Jai Hind. Prof. Saligram Bhatt<bhattsaligram@yahoo. co. in>

Chapter 3

JAMMU ENVIRONMENT PROTECTION AND SUSTAINABLE DEVELOPMENT

Paper for Jammu University Seminar on 28 Feb 2016 by Prof. Saligram Bhatt. Fmr Hony Prof. Int. Law, Space Law, JNU, New Delhi. UN and World Bank Adviser in Africa, Central Asia; Legal Specialist And Secretary, Environmental Planning And Coordination, DST, GOI New Delhi.

INTRODUCTION

This paper has focused on adoption of UN New Sustainable Development Goals on 25 September 2015, and recent steps by India for SDG, and special measures needed in Jammu for environment protection and meeting SDG.

Jammu has an enviable geographic location at foothills of Himalayas nearby, two important rivers flowing in this area like Tawi and Ravi that give enough waters for agriculture and human uses. Jammu has fertile towns located around it like Udhampur, Batot, Ramban, Banihal, etc that should be a great positive factor to develop these satellite towns as what is called now as smart towns. A smart town is described as one with pure air, pure water, forests and biodiversity, some tourist centres like Maa Vashnav Devi with Trikoota Nagar in background. Some skill development centres can easily be started to promote local industries like making shawls, hill garments, juice factories, etc.

I saw Jammu recently. It was clean with much less garbage and waste lying on roads. Prof. Anil Raina HOD Environmental Sciences

said cleanliness was due recent rains in jammu. However, Jammu people are aware of global and national issues regarding environment pollution.

Let us recall New Sustainable Goals(NSG) adopted by UN on 25 September 2015.

These are 17 in number as follows: End poverty. End hunger. Ensure healthy life. Ensure inclusive and quality education. Ensure gender equality. Ensure access to water. Ensure affordable energy to all. Promote inclusive and sustainable economic growth, employment. Build resilient infrastructure, promote sustainable industrialisation, and foster innovation. Reduce inequality within and around countries. Make cities inclusive, safe, resilient, and sustainable. Ensure sustainable consumption and production patterns. Combat climate change. Conserve and sustainability use the oceans, seas, marine resources. Sustainably manage forests, combat desertification, reverse land degradation, halt biodiversity loss. Promote inclusive societies. Revitalise global partnership for sustainable development.

Above new SDGs must be seen by students of environment science with great insight. As these goals will ensure SD in the world. SD is defined when humankind uses natural resources as needed by present generation, but keeping due regard to needs of future generations. Let us examine above goals with what India has begun in its planning of environments and for SD. I cite here a few important measures as follows: India has adopted above 17 goals for SD. India has given leadership to change global lifestyle to create harmony and conservation of nature. India is leading nations in solar energy uses for the world that will eliminate GHG given by fossil fuels and petrol vehicles. India has made cooperative agreements with various countries to protect oceans from piracy and use oceans for peaceful trade and commerce. India is developing its coastline for economic uses, tourism, and creating harbour towns to release pressure on land areas. India has programme to make 100 smart cities, 70 new airports for SD. ISRO has been given task to monitor pollution levels in the country and combine with digital India. The ENVIS corporation will coordinate this work. GOI is also started monitoring ground water levels in 8 states to take measures for rain harvesting. Indian forests area has increased to 24% of national area from 18% it was some years. The target is to achieve 34% in near future.

A FEW RECOMMENDATIONS FOR JAMMU UNIVERSITY SEMINAR

I suggest following steps for sustainable development in Jammu province. First, get Jammu town a status of new smart town. Second, develop satellite towns around Jammu to make them depend on their own economic resources. Make some towns beautiful with forests, biodiversity. Third, make Maa Vashnavdevi pilgrimage for global tourism. Provide more facilities for pilgrims to stay. Develop its forests areas. Fourth, get Jammu town connected with its satellite towns by metro railways to avoid pollution by vehicles. Fifth, avoid private cars. There are 8 Lac vehicles in Jammu. These will choke people by bad air. Jammu should learn from Delhi experience. People must surrender own cars, use CNG public transport, cycles, electric rickshaw. Cars will vanish from all world cities. Sixth, make water ponds, lakes to store rainwater. Seventh, use desert areas for growth of food and fruit trees. All official lawns must grow seasonable vegetables instead grass. Eighth, vegetarian diet should be promoted to save grass for cows to get more milk. Ninth, water use should be minimised. New taps and flush systems use. Sewage must be treated to make manure for agriculture. Tenth, waste management must be learnt to produce energy from waste. Eleventh, poor homes must be established to provide food and shelter to those who need, and public donations encouraged. Twelfth, sports and sports grounds must be encouraged for youth and others. Thirteen, security and peace in towns must be community based to help security agencies.

Chapter 4

HARYANA ENVIRONMENT MOVEMENT

SUSTAINABLE DEVELOPMENT PHASE I

Prof. Saligram Bhatt. Adjunct Prof. Law, School of Law, Northcap University, Gurgaon, Haryana.

INTRODUCTION

In this article, I propose to write briefly about the environment movement and prospects for sustainable development in Haryana. It is nice to look at the geography and physical features, natural resources, that shape Haryana environments. Science and technology is being used for SD and removal of poverty. New smart cities are being carved out like Faridabad, Karnal and possibly Gurgaon. Haryana may on its own initiative develop more smart cities with adequate housing for all, food security, water resources, public transport, forests and wildlife, energy sources like solar, wind, etc. India is getting ready to declare internally determined mitigation of carbon output to the environment. The Prime Minister Sh Modi says the share and responsibility should be based on justice to all human beings. Moreover, lifestyle matters for saving the environment and reduce global warming. He has message for western countries to devote to SD to save the Earth. There is a climate conference in the offing in New York city next week, as a preliminary to the UN Climate Conference in Dec. 2015 in Paris that will produce a new treaty/global agreement to reduce GHG and carbon dioxide that is cause of global warming. To know and understand Haryana environment, it is necessary to know what is happening elsewhere in the world to promote SD. We do have to protect the global environment. Yet, the students of law and science should see the new hope for SD and understand the

prospects of new reforms in environmental laws to meet the needs of humans. As Gandhiji has said, mother earth has everything to meet our needs, but not our greeds. In my next lecture, I will start talking about Haryana environment movement and efforts for SD.

Chapter 5

MANAGING THE GLOBAL ENVIRONMENTS: PERSPECTIVES ON CLIMATE CHANGE CONFERENCE PARIS, DECEMBER 2015

Prof. Saligram Bhatt. Adjunct Prof. Law, ITMUniversity, Gurgaon, Haryana; Formerly Honorary Prof. International Law, Prof. Space Law, JNU, New Delhi; UN Consultant in Africa; World Bank Adviser Tajikistan; Deputy DGCA India Retd.

INTRODUCTION

This article analyses the global environment movement of our civilisation. It makes a study of climate change that has created serious threat to the stability of our planet Earth. It therefore exams developments in regard to efforts made by states in recent time to reach an agreement to reduce carbon emissions and reduce global warming which is the cause of climate change. Our attempt is also to study the national approach adopted by India to respond to threats posed by global warming. The article lastly examines the prospects of global climate change talks by states due to be held in Paris in December 2015.

The entire world is looking forward to Paris Conference, 2015 with much hope. The time has come for humankind to respond urgently to the demands to be met for saving planet earth. Let us therefore study the global environment movement of our times that started with the UN Declaration on Human Environment made by the United Nation in Stockholm in 1972.

THE GLOBAL ENVIRONMENT MOVEMENT

It is necessary to recall the events that led to modern concern for deteriorating global environments. We thank Prof. Julian Huxley who

led a group of scientists in UNESCO to think about the biological issues involved that have impacted the mother Earth. He was keen to study the planet Earth with biological foundations of science. . Upto 1955 when Prof. Albert Einstein died, physics was at the centre stage of global science. After 1955, biologist began to group together to examine earth science with biological foundation. Outer space exploration in October 1957 by Russia was during IGY programme started by about fifty states to know more about earth sciences. Julian Huxley called a series of scientific conferences in UNESCO. The most important conference was held in 1968 called Biosphere Management Conference attended by leading scientists. UNESCO also issued a book called “In Partnership With Nature”. The book had chapters on environment crisis in various sectors of environment, and called for establishing harmony with nature. Prof Julian Huxley called another global conference in 1971 in New York on the theme of “Science And Synthesis:A Conference To commemorate the 10th death anniversary of Einstein and biologist Chardin. ”. The conference was largely attended. It laid focus on the link between science and history, a point made by Prof. Darlington. The overall outcome of the conference was to pronounce a biologist view of world.

Ever since the UNESCO conferences, the world has largely accelerated studies on biological problems of earth sciences and natural resources like land, water, air, bio-diversity, forests etc. Another leading scientist Prof. Iliya Perigogine a Noble Laureate drew attention to the impact of over seven billion people of the world upon the earth and its resources. In his book *Order Out of Chaos:Man’s New Dialogue With Nature*, Prof. Perigogine was forthright in warning mankind about man’s adverse impact on the global environments. He called for conservation of nature. The UN Declaration on Human Environment in 1972 was a biologist declaration made possible by most of scholars who had worked with Julian Huxley in UNESCO. Though the Declaration of 1972 was a product of global politics, yet it has a wonderful impact of UNESCO scientists and biologists. It seems to us that the UN Declaration 1972 and the Biosphere Management Conference of 1968 remain true landmark historical events. These two global events also made a true assessment of the state of global environments, and measures needed to restore nature to its original pre-industrial state. Had UNESCO recommendations been followed in letter and spirits, the

world would not have had to face a crisis situation of climate change and its consequences like Paris conference 2015. Frankly speaking the conference is discussing matters relating to the survival of this civilisation. The Report for UN Conference 1972 was made by Renee Dubas, a biologist of global reputation, and Madam Barbara Ward, a very distinguished economist. The title of UN Report made by the aforesaid scholars was:Only One Earth;The Care And Maintenance Of A Small Planet Earth. ”I recommend this report to all concerned. To gain insight on environment issues, our leading universities may hold seminars to assess the proceedings of the Biosphere Management Conference by UNESCO in 1968. It is worth our academic review after over forty years though the environment problems have much exacerbated. The assessment and scientific review can be achieved by smaller group of scholars. Scholars endowed with a wide vision on environmental problems involving various academic disciplines of law and science. To see the merits of holding international conferences by thousands of delegates seems unnecessary. So far usually a large number assemble to take part in modern global conferences relating to environment management. The conference in Peru has invited protests by local population due impact on environment and waste created. The Science Congress Sessions held annually in India also comprise of a few hundred delegates. No meaningful discussions can be held. Of course the general purpose of the congress is to provide opportunity for delegates to meet each other. Apart from general meeting, academic subjects can be bifurcated and research proposals handed over to selective groups attending the congress from various universities. The Noble Foundation for example held a conference by a selected group of scholars from different disciplines to discuss an important theme for mankind :”The Place Of Values In A World Of Facts”. This conference had just about twenty or so eminent experts. The report produced was a useful contribution to knowledge.

THE THEMES AND PRINCIPLES RECOMMENDED IN 1972 STOCKHOLM DECLARATION

The Stockholm Declaration has become a world charter to protect and manage global environment. States have adopted it in their constitution laws. India has incorporated this UN Declaration in the Environment Act 1986. Education institutions have held seminars and

integrated environmental laws with ecological science. A seminar was held in India International Centre, New Delhi, by JNU, MOEF, and the Indian National Science Academy in 1986 on the theme of law, science, and environment convened by present writer then working in JNU. The Proceedings were published and recommendations made by leading experts. This seminar was held during the formative period of modern environmental law. The participants included jurists like Justice V. R. Krishna Iyer, then Judge of Supreme Court, Dr T. N. Khoshoo, Secretary MOEF, Prof. R. P. Anand, etc. Dr Khoshoo was also the President of India Science Congress. In that capacity he delivered the Presidential address of Science Congress in 1986 on the subject of Sustainable Development in India. His Presidential Address laid down the policies to be followed in India for development and environment protection. He wrote a book on Gandhiji and environment movement for which he received the UNEP award. Prof. M. S. Swaminathan, among other leading scientists, has commended Dr Khoshoo's address to Indian Science Congress. Khoshoo is taken as a kind of a pioneer scientist for introducing the concept of sustainable development in India. He expanded and developed MOEF to modern global standards. He involved ISRO and its Chairman Dr Satish Dhawan for monitoring natural resources, droughts, floods, forests, and land use for sustainable development. I had occasion to work on a research project by MOEF on water resources management and environmental laws. The book on this project was published in 1986.

The Themes Proclaimed In Stockholm Declaration, 1972

The Stockholm Declaration made reference to certain themes proclaimed before recommending general principles of environmental laws. The themes seem important to remember in contemporary historical period. They include following: that "man is both creature and moulder of his environment which gives him physical sustenance and affords him opportunity for intellectual, moral, social and spiritual growth." In this context of human spiritual growth, the noted global historian Prof. Arnold Toynbee makes an observation. While making a survey of our civilisation Toynbee says that man has lost contact with his soul and has been overcome by material wants. On a visit to India before retirement in 1960s, Toynbee wrote in Hindustan Times an article entitled "Man And His Soul". He said that in his books on A Study

Of History, he found that human spirit has been more important than matter that has impact in history. He recommended that man has to seek harmony with nature, before making a search for his soul. He has also said elsewhere that human quest for spiritual understanding is not based on any material goals, but a quest to know more about nature and reality. And there seems one spiritual reality for humankind, he observes. He has recommended meditation as an art of living. This art, Toynbee says, was prevailing in the West in middle ages. But West seems to have lost this art, he says. . So it was for India to teach this art again to the world, Toynbee concluded. Toynbee was delivering Azad Memorial Lecture in New Delhi in presence of Jawaharlal Nehru, and other distinguished leaders of India on the subject of "One World And India".

The practice of yoga has recently become universal to reduce stress on humans that leads to global violence. Scientific evidence supports yoga practice promoting human health and stress management. Worldwide yoga practice has been demonstrated by Indian saints. Prime Minister Narendra Modi who himself practises yoga has helped demonstrate this art in global society for promoting peace. In a unique initiative, Modi has made United Nation declare June 21 as a day to celebrate yoga for world peace.

Prof. Arnold Toynbee would have been happy to see humankind making yoga practice universal. Because yoga helps humans understand human spirit, leads to harmony with nature and world peace. And search for peace has no motivation beyond itself, says the celebrated historian. Toynbee wrote other books that concern us today. These include *Civilisation On Trial*, *Change and Habit: The Challenge of Our Time*, and *Mother Earth*. The last one he wrote shortly before he died. His historical advise to to our civilisation has been to control global technology, before technology poses threat to our planet. As an example, we see today ground vehicles in some cities like New Delhi or Beijing emit GHG causing air pollution which has become a grave danger to human health and life in general. People are leaving their habitat for places where there is no threat to human health. It is reported that 13 out of 20 most- polluted cities in the world are located in India. So we have to mould our national environment quickly to make all our habitats liveable. In the process, we will see a beautiful India emerging, full of forests, and landscape that goes with nature. Why not take off all such

private polluting vehicles from operation, and replace them by public transport that runs on non-polluting energy sources like electricity, solar energy, etc. Why not start walking or cycling. There is no time left to postpone decision-making. In winter particularly people cannot breathe with smog around. The western world has taken new measures to adapt to climate change. Due frequent storms from the nearby sea, in New York people have constructed hill to prevent hurricanes flooding homes. The Globe and Mail newspaper in Toronto, Canada has on 18 July 2015 a leading article on climate change and adaptation needed by mankind. It is titled "We have a management-by-disaster mentality. What we need to do is take a different approach--to avoid having problems in the first place." In cities, the paper says, we have no choice except adapting to extreme weather. "The key to successful climate change strategies, is melding infrastructure development with social resilience." In India there is need to plan for such advance planning to meet natural disasters as in the west.

The second theme of the UN Declaration says that both aspects of natural and man-made environment are essential for human well-being. Protection and improvement of human environment is a major issue throughout the world. The third theme says that man needs to use his environment wisely for benefits of development and to enhance the quality of life. Fourth theme points out that many environment issues are caused due to under-development. It was necessary for states to reduce the gap in development. The fifth major theme refers to control of global population. Population has impact on the preservation of environment. Hence appropriate policies need to be adopted for this purpose. Yet adequate population is required to promote social progress and economic growth. "Of all things in the world, people are the most precious", says the UN Declaration. It says that people can improve environments with the help of science and technology. This is a vital proclamation that inspires and creates hope for humankind. India has totally adopted a policy to use population for national needs. For this purpose new skills are being taught to the working class for employment leading to economic growth. India's working class has scientist, engineers, and labour class trained with various skills who become plumbers, electricians, gardeners, agriculture workers. The skilled workers can help transform world economy. The environment can also be improved by them. Employment can be generated on a

mass scale, especially for those workers who possess lower education standards. Healthcare is being revolutionised in India. By awarding medical degrees and training for shorter periods, medical facilities can be established in remote villages, and help rural poor class in primary health care services. The Prime Minister Modi has said recently that skills training for unemployed population should be considered as a kind of war against poverty.

The 6th theme has a note of warning to mankind. It informs that "A point has been reached in history when we must shape our actions throughout the world with a more prudent care for the environmental consequences." "Through ignorance or indifference we can do massive and irreversible harm to the environment on which our life and well-being depends. . Conversely, through fuller knowledge and wiser action, we can achieve for ourselves and for our posterity a better life in an environment more in keeping with human needs and hopes." These are philosophical words of wisdom. It was Gandhiji who said long ago that mother earth can provide all for human needs, but not for human greeds. The present global economic policy is growth oriented; it is not based on human needs strictly. Human needs ought to be tailored to what mother Earth can provide or sustain. Nature conservation has today become an urgent necessity with the impact of seven billion people on global environment and natural resources. Prof. Iliya Prigogine the Noble Laureate scientist called for man's new dialogue with nature in view of great increase in world population. In his book *Order Out Of Chaos*, he also recommends Gandhiji gospel of non-violence and peaceful uses of global science and technology for world society.

The 7th and final theme of the Declaration points out that every citizen of the world, all communities, enterprises and institution have individual and common responsibility to save environments and help achieve sustainable goals. The Conference also made reference to states to exert common efforts for preservation and improvement of global environments.

It maybe emphasised that above proclamations in UN Declaration 1972 touch upon some urgent issues and themes related to global environment management. These themes are laudible and make the most objective assessment of global environment movement of our times. . They have much relevance in the crowded and polluted world that we have made. These themes impose heavy responsibility

on states and people of the world. They provide guidelines for forthcoming global deliberations of Paris Conference in December 20. The common wisdom of mankind is available to help states to find ways to protect mother Earth, and save this civilisation for millions of years ahead.

Principles Recommended In UN Declaration on Human Environment, 1972.

The principles recommended to states are summarised as follows. First, that man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being. Second, the natural resources including air, water, land, flora and fauna must be safeguarded for the benefit of present and future generations. Third, the capacity of earth to produce vital renewable resources must be maintained. Fourth, the heritage of wildlife must be protected and nature conservation promoted. Fifth, non-renewable resources of earth must be used carefully so as not to exhaust them. Sixth, the discharge of toxic substances need to be controlled so as not to exceed the capacity of earth to render them harmless. Seventh, States shall take steps to control pollution of seas. Eighth, Economic and social development is required to improve the quality of human life. Ninth, natural disasters in underdeveloped can be prevented by providing adequate financial assistance to them in good time. The Himalayan disaster in Nepal is a good reminder how poor countries need financial assistance. Tenth, in developing countries there is need for stability of prices for primary commodities and raw material. By now the world has seen that even in advanced countries, the stability of prices for food and affordable homes has shown new trends which ordinary citizens cannot bear with comfort. Eleventh, environment policies of all states should help development of less developed countries. Twelfth, resources should be made available to developing countries to develop and preserve the environment quality. Thirteenth, States should adopt an integrated and coordinated approach for development to protect the environment. Fourteenth, rational planning is needed to find a balance between needs of development and environment protection. Fifteenth, planning must be applied for human settlement so as to enhance environmental quality. Sixteenth, demographic policies should be applied to avoid excessive population concentrations causing adverse impact on the

environments. Seventeenth, national institutions should be entrusted for planning and management of national environment resources to enhance environmental quality. Eighteenth, science and technology should be used to avoid environment risks and to help environmental issues for common good of mankind. Nineteenth, education on environmental matters should be given to younger generation and adults for improving and protecting the environments. Twentieth, scientific research and development in the context of environmental problems must be promoted by all states. Twenty-first, States have under the UN Charter and international law sovereign right for use of own natural resources. Twenty-second, States shall promote cooperation in international law to meet liability for damage to environments of other states. Twenty-third, States should consider system of values prevailing in each country before applying standards normally used in advanced countries. Twenty-fourth, international matters concerning environment protection and improvement must be handled in a cooperative spirit by all countries. Due account should be taken of sovereignty and interests of all countries. Twenty-fifth, international organisations must play a coordinated, efficient and dynamic role for protection and improvement of the environment. Twenty-six, lastly the global environments must be spared the effects of nuclear weapons and weapons of mass destruction. (1).

Some Other Important Declarations By UN On Global Environments

Before we study the prospects for Paris Conference 2015, reference is made briefly to few more UN Declarations concerning the global environments. These include: the World Charter For Nature, 1982; the Hague Declaration On The Environment, 1989; Rio Declaration On Environment And Development, 1992; Johannesburg Declaration For Sustainable Development, 2002; Rio Declaration for Sustainable Development, 2012.

The World Charter for Nature, 1982

This Charter for Nature reminds that mankind is a part of nature, and life depends on the uninterrupted functioning of natural systems which ensure the supply of energy and nutrients. That civilization is rooted in nature. That every form of life is unique and warrants respect regardless of its worth to man. That lasting

benefits from nature depend upon the maintenance of essential ecological processes and life support systems. (A biological view of planet Earth indeed.) That degradation of natural systems lead to breakdown of economic systems and social, political framework of civilization. That conservation of nature and natural resources leads to justice and peace in the world. The Charter recommends certain principles. That nature shall be respected and its essential processes shall not be impaired. That genetic viability of earth shall not be compromised. That both areas of earth, land and sea shall be subject to these principles of conservation. That nature shall be secured from degradation due warfare. It lays down certain functions which briefly stated points out that “In the decision-making process it shall be recognised that man’s needs can be met only by ensuring the proper functioning of natural systems and by respecting the principles set forth in the present Charter.” While implementing the Charter, states shall broadly disseminate knowledge of nature, particularly by ecological education. All planning strategies shall be based on conservation of nature, and knowledge about ecosystems. The present writer wrote an extensive article published in Indian Journal of International Law, 1982, with title: Ecology and International Law. Its purpose was to promote an ecological approach to the study of international law between nations. Ecology is defined as a relationship of living organism and their adaptations to environment. This article is valid today in the context of global environment problems. . It combined and integrated law and science. It aimed to prove unity in diversity of global life and civilization. It combined ideas of East and West. As Rabindranath Tagore says in his book Creative Unity, East offers West its philosophy and mysticism. And West provides ideas on science and technology. The combination of ideas promotes world peace and spiritual control of technology.

Hague Declaration On The Environment, 1989

Hague Declaration is in forefront of the studies of environment movement and climate change. It refers to dangers due global warming and depletion of ozone layer. It refers to right to live from which all other rights stem. It says further that “Today, the very conditions of life on our planet are threatened by the severe attacks

to which the earth’s atmosphere is subjected.” It refers to dangers from global warming and depletion of ozone layer that protects the earth. For the purpose of global warming, the UNEP and WMO have established an intergovernmental panel on climate change—IPCC. The UNGA has passed Resolution 43/53 for the protection of global climate in 1988, recognising climate change as a common threat to mankind. States have agreed under this Declaration to protect nature and the environment, and follow IPCC recommendations. It calls on industrialised nations to help the developing countries. It announces certain principles to follow by states. The principle of developing within the United Nation framework, and creation of institutions by states to combat global warming. To circulate to states any information derived on global warming. To promote effective implementations of global decisions. That states who need to protect environment causing burden upon such states, shall receive fair and equitable assistance to compensate them for bearing such burden. That states negotiate to draw legal documents to follow these principles.

THE RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT 1992

The Rio Declaration is a major step by mankind for promotion of sustainable development (SD). It calls for establishing a new and equitable global partnership through new levels of cooperation between states and key sectors of societies and people. It says international agreements will protect the integrity of global environmental developmental systems. It recognizes the integral and interdependent nature of Earth, our home. It says that human beings are entitled to a healthy and productive life in harmony with nature. Hope that this makes for a definition for sustainable development, a term not clearly understood by decision-makers. It lays down 27 principles to follow for development. These include state responsibility not to damage environments of other states, to ensure environmental needs of present and future generations, to protect the environment in pursuit of SD, to eradicate poverty, to help developing countries, to cooperate to conserve, protect and restore the health and integrity of Earth’s ecosystems, promote demographic policies and a higher quality of life, to exchange science information about the Earth, create public awareness, to lay down environment standards that should reflect the environment and

development context to which they apply, support open economic system and economic growth, deal with challenges by consensus method between all states, develop national laws to help victims of pollution, to adopt precautionary approach, and polluter pay principle, to make environment impact assessment, to notify environment disasters, to promote women for development, to involve youth, involve indigenous people, to protect natural resources, promote peace, development and environment protection, to resolves disputes peacefully between states, and, to promote cooperation between states themselves and develop international law for sustainable development.

The Jonhansberg Declaration 2002 and the Rio Declaration laid further stress on sustainable development. There was attempt to reduce the emission of green house gases especially carbon dioxide under UN Framework Convention on Climate Change, 1992. This debate has remained unresolved till today. At one time the states agreed to apply the principle of common but differentiated responsibility for mitigation purposes. But this principle has been replaced by states accepting individual responsibility for reducing green houses gases. This matter is open to be discussed in the Paris Conference to be held in December, 2015.

Prelude To The Paris Conference On Climate Change December 2015

Here we will discuss developments during last few years leading to climate change conference in Paris in December 2015. We will also make reference to dangers posed to mankind by climate change due global warming.

1. We have just received an important report from Oslo by Alister Doyle on 13 July 2015 that warns that climate change be taken seriously as national security. The report is produced by 60 experts from 11 countries including Britain, the US, China, Russia, and India. (2). The report says climate change be taken seriously as a threat to national security, or public health. by rising temperatures. Major threats are for crop failure, rise in sea levels, and heat waves. Climate change must be treated like threats from nuclear non-proliferation, counter-terrorism, and conflict prevention. The Greenland ice sheet, Arctic ecosystem, and tropical coral reef are endangered by rise in temperature. The report finally warns that world is not on track to limit greenhouse gas emissions in order to keep temperture within UN limits of two degree Celsius (3).

6 F) above pre-industrial times. The world is likely to follow a medium to high pathway for emissions for next few decades.

2. India 's Position At Paris Conference 2015 It may be recaqlled that the UN Conference on Climate Change in its 19th conference on 29th April 2013 asked states to provide legislation for climate change mitigation. (3). . . The focus was for energy security, resource efficiency, vulnerability to climate impact, potential for green growth, and advantage for growing markets by climate change legislation. India has taken measures for assessment of climate change on water resources, agriculture, forests and human health. (4). The national action plan for climate change has eight core national missions as follows:Solar energy mission;mission for enhanced energy;mission for sustainable habitat;national water mission;national mission for sustaining the Himalayan Ecosystem, that covers forests, biodiversity in the Himalayan region. (5). Major purpose for climate change response is for poverty removal. The special areas for response are water resources, agriculture, health, coastal areas, forests, and disaster management response. (6). Courts in India have generally approved the right to clean environment under Article 21 of the Indian Constitution. The Supreme Court has given a favourable decision in 1992. (7).
3. India has undertaken a dynamic programme to meet various challenges arising out of climate change. Disaster management system has been improved. Poverty removal steps are underway. The Mahatma Gandhi Rural Development Programme provides employment to pooper section of society. Their labour is used to make infrastructure, roads, plant trees, remove soil erosion, make water ponds out of rain water for use in agriculture. New 100 cities are being planned for sustainable development in the country. New 70 airports are developed to improve transportation to special economic zones. Energy resources are improved. Solar enery is developed in mass scale. Trade with neighbouring countries is developed on the borders. Coastal areas are planned to be developed for trade, tourism, etc. Metro transport is spread in major cities. India follows active cooperation for environment protection programmes with SAARC countries. Space exploration has outstanding contribution to environment management. Space communication, education

has increased economic growth and food security. India has made changes to land laws, forest laws, water laws, and air pollution control laws. India is expected to spend 834 USD billion for reducing carbon footprint. (8). The IPCC Chairman says that UN climate goal is feasible but energy reform is needed. (9). On 19 July 2015, Prime Minister Modi has announced three missions for India at a cost of four lac crores. These include development of over 100 smart cities. New housing scheme for all by year 2022. And urban transformation (AMRUT). This is a movement for urbanisation in India. India has 40 per cent population who live in cities. Urban development is an opportunity and a necessity to help all sections of society, especially the poor, says the Prime Minister.

4. India Makes Its Position Clear In Talks Held In Lima In December 2014. India has made its concern clear for poverty removal and food security in Lima talks held in December 2014, prior to final deal making Paris Conference of December 2015. The chief delegate from India Mr Susheel Kumar referred to the five-point programme to combat global warming based on adaptation, mitigation, finance, technology transfer, and capacity building. (10). India has insisted for its right for economic growth. India said it will not compromise on basic principles of Kyoto Protocol that provided for higher responsibility for advanced states for mitigation. The Indian delegate insisted on equity and common but differentiated responsibilities and respective capability—CBRC—RC as basis of climate deal in Paris. These principles are based on United Nations Framework Convention on Climate Change (UNFCCC). (11). The IPCC had put up proposals at Lima Conference as follows: Fossil fuels to be out of use by year 2100, GHG to be cut by 40 per cent to 70 per cent by 2050 from the year 2010 level, GHG should be zero by 2100 to keep temperature below 2 degrees centigrade, and, increase clean energy share—solar, bio, nuclear, from existing 30 per cent to 80 percent. (12)

US and China have agreed for emission cuts voluntarily. US has committed to 26-28 percent cut below its level of 2005 by year 2025, and China committed to capping its emissions by 2030. India has low share of global carbon emissions of 7 percent compared to China 28 percent and US 14 percent. (13). EU has made a recent declaration to cut its GHG by 2050, and eliminate fossil fuel by 2100. US has also announced a grant

of 3 billion USD for Green Climate Fund to be used by poor countries. Other donor countries are Netherlands, Sweden, France, Germany, South Korea. According to UN report, the adaptation cost for poor countries is growing. (14). It may hit two to three times of estimated cost of 70 to 100 billion USD per year by year 2050. The Green Climate Fund has a goal of 100 billion USD per year. India needs 834 USD for next two decades to reduce country's carbon footprint and move on to low carbon and environment friendly growth rate, says the Planning Commission of India, now called Niti Ayog. (15).

THE FINAL STORY ABOUT CLIMATE CHANGE

1. The climate change is real and happening, says the report of an academic seminar in India attended by JNU, IIT Delhi, IARI, and UCAS Bangalore. (16). There is a global environment movement to establish harmony with nature and overcome global warming and ill effects on this planet. (17) India has laws made to protect environments. As early as 1972 India established a National Committee for Environment Planning and produced an excellent report that suggested reform of laws and controlling pollution. Today India has the Environment Protection Act 1986, MOEF and Climate Change Ministry, a vibrant judiciary to enforce environment laws, and the government that is aware of its environmental responsibilities. The major goal of India is to balance economic growth with environment protection.
2. Our conclusions are optimistic. We suggest economic growth based on ecological planning. From our analysis in this paper, we feel that economic growth can promote better environment. This view should prevail in the Paris Conference in December 15. The Times of India have done substantial research work on global warming and by their timely publications. The paper cites approvingly Lord Nicholas Stern who has written in his 2006 academic study report Better Growth, Better Climate: The New Climate Economy Report, of the Global Commission on the Economy and Climate. The Report says that it is possible simultaneously to prevent climate change and augment economic growth. (17). The states are agreeable to provide level of cut for emissions in what is called Intended Nationally Determined Contributions (INDC). The states have not given up principles of common responsibility and equity, and the need for cooperation.

The developing countries have moral standards in their favour compared to the developed who are historical polluters. The developed countries have produced in the global environments a large backlog of carbon in the atmosphere since 1850, the beginning of industrial age. Their share for emission cuts has to be higher. And they have technology to shift to non-polluting energy resources. US and Canada seem to be moving in that direction. Russia too has nuclear energy to cut emissions of GHG. EU has already shown much interest in emission cuts to save the environments. So we see great hope for mankind for new sustainable development. The steps taken by India for poverty removal and food security are worth emulating by the entire world. Besides, conservation of nature and resources is helpful for stable environments for future.

The environment movement has thrown up new awareness for economic growth based on ecological considerations and international cooperation. Outer space exploration has further changed global economics by remote sensing of natural resources. It has helped monitor new developmental laws for air, water, land, and biodiversity. More space scientists are needed trained in new global economics based on sustainable development. The UNISPACE III conference in 1999 in Vienna chaired by then ISRO chairman Prof. U. R. Rao produced a global report on space exploration for human benefits in 21st century. It has all the vision for economic benefits, especially for the developing countries. International cooperation is also needed in disaster management and adaptations to climate change. We are happy to have leadership in space sciences by Dr G. Madhwan Nair, former Chairman ISRO. Dr Nair is guiding academic studies in KAL in space sciences. The human rights studies further help the promotion of environments for the poor and indigeneous people. Mr Justice B. K. Balakrishnan, retired Chief Justice of India is associated with KAL studies on environments. He has chaired many national conferences for human rights promotion. Better human rights help make better environments.

Towards the end we pay our tribute to Madam Barbara Ward and Prof. Renee Dubas who wrote that epic, the report for the Stockholm Declaration 1972 called Only One Earth: Care and Maintenance of a Small Planet. This book should inspire us all for a better world. On this occasion we pay tributes to late Mr Justice V. R. Krishna Iyer who always supported efforts to prevent environment pollution, and help the

victims of adverse changes to the environment. The Bhopal Nuclear tragedy was highlighted by him in a national seminar in 1985 in India International Centre. He stood for adequate remedy to the poor who suffered in the tragedy. He was always for poverty removal. The poor suffer much due climate change. We also congratulate the Kerala Law Academy for the proposal to hold a global conference on this subject of Global Environment Management And Climate Change. It is a landmark decision indeed.

FOOTNOTES

1. See UN Doc. A/CONF, 48/14, Annex II, 3 July, 1972, pp 2-6.
2. See Yahoo news dated 14 July, 2015. Report from Oslo of 11 states with 60 experts.
3. See GLOBE Climate Legislation Study, UNFCCC, 29th April, 2013. Bonn, Germany.
4. see D, H, Cole, From Global To Polycentric Climate Governance, EU working papers RSCAS 2011/30.
5. See Centre on Global Climate Change, National Action Plan on Climate Change, GOI, June 2008.
6. See Climate Change Bill 2012, Bill No 74 of 2012.
7. See M. C. Mehta V Union of India 1992, Delhi Stone Crushing case.
8. See Times of India 20. 5. 14. Centre must invest 834 billion USD to reduce carbon footprint.
9. See Hindustan Times 14, 4. 14. UN Climate goal feasible but energy reform vital. UN Panel.
10. See Times of India 6. 12. 14. Five pillars of strength key to climate deal.
11. See Times of India 3. 12. 14. India sticks to its guns in Peru climate talks.
12. See Times of India, 3. 11. 14. India must revisit plan on climate change; Pachauri.
13. Times of India 14. 11. 14. Climate Breakthrough. Editorial.
14. Times of India, 7. 12. 14. UN report: Climate adaptation cost for developing world ballooning.
15. Ibid; note 8 above. Report of Planning Commission, GOI.
16. See TOI 23. 8. 14. Climate change is real and happening in India.
17. See Hindu 23. 9. 14. Time for action on climate.

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Chapter 6

A BRIEF HISTORY OF CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

INTRODUCTION

The chapters in this small book speak about the brief history of climate change(CC) and sustainable development(SD) in recent time. As a student of international law and global science, I have attempted to study these two issues together. The UNGA has cautioned the ICJ to watch out for the expanding roles played by environmental law and space law on global society and planet earth. I have been studying space law since year 1964, and environmental law since 1972 UN Declaration on Human Environment. Today I feel I am in a comfortable position to reflect on trends in SD and CC. I must caution young students of international law to study extensively space law and environment law. The former enables us to see and monitor global environments. The latter tells us the long list of principles of environment laws and management. The scientists and the jurists have combined very well in this process and integrated law and science for studies involving SD and CC. It looks that we see a new paradigm shift in the theory and structure of science:towards a biologist and ecologist view of international world order. We are dealing with a new science that has emerged in recent period. An ecological approach to international law seems sound and appropriate to meet various issues of this civilisation and to the study of nature itself. Prof. Iliya Perigogine supports us in his book Order Out of Chaos:Man's New Dialogue With Nature(1984). He thinks the new dialogue with nature is needed due large increase in global population. Narendra Modi has utilised population growth for global services, and to meet democracy, demand, and diversity, as in India. To see an

ecological view, a conservation of nature perspective, readers may kindly see present author's chapter titled Ecology And International Law. It was first published in the Indian Journal of International Law in 1982. Another article titled An Ecological Approach To Aerospace Law was published in 1979 in McGill University Annals of Air and Space Law, by editor Prof. N. M. Matte.

THE UNGA DECLARATIONS ON HUMAN ENVIRONMENT AND SUSTAINABLE DEVELOPMENT

These days SD is defined as the use of natural resources by a society as per needs, but not as per greeds, keeping in view the needs of future generations. The UN has passed many acts for SD. In the Appendices I have put four important Declarations for ease of reference by students. The Declaration of 1972 was the first warning by UN to protect global environments. It had themes, and principles to save environment. Barbara Ward, an economist, and Renee Dubas the biologist wrote the Report of UN Conference called Only One Earth: The Care And Maintenance Of A Small Planet Earth. Based on this Declaration, states made new laws, institutions, and academic programme to protect earth. India had a high-level committee for environment planning and coordination. The committee made a national report for implementation.

The second UN Declaration was made in 1982 called World Charter For Nature. The Charter said "Mankind is a part of nature and life depends on the uninterrupted functioning of natural systems which ensure the supply of energy and nutrients." It further said that civilisation is rooted in nature—and harmony with nature gives man the best opportunities for the development of his creativity, and for rest and recreation. It said that lasting benefits from nature depend upon the maintenance of essential ecological processes and life support systems-- . Knowledge of nature shall be broadly disseminated by all possible means, particularly by ecological education.

The third UN Declaration was titled Hague Declaration On The Environment, 1989. It said that science has proved that earth's atmosphere is under threat, its ozone layer is deteriorated, and this aspect is treated under 1985 Vienna Convention for Protection of Ozone Layer. And the Montreal Protocol 1987, and former issue is death with by Intergovernmental Panel on Climate Change established by UNEP and WMO. Besides, the UNGA has adopted Resolution 43/53 on the

Protection of Global Climate in 1988, recognising climate change as of common concern of mankind. The Hague declaration further said that above phenomena will jeopardize ecological systems as well as the most vital interests of mankind at large. Thus climate change has become an active global agenda point from 1988 UNGA Resolution. Global warming is related to CC.

Finally, we have the Rio Declaration On Environment And Development. It gave the start to sustainable development. It pronounced various principles for SD and said in Principle 1 that "Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature." The recent Noble Laureate in Economics, Prof. Angus Deaton, a US-British consumption expert has been awarded prize for removing poverty by better nutrition food in different parts of globe. It seems an ecological study. Prof. Lakshmi Nair Principal Kerala Law Academy, apart from being a space lawyer, also teaches on TV channels where geographically what kind of food is suited from nutrition point of view. Modi Government has further issued smart card to farmers as to what food to grow ecologically, based on space –land studies. Haryana has just started similar food development studies to boost cultivation. Prof. M. S. Swaminathan a global agriculture expert in collaboration with space scientist Prof. U. R. Rao started in IGONU a chair for this joint study of lands suited to different crops.

WHAT INDIA IS DOING FOR SUSTAINABLE DEVELOPMENT AND CLIMATE CHANGE

1. UN Adopts New Sustainable Development Goals(SDG) On 25 September, 2015. In a historic decision, the UNGA adopted new SDGs replacing Millenium Development Goals. The Inter-governmental organisation has pledged to fulfil these goals by year 2030, in 15 years or so. These SDGs are the following: End poverty. End hunger. Ensure healthy lives. Ensure inclusive and quality education. Achieve gender equality. Ensure access to water. Ensure access to affordable, reliable, sustainable and modern energy. Promote inclusive and sustainable economic growth. Build resilient infrastructure, promote sustainable industrialisation and foster innovation. Reduce inequality within and among countries. Make cities inclusive, safe, resilient and sustainable. Ensure sustainable

consumption and production patterns. Combat climate change. Conserve and sustainably use the oceans, seas and marine resources. Sustainably manage forests, combat desertification, halt and reverse land degradation, halt bio-diversity loss. Promote inclusive societies. Revitalise global partnership for sustainable development.

These SDGs are wonderful and achievable. These make future of this planet bright and sustainable for all times. Historian Arnold Toynbee who died in search of a sustainable earth, would have been happy. We the people of this world rejoice in this UNGA Declaration that sets man in harmony with nature, that revitalises the fading planet, that goes hope that science will serve planet earth, its people.

2. **India And Sustainable Development.** India has taken up new missions for SD. These are dealt with in various chapters in this book. A summary of important missions is being presented here. Suffice to say that Prime Minister Narendra Modi is the main architect of these national missions. Some missions can be stated as follows: Removing poverty. Cleaning India. Healthcare for all. Skills development education and universities. Competitive federalism. The three Ds like promote democracy, demand and diversity. To harvest rain, link rivers, and use all water resources carefully with river basin centric instead river centric. Make affordable homes for all. To promote PPP in development works. To invite FDI in industry promotion. To make brand India strong and popular world over. To use space exploration for all national works, for monitoring, planning, economic growth, forests management, natural resources management(see appendix for India outer space programme), promote digital India, land use management, new 100 smart cities with modern facilities like metro transport, forests, affordable homes, employment opportunities, update heritage sites, promote global tourism, make new 70 airports for connecting small towns, use 126 non-scheduled aviation operators for small town lowfare economic operation, clean Ganga, Yamuna etc, use waste for production of energy etc, develop renewable energy resources like wind, solar, and hydro-power electricity, provide gender equality and use women for economic development(the World Bank President sees India economic growth doubling with educated women skills power), clean air pollution by public transport, metro use, better oil quality, by forests, by designing new

roads for walks, cycles to avoid vehicles crowding roads, to make national highways by roads with trees on both sides for green cover increase and increase in fruit trees, horticulture, and employment. Use of outer space for commercial applications can be gauged by reading my ling chapter written in Dallas, Texas in 1970 after lunar landing. Space law has helped common economic benefits, instead being a region for unnecessary competition between space powers for landing on the Moon during time of President John F. Kennedy and the Soviet Union. Today, Prime Minister Modi talks of India providing space satellites to SAARC countries for education, communication, disaster management, healthcare(India has maximum doctors serving in US, Canada, UK, Australia, Africa). All this points to a new story about India for progress of global civilisation. Now India has a big conference with all African states in New Delhi to help Africa move on sustainable development. I spent four years as UN Adviser in various African countries. I know what great trust and love Africa people have for Indians. Recently, Malaysia has promised to huge amount in India for housing. UAE has come forth with large economic package for FDI in India. Iran has asked India to develop its idle seaports to increase trade with Central India. On its own, Modi government has drawn a vast project to connect all states via its coastline. That will attract wind energy, and commerce in India, and provide a long long cruise along sea coasts of India for global tourism and peace. India has in a big way made designs for economic cooperation with USA, Japan, New Zealand, Australia, Central Asia, Middle East, Russia, and now all of Africa, I think sooner in about ten to fifteen years, space transport will begin operation between long distance countries. India will have more trade, commerce and population centres in South America not much explored for SD by India.

I have put up in appendices a reprint of article by Prof. Myres McDougal of Yale Law School. He is known for contribution to international law and peaceful world order. He came to India, addressed various universities, and Indian judiciary from HCs and Supreme Court. In his lectures he advocated contextual jurisprudence when decisions by judges are made in the context of time and place. He promoted the concept of theory about law, not of law. Law was a creative discipline to help humankind for economic and

social progress. His emphasis was that decisions are made by common people authorised by society, not as many by judges who get only a few occasion to give judgements. In space region McDougal wrote a big book with profs. Harold Lasswell, Ivan Vlasic suggesting reasonableness as a doctrine of space law. I reviewed this book in IJIL. The world is poor today not to have thinkers like Prof. Myres McDougal to whom students of law and world society can ask for advice and opinion. The outer space arena is safe today yielding so many advantages of knowledge and education. We see today that the collective wisdom of humankind has put forth new sustainable development goals. Let us be bold to realise them and combat global warming and climate change. India has given leadership for peace and removal of poverty from this planet earth, mother earth, that has all for our needs.

WHAT IS SUSTAINABLE DEVELOPMENT?

Environmental, economic and social well-being for today and tomorrow Sustainable development has

Our Role & Impact

been defined in many ways, but the most frequently quoted definition is from Our Common Future, also known as the Brundtland Report:

Sustainable Development “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”

Sustainability Research

It contains within it two key concepts:

Environmental Governance

the concept of needs, in particular the essential needs of the world’s poor, to which overriding priority should be given;

Green Economy

and the idea of limitations imposed by the state of technology and social organization on the environment’s ability to meet present and future needs.”

Economics & Sustainability

All definitions of sustainable development require that we see the world as a system-a system that connects space; and a system that connects time.

Climate Change

When you think of the world as a system over space, you grow to understand that air pollution from Climate Change & Energy North America affects air quality in Asia, and that pesticides sprayed in Argentina could harm fish stocks off the coast of Australia. And when you think of the world as a system over time, you start to realize that the decisions our

Climate Change Mitigation

Grandparents made about how to farm the land continue to affect agricultural practice today; and the economic policies we endorse today will have an impact on urban poverty when our children are adults.

The EarthVision Net work hosts the following programmes and platforms

1. Networking - enables NGOs access to workshops, seminars, information and other networks working together toward common sustainable development goals. The EarthVision Network provides relevant workshops, training and mentoring programmes to assist in meeting these capacity needs.
2. Education and training - this programme provides accredited levels 1-5 training in health, business development, fundraising and resource mobilisation, and more.
3. Research - this platform provides access to open source and purchasable research and information on sustainable development. This includes documentaries, research studies, books and more.

Sustainable Development

The concept of using resources to meet the needs of humanity in the present without compromising the ability of future generations to meet their own needs. How can we live sustainably in our natural environment? How can we encourage economic growth without excessively and wastefully using up our natural resources?

The Earth Vision Network provides a platform of research, education, training and collaborative programmes which aim to teach and enable NGOs, government, the private sector and communities to plan, work and live more sustainably.

The concept of sustainable development is rooted in this sort of systems thinking. It helps us understand ourselves and our world. The problems we face are complex and serious-and we can't address them in the same way we created them. But we can address them.

It's that basic optimism that motivates our staff, associates and board to innovate for a healthy and meaningful future for this planet and its inhabitants.

Chapter 7

AIR LAW DISCUSSIONS FOR RNB GLOBAL UNIVERSITY, BIKANER, INDIA

ABSTRACTS

This paper deals briefly with air law development in recent years. The UNGA has laid down 17 minimum sustainable development goals (MSDGs) for sustainable development(SD), when SD is understood to use natural resources for present needs, and for future needs of humankind. Therefore, I take air law dealing with use of airspace that has upper limits of about one hundred miles above the earth, when outer space begins. Both legal regimes of airspace and outer space are different:one under sovereign control of states, and the other a free province of humankind for exploration and use for common benefits, somewhat like law of high seas.

Thus air law is dealing with a limited global natural resource for over seven billion people living upon this earth. One area of air law deals with aircraft operation when these a lac or two aircraft fly with help of airspace under scientific laws and dirty airspace with GHG.. The second part of air law deals with air pollution by GHG, carbon dioxide, dust particles etc, produced by over a billion vehicles into airspace making it impossible to breathe by humans, and above all, creating global warming and climate change world over resulting in natural disasters. The civilisation is on verge of extinction, unless humankind implements MSDGs adopted by UNGA on 25 September 2015, followed by adoption of Paris Agreement on 12th Dec. 2015. The latter Agreement is voluntary, self imposed reduction in GHG to keep global temperatures two degrees or less from industrial age taken

as started from 1850, about two hundred years. We have limited time to implement self imposed restraints, and by 2030 our SD must be started. Emphasis given in SD programme is mitigation, adaptation, technology transfer, and R& D that propels education centres in particular to undertake research and teaching on a vast scale with a vision for cooperation to save this planet earth.

AIR LAW FOR CIVIL AVIATION

This part of air law is laid down by ICAO for States. Has seat in Montreal, and offices in various parts of globe. The Chicago Convention of 1944 governs civil air law. It provides for Assembly, Secretariat, ICAO Council, Legal Bureau, Transport Bureau, Technical Committee, Bureau for Air Navigation, Tech. Dev. Help Centre for LDC countries. The Vision Document

Lays down generally the objectives of use of civil aviation for peaceful, regular, economic, environment, efficient, competitive regulations. ICAO was late in regard to space exploration opening. Lately, both ICAO and UN Space Agency work together in ICAO headquarters Montreal to look toward new future aerospace transport in sub-orbital region by part space vehicle, part aircraft for landing. US has already some aerospace craft flying long distance in US territory. I say here briefly that I am an IAF trained pilot, air traffic management graduate, air transport legal adviser in GOI, Adviser/consultant in Africa, Central Asia. That gives good experience. Besides I have done over 60 air transport bilateral agreements that include visits to about thirty foreign countries. Thus you get good glimpse of how air law operates in the world.

THE AIRCRAFT HIJACK STRIKES IN NEW YORK ON 11TH SEPTEMBER 2001 AND IMPACT ON HISTORY

Until above sad event of history, aviation and its global management by ICAO with cooperation of states was a marvel of our civilisation. Millions of air passengers flew world over fearlessly and with safety. Cargo was carried across to aid global economy. Tourism carried 90% of passengers by air. India and world adopted new policy of liberalisation and privatisation in aviation sector recommended by conference of states in ICAO. I had privilege to hold academic seminars in JNU. Also took part as Vice-Chair of GOI National Law Committee to change

air laws and rules as per ICAO recommendations. Suffice to say here that ecological view is now paramount in natural resource planning to save environments from degradations. Modern airports are planned far from habitats, connected by metros, with small terminal buildings to save energy and security at airports. The IGIA in New Delhi was made a showpiece for the country, after devastating large parts of green vegetables yielding lands, with hard tarmac to increase global warming, and local climate in Delhi that looks a junkyard today of flyovers and cement concrete. New vision is needed for new 70 airports planned for smart towns embedded with forests, herbs, and greenlands around.

The New York attacks by Bin Laden radical Islamics changed aviation laws and world history. US said its self defence under Article 51 of UN was applicable anywhere in the world. US, EU, Russia, even China in their western part of Sinkiang and almost all countries are engaged in self defence conflicts, wars in Middle East etc. The common enemy is ISIL.

The new vision by ICAO reported recently in news is not sober. It warns on two fronts: First fear of attacks on civil aviation, airports by radical Islamists from ISIS etc. Such terrible attacks have come recently in Belgium, France, Germany, and other parts of world. Second warning is the environment adverse impact by aircraft, like noise, pollution, impact on global ecology. So it seems new thinking on ecological approach is needed in planning, implementing air transport law in the world. It is coincidental here to mention that present writer had recommended in a lead article in McGill Univ. Annals in 1979 "An Ecological Approach To Aerospace Law", published by eminent Director of McGill Univ. Centre of air and space Law, Prof. N. M. Matte. For this reason let us look to that paper submitted for this conference separately in air law session.

THE PROBLEM OF AIR POLLUTION IN AIR LAW

This problem has come up due our technology of over a billion vehicles giving away GHG not oxygen as CJI Shri Thakur told petitioners from cosfly diesel cars. In 1975 when I was in DST Env. Committee GOI, we planned to update Water (Prevention and Control of Pollution) Act 1974, to declare some areas with dense pollution, remove some polluting industries out of Delhi. Car pollution was not talked at all. Thus Delhi had almost 75 lac vehicles emitting GHG. Of course we

add dust from construction sites. In winter four months, delhi has winter and fog. The GHG particle settle down on surface to make breathing difficult. Cancer and othe diseases are grown to alarming rate. And aircraft can fly for few hours only in the afternoon. What great loss on healthcare and aircraft companies, and passengers. This Delhi storey is true of other India towns. The Supreme Court allowed on equitable basis some diesel cars with cess penalty. That seems a temporary measure. As CSE and all feel, we need just metros, public transport in large measure. Old and even new cars are to be phased out soon before in 2030 India starts SD path. Arnold Toynbee has warned to control global excess technology, or technology will destroy civilisation. Toynbee says with a long perspective of history.

6.In summary, I live with great hope for future due human intelligence and due discovery of new science and technology like solar energy, waste management, new skills for new jobs. SD is a new revolution in science as well. Its frontiers lie in world peace, harmony with nature and between humans, and harmony with cosmic frontiers like Mars, Moon, and other planets and galaxcies.

Chapter 8

ESSAYS ON AIR LAW, OUTER SPACE LAW, ENVIRONMENTAL LAW

Prof. Saligram Bhatt. Adjunct Prof. Law, ITMU Law School, Gurgaon, and Nalsar University, Hyderabad;fmr Hony Prof. Emerites Level International Law, Prof. Space Law, JNU, New Delhi;ICAO Consultant/Adviser Govts in Botswana, Lesotho, Somalia;World Bank Aviation Adviser, Govt of Tajikistan;Deputy DGCA India, Retd.

INTRODUCTION

This book consists of essays written by the author on contemporary issues of air law, space law, and environmental law. Most of these essays have been presented before national and international academic conferences concerced with new world order as a result of new technologies, new laws, introduced in the global society. The UN has in fact advised the Judges of ICJ to moniter fast changing laws of space and environments to prepare adequate response by global society. Global warming and climate changes has created a global awareness for threats to life of this civilisation.

Air law has become liberal and private secter has taken over from public secter for air transport operation. The Deregulation Act 1976 in USA had a catalytic effect on global air transport. Now privately owned air companies were enabled to fly scheduled public air transport. Privatisation has increased global air transport. ICAO estimates that nearly three billion people fly yearly out of total over seven billion population. Air transport is a utility used by all sections of public. Nearly 90 percent tourist use air transport. Hence aviation and airports have tremendous impact on the ecology of

earth. Aviation has changed life style of this civilisation. ICAO is currently engaged to cut down carbon emissions from aircraft based on market economy considerations.

Space exploration since October 1957 has in fact revolutionised mother earth. Activities related to communication, TV broadcast, education and meteorological satellites, has new impact on society.

We are in a brave new world of 21st century. The world economy has changed by space technology. The book makes extensive analysis of impact of space exploration and space law on this planet earth. We are living in space age. International space law has impact on cooperation between states for economic benefits, and for disaster management. The book deals on these issues facing humankind.

Above all, global society is concerned with environmental laws concerning planet earth. Ever since the UN Declaration on Human Environment made in 1972, the world society has woken up to protect global environments. We have threats to life from air pollution and polluted water resources. Wildlife, and biodiversity are under stress of extinction. Increase of carbon dioxide has caused global warming and climate changes and natural disasters. In December 2015 the states are meeting under the UN to draw programme to reduce carbon emissions that has created global warming and threat to biosphere. The book has discussed these environmental law issues with the hope that mankind will come forward with adequate response to reduce global warming.

The chapters in this book don't follow any order and are arranged to include the three main topics: current issues of air law, space law and environment law. At times, future studies are discussed. It is hoped that students, teachers, experts will enjoy reading this book that has most of leading trends and ideas concerning the three disciplines mentioned. The book is research oriented to promote further research by concerned scholars.

Chapter 9

THE ENVIRONMENT MOVEMENT TODAY 2016, A REVIEW SINCE 1975 WHEN I WAS IN DST

INTRODUCTION

We have come a long way in managing the environment since 1975. Indeed New Delhi or other such big towns have become huge megalopolis with two crores of people and 42 registered vehicles in Delhi alone. Population in world state is 7.2 billion in place of say 3.5 billion in 1975. Thus man is jostling for space and pure air which is a luxury. Prof. Iliya Preregogine a Noble Laureate scientist has come forth with a book with his colleague called Order Out Of Chaos: Man's New Dialogue With Nature. He says with limited earth resources, conservation of nature is inevitable. Thus we see world over, a human urge to protect Mother Earth. The UN Declaration 1972 has said enough to save the environment. Man today is concerned overall to promote sustainable development. The UN has laid 17 goals for SD that is a new charter with nature. Preregogine asked in India to revive Mahatma Gandhi and his economic philosophy of life in villages and control of global rampant technology of cars, factories, and armaments. Arnold Toynbee the global seer of world history said the same observation. India is a hope for new world order of inclusive growth and poverty removal. We can reverse the megalopolis that we find in large parts of globe. The choice is today smart villages, not as much smart towns.

The New Budget Proposals Of India 2016-17

I see most of reforms made to move to the glory of village life. The following comments I see are made in Times Of India, Hindustan

Times of 1 March 2016. We see a balance between economic growth of 7.5 % of GDP and, equality. All sections of population are cared for. We have funds for skills developments with HRD giving shape to this venture. A large sum goes to MGNREGA, to awaken villages to dynamic economic growth. TOI says a big leap forward for equitable growth. Foreign hands to clean debts. Banks can give major push for investments. Overseas investors can have residency status. There is push to open up new markets. Medical insurance has increased to Rupee one lac per person per year compared to Rs 30,000/ earlier. Medical science is booming in India. Just see hospitals flooded by foreign national especially from Africa, Central Asia, Middle East and other countries. Regional connectivity is increased by new 160 small and medium airports/airstrips. This has never happened before. A new aviation policy finds new markets, new tourist centres, new regional trade and commerce. And what great boost to jobs and employment. In the energy front, solar energy is going to change India and India has taken lead for new solar powered world. To transform India, women are being given social status and power. Indian shipping companies can compete with foreign ones and many new customs seaports are opening as gateways for India. Branded garments are not favoured. In place local made goods are to be cheaper and more suited to climate conditions. More funds are given for research and higher education. I see a big boom in quality education, in IT, space sciences and application, more irrigation for agriculture, forestry, and less trends for smart towns/cities. The new focus is towards rural areas and rural economy. As a villager myself, I feel Gandhiji is born for billions. PM Narendra Modi is the new seer of India. His budget is a new pathway for future. All political, social, economic organisation see this new budget a new transformation of India. I salute these great economists, social scientists who have produced the response to national, global challenges of a small planet earth laden with global warming and climate change.

CHAPTER 10

PERSPECTIVES ON GLOBAL SPACE TRANSPORT THAT MAY BEGIN OPERATIONS IN DUE COURSE

Reflections by Prof. Dr Saligram Bhatt. Former pilot, air traffic controller, legal adviser GOI, DGCA, ICAO aviation and air law adviser to Govts in Africa, Prof. of Air and Space Law, JNU, Vice Chairman National M. K. Kaw Committee GOI for reorganising air laws and DGCA organisation, Commentator UNISPACE III UN Conference Vienna 1999, Prof. Hony Emerites Level Int. Law, JNU, currently Adjunct Prof. Law Nalsar university and ITMUniversity Law School Gurgaon Haryana India. Opinions expressed are in personal capacity as an international scholar.

INTRODUCTION

In this article I am attempting to describe the unfolding perspectives for space transport or aerospace transport that may commence operation in due course between various long distance points on planet Earth. These long distances today are covered by aircraft in nearly 14 hours or so. This time factor may be reduced to two hours or so. Moreover, new routes maybe opened connecting new destinations directly in short period of time. My views are based on new aerospace technology manufactured in recent few years that combines features of space technology with aeroplane technology. Moreover, in USA, FAA is regulating Space Transportation Office like it regulates air transport operation. Besides, aerospace transport technology resembles more with aircraft technology as it climbs, cruises, and glides like an aircraft for landing at destination airport/spaceport. The world is in the twilight period before largescale

aerospace transport start operations between countries placed far apart. New trade, commerce, and tourism is expected. ICAO seems to have accepted role to regulate this new regime of aerospace transport. It has combined with Outer Space Division of the UN in working out modelities for space transport operation based on common interest, common economic and social benefits to mankind. Indeed, the space law regime contained in Outer Space Treaty and other legal documents seems to promote substantially the concept and usefulness of emerging proposals for aerospace transport. The President of ICAO Council in particular has made this comment in conference held recently in 2015 that space law has to be flexible to develop space transport. I will try in my submissions to combine my professional knowledge from civil aviation, and vast academic knowledge and publications as a Prof. of Space Law from India with global interaction with academic centres of excellence like McGill University, Leiden University, Cologne University, Nalsar University, and International Institute of Space Law, Paris.

NEW AEROSPACE TECHNOLOGY HAS ARRIVED

The time to introduce space transport may take ten to fifteen years. Space transport may operate like a spacecraft while lifting from ground in a trajectory in the sub-orbital region. And then cruise for a while as spacecraft, and then while nearing destination fly or glide like modern big size aircraft from Air Bus or Boeing company. It has been said with due authority by Dr Nancy Graham, Director Air Navigation Bureau, ICAO that Virgin Galactic with Spaceship Two has completed its powered flights in April 2013, and first fare-paying passenger flight is commenced in 2014. Spaceship Two is launched from an airport built for aircraft White Knight Two, and flies the return as a glider, says ICAO report. Some other models of space transport are being tried like Swiss Space Systems S-3 with SOAR picture shown. ICAO says so far space transport is launched in low population areas, or near oceans. The future space transport operations need to be integrated with modern navigation systems and existing airports. Hence it is important to ensure safety of spacecraft and aircraft.

A NEW VISION IS NEEDED FOR SPACE TRANSPORT OPERATION

As in case of aircraft flights a hundred years ago, space transport needs freedoms to operate on earth. Before Paris Convention of 1919,

there was academic debate in Europe whether airplanes can fly freely across national airspace boundaries or not. Due to use of airplanes in world war in Europe, the states decided that airspace over a national territory belongs to underlying state. Hence freedom of airplanes was restricted.

However, since 1957 when space exploration began, states have approved certain freedoms for exploration and use of space, also enshrined in Outer Space Treaty of 1967. The UNISPACE III conference of states in 1999 held in Vienna confirmed international cooperation between states for common benefits of mankind. The Report of conference says that there are immense common benefits for states in 21st century, especially for the developing countries. Hence we find ourselves in early 21st century with space exploration and uses providing great economic uses and common benefits in international cooperation. Peaceful uses of space has opened a new frontier for space transport that will connect long distances by space transport, promote economic cooperation, provide new tourism, and usher a new world order. Are we prepared for this new vision of world order? No wonder that Mr Tommaso Sgobba, the chairman of a think-tank group promoting aerospace transport has asked some space powers to sign a new space agreement to ban all military activities in space. Space technology has arrived at a stage that it can remove global poverty, promote peace and international cooperation in space. A think-tank group in 1970s in Europe made two reports for privatisation and liberalisation of global air transport services. USA took up the recommendations of this report and enacted the Deregulation Act in 1976 to privatise and liberalise aviation industry and air transport. Deregulation as a concept was taken up by ICAO in an academic symposium in 1992 or so and followed by an ICAO conference of states with recommendations to privatise and liberalise air transport sector. Thus we see today international cooperation between global airlines for efficient and economic operations of global air transport has become a common practice.

PROPOSAL BY THINK-TANK GROUP UNDER MR TOMMASO SGOBBA, EXECUTIVE DIRECTOR OF IAASS

The space transport is awaiting a new deal by think tank group under Tommaso Sgobba and his colleagues, Ram S. Jakhu and

Kuan-Wei(David)Chen. This expert group has been asked by ICAO to submit a Draft Manual for operation by aerospace transport on this planet in the sub-orbital region. The proposal envisages future technological standards and guidelines for commercial human spaceflights. The study group has examined 30 papers in a conference in 2013. ICAO has held another conference in 2014 in cooperation with OOSA the UN body responsible for space activities.. ICAO is actively making deliberations between experts, governments, international aviation and space industries, Airbus industries, and UN Committee on Outer Space that has in ICAO Headquarters Montreal positioned a Director for ICAO- Space Programme. It maybe recalled that ICAO was involved in space exploration activities much after space law was formulated by UN Committee On Peaceful Uses of Space and its Space Division working for the UN. Only after 1999, and more because of growing concern for global environment issues, did ICAO begin sending its representatives for space conferences held by the UN. Unispace III conference in Vienna in 1999 made a strong impact on world society. It made inspiring report with recommendation for space benefits for humankind. The emphasis was for use of communication, television, education, meteorology. and remote sensing satellites. Space communication did impact aircraft communication and navigation. Nevertheless, space transport was not discussed until recently. Space launch systems have improved lately and become reusable. Meanwhile, some attempts have been made with success to land back space objects like normal aircraft. Thus we see today a single space object can be a spacecraft and also aircraft on landing. Whatever be the technology, these space transport objects fly fast between long distance geographical points like modern heavy air transport aircraft like Boing 747 that can carry almost 600 passengers. The new idea is to combine aviation and space technology. The two legal regimes have to cooperate for safe and economic space transport services in the sub-orbital space region. A new vision is needed for use of air and outer space for global space transport. The private economic sector is ready for commercial uses of space transport. It has to be safe, orderly and economic operation with due concern for sustainable development. ICAO is very much concerned with global environment issues and carbon emissions.

KEY ISSUES INVOLVED IN AEROSPACE TRANSPORT: MESSAGE BY DR NANCY GRAHAM, DIRECTER, AIR NAVIGATION BUREAU, ICAO

We have today a summary of key issues to be considered by humankind submitted by ICAO Director Air Navigation Bureau, an expert institution that has all the credentials to examine problems related to space transport. Dr Nancy Graham, the Director has submitted some 15 points and some conclusions. It is our duty as global experts to provide our comments to help ICAO resolve all matters in cooperation with UN outer space agency OOSA.

Dr Graham says that space transport is a concept for examination in the sub-orbital region. It was raised during 175th Session of ICAO Council. This area is likely to be used for commercial purposes and for fare-paying passengers. Hence Chicago Convention of 1944 for civil aviation is applicable in this sub-orbital region. We have no problem in this explanation given by Dr Graham.

Dr Graham submits that the sub-orbital region flight by space transport is about 100kms above sea level, as space transport will not fly into orbit around earth. The spacecraft will not attain orbital speed exceeding 11. 2kms/s. We have no difficulty in accepting this fact that space objects launched today into outer space don't come down below 100kms from sea level. The sub=orbital region of 100kms is therefore kept clear for space transport, except that it should avoid collision with space objects launched into outer space while transiting through the sub-orbital region. Hence we need a joint mechanism to deal with air traffic control and space traffic control in the sub-orbital region.

ICAO had noted that UN COPUOS Legal Sub-Committee was considering possible legal issues applicable to aerospace vehicles. Hence as Dr Graham says, to avoid duplication, ICAO decided to attend Space Legal Sub-Committee meetings. Since 2005, Dr Graham says aerospace transportation systems have advanced. In future, she says, aerospace vehicles can transport people and freight from point to point on surface of Earth through aerospace region and through outer space. We agree with this observation. Human transportation can go to far regions of outer space as well, beyond the sub-orbital region. NASA has recently planned for Mars Mission to carry human beings, and use sub-orbital regions for carriage of human transport. Space platforms are already carrying humans who reach the platform from earth- launch vehicles.

Dr Nancy Graham mentions that Virgin Galactic with Spaceship Two has completed its powered flights in April, 2013. First fare-paying flight was likely in 2014. ICAO mentions that there are other companies ready for space operations like Swiss Space Systems S-3 with SOAR shown in picture.

Needs Of Space Transport

Space transport, like air transport, needs three areas. First, a safe spacecraft for transport of cargo and human passengers. I take for granted that this technology is available. Nevertheless, we may have dummy space flights say a dozen or two as test flights between two points on earth to assure global community that safety is not of concern. Second, we need a few space launch airports, to launch spacecraft and land them safely as aircraft. Long runway airports placed far from towns are more suited like new airport in Hyderabad. It is also centrally placed to connect passengers by aircraft to other big towns like Delhi, Bombay, Madras, Gauhati. The third area we need to provide is the regulatory environment of space law and air law that regulates space transport flights. I will discuss these two regimes that have to help space transport operate.

Space Law Regime

Most thinkers of air law and air transport remained ignorant of space law regime. I personally took up space law studies for my PH. D. programme in JNU. Space law experts were unaware of air law regime. So, until recently when space exploration reached 58 years, and ICAO called space and aviation experts in Montreal, do we consider a marriage between two regimes is needed to start space transport that can produce a new revolution for long distance points on earth. Space transport can be wonderful between Los Angeles to Sydney in two hours, Hyderabad to LA, London to Jonnesburg, Kaula Lumpur to LA, India to countries in South America, and so on.

Essentials of Space Law Regime

Let me inform students of space transport that space law has many applications like communications, education, remote sensing of earth resources etc. Space transport is yet another area that space exploration has made possible now. Global space law regime consists

of just five treaties and five UN Declarations. These are: the Space Treaty of 1967 called OST that seems like overall umbrella like the Chicago Convention of 1944 in air transport; Rescue of astronauts 1968; the international Liability Convention 1972; Registration of Space Objects 1975; and the Moon Agreement of 1979. The UN Declarations applicable for space exploration are stated as follows: 1963 Declaration of Legal Principles (later incorporated in OST); Direct TV Broadcast Earth Satellites 1982; Legal Principles Relating to Remote Sensing of Earth from Outer Space 1986; Principles for use of nuclear power sources in Outer Space 1992; and 1999 Declaration on international cooperation in exploration and use of Outer space for benefit and interest of all states, especially the needs of developing countries.

The Essentials of Outer Space Treaty OST. The Preamble to OST refers to great prospects before mankind, common interests of all mankind, benefits of all peoples, international cooperation for use of space for peaceful purposes, development of mutual understanding and promoting friendly relations between states and peoples. In this respect, OST has all the potential benefits for mankind. It doesn't bar space transport. However, point to point space transport will be made with a bilateral agreement between two countries, as in case of air transport. Various OST articles are mentioned here that governs space exploration. Article 1 provides for freedoms of space for exploration and use. Article 2 bars national appropriation of space, Moon and celestial bodies. Article 3 says exploration and use of space is based on international law and Charter of UN. Article 4 prohibits placing in orbit nuclear weapons. Military personnel can be used in space works. Article 5 regards astronauts as envoys of mankind to be helped in condition of distress. Article 6 calls upon states to bear international responsibility for national activities in outer space. Article 7 makes launching states liable for damage caused to another state by space objects. Article 8 gives to launching state jurisdiction and control over objects launched into outer space. Article 9 provides for international cooperation and mutual assistance for exploration and use of outer space, and to avoid harmful contamination and adverse changes in the environment of Earth by introducing extraterrestrial matter. States also to hold international consultation whenever needed to avoid harmful activities. Article 10 permits states to observe the flight of space objects, subject to mutual agreements. Article 11 calls upon states to inform the

Secretary General regarding the nature of space activities. Article 12 permits states to visit stations, space vehicles on the Moon and celestial bodies on a basis of reciprocity. Article 13 has this treaty applied in case of exploration and use by single state or jointly with other states or intergovernmental organisations.

OTHER SPACE TREATIES AND UN DECLARATIONS

The 1968 Agreement provides for rescue and return of astronauts. 1972 Convention concerns international liability for damage. 1975 deals with registration of space objects. 1979 Agreement applies for activities on the Moon and other celestial bodies. Among UN Declarations, we refer to 1982 Declaration for direct television broadcasts. 1986 Declaration refers to remote sensing of Earth from outer space. 1992 Declaration is for use of nuclear power sources. 1999 Declaration is for overall international cooperation in exploration and use of outer space for benefit and interest of all countries, especially the developing countries.

INTERPRETATIONS OF SPACE LAW FOR GLOBAL AIR TRANSPORT

We have seen major objectives and legal principles of space law that have similarity with air law regime which governs air transport. The emphasis in space law is on great new prospects for mankind, promote common interests of mankind, common benefits, international cooperation, understanding. There is freedom to explore and use outer space, keeping space a province of mankind, apply international law and UN Charter in space activities, bear international responsibility for states in their space activities, states made liable for damages caused to other states, states have like aircraft, jurisdiction and control over space objects, promote international between states in space activities, hold consultations. The UN Space Treaties provide for rescue and help to astronauts, ensure international liability for damage, have a convention for registration of space objects like aircraft registrations, ensure TV broadcasts are done properly and with due care for interests of other states, make laws for remote sensing of natural resources, and promote international cooperation for common benefits of mankind. It seems therefore that space law is excellently drawn for beginning of space transport. Air transport had to develop these cooperative legal principles over a long period between Paris Convention of 1919 to

Chicago Convention on civil aviation of 1944. Today civil aviation is privatised, works on market economy, has private industry working with public sector to promote global economic benefits. I see complete harmony between the two legal regimes: of aviation based on Chicago Convention of 1944, and space law regime based on space treaties and declarations. In ICAO recent conference on space transport the President of Council says “how important regulatory flexibility will be for future space flights while using space law”. The Director of ICAO-Space programme spoke of “global space governance (under space law as described, and air law under Chicago Convention), encompassing space economy (as in Chicago Convention safety and economic development of aviation are paramount consideration; so in space law economic benefits, common interests of mankind are most important objectives), space security, space accessibility, and space diplomacy.”

AIR LAW REGIME

We know modern air law regime that flows from Chicago Convention of 1944. This convention has met the needs of global air transport. It has created ICAO for governance and management of global airspace. It has number of Annexes made to promote safe and orderly development of aviation. It has a Transit Agreement that permits aircraft to overfly foreign country airspace without landing. This analogy can apply to space transport that has similar objective of carriage of passengers and cargo. The Montreal Convention on Liability of Airlines for carriage of passengers and cargo can hold good for space transport. A separate liability convention is for space objects already. Registration regimes are similar in air law and space law. Joint operation by states for space transport is envisaged clearly in both air law and space law regimes. It seems due high costs involved, joint operations by states will be economical. Similarly the security conventions in air law will apply in space transport as well.

WHO WILL MANAGE SPACE TRANSPORT?

This paragraph is important for our work out. But without getting perplexed, we need to go back to the premise that we treat space transport like air transport. In the latter case also we have various regulating agencies involved. So also for space transport. In the international sphere, we have ICAO and Space Division of UN working together

in coordination. Space Division looks after space law, whereas ICAO will take care of air law regime. At the national level we have ISRO responsible for space objects, space laws (ISRO is drafting a new Space Act India), and DGCA who regulates aviation regime. We may have a Common Board or Governing Body for governance of space transport. It may have members for aviation, space, security, safety, airports/spaceports, int. relations, ICAO, Space Division of UN, Aviation Industry, Space Industry. I personally feel that time is ripe to introduce global space transport, provided the technology is perfect and safe operation is tried and proved to be economical and safe.

Prof. Saligram Bhatt. Former Prof. of space law, air law, JNU, New Delhi. Email <bhattsaligram@yahoo.co.in

Chapter 11

PROF. S. BHATT SECOND PART OF LECTURE ON 21 AUG 14 THURSDAY

Declaration of the United Nations Conference on human environment, 1972:

THE PRINCIPLES OF ENVIRONMENTAL LAW

Principle 1

Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of quality that permits a life of dignity and well-being, and man has responsibility to protect and improve the environment for present and future generations.

Principle 2

Natural resources of earth including the air, water, land, flora and fauna and natural eco-systems must be safeguarded for the benefit of present and future generations through careful planning and management as appropriate.

Principle 3

The capacity of earth to produce vital renewable resources must be maintained and improved.

Principle 4

Man has responsibility to safeguard the heritage of wildlife.. .

Principle 5

Non-renewable resources of earth to be used in a manner to avoid their future exhaustion and benefits from such resources to be shared by all mankind.

Principle 6

The discharge of toxic substances to be regulated to suit capacity of environment so that no harm is caused to environment. Pollution to be controlled so that no serious and irreversible damage is caused to environment.

Principle 7

States should take all steps to prevent pollution of seas.

Principle 8

Economic and social development is needed for the quality of life.

Principle 9

Underdevelopment creates natural disasters. Advanced countries need transfer of technology to underdeveloped countries to save environment.

Principle 10

Stability of prices is necessary for underdeveloped countries as also adequate earnings for primary commodities.

Principle 11

Environmental policies of all states should not affect adversely the development potential of developing countries

Principle 12

Environment safeguards should be incorporated in development planning, especially help to developing countries is essential from the developed countries.

Principle 13

States should adopt integrated and coordinated approach to planning.

Principle 14

Rational planning is needed where a conflict arises between development and protection of environment.

Principle 15

Planning must be applied to human settlements.

Principle 16

Demographic policies to be worked out to protect the environment and provide basic human rights.

Principle 17

Appropriate national institutions needed for planning and management of environments.

Principle 18

Science and technology to be applied for solving environmental problems.

Principle 19

Education in environment matters is important. Mass media is to be used to understand and improve environment.

Principle 20

Global science research on environmental issues is important.

Principle 21

States have sovereign right as per Charter of UN and international law to use their resources, without harm to neighbouring countries

Principle 22

States shall cooperate to develop international law for liability and compensation

Principle 23

States shall develop in accordance with their values

Principle 24

Cooperation through bilateral and multilateral agreements shall control damage to environment.

Principle 25

Man and his environment must be spared the effects of nuclear weapons and weapons of mass destructions.

SOME REFERENCES

1. Barbara Ward and Rene Dubos, *Only One Earth: The Care and Maintenance of a Small Planet*, Report to UN Conference on Human Environment, 1972.
2. B. D. Nag Choudhuri and S. Bhatt, *The Global Environment Movement: A New Hope for Mankind*. First published 1987. Reprinted 2013 by APH Publication Corporation, New Delhi.
3. S. Bhatt. *Environmental Laws And Water Resources Management*, MOEF project, first printed 1986, reprinted 2011 APH Publication, New Delhi.
4. S. Bhatt *Environment Protection And International Law*, First published in 1985, repinted 2013, APH Publication new Delhi.
5. Richard Falk, *This Endangered Planet: prospects and Proposals for Human Survival*.
6. UNESCO Conference For Biosphere Management, 1968; UNESCO Conference On Science and Synthesis 1971 on 10th anniversary of Einstein and biologist Chardin.
7. Iliya Perigogine, *Order Out of Chaos: Man's New Dialogue With Nature* (due global population increase to 7 billion from 1. 5 billion or so a hundred years ago).

Chapter 12

THE FUTURE OF AIR LAW

Paper by Prof. Saligram Bhatt, for BHU School of Law national seminar 3-4 November, 2012 on “Law, Science and Technology Reform” Prof. Bhatt is a former Prof. of Air Law, Space Law, and Hon. Prof. of International Law JNU, New Delhi; ICAO Air Law Adviser to Govts of Botswana, Lesotho, Somalia; World Bank Air Adviser to Govt. of Tajikistan; Deputy DGCA India Retd; ICAO Panel-Member for Regulation of World Air Transport. Views expressed are in personal capacity and are not related to institutions served by the author. Main purpose is to serve welfare of humankind and mother earth.

INTRODUCTION

This paper deals with the interaction of air law with the science and technology relating to civil aviation. It attempts to assess the future direction of air law and its role for world society. Global aviation represents technology that has impact on global ecology and mother earth. It has input for economy of states. As aviation technology grows, air law has to keep pace with technology. Air law needs reforms to be able to address the impact of aviation technology on planet earth. This includes aircraft noise and air pollution, the impact of global aviation on ecological systems, impact on flora and fauna around airports and on the bio-diversity of earth. The global concern for the protection of bio-diversity was expressed in an international conference held in Hyderabad recently in August 2012. Aviation law, science and technology are going through reform process by global society. This BHU seminar is therefore a historic occasion to study air law and reforms needed.

HISTORY OF CIVIL AVIATION

It may be recalled that a hundred years ago or so Orville and Wilbur Wright from USA made the first successful airplane flight on 17 December 1903 near Kitty Hawk, in USA. In this short period, aviation technology and air transport have made world a global city. Prof. Arnold Toynbee made an extensive study of history of civilizations. He says in his books on the subject—*Civilization On Trial*, 1948; *Surviving the Future*, 1971; and, *Mother Earth*, that current lifestyle on earth has changed drastically from living in villages to cities. On his last visit to India in January 1968, Toynbee warned in his article in newspaper *Hindustan Times* 5th January 1968 that “man is out of harmony with nature”, and must control global technology. (1). Ever Since Prof. Toynbee wrote in 1968 and warned mankind, we see ourselves today the growing mega- cities of Delhi, Mumbai, Chennai, Kolkata in many parts of globe. People in these cities are running short of water for drinking and life-support systems. Chennai of course has partly overcome shortage of water for drinking by new methods of harvesting rain water. Plato in his book ‘*Republic*’ says that primitive civilizations were the advanced civilizations, because of good governance.. Problems in modern world are multiplied much more due to global population having increased to 7. 2 billions, and increasing almost by two crores yearly in India. It seems Plato’s Greece is suffering currently from bad governance. Tagore observed In his lecture in Harvard University in 1912, (see his book *Sadhna The Realisation of Life*, 1913) that in ancient India people loved their environments, lived close to forests, and travelled less. Bill Gates visits India often. He says in his book ‘*Road Ahead*’ that modern internet technology can help people work from homes.

These learned observations are recalled here to see the kind of road ahead for our civilization. The study of history and future of air law are interrelated subjects. Present civilization has surely taken note of wisdom of ideas from seers mentioned above. Their views are being implemented in modern context. An effort is being made to increase infrastructure of roads, railways, economic corridors, highways, and airports. The Planning Commission in India has recommended opening new airports that will expand economic growth and national economy. Airports will increase trade, and tourism. (2). At the same time there are global and national reforms being made in air law to avoid adverse impact on environment. Tax is being contemplated from airlines, airport

operators to clean airport environments. Forests are being grown in and around airports. Bio-diversity parks are being established in nearby cities. In a golf course in Gurgaon, we see IGI airport about 5 kms aerial distance on one side, and a wildlife sanctuary forest on the other side. The golf course with trees seems a good buffer between the airport and wildlife sanctuary. Birds from the sanctuary also visit the friendly golf course with green grass and trees. There is an agreement between Russia and India to protect migratory birds visiting these bird resorts during winters. They come from cold Siberia to India and return in early summers.

AIR LAW AND GLOBAL ENVIRONMENT MOVEMENT

Presently an estimated two billion people fly out of 7. 2 billion during the year. Thousands of airplanes fly daily of various sizes including big-size Air Bus-380 that carries about 600 passengers in each aircraft. These aircraft fly round the clock from thousands of global airports. Global air law is therefore concerned with global air transport and its impact on the global environment. (3). ICAO, an international aviation organization of states estimates that aviation contributes to almost ten per cent of global GDP. Aviation helps tourism in many ways. Almost 90 per cent tourists use air transport. Air cargo has changed global economy. In Haryana for example a new airport is being planned in Bahadurgarh for mostly cargo operations to provide new economic growth. The ICAO prepared in 2011 a vision paper for civil aviation. (4). Its objectives are to ensure safety, security, economic development, environment protection, and development of air law for international air transport. This vision paper has been made after due consideration for the impact of aviation on global environment. It seems to make a balance between economic development and environment protection. ICAO has a special committee on environment protection. It has another committee for planning of global air routes.

ICAO AND FUTURE AIR LAW STUDIES

ICAO was established in 1944 as a specialized agency of the UN to regulate world civil aviation. Those who drafted the Chicago Convention had a vision for future as well. The Convention contains provision for ICAO which is a special agency of the UN to implement and update the Convention. The Convention provides the basic principles

of air law governing relations between states. It recommends air laws and regulations to states to regulate air transport. ICAO has various departments to look after air navigation, air transport, legal matters and technical assistance to states. It provides objectives and goals from time to time to states for the progress of civil aviation and for air law in general. The Convention has helped states to operate global air transport based on cooperation and common air laws. Global Air Navigation Commission provides technical rules to states to manage airspace divided in Flight Information Regions. Thus global air transport moves smoothly and safely. ICAO has regional offices to coordinate regional and global laws for safe international air transport. Future study of air law is therefore based on the successful operation of ICAO. New challenges to global aviation are met by ICAO from time to time. Here we shall consider problems that have arisen in recent years. These include mainly the global economic recession, energy shortages, and the state of economy of airlines.

AVIATION AND GLOBAL ENVIRONMENT: A HOLISTIC VIEW AND REFORMS NEEDED

Aviation is estimated to produce 3 to 4 per cent contribution to global warming by release of Green House Gases. The gases are carbon dioxide, nitric oxide, hydrocarbons like methane. This is a broad estimate made by ICAO which has constituted an expert environment committee to study the problem. An Annex to Chicago Convention has been made to reduce air pollution and noise from aircraft. Noise levels around airports have been reduced by adopting new procedures for take-off and landing. Night flying around airports has been restricted to enable people sleep with no disturbance from aircraft noise.

It is important to take a holistic view of the impact of aircraft flying in the world on the ecology of planet earth. Aviation needs huge airports, that in turn cause development of modern giant cities for promoting economics, trade and commerce and tourism. Delhi is a state for example that has since last fifty years taken a new shape of a megalopolis. It has today a big population of about ten million using about 70 lacs cars and vehicles polluting the limited airspace in a radius of say 30 kms from the centre of town in Connaught Place. The big IGI international airport is in the vicinity with a thousand

aircraft flying daily to/from New Delhi. Winter fog in Delhi has become a smog lately with impure air that is not good for human health. Besides, aircraft cannot use IGI airport during thick fog in spite of new help from radar technology. The meteorology department has warned airlines and airport operators to be prepared for two months of winter fog that upsets the airline schedules. These problems for civil aviation are to be seen with future perspectives as well. How long can we go in this direction. Airspace will get so polluted that humans will not breathe easily. The London smog is remembered when hundreds were choked and died. The world is responding to above stated problems to protect the environment. In recent time, the Durban Environment Accord is recalled here that was reached between states at Durban on 12 December, 2012. The Accord failed subsequently for lack of cooperation between states. Nevertheless, we recall its provisions that provided an honest attempt to seek a map for future human activities. (5). At the time of writing this article we learn from Yahoo news that President Obama will now devote to climate change issues as in last Rio+20 conference he was busy with his re-election and didn't take part personally. This Accord has the following recommendations: A new deal or agreement is to be finalized for climate –change-regime by 2020. The 195 member-states to UN Framework Convention on Climate Change will start negotiating a new deal to reduce harmful emissions into the atmosphere. The Kyoto Protocol to the Climate Convention is extended from 2013 to 2017 to restore equity as a central point of negotiations Under this clause advanced countries are to give funds to lesser developed countries to use new technology, to help reduce adverse climate effect. Thus India sees climate mitigation as a common and differentiated responsibility based on equity. Third, The Green Climate Fund is launched to help protect the environment. Fourth, green technology development is to be adopted on a global scale. Fifth, equity funds are to be discussed in future talks.

Much of Durban Accord was superseded by Rio+20 deliberations where states made further recommendation for sustainable development based on self help and individual responsibility of states. The ICAO has perhaps no new vision for environment protection of airports, airlines, and human habitats. In simple terms, future airports should not create megalopolis around human habitats.. Metro connections

to airports can seal airports from impacting habitats. Besides, airport sites should be full of forests in order to counter environment impact.

The present day congested habitats like Delhi need to be decongested and people shifted to villages to live new joyful life with nature and freedom from technology. These are wonderful tasks to be undertaken for human welfare and poverty removal and Builders and speculators seeking personal profits are to be excluded in these ventures for humankind. If they have expertise, here is an opportunity to forget individual empires but come forth for service of mankind and making of a happy world. Responsible administrators like late Dharam Vir then Governor of Delhi reduced real estate prices in Delhi to one-third of market price after an ordinance was promulgated in about 1962 that owners of plots can hold one plot for own use. Similarly new plots in villages for rehabilitation should be small in size to reduce pressure on agriculture lands. Each family can hold just one small plot for own use. India has sufficient land and water resources to undertake such a habitat movement. It will transfer growth to villages and help national programme like MGRES and JNRDP. There is no place for corruption. Politicians should not be included in decision-making. Some states in India have adopted legal measures to keep politicians out of people's group who decide on water resources management.

Air law will grow with a new perspective. It will help healthcare by helicopters to remote villages and mountain habitats. It will encourage cottage industry from hill areas to be transported to towns. It will improve domestic tourism by low fare small and medium size aircraft, in place of giant size Airbus -380 with 600 passengers crowding our airports. These seem good points for future of civil aviation. From crowded cities to open lovely villages is the road ahead. Who doesn't like village life with modern needs provided. Gandhiji will be proved right in present times. President Obama has said that Gandhi belongs to world.

With 42 per cent of India's population of 1.2 billion below poverty line, the country needs economic growth. Civil aviation is an important factor for growth. Madam Jayanti Natrajan, the Minister of Environment did a splendid work in the Durban Conference and later in Rio+20 conference of 2012 called sustainable development. She espoused a path for poverty removal among the less privileged countries like India, Africa, and some parts of Asia. Some minimum millennium

goals set by the UN are to be achieved for development. At the same time, policy makers and aviation planners in all states have to follow the guidelines by ICAO for air routes, airports, regulatory bodies to keep in view the global ecology and impact of aviation on the global environment and habitats.

The UNESCO held a conference on Biosphere Management in 1968. It recommended a Man and Biosphere Programme. ICAO member-states and experts also attended the UNESCO conference. Later in 1972 the UN made the Stockholm Declaration on Human Environments attended by these experts from UNESCO. Thus UNESCO and IUCN have given input and direction to international law for protection of environment. (6).

PRESENT PERSPECTIVE ON AIR LAW AND AVIATION IN INDIA

We need to mention the role of our academic institutions for spreading knowledge of air law, space law in India. NALSAR University in Hyderabad has a global centre of air and space law established for past few years. In 2007 the centre held a global conference on aerospace law with a Moot Court attended by many global scholars, ICJ Judges, and experts. This Centre has done much work in evaluating air law, space law in recent years. The international conference the centre held recently during 21-24 June in 2012 set-up our vision on air law for future years. NALSAR also held a conference on April 13, 2008. The university is to publish a good Ph. D. thesis on airports privatization written by Dr Shafi. NALSAR also has an MOU with McGill University Canada for academic collaboration. The Times of India gave a picture on 13 February, 2010 about air traffic growth which had shown upward trend of 23 per cent, mostly claimed by Jetlite, Kingfisher, GoAir, SpiceJet. The IATA another global institution for aviation has said (Times of India 2 September, 2010) that India had recorded the highest domestic air traffic growth in July 2011 at over 20 per cent. One has to see some ups and downs in air traffic growth due global recession and impact on market economy. The Aviation Ministry in a recent reference therefore has said to use a balance between free market economy, and regulations from the Govt to safeguard national and consumer interest. The US model of De-regulation from 1978 has increased market forces in aviation. NALSAR University centre of air and space law is directed by Prof. Balakista Reddy. In response to national needs, Prof. Reddy

has started a course for aviation management and air law. Growth in aviation is related to market economy. There are still large areas of country to be air-linked. The economic zones need low airfare operations. Some experts suggest that Govt pay subsidy to airlines when needed, to keep them flying. FDI in aviation has been helpful to develop major international airports. FDI can help new airports development as well, and airlines in the country as has been approved recently. Employment and tourism will improve.

Thus we conclude that civil aviation and air law look to the future with great hope. Aviation will help country achieve various goals of development, tourism, connectivity, health-care measures in mountain areas, and help small and medium industry operators. Aviation also enables India's growing population to settle abroad, and visit homeland periodically. Orville and Wilbur Wright did not anticipate this magnificent view of future for their small flight in Kitty Hawk, on 17 December, 1903, just a century ago.

FOOTNOTES

1. See Prof. Arnold Toynbee, "*Man out of harmony with nature*", Hindustan Times (New Delhi), 5 January, 1968. Cited in my book S. Bhatt, *Environment Protection And International Law*, Radiant Publishers, New Delhi, 1985, p. 19, and n. 40.
2. See Report of Planning Commission for 12th Five Year Plan.
3. See S. Bhatt, *Aviation Environment and World Order*, New Delhi, pages 181, 1980, with Foreword by Mr Justice V. R. Krishna Iyer, former Judge Supreme Court of India. Also B. D. Nag Chaudhuri and S. Bhatt, *The Global Environment Movement: A New Hope For Mankind*, pages 69, 1987.
4. See *ICAO Council Report*, 2011, Montreal, Canada.
5. See Times of India, New Delhi, 12 December, 2011.
6. S. Bhatt, n. 1.

Chapter 13

VALEDICTORY ADDRESS BY PROF. DR. SALIGRAM BHATT

On 11. 4. 2015 at Kerala Law Academy Law College in International Conference on Space Law relating to challenges and responses and moving forward. Paper title by Prof. Bhatt: The glorious functions of modern space law for world society.

INTRODUCTION

I have great pleasure to deliver this valedictory address to this global conference that comprises of great scholars, experts, scientists, students, and people from various walks of life. We are living in space age with common interests, common aspirations. Space scientists and space lawyers have created a wonderful global society that is interdependent. We have global communication, integrated education about this world and the universe. We have new means to share economic benefits and remove global poverty. We move in a federal world with a multi-cultural life-style made possible by space law and space exploration. During last three days this great centre of knowledge and wisdom has many brilliant presentations that we all have enjoyed. In the process, we have moved forward in solving problems of humankind. Law is a problem solving process, say leading jurists of our time like Prof. Myres McDougal from Yale Law School. Space law has produced new knowledge about the planet earth and the universe. In the UN General Assembly, the Indian representative said almost at the start of space exploration that it is hoped that this new knowledge will be shared by all nations. He stressed the need for peaceful uses of outer space. He was an icon of the philosophy of non-violence which today is followed being necessary for this civilisation with so many countries

showing their weapons of mass destruction. But Prof. Arnold Toynbee like Krishna Menon, J. L. Nehru and Gandhiji says that peace studies have no motivation for anyone, but peace. The Kerala Law Academy will I am sure take jurisprudence of space law to new heights, as space exploration and space law have according to ISRO National Paper for UN Conference on space exploration in Vienna, in July 1999, to resolve all the problems of socio-economic and scientific nature of India and the world at large. A new science is born for service of humankind. A new relationship is seen in between space law and space science. Let us see below some applications of space law and science for peaceful uses of outer space, for progress of humankind, for poverty removal, for removing global warming, and for protection of mother earth.

Will briefly refer to some current functions of space law of utmost concern to national and global society. I will take help from a very important GOI report called Agenda 21: An Assessment published by MOEF in 2002, as a response to UN Conference named RIO Declaration On Environment And Development. This Declaration Preamble calls for global partnership by societies and people, to respect integrity of global environmental and developmental systems, and recognise the interdependent and integral nature of earth, our home. It pronounces some principles. In first principle the Declaration says : "Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature." I will cite from this GOI document its chapters that concern sustainable development, and how GOI relies on space exploration and peaceful uses to meet targets of sustainable developments. Since 2002, the earth has been impacted much more by factors like climate change and population pressures. Kerala indeed has now zero population growth, to be emulated by other state. The Doc on Agenda 21 refers to laws for environment protection especially for water, air, forests and wildlife, hazardous waste, etc. It refers to energy uses, transport, industry, water, atmosphere and climate change, forests, biodiversity, marine and coastal environments, fragile eco-systems in mountains, land uses, agriculture, urban governance, and poverty eradication and human resources development. I request you all to read this wonderful document prepared by MOEF, GOI. In the Foreword the then Prime Minister of India Mr A. B. Bajpai has appreciated the progress for sustainable development. Shri Bajpai is awarded a Bharat Ratna recently

for his services to the country. He recalls in Agenda 21 that India is a democracy, with independent judiciary, a vigilant media that helps sustainable development. He says India has a long journey ahead to get our goals for sustainable development. When needed, there may be course corrections for our efforts. To this observation, we add here that India has a wonderful constitution, based on rule of law and human dignity. It is federal in nature, and ecological planning goes well with federal distribution of laws and responsibility. Even the global society sees an expansion of federalism. Space exploration helps federal society better. It also provides for unity of humankind with nature and with multiple societies, probably first time in history.

AN OVERVIEW OF SUSTAINABLE DEVELOPMENT AND SPACE EXPLORATION AND SPACE LAWS

Agenda 21 reports on page 35 the "Natural resource management and environmental protection: use of remote sensing (from outer space)." It says that "Use of remote sensing in integrating environment and development at the policy planning and management levels." These national decisions involve National Natural Resource Management Systems. It says that remote sensing is playing important role in providing information on physical environment parameters like land and climate, vegetation, soils, water, terrain and slope, land use, air and water pollution etc. Forest cover mapping is done by remote sensing satellites. Some universities like IGNOU in New Delhi have programmes for agriculture production along with remote sensing information on land quality. Prof. M. S. Swaminathan from agriculture, and Prof. U. R. Rao former chairman ISRO have interacted in this joint revolutionary programme for food production. Recently, the Prime Minister has started a programme for farmers to give land use cards after testing their soils for green production.

Agenda 21 refers at page to Role of remote sensing in strengthening the legal and regulatory framework for environment protection. Besides, it is now commonly understood that courts and the gentle in bar will use new methods to help early decisions in courts. Documents can be screened quickly. Skp can be used to get witnesses from long distances. Arbitration courts can help decide cases in short time. It is nice to recall celebrated scientists like Prof. Stephen Hawking who talks of tomorrow often. He says at page 168 that "—the rate of progress is so

rapid that what one learns at school or university is always a bit out of the date. Only a few people can keep up with the rapidly advancing frontier of knowledge, and they have to devote their whole time to it and specialise in a small area. "No wonder the Supreme Court in India have created special benches to decide socio-economic issues. The UN has advised the ICJ to monitor the growing role of space law for world order problems. The Judges now move to universities to monitor space law. That exercise maybe useful in India when learned judges take to the deliberations of law universities. I recall that late Justice V. R. Krishna Iyer had interactions in ISIL with young scholars. He contributed to the jurisprudence of space and air law. I am sure the Kerala Law Academy will hold more conferences involving the role of space law in various fields of natural resources management. At this point I refer briefly to contribution of Prof. Myres McDougal from Yale Law School who wrote a big volume with Profs. Lasswell, Ivan Vlasic in 1963 called Law And Public Order In Space. This book lays down the principles and practices in space law frontier that have shaped Outer Space Treaty and international relations between states in space frontier. He proposed definition of law as human expectations, proposed a minimum order when states need to avoid violence and increase confidence building measures, proposed optimum order that promotes international cooperation between states. He was a saint -jurist who trained a large number of global scholars. He called for a theory about law, not theory of law, to promote law of human dignity. He addressed Indian jurists in ILI in 1965 or so, and recommended contextual jurisprudence in which decisions are based in time and context with focus on problem, participants, past practice, reason for past practice, and appraisal and recommendations He always recommended the creative function of law. . We pay tribute to this great jurist of humankind.

Chapter 14

ANSAL UNIVERSITY WATER LAWS LECTURE ON 29 MARCH, 2016 BY PROF. SALIGRAM BHATT, PROF. EMERITUS, NORTHCAP UNIVERSITY, GURGAON, HARYANA

INTRODUCTION

This lecture reviews briefly current developments in water laws and need for conservation of water resources as demand for water has multiplied, and water sources are getting depleted by bad planning and old water laws not focussed enough for minimum uses and ecological planning.

USES OF WATER RESOURCES

Water is needed for human drinking, drink by other life forms like cattle, for agriculture, for various foods, for forests growth, and eco-systems.

WATER LAWS IN INDIA

Water Prevention and Control of Pollution Act 1974; Env. Protection Act 1986 ;Forest Conservation Act 1980, amended 1988; Env. Assessment Development Act for projects, 1994.

NATIONAL WATER POLICY 2002

Calls for integrated management;river basins in focus;water part of larger eco-system;need for conservation;multi-disciplinary approach;avoid excess ground water use;both state and Centre govts responsible for over exploitation;water for tribal people.

HOW WATER POLICY IS IMPLEMENTED

National Water Resources Council; National Water Board, helps NWRC; Ministry of Water Resources makes agenda for NWRC; The Centre Water Commission, works as Secretariat; The Central Ground Water Board, assesses ground water by geo-hydrological means, decides on bank loans for ground water uses; The Central Ground Water Authority, regulates gr. water for env. purposes, and avoid over-exploitation.

NEW REFORMS OF WATER LAWS

Innovative policies for water uses; hydro-power uses; domestic supply regulated; rural water supply regulated to avoid harmful impurities.

OTHER NEW REFORMS AND INITIATIVES

Rainwater harvesting; river linking projects; making dams; fill up lakes and ponds by rainwater for supply in drought time, and use them during floods as in Tamil Nadu, Kashmir etc.

PERSPECTIVES FOR NEW DRAFT WATER LAW FOR INDIA

Need for making water grids to transfer extra water from North to South; store waer in East India; make adaptations for cultivation crops as per Monsoon behaviour and climate change; help keep waters full in lakes and ponds; do rainwater cultivation for all homes; dig a million wells to store water in monsoon; conserve domestic supply; use forests to cleac Ganga, Yamuna flood path.

Chapter 15

REFUGEE LAW AND INTERACTION WITH GLOBAL ENVIRONMENTAL LAW

Paper for national seminar on Refugee Law by Ansal University, Gurgaon on 5, 6, April, 2016. Paper by Prof. Saligram Bhatt. Fmr Hony Prof. International Law, Space Law, JNU; UN And World Bank Adviser in Africa, Central Asia.

INTRODUCTION

This paper briefly discusses the interface between refugee law and global environmental law. Let me refer to Paris Summit Agreement in December 2015, and 17 New Sustainable Goals adopted by UNGA earlier in 2015. These NSGs are meant to protect humankind and the global environment from destruction by global warming and climate change. The present author has published a book recently with the title Global Warming And Climate Change, APH Publishing, New Delhi, pp. 385, 2016. The need for global civilisation is peace between nations, and harmony with nature. Historian Arnold Toynbee has warned humankind to seek harmony with nature. His last book had title of Mother Earth. He came to India, mentioned the merits of meditation, multiculturalism, and conservation of nature. He also voted for a federal structure of constitution, which he said suits various communities. The majority community must protect interests of minorities. And minorities must cooperate with majority community, for nation building. This was world-view in 1960, 1970s in India and the world at large. We had not much refugee problems then.

REFUGEE LAW DEFINED

The UN Convention 1951 Relating to Status of Refugees defines a refugee as follows: “ A refugee is a person who, owing

to a well-founded fear of persecution for reasons of race, religion, nationality, membership of a social or political group or political opinion, is outside the country of his origin and is unable or unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it. ”

A WORLD OF TERRORISM IN RECENT YEARS

Global terrorism based on race, radical religion, etc has driven millions of humankind to the status of refugees. At this time of writing, we see millions of refugees from Syria, Iraq, Libya and other parts of Middle East, and some from Africa, Afghanistan, —all wanting asylum to live safely in Europe, Canada, Australia and other countries. Recent terror strikes in Belgium in Europe has shaken faith in multi-cultural world. Hence religious leaders including Rev. Pope from Vatican City have prayed for peace between communities and religions. Sri Sri Ravi Shanker held recently for world peace a Global Cultural Event in New Delhi for humankind. The US Administration is keen to stop terror in Pakistan where only on 27 March 2016 some 70 people were killed by terrorists, mostly Christians, and some Muslims.

TERRORISM AND IMPACT ON ENVIRONMENTS

Terrorism has deprived a large part of humankind from their normal habitats. The environment of forests, water resources, big cities and villages, are totally damaged by aerial and ground warfare. Iraq, Syria, Libya, Eden are heavily bombed. The EU has persuaded Turkey to accept refugees coming from strife-torn countries. There is hope that ISIL country will be defeated due recent success by EU, USA, and Russia combining their defence efforts. Eden King is returning from Saudi Arabia where he was made to run by his opponents. It will take some time for the world to finish terrorism. But all countries are united to live in peace and reduce violence in the world. A new world order is in the making based on removal of poverty and hunger, the new global human rights. Sustainable Development has great hope for mankind. Barbara Ward and Renee Dubas wrote the inciting report on 1972 Stockholm UN Declaration called Only One Earth: The Care and Maintenance

Of A Small Planet. Let us read this glorious monumental book again. Human rights and refugee laws will be reformed to offer solace to those who have suffered at the hands of barbarians, terrorists. Let us all pray together for world peace. Om Shanti Shanti Shanti Heh.

Chapter 16

INDIAN CONSTITUTION AND INTERACTION WITH INTERNATIONAL LAW FOR ECONOMIC AND SOCIAL PROGRESS

Lecture By Prof.Saligram Bhatt in Ideal Institute Of Management And Technology,And School Of Law,GGS University,16X Karkardoma Institutional Area Delhi 92.Rakesh Aggarwal Memorial Seminar On International Law : Relationship Between The Union and the States: A Constitutional Dilemma.

INTRODUCTION

The purpose of this lecture is to describe role of air law,space law,environmental law as part of Indian constitutional law for economic,social and cultural progress. Major indicators of economic progress by above laws as planned by experts in international law,and adopted by India as part of india constitutional law.

Essential Features Of Indian Constitution. An outstanding legal document with nice adjustment of powers between legislature,executive and judiciary. Also excellent distribution in the federal structure between Union and States. The focus on panchayats as units for governance. Recent domestic legislation based on global practices and sustainable developments. Need for Sadhna as Gandhiji has advised, selfless service to humankind. Constitution supports sadhna,human freedoms,and human rights,including right to life.

Role of air law,space law,environmental law for economic and social progress. In the UN system we find specialised agencies like who,wmo, icao,space agency, Unep etc have done great service

to this civilisation,compared to the political organs like Security Council,General assembly,etc.The Specialised Agencies are saving Mother Earth.Humankind is following laws drafted by UN as Declarations for environment protection, harmony with Nature,sustainable development,and control of global warming and climate change.India Constitution has adopted to above dictates of international laws to be followed in india.Above international laws take into account interests of states.Sovereignty of states is protected.States also promote common interests of humankind contained in international laws.A shared vision has been accepted for use of oceans,outer space and even in aviation/air law.

CONCLUSION

Civilisation is on pathway to progress.Modern international law has become the common law of humankind. Hence we see harmony between interests of states and the Union in a federal/ecological structure of India's Constitution.Hence,there is no constitutional dilemma. A few Politian do make noise inside legislatures;but that has no impact on course the country is following by creative union of law and science.

Prof.Saligram Bhatt.Prof.Emeritus,School of Law,Northcap University,Gurgaon,Haryana,India.Email <bhattsaligram@yahoo.co.in>

Chapter 17

LECTURE ON BIOSPHERE MANAGEMENT, HUMAN HEALTH PROBLEMS, AND SUSTAINABLE DEVELOPMENT

Lecture in School of Life Sciences on 21 Jan 2016, by Prof. Saligram Bhatt, Professor Emeritus, School of Law, Northcap University, Gurgaon. Former Hony Prof. Int. Law, Space Law, SIS, JNU, New Delhi; UN and World Bank Adviser in Africa, Central Asia.

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2. UNESCO Conference 1968 on Biosphere Management. Also UNESCO Conference 1971 on Science And Synthesis with a biological (ecological) view of world order of planet Earth.
3. UN Declaration 1972 at Environment Protection.
4. Rio UN Declaration for Economic development. Principles of Environmental Law for Sustainable development.
5. Human health problems due global warming and climate change.
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Chapter 18

KASHMIR SUSTAINABLE DEVELOPMENT: ISSUES AND HOPES

Prof. Saligram Bhatt. Prof. Environmental Law, International Space Law, JNU, Earlier; Hony Prof. Centre For Federal Studies, Jamia Hamdard, New Delhi; Prof. Emeritus, School of Law, Northcop University, Gurgaon.

INTRODUCTION

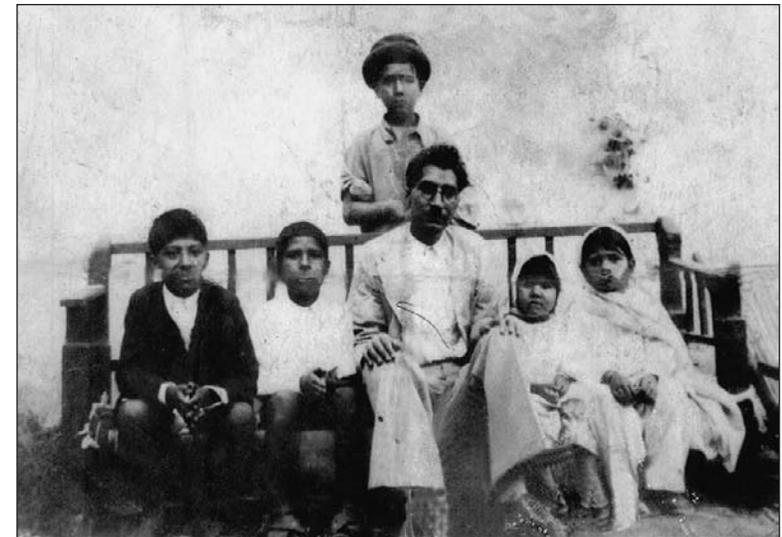
My recent visit to Kashmir valley was during 1st June to 15th June, 2016. We saw various places in peace, including Gurez Valley, about 100 kms from Srinagar. We attended Kheer Bhawani, Tulla Mulla for prayers. Also met some old friends related to big fakir Esteemed Akram Sahib whom my grand mother living nearby took me for reverence. I saw my burnt home in Kharapore, Bandipore. Met some old neighbours. In Bandipore town, I met my old classmate we call him Am Peer. Other classmates like Mohamed Khalil are dead now. Bandipore town seemed full of economic activity. Gurez valley people were friendly. They speak Shena language and have local culture gatherings. LOC is just across Choorwan a town in Gurez. River Dudganga flows in Gurez, coming out from Himaliyas under Indian control. Some part of Dudganga is made use for electric power supply before it rejoins Jhelum river going to Pakistan.

During 6th to 14th June I with my family stayed in Zaberwan Guest House in Kashmir University. I had three lectures on environment law and manage in Law School, one lecture in space law and SD in Department of Earth Sciences, and one lecture on SD in general in Department of Central Asia, Kashmir University. I must say with

gratitude to the students, faculty, how keenly they all listened to my lectures. Even my wife spoke in Central Asia on waste management disposal, and many took notes. Dr Krishna Bhatt also was invited in the Institute of Home Sciences where she spoke extensively on waste management practices in Gurgaon where she has taken large part.

THEME OF PROF. SALIGRAM BHATT'S LECTURES IN KASHMIR UNIVERSITY

I had to outline what UN Declarations like 1972 in Stockholm have elaborated briefly. I referred to other UN Declaration like World Charter For Nature, 1982; The Hague Declaration on Environment, 1989 that first time warns about global warming and climate change; and the Rio Declaration on Environment and Development that defines SD and principles. It defines SD when it says: "Human beings are at the centre of concerns for SD. They are entitled to a healthy and productive life in harmony with nature". Harmony with nature is the major focus of SD.



Prof. Saligram Bhatt with father Pt Radhakrishen Bhat, Head Clerk Gilgit Scout, in 1943 in Gilgit, Kashmir, along with two sisters Sheila and Krishna, and younger brother Bansilal Bhat. At back standing is Khudadad the helper in house from Hunza. Photo taken by Col. Jamal Khan, later Mir of Hunza.



Book Release Ceremony of Dr Saligram Bhatt in December 1974 by late Mr V.K. Krishna Menon, President, Indian Society International Law, New Delhi. Title of book Legal Controls of Outer Space: Law, Freedom and Responsibility.

AIR POLLUTION ISSUE

I told students how air pollution is becoming a disaster. There are over three lacs vehicles with two crores humans living in a fragile eco-system of Himalayas, giving out GHG that creates global warming and climate change=CC, and gives dirty air to breathe. Large scale health diseases like cancer etc are reported all over the valley that was a health resort once. Most of patients borrow to reach some good hospitals in NCR Delhi, and other parts of India. I was shocked that my classmate Kamli has died while being taken to AIIMS in Delhi. Long ago in my childhood in 1947 to 1951 in valley, we used cycles. But now cars are status symbol. And there are no roads to ply three or four lacs of vehicles. Air pollution has caused havoc in Kashmir with GHG. In 2014 Kashmir suffered grave floods and the valley homes were devastated and broken. Thousands died.

WATER POLLUTION ISSUES

Water bodies like Dal Lake, Wular Lake are encouraged upon by humans for living. Dal lake is half shrunk. Wular lake has colonies all

over. It is no more used for water transport. In addition, water ponds in Srinagar outskirts and in countryside are gone by homes made by population. In my childhood 60 years ago, waste land was plenty with ponds not occupied by people. These were used by cattle. Today water resources are shrunk and polluted. Clean riversides are polluted. Human waste that can produce electricity is dumped into wetlakes. Wildbirds from other countries who visited Kashmir wetlands are no more there. Kashmir eco-systems are in danger unless urgent steps are taken to revive nature, go for nature conservation, as in other parts of India.

URGENT STEPS NEEDED TO REVIVE NATURE IN KASHMIR

The State Govt and GOI are dedicated to revive nature. But you need peace. You need young people to revive nature by new methods and steps like follows: Convince people to give up private cars, use public CNG transport. Use Metro transport where available. Clean river Jehlum and use boats in Srinagar city, between Srinagar to Sumbal, Ajas, Bandipore with new motor launches using battery. Go for mass afforestation, both social, and over forests; plan affordable homes in vertical flats with sports, health, education facilities; plan for tourism in big way with local food available on carts, home made; and plan for new skills training like cookery (in Goa ten thousands Kashmiri cooks have found jobs); tailoring; plumbing; waste management; IT training; electricians. Also my recommendations to have few Kashmiri colonies in places like NCR, Gurgaon to buy one room or two rooms apartment to be used mostly in winter for sunshine and healthcare for older generation.

GREAT HOPE IN KASHMIR FOR SD

Kashmir has education institutions. It has interaction with other education institutions in India. India has know-how to treat Himalayan Ecology. In next ten years, Kashmir will get into full shape for SD like other states in India.

A SHORT AUTOBIOGRAPHY OF PROF. SALIGRAM BHATT, 1931–2016

INTRODUCTION

At my age nearing 86, it is interesting to write an autobiography to reflect on this vast changed world since last 80 years or so. Did we anticipate these changes. The UN was not born, and has almost 96 or so sovereign members. The population in 1931 was about one billion. India had about 25 crores people in undivided India. There were large number of countries under colonialism. Major colonial powers were UK, France, Spain, Germany. Hitler was rising in Germany after First World War ended in 1919. Other European powers were trying to face Germany. Today in recent times EU was made after WW Two ended with support of US in particular to have 26 countries living as one nation with common market and single currency. This experiment has partly failed with Brexit recently. Yet another dimension has been added to global life called terrorism by ISIS in Iraq, Syria and some other pockets in the world by Islamic radicals. Bin Laden was in charge of this disaster project who directed 9/11 terror project in 2001 with big terror attacks in New York and neighbourhood. He was located and killed by US forces in Pakistan.

What a contrast between the world of 1931 and today's world in 2016. Global technology has produced threats to civilisation from global armaments, weapons of mass destruction, and terrorism that has posed dangers for civilisation all over. My concern in this short autobiography is to write what humans lived in earlier years in peace and harmony. And as Plato says, the primitive stage of civilisation is the happy and advance stage. The world to my mind is trying to go back to rural life, a primitive life as tribals lived, with less consumption of natural resources, living in big joint families, and with sustainable development. India has big programme on managing diversity with multiculture civilisation, looking for common elements of spiritual life,

yoga exercise for health, and living in conservation lifestyle. India has great faith in international law for peace and cooperation; and looks to a sustainable world order. Views expressed in this autobiography are personal as a scholar. They are not connected to institutions I have served. This include, UN, World Bank, Govt of India, universities I have served or interacted with. I am indeed thankful to these institutions that enabled me travel to some parts of world to observe myself these global changes. I don't wish to hurt any feeling. I like Arnold Toynbee, who says it is nice to be a saint scholar. I have strived through last sixty years or so to combine scholars to make our world peaceful, and protect nature from the harm done for economic greeds by mankind. I am a kind of historian for a comparative study of word order that has drastically changed due global technology and population since 1931 or so. My ancestors lived in 19th century from whom I imbibed values of life to face values of 20th century in which I have lived mostly. Being in 21st century, I see a great many changes in time and space. From a close knit of a village life of past two centuries, 21st century is a globalised, expanded digital world. It looks sometimes that mankind



Photo of Swami Vevekananda in 1898 in Kheer Bhawani, Tulla Mulla, Kashmir along with other saints and Kashmiri Pandits who received Swamiji in Srinagar and took him to Kheer Bhawani. These included Prof. P.N.K. Bamezai, Pt. Lal Kaul. Prof. Saligram Bhatt was born in Tulla Mulla in 1931. His mother's relation seem seated on the ground.



Family photo of Pt. Man Bhat taken in front of home in village Kharapore, Bandipore in 1925. Man Bhat was the Commissioner in Bandipore during his service under Dogra Regime. He served in Gilgit, Astore, etc. Man Bhat's house was used for stay of saints and sages. This house has produced IAS officers, Ambassadors and educationist in modern times. Man Bhat was the great grand father of Prof. Saligram Bhat.

is unwittingly have own interest as a major goal for international relations. A kind of bad species living on earth knowing that extinction can be in the future due over population, terrorism, global armament race, and lack of vision to live in harmony with nature, in spite of the gospel of sustainable development of modern times. But do we know how much nature can sustain? The natural disasters remind us that nature's ecological balance is breaking down in places. Climate has changed. World is hotter, as never before. There are challenges ahead for humans all over the world. Once again Arnold Toynbee makes a hopeful observation that world history is based on challenge and response. Humankind is used to respond to historical challenges.

THE JOURNEY OF MY LIFE; 1931–2015

Birthplace Tullamulla, Kashmir 1931

I write these chapters about the journey of my life from my birth on 17. 1. 1931 to present day. Some of my friends and students asked me to write this book, a sort of my memoirs as I have seen the world

changed drastically since year 1931 when I was born in Tullamulla, Kashmir where my mother Tulsi Devi had her parents. Those years, the tradition was for women to deliver babies in their parents place generally. After a month or so, the mother and the baby were sent to their normal homes where their husbands lived. My grand mother Rajrani gave me my name as Saligram. She thought I was born on an auspicious day and told my mother that i will become a great person in life. My mother often told me so. I was sent to Devi Angan in Kheer Bhawani on eleventh day after my birth to get the blessings from Durgamaji. World over, Kheer Bhawani is considered a great spiritual place. Where Devi Durgaji lives inside the spring surrounded by chinari trees. Hindus from all states in India, and Kashmiri Pandits in particular hold mass prayers on certain occasions in the year. They perform Hawans, distribute food and kheer. Large number of tourists who visit Shri Amarnath in summer, make their itinerary via Kheer Bhawani. Some stay there for a day or two. The Govt has made a few dozen rooms for stay of pilgrims. The colour of spring changes as per times of peace and social disturbance. Books have been written on Kheer Bhawani devi. One with title is New Goddess Is Born, which is research based and written from Hawaii, in US. Swami Vivekananda the great Hindu saint visited Kheer Bhawani in year 1898. He meditated on Durgamaji and got a vision as is recorded by him. A tree near the spring marks the place where Swamiji meditated. Thus my birth place is a spiritual centre in Kashmir. Even muslims also worship Kheer Bhawani and bring flowers and local herbs to be given to Hindu pilgrims who offer them before Deviji. Among prominent visitors to Kheer Bhawani are Dr Karan Singh, Mr Farooq Abdulla former Chief Minister of Kashmir. During my childhood, pilgrims and sadhus stayed at Kheer Bhawani and prayed. There were Hawans performed so often. Hindus used to walk to Kheer Bhawani from villages and towns situated far away. I also recall total harmony between Hindus and Muslims. In 1931 to 1945 I visited Kheer Bhawani often with my parents. We stayed with my mothers parents. Our grandmother Rajrani used to take us to pay respects to a leading Muslim saint living in their neighbourhood. His name I recall was Saint Akram Shah. He later shifted to bigger place in Dangharpur where muslims and old Hindu neighbours visited him. Mutual respect for Hindu, Muslim saints was common all over Kashmir. Old generation Kashmiri Muslims and Kashmiri Pandits now remember

mutual love and harmony between all communities. The present period when terrorism has driven away Kashmiri Pandits out of their homes to places outside Kashmir is a great historical loss to all humankind. Kashmiriat has got a severe setback. In his important historical book *The Valley Of Kashmir* written in about 1895 or so, T. H. Lawrence the author writes that there was not a single gun or rifle with anyone in Kashmir during 19th century in Kashmir. Temples and mosques were situated side by side. There was total peace and harmony in Kashmir as I myself saw from my birth in 1931 to 1947 when I left Kashmir for higher education in Punjab.

THE JOURNEY OF MY LIFE 1931–2016

Bandipore, Kashmir: My Home Town Years 1931–1947

Bandipore is my home town. In Kharapore village my ancestors had decided to settle around 1850. Pandit Mahtab Bhat and his brother had moved from kanya kadal Srinagar to settle in village environments. Mahtab Bhat settled in Kharapore, and brother in Ajar village about a km far from Kharapore. It was the period when Dogras took over rule in Kashmir from Sikhs. With secure life conditions in Kashmir, Kashmiri Pandits of limited number had returned from outside Kashmir to live in some parts like Bandipore. Land available was plenty all over. Mahtab Bhat was a spiritual saint, did puja in a cottage for 12 years and then built a house in village Kharapore in 1870 or so. He had a number of children who later split and established own families. Among his sons was Pandit Man Bhat who died in 1927 or so at age 85. The big household of Man Bhat came to be known in many parts of Kashmir. This family is not separated even to this day, though its three big houses are burnt in 1990s by terrorist Muslims. Man Bhat family produced outstanding scholars. One became an ambassador of India. Another person joined early IAS. Many became noble teachers in schools. Above all, Man Bhat house was a lodge for many saints and sages of Kashmir. These included Swami of Trihgama a direct disciple of Bhagwan Ramakrishna of Belur Math, Swami Nand Lal Kaul of Trikura in Kupwara region, Swami Moni Bhaba who set up an ashram in Bandipore, and later in 1990s in village Hiranki about 30kms from Kashmiri Gate old Delhi.

Man Bhat family had a big role to supply goods and transport to Gilgit Agency in Gilgit. A big gowdown was made in Gilgit on

the banks of river Gilgit. There were rest homes along 200 miles journey from Bandipore to Gilgit. My father Pandit Radhakrishn Bhat became Head Clerk Gilgit Scouts, a prestigious position those days. The British had leased from Dogra Maharaja Gilgit Agency in 1935. Thus my childhood was spent in Gilgit from 1931 to 1943 when I got transferred to study further than 8th class in a school in Bandipore and later in Srinagar. Gilgit that I saw during above period was an enchanting town, very beautiful, very peaceful. It had clean waters and fruit trees in most places. There was no technology, not even a cycle to ride. People walked. Longer journey was done on ponies. Polo on horseback was very popular game. People were very simple, noble, friendly. On festival days they embraced each other. There was no violence, no protest marches. People lived happily. The Raja of Gilgit who was relieved by British Govt used to walk around the town. I as a child saw him few times and greeted him. The population of Gilgit could be not more than twenty thousands. Gilgit was a primitive place; but as Plato says it was the advanced and happy place. People walked in freedom without fear. There were no roadside fights, no thefts. People were clean in mind and pious. It seems it was a paradise on earth. Many other scholars have recorded this glory of Gilgit. But all that golden era has changed. Gilgit is taken by force by Pakistan as POK known today. Pakistan has looted Gilgit culture and harmony. There is turmoil and demonstrations in the streets of Gilgit by innocent people against tyranny of Pakistan rule. These demonstrations are now shown on TV channels. The Plato's Republic that Gilgit was, is dead and gone for ever. These are lessons for our civilisation that humans have changed the face of earth. Pakistan has sold Gilgit to China and that ambitious China is blasting beautiful mountains to make road to seaport via Gilgit. The beauty, solitude, and ecology of that beautiful region is finished for military expansion. Who gains or loses? The Paris Conference in December 2015 of 195 states is to discuss threats from global warming, climate change, and onslaught on nature like the new road blasting old Gilgit town! As one who spent my solitude years in Gilgit, I simply cry quietly at this madness of human nature against mother earth. Are we planning doom for our civilisation? The historian Arnold Toynbee has found the answer. He warns that civilisation will perish if we behave this barbarous way with nature. The human terror has reached places like Paris where on 12 November 15 we saw civilisation being finished

by mad terrorists by killing 127 peaceful civilians. Whether it is terror against nature in places like Gilgit, or terror against unarmed civil population like Paris, we see civilisation in grave danger. PM Modi rightly says that humankind must define terror to eliminate it. We have before us a country like Pakistan that trains terrorists, exports them, and gives them shelter like Bin Laden who devastated US by surprise bombings using humans onboard aircraft as bombs. The history has changed since 9/11 in 2002.

THE JOURNEY OF MY LIFE 1931–2016

My Years In Srinagar, Kashmir 1944-1948.

From Gilgit school I came to Bandipore in 1943 to finish my 8th class education then move to Srinagar for higher education. The few months of my school in Bandipore in 1943 were memorable. The teachers and my classmates made deep impression on my mind. Hab Saab was the Persian teacher. His bosom friend was Nil Kanth Kaul or Nil Kak who were saintly persons. They always moved together with their noble faces. Got admiration from all students. In later years Hab SAAB became known a big saint of Kashmir. He even taught in Govt State School in Srinagar in 1945 onwards. It looked he was classmate of my father Radhakrishen. Another teacher in Bandipore School was Gulam Rasool Nazki who taught us urdu and poetry. He was a poet by himself and saintly. I once shared a boat ride with him from Bandipore to Sopore via Wular lake. There were no buses plying between Bandipore to Srinagar during winter months when snow covered roads were impossible to be used. The road between Bandipore and Srinagar went over hills and there were many accidents. One brave driver Gulam Khan was known to take buses with passengers on that route. About my teacher Gulam Rasool Nazki I have a storey to tell here. I was invited to lecture in Nalsar university Hyderabad in 2006 or so. A student by name Nazki from Kashmir wanted to see me like other students. When I met him, I mentioned that Nazki was my teacher in Bandipore in year 1943. The student informed his father who was Chief Justice of Hyderabad High Court, and also Chancellor of Nalsar University in Hyderabad. It seemed my teacher Nazki was his father, and Justice Nazki was his posthumous child. Then we got a call to have dinner with Justice Nazki along with other teachers. As we entered

his drawing room, I saw picture of my teacher Nazki. For next half an hour Justice Nazki wanted to know how his father taught and behaved towards his students as he Justice Nazki had not seen him. It maybe said with reverence that Nazki Sahib was a great teacher, poet, writer acknowledge all over Kashmir and was associated with Kashmir Arts Academy and some such institutions in India.

I went to join Srinagar State High School in Dilawar Khan area in 1944. Spent two years to pass my matric exam from Punjab University in 1946. There was no Kashmir university then in Kashmir. Now there are a few in various areas including engineering, medical science, agriculture, and of course the big university in Hazratbal area. My high school teachers were great indeed. They were saintly and loved me as I was a good student come from village Bandipore. Mention is made of Pt Maheshwar Nath, a small size teacher who worked hard to make all his students knowledgeable. My farm teacher in 10th class was Pt Prem Nath a good mathematician and teacher of English language. Having got a first class in my matric, unusual performance those days, he came to school to give his blessings. After his retirement, I visited his home in Zainakadal area and gave him flowers. He came to know our ancestral house of Man Bhat in Bandipore was known for saints and scholarship.

From State School in Fateh Kadal, I joined S. P. College for more studies in F. Sc class. Principal B. K. Madan was the Principal well-known in Kashmir. His son Vijay Madan was my classmate who joined army and rose to be a Lt. Gen rank. He is settled in Nashak area perhaps. The degree college was known as Amar Singh degree college. S. P college had limits of education upto F. A. or F. Sc. The story goes that around 1905 or so Anne Besant visited Srinagar on invitation of Maharaja Pratap Singh. Along with Raja Upendra Krishen Kaul a Kashmiri Pandit noble man they had a meeting to establish a college in Srinagar affiliated to Benaras University in 1965 and later to Punjab University in 1811. Meeting took place in a school in Fateh Kadal. Upendra Krishen kaul donated all land where present S. P. College is situated. Classes were kept in open until some rooms were made. M. U. Moore was made the college Principal. S. P. College has issued The Pratap magazine a centenary Number in 2005. It provides the history and important old students and teachers. There are nice photographs. My own name figures in this volume as a JNU professor who gave lecture

in college auditorium on Global Warming. I did lecture there and in A. S. college in 1990 before hundreds of students on global environment issues, the air pollution, biodiversity loss, forests degradation, water crisis etc. I called for revival of conservation of nature as important aspect of Kashmiri ethos and culture. My wife Krishna was with me during these lectures when gun holding terrorists were around and listened with interest to my lectures. After the lecture in S. P. College students came in groups and lifted me on shoulders marking their immense affection towards us. The S. P. College Principal Prof. B. A Wani who introduced me in the college big auditorium said "I have been telling you my students that we Kashmiri Muslims can never be able to live without our brethren Kashmiri Pandits". It is a sad thing to see how terror mongering from Pakistan Prime Minister can find place among Kashmiris including all Muslims. In 1947, Muslims fought to drive our raiders from Pakistan. Sherwani was killed by barbarian raiders, but not before he saved Baramullah and by time India sent troops at request of govt of Kashmir to drive out terrorist Pakistan raiders. How to tell Mr Nawaz Shareif that they kill their democratically elected Prime Minister like Begum Bhutto. Does Sharief Sahib not know that Kashmir is a part of India from 1947 after people represented by Sheikh Abdullah Sahib joined India, fought Pakistan raiders in the streets of Srinagar. Besides, the sovereign power of Maharaja Hari Singh signed the Instrument Of accession of Jammu and Kashmir with India. The Simla Agreement between India and Pakistan of 1971 has put a final seal on the line of control. Farooq Abdullah is right always that LOC is final and this fact was understood by their defeated PM Bhutto in Simla Agreement. Yet Pakistan under President Zia and later Musharraf made terrorism as their goal to spread havoc in Kashmir. The people in Kashmir are under constant threat from terrorist Pakistan. The PDP CM Mufti Sahib acknowledged this aspect while assuming office. He said Pakistan terrorists let there be elections held normally in Kashmir. The terrorists however managed to warn those elected to follow what Pakistan says as a terrorist state. Now with EU and North America under similar threat, global leaders including UN Secretary General wants to take global combined action against barbarians like terrorists based in Pakistan and in Middle East.

Let me say a few lines how Kashmir was as I saw in years 1946 to 1948 when there was no fundamentalism, no terrorism, no threats

to human freedom as Aldous Huxley looked for in his book *Brave New World*. There was peace and humanism of a high order. People overcame poverty, helped in distress, worshipped in temples and mosques placed nearby. Saints were looked after. Every mohallah had a Hindu saint or a Muslim saint called peer. These noble souls spread peace and harmony in society. Arnold Toynbee was so much fond of saints. In his lecture in India on *India And One World*, he said sainthood is a noble profession. He mentioned how meditation was essential as an art for living. He said this art of meditation was followed in Europe in the Middle Ages. But now this art and sainthood is forgotten in the West. He spoke before Nehru in 1960 or so. Since then we see for ourselves how meditation and yoga are spread world over. June 21 is taken by UN as a Yoda day for world peace. PM Modi has spread this message of peace by yoga, by claiming India as a country with diversity. I add here that Kashmir has a multi-cultural heritage for centuries, punctured only by terrorism imported from outside Kashmir. Our task is to cultivate pure brand of multi-cultural heritage in Kashmir. For your study, I recommend strongly T. H. Lawrence book *The Valley Of Kashmir* written in 1895 or so. It describes how the two communities lived together in 19th century. The environment movement of our time further teaches us to cultivate conservation of nature, harmony with nature, and sustainable development (SD). SD is a new goal for our civilisation to survive. More on this subject in later chapters.

THE JOURNEY OF MY LIFE 1931–2016

Kashmiri Pandits as I Saw them as Sages and Saints During 1943–1949 in Srinagar

Today Kashmiri Pandits (KPs) are known all over the world for two reasons: They have been forced to leave their homes in Kashmir by Muslims in the year 1990 onwards. Pakistan sent terrorists to Kashmir and trained some Kashmiris after paying them money who were instrumental for massacre of KPs, and loot and destruction of their homes. KPs have been the original inhabitants of Kashmir. During Aurangzeb's rule in Delhi, fundamentalist Muslim rulers converted Hindus, killed large number and a few survived and migrated to other parts of India. KPs went in groups to complain to Guru Tekh Bahadur

in Punjab regarding their forced conversion to Islam by Aurangzeb. Guruji told KPs to tell Aurangzeb to convert Guruji first and he will fight for KPs who were being forced to convert their religion. Guruji was summoned by Aurangzeb and told to be converted to Islam. Guruji protested and Aurangzeb got him killed. Guruji became a martyr for the cause of saving a community. His son Guru Gobind Singh made all efforts to make Sikhs as warriors to defend themselves against cruel muslim rule by Aurangzeb. This is how one muslim King can ruin communal harmony in India.

I Saw Love And Harmony Between Two Communities In Srinagar during 1943–1947

It was a glorious period of mutual love and harmony between muslims and Hindus during the 19th century as T. H. Lawrence records in his famous book the valley of Kashmir. I saw with my own experience that hindus and muslims in Kashmir lived side by side until muslim terrorism imported from Pakistan drove away KPs from their homes, and burnt their homes. My own big house lies today in ruins in Bandipore. It was burnt in 1990. The muslim majority have made no amends for KPs forced migration out of Kashmir. Either they the muslim friends of KPs are scared of terrorists living around. Many muslims have been killed by terrorists.

The harmony between the two communities cannot be finished for ever. Same have common culture, language, eat similar food, worship side by side, and visit mosques and temples often together. Muslims visit Kheer Bhawani and Hindus pay respects at Hazratbal mosque. Besides, the storey of Kashmir I saw was a period of great saints and sages loved and respected by all communities. Swami Lakhman joo, Bhagwan Gopinath, Sri Ramakrishna Ashram, Lalleshwari, Rupa Bhawani, Resh Pir, Parmananda, Krishna Joo Razdan, Sufi poet Swach Kral, Swami Nandlal, Mirzakak, Swami Shanker Razdan, poet Thakurjoo Manvati, Swami Anandji of Villigam, Pandit Sat lal Siboo, Swami Moni Baba, Pt Vishnu Razdan, Kashkak, Pt Man Bhat of Bandipore(my great grand father), and many more were given all reverence. There were many muslim saints/peers busy in blessing people. The holy men and poets made Kashmir holy. KPs I saw worshipped daily and were sages all over. Historian Toynbee says sainthood is a noble profession, essential to create love and harmony in humankind. I saw that Ps were

fond of scholarship that made them spiritually great. So with Kashmiri muslims. The result I saw was total peace in the valley. I recall mu great aunt whose house was opposite to ather of present Maulvi Farooq, the leader in Kashmir in turmoil, wished each other every morning. The Shia processions went along the road outside were peaceful. There were instances of help between hindus and muslims. My uncle had two daughters to marry. And most of expences were provided by two richer contractors. Rather they forced their decision on my uncle. My daughter studied in Kashmir Medical College. Her local guardian was my old classmate muslim docter. There are hundreads of these cases that showed hindu-muslim harmony. Thus I am convinced that Kashmir will be normal in time to come in next ten years. Unemployment will be removed. Tourism will bloom. Terror from Pakistan will be gone by global pressure on Pakistan as terror is being fought today after recent Paris attack, globally together. Peace in Kashmir will help muslims to plan their lives. Population control is already introduced by people. The environment movement can help sustainable development. New smart cities can make Kashmir beautiful again. After forgetting the agony imposed on KPs for long years, they will enter mainstreame of life in Kashmir. They may have some habitats kept separately for them where even Sikhs, and some muslims live side by side. Their security is to be ensured by muslims, and the government as they donot want that terrorism can against disrupt their lives. In old times too during 1043 to 1947 I saw KPs living together on banks of river Jehlum from ist bridge to 7th bridge. There were a few muslim homes too in this region. Hence muslim leaders are not to worry about these separate towns for KPs. Once KPs are made safe in new habitats, they will provide great economic force for development of Kashmir. Many KPs are now employed outside Kashmir. So are many Kashmir muslims. They are the best friends. Why not in Kashmir. There is no need for apprehensions for both communities. In London, KPs and KMs have joined together to celebrate festivals. They have made a common diary with list of those living in UK and original homes in Kashmir. My daughter in Canada recently was perhaps the on KP person who attended a marriage of a KM's daughter in USA across Canada. Married to a black American. See how communities are merging in culture across the world. My secretary in Central Asia was a Christian married to a muslim because there was common language Russian as basis of

bond for marriage. A muslim from Pakistan marrying a hindu girl from Jamaica in Canada that I know about. Both keep their religions. Their children also follow both religions.

While in the midst of turbulence in Kashmir in 1990 I visited Srinagar for my lectures on environment movement and our mother earth being under threat from environment degradation. In a guest house near A. S. College where I was accommodated, I saw on Kashmir TV a nice political talk by four eminent scholarly muslims. They were Gulam Nabi Khayal, Akhtar Mohiuddin, Poet Rehman Rahi and one more scholar. All four were discussing the loss to Kashmir by forced migration of KPs due terrorism. Akhtar Mohiuddin himself a great writer, poet, praised his KP teacher and mentor Prof. Jayalal Kaul. Prof. Rehman Rahi gave a long list of great KPs who were teachers, administrators. Kashmir was a seat of great learning. There have been great poets too. Brij Narain Chekbast was a great urdu poet from Kashmir migrated long time ago to UP. In Lucknow, some big symposium was held recently. A superb poet indeed. Among scientists, we have Dr T. N. Khoshoo who was President of Indian Science in 1986. He delivered his address to science congress on sustainable development. He was also the Environment Secretary who laid foundations for environment protection in India. Got a UNEP award on Gandhi And Environment. Another KP scholar is M. K. Kaw, former Secretary Ministry of Education. He was President of Kashmiri Education Society in Pamposh Enclave for over ten years from 1990. Under his stewardship, KECSS produced ten scholarly books on Kashmiri Pandit heritage. prof. MGK Menon FRS chaired one annual conference. He mentioned some eminent scientists with whom he has worked and who were now migrants and lived in Pamposh Enclave, New Delhi. These were Prof. P. Kachroo the former HOD biology in Kashmir. Dr Motilal Dhar who was close to be chairman National Committee on Science and Technology in DST. Many others in Pamposh Enclave were outstanding poets, writers, mystics. Kashmir is known for Shavism, a great source of knowledge. Abhinavgupta was a legend in this field. Some US academics call him the greatest genius that India has produced. Lalleshwari, and in recent time Swami Lakhmanjoo were world famous experts in Kashmir Shavism. Some global devotees of Swami Lakhmanjoo have set up research centres, including one in California. Within India KPs have established temples, libraries, journals like NAAD and Koshur Samachar

to propagate Kashmiri Pandit culture. A US Congressperson has adopted herself to promoting KP heritage. President Obama sent greetings to KPs celebrating Kashmiri heritage in a cruise ship in US. Jawarlal Nehru university has starting teaching a course in Kashmir Shavism. In Kashmir University a new research centre has been established on KPs ancient knowledge interacting with shaivism and sufi thought and culture. Among scholars, mention is made of Prof. Jayalal Kaul who died in 1986. He was a poet, scholar on Kashmiri heritage. Wrote book on Lalleshwari, on composite culture of Kashmir, book called Kashmir Studies about great poets and saints. Also issued his last book *Mottoes On Sundial*. He established Kashmir Culture Academy in Srinagar. Prof. Rehman Rahi in recent time dedicated his book to his teacher, Prof. Jayalal Kaul. I consider him my mentor too while promoting common multi-culture heritage of Kashmir and India. The Times of India has today 20 November 2015 quoted Edward W. Said as follows: Rather than the manufactured clash of civilisations, we need to concentrate on the slow working together of cultures that overlap, borrow from each other.

THE JOURNEY OF MY LIFE 1931-2016

My Years in Honours School Chemistry, Punjab University, 1948-1951

In 1948, I came to Delhi to join my parents who had come to Delhi as refugees from Fort Sandhaman in Baluchistan in 1947. The partition of country had taken heavy toll of human life. My father told me the family was escorted by soldiers from his para-military regiment who took all pains to escort them upto border ending Baluchistan. However, as they entered Hyderabad Sindh for onward journey by train, they were looted. they hid themselves in bath rooms until the train moved. Somehow, they reached India border escaping death closely. In Delhi they were lodged as refugees in tents in Model Town area collecting firewood by from trees around for a simple meal of dal and roti. Some free food was also supplied by the refugee administration headed by Mehar Chand Khanna. I was in Srinagar in 1947 when people were fighting raiders from Pakista. The army under a major managed to save Srinagar airport, but not before most of that glorious army regiment soldiers

including major Somnath Sharma died defending Srinagar airport where Air Commodore Mehar Singh had just managed to land at airport with DC-3 Dakota with Major Sharma and his brave company. We children used to patrol at night time boosting morale of all muslims and Hindus fighting Pakistan sent raiders. It was October 1947. The raiders from Pakistan had looted my home time Bandipore just near to Gurez. As we went back to Bandipore having been told the town was made free from Pakistan raiders, we met incoming small regiment of India soldiers led by a sikh captain whom all rushed for protection in Nishat Bagh area in Bandipore. The sikh captain with very smart looks in uniform said not to worry anymore and "I have enough ammunition to blast the Tragbal mountain", he said that is situated near Gurez wherefrom Pakistan raiders were rumoured to be approaching Bandipore in large numbers. I wonder if that captain was later Lt. Gen. Kulwant Singh. Besides, Brigadier Rajinder Singh rescued whole town of Srinagar and the surrounding area, another brave soldier of India. The storey of violence in Kashmir by Pakistan raiders, terrorist, has started from 1947. People in Kashmir have been exposed to continued violence and loot since then. I have been told of untold sufferings by people in 1990s when these looters came from Pakistan to take away Kashmiri girls in the name of jihad. Some muslim girls were married under force, some killed. My muslim friends sent their girls for safety to Jammu and other parts of india. Since then Kashmiri girls whose parents can afford, study in other safe parts of india and abroad and get employed. The fallacy of Pakistan propaganda against India through Pakistan ISI has now been exposed fully in UK, Canada, US and EU. How history of global terrorism has been planned by Pakistan? And Pakistan itself has been devastated by this self-grown terror philosophy. Millions of Hindus, Sikhs, Shia muslims, and mujahir people who sought Pakistan as home, are killed, eliminated. There are no more Hindus and Sikhs in Pakistan that the father of nation of Pakistan Mr G. A. Jinnah had promised to protect for living in Pakistan. Hence in Kashmir we are grateful to brave Indian soldiers, aviators (one Sikh flying officer got Param Vir Chakra posthumously in war with Pakistan while downing several sabre jets over Srinagar airport) who have saved Kashmir. It has been proved in international friendly competition that India air force pilots can outsmart fighter pilots from US, UK etc. My coursemate from IAF, AVM Cecil Parker, got a Maha Vir Chakra in 1971 war

against Pakistan. The US paid tributes to India Field Marshal Retd Sam Manekshaw for his outstanding military strategy while fighting Pakistan in 1971.

My Education in Punjab University Hons School In Chemistry 1948-1951

This great academic institution was placed in Lahore before partition of country. It had in Lahore outstanding scientists like Shanti Swaroop Bhatnagar as head of department of chemistry whose name is associated in India with Bhatnagar awards, considered most precious for science research. I joined Hons. School in Chemistry in 1948 while it was situated in a sheltered barrack in Delhi University with common uses of science laboratories. Sir Maurice Gwayer was the V. C of Delhi University who had invited eminent scientists to head various science faculty departments. Our head of Chemistry department was Dr Niranjana Singh, more popularly known as Principal Niranjana Singh. He looked more a sage-scientist. He saw my academic certificates and admitted me in first year Hons. School. I found soon in my class there were others who had scored very high marks in matric and F. Sc examinations. I travelled by cycle from Lodhi Road to Delhi University, a distance of at least thirty kms. However there was no air pollution, no buses emitting smoke. For few months, we studied in those dinghy barracks and used laboratory that started at 8am almost. Our other teachers were Dr K. S. Narang, Dr P. R. Puri, Dr Balwant Singh, Dr Ramchand Paul. We saw in the company of Dr Ramchand (later rose to be Prof. R. C. Paul as VC in Punjab University, Chandhigarh) Dr Hargobind Khorana who visited regularly for few months our chemistry laboratory with Dr Ramchand Paul. I am not sure, but perhaps they were classmates in Hons. School in Lahore days when Dr Khorana went abroad for Ph. D. programme. Meanwhile, the partition of country had taken place, and Dr Khorana had returned to Delhi to look for a job. I remember him vividly holding some science instruments near our seats for about three months. When we sought clarifications for some laboratory tests, Dr Khorana was also around. He was of course looking for a job. Punjab University was full. He looked for placement in next door Delhi university. We younger students had sympathy for him as he was jobless, not even a Demonstrator that

Dr Ramchand Paul was. We heard Khorana called on Prof. T. R. Shishadhari, HOD Chemistry in Delhi University, an FRS and very highly reputed scientist. He told Dr Khorana his department had no vacancy. It used to be frustrating being unemployed, especially when partition of country had left people poor, homeless.. Thus we heard Dr Khorana has left for abroad again. As somebody said in Punjabi: *Mundha chaley gaya*

Rest is a storey we know of his journey to UK, then Canada where a US Prof. on visit spotted him, asked him to join in Wisconsin University to be working on DNA research that ultimately gave him a Noble Prize in medicine in 1969 or so. On a visit to my house in GK Two New Delhi many years was Prof. R. P. Puri who it seems was closer as teacher to Dr Khorana's Hons. School days. Prof. Puri visited me to check land rates for his plot in GK Two that he wanted to sell for old age comforts. Out of curiosity. I asked him about his university days impressions about Dr Khorana. He said he was a quiet student, and remained away somewhat from others, thinking deep. He was a thinker. Prof. Puri had visited Dr Khorana in Wisconsin University where his colleagues told Prof. Puri that Dr Khorana was heading for great prize in science while working on DNA molecule that made a breakthrough in chemistry/medicine. I saw Dr Khorana's biography: at one time he had no holidays for eleven years while working on his research. He was married to a girl outside India. He used to send small sums of money to India to help his relations. I asked recently India International Centre in New Delhi where I have been active in fields of space law, environmental law, as to possibility to spend one day in the year for Dr Khorana memorial day. They said yes we will do so. But this has not not happened so far. I attended a memorial for death of Prof. Iliya Pregogine another Noble Laureate who was inspired by India much as he worked in IIS Bangaluru before he was awarded Noble Prize. After his death we held a memorial meeting in India International Centre where Prof. M. G. K. Menon, Dr Karan Singh and others spoke I was told to write a summary of obituary references for publication in journal of IIC

Can we still revive Dr Khorana university as a memorial to him and to Indian science? This will be a tribute to Dr Hargobind Khorana. I remember Dr Khorana was invited to India to deliver lectures on the structure of DNA. I managed to see one in AIIMS where Dr Karan

Singh presided. Dr Khorana showed on a big blackboard his spiralling equations. I wonder how many could understand his explanations showed on the board. A Dr Khorana Science University will be a fitting tribute to this great scientist of India who last worked in MIT University.

There are some more scientists of India among the older generation who need to be given recognition for their science contribution. These included Prof. Satyen Bose, Sir J. C. Bose, Meghnath Saha, etc. About Satyen Bose who worked with Einstein for some science equations, I was told by Dr B. D. Nag Chowdhury then VC JNU, and Chairman National Committee on Environment Planning that Einstein had wronged Satyen Bose. Bose first equation was praised by Einstein that made Bose a great scientist. Yet when Bose sent his second equation to Einstein that according to Bose was improved and better, Einstein turned it down. Nobody could challenge Einstein's view. Bose was finished in particle physics only to be revived these days in research lab in Europe. Sosen particle is recognised much more closer to reality. Incidentally, Dr Nag Choudhury with whom I have had long academic association, was a student of Prof. Satyen Bose. Kolkata was then a great seat of learning. Another scientist known today for Black Holes in the universe, was Dr. Chandrashekher also called Chandra. Before presenting his thesis on Black Hole in Royal Society in London, Chandra was put down by Chairman Royal Society in London Prof. Darlington a Noble Laureate. Chandra packed his baggage for US when he got a research offer. He won his Noble Prize very late in life, more due to his great writings on science, and his views on Black holes. Prof. ECG Sudharshan is yet another scientist who has been ignored, while Iliya Pregogine got it for similar works on thermodynamics of open systems. Prigogine's book *Order Out of Chaos: Man's New Dialogue With Nature* is an important contribution to science today. It recommends non-violence science that Gandhiji propagated. PM Modiji these days is promoting non-violence of Gandhi with sustainable uses of nature resources. He says India has diversity of nature and cultures. This feasibility of nature's sustainability it seems is the central theme of science today due global warming and climate change. I have offer from Oxford University to be a team leader in this theme. It concerns welfare and

survival of humankind. Oxford University has a global conference on this theme in July 2016.

From Barracks in Delhi University, our Hons School was shifted to Punjab in 1949 to be accommodated in Govt College Hoshiarpur

In 1949 our Hons Schools shifted to Govt College Hoshiarpur in Punjab. The college provided a few rooms for our classes and a laboratory. The hostel for boys was temporarily accommodated in a deserted school nearby where a couple of new hostel blocks were made. The teachers in chemistry regrouped again. Dr Niranjn Singh was the HOD Chemistry who inspired all students by his scholarship and simple lifestyle. He helped students pay fees sometimes. The college premises had arts classes mostly, and economics was an attractive subject. Prof. Mallick was the HOD economics. One of his students was Dr Manmohan Singh whom we saw and met in the college canteen. Brinder Goswami was his friend who joined IAS service subsequently. He left IAS to be a professor of history in Punjab, was awarded Padma Bhushan later. My close friend was Bhagat Singh Sachdeva who went on to do a Ph. D. and went to US for higher research in chemistry. We kept in touch for some years. I met another classmate in Toronto recently, Kanwal Nain Singh Bakshi who went to Canada to teach chemistry. A good athlete in our college days, he is old enough and had knees operated last year. Has settled in Toronto with children, grand children. Academically, we students had a few choice of careers. Go for higher research for Ph. D. degree, teach in any college after M. Sc. degree. Or, join commission in army, navy, air force that provided early jobs and good salary. In Punjab, it was common desire to join defence services. I followed others, went for selection in air force, and joined IAF Academy in Ambala for flying training etc and graduated in Aug 1952 and posted to Barrackpore in Kolkotta. My academic years taught me very hard work and science in general. I got my B. Sc. Hons in Chemistry, a post-graduate degree considered of high academic reputation. Most of leading scientists those days hailed from Hons. School in Punjab or Madras. The IIS Bangalore was developed by efforts of Dr C. V. Raman a Noble Laureate in physics. It became a leading research centre in course of time.

JOURNEY OF MY LIFE: MY CIVIL AVIATION CAREER 1957–1983, 26 LONG YEARS LEARNING AIR LAW, AIRSPACE MANAGEMENT. PROF. SALIGRAM BHATT

Introduction. After I left IAF in mid-1956, I went back to Hons School in Govt College and appeared in B. Sc. Hons School exam in March 1957. It was touch time. But my old classmates especially Harbans Singh Sachdeva encouraged me. My old teachers also were sympathetic. I passed well my post-graduate degree and joined for M. Sc one year research in soil chemistry to get my M. Sc. degree. During my second innings at Hons. School in Hoshiarpur I and Harbans Singh went to university canteen situated in the lush green lawns. We used to say hellow to Dr Manmohan Singh later PM of India. He used to be with his friend Dr Brijender Goswami who joined IAS later. Dr Singh was waiting for permission from Govt College Hoshiarpur, its Principal Dr Vashwanath to leave Govt College to join Planning Commission. He was told to pay fellowship fees that enabled him to go abroad out of India to do Ph. D. degree in economics. He got permission finally. Dr Singh had his menter in economics dept. In Govt College, Dr Mallick who was also connected with us science students as hostel warden. I have few certificates signed from Dr Mallick for sports distinctions in badminton, table tennis. Another friend was Sardar Sant Singh, Sunny, a tall, handsome sardar who became good friend of mine. Being from IAF, he liked me, respected my courage to join academics after interval of six years. Sunny made big in New York later in hotel industry. He was awarded some Padma Award as far I remember to promote India-US economic relations. I left Hoshiarpur for good to be in Pusa Institute. But I have great love and admiration for years spent in Hons. School in Hoshiarpur. I kept track of some of my friends who had settled in parts of world. Once while in Otowa in Canada as member India air delegation, we had dinner with India High Commissioner. I asked for Prof. Narang a junior to me classmate in Hons. School, and then Vice-Chair Canada Academic Council. There he was with wife in the party. I renewed contact with him after 1950 when I had left Hons School for IAF. Dr Narang had initially worked with Noble Laureate Hargobing Khorana in US perhaps, before migrating to Canada. Only last year in 2014, I was able to meet another my Hons School classmate Kanwal Nain Singh Bakshi in Toronto who has settled there teaching chemistry to college students. Bakshi was a great sportsman in our younger college days in hoshiarpur. But old age

has made him slim, bald, and cannot walk well. He missed our college days. We recalled our great teachers, classmates like Dharamvir who was topclass student and had died in Chandigarh recently. Jagdish Miter Seth is another outstanding classmate from old times.

My Entry In Civil Aviation

In 1956 while in Pusa Institute, I saw an advertisement in UPSC for airport officers position. I applied and was selected. Due economic reasons, I joined civil aviation department and left Pusa Institute. The Institute was prestigious academic place. An eminent scientist was heading it. I was introduced to him when I joined. Could be Dr Swaminathan, or K. S. Krishnan. After selection in CAD, we were sent for training to CATC Allahabad for eight months. We completed this course, and I got my posting orders to Bombay Airport. Essentially, our work related to control air traffic and therefore manage airspace. Later we realised ATM was a global network managed by air law made by ICAO. I spent three years in Bombay Airport. During this period I passed M. A. degree in Pol. Sc. with specialisation in international law. In 1961, I was posted to Safdarjung Airport, later moved to Delhi Airport, Palam. While at Palam, I handled many urgent issues that came up during our duty time. I found implementing air law for air traffic management was tough; more responsibility, less rewards. Worldover, ATC work was not appreciated. Pilots were paid very well by comparison. In view of all this scenario, I got opportunity to join Jawahar Law Nehru University for Ph. D. work in international law. This happened in 1964. I continued my duty at Palam Airport, and being in shift duties, I managed sufficient time to do research in Sapru House New Delhi where JNU had started with name School Of International Studies. I will write a separate chapter for my JNU association. Suffice to say here that I completed my Ph. D. in air-space law in 1968. Left for US on a post-doctoral Fulbright fellowship, a prestigious fellowship. Returned to India in 1971. After waiting for suitable placement in CAD, I was sent out to Rajkot in 1971 as airport officer. I spent a year, and due my efforts, got posted to Palam Airport. I kept my contacts with JNU, took few classes. Ultimately, in 1982, I was promoted as Deputy Director air transport, and subsequently the UPSC selected me as Director Air Transport Regulations in 1984. I worked in that post of great importance for CAD and India in general during 1984 to 1988 when ICAO selected me as Air Law/Air Transport Adviser in

Lesotho, Botswana, Somalia for four years until end of 1992. On return to India, I was selected as Prof. of Space Law, a national chair donated by ISRO Chairman prof. U, R, Rao.

MY JOURNEY IN SPACE LAW STARTING FROM JNU, NEW DELHI IN 1964. PROF. SALIGRAM BHATT. FMR PROF. SPACE LAW, JNU, NEW DELHI. UN AND WORLD BANK ADVISER IN AFRICA, CENTRAL ASIA

Many friends ask me how I ventured to do research in space law. Later on my success in this field was recognised among other institutions, by the United Nation when DG Space Devison Dr Nandani Jaysuntilyana from Sri Lanka origin wrote to ISRO holding an international space congress in Hyderabad in 2007. He wrote to ISRO Chairman to sponser my participation in the global congress attended by top space scientists and jurists, including ICJ judges. Besides, I was chosen for national chair in JNU as professor of space law. In unispace iii conference in 1999 in Vienna, I was invited as a Commentater from India. Thus goes a long storey that began in 1964 and continues till today. I have just now sent my paper abstracts to IAF Paris for 67 global conference to be held in Mexico in September 2016 on theme of providing affordable access to all states for space exploration. Space technology has a big role to moniter the health of planet earth after it is found that global warming caused by GHG may perhaps cause possible destruction of planet earth, and therefore of this civilisation. The signs of instability of planet earth are widespread such as devastating floods, earthquakes, climate change resulting impact on human health, food security, forests and water management, etc.

1. Let me inform my best friends that research in space law was made after some friends asked me to go for air law field as I had vast background as pilot and work as air traffic control manager. My Ph. D. Adviser, Dr Nagendra Singh suggested law of sea as he himself had done pioneering work in merchant shipping and law of sea. In the meantime, I saw some proceedings of COPUOS of UN being posted to Indian Council Of World Affairs library in Sapru House. I went upstairs and started reading them. The Librarian of Sapru House asked me to help them arrange space material

received from UN. Sapru House was in 1963-64 considered a leading academic institution. Thus in a month or two from 1964 I thought why not go researching and following space exploration developments. My guide Dr Nagender Singh agreed with me that I work in space law. He did hint out that Profs. Myres McDougal, Harold Lasswell, and Ivan Vlasic have then recently released a voluminous book; *Law And Public Order In Space*, 1963, New Haven and Conn. Yale University. I saw a copy of this book in the library. Its language was difficult to understand. Besides, it was also a treatise on principles of international law in which discipline, Prof. McDougal had global associates trying to make this discipline accept by all countries, by global community for better law and order in this civilisation.

2. So I spent five years from 1964 to end of 1968 in my Ph. D. thesis on space law. The title gradually made up for OST that was being made by the UN. A commendable job was done by UN COPUOS formed early after space breakthrough in 1957. The projection into outer space took world society by surprise. On one hand it was part of global IGY programme by some states to know more about planet earth. On the other hand, new problems arose in this new field of international space law. The ownership of space and Moon were new issues. However, world society had analogy of Antarctica Treaty of 1959 when that continent was declared as common territory of mankind. Prof. Phillip Jessup and Prof. Howard Taubenfeld had written a pioneering book on this issue. Great leaders from US and then USSR showed wisdom in deliberations of UN. A UN Resolution was passed in good time to tell the world that Outer Space doesn't belong to any nation, and was a province of mankind, free for scientific exploration. Leading academic institutions laid foundations for space law. These included ASIL, USSR Society of International Law, ILA, ISIL, Canada Society of International Law. A few pioneering discussions took place in ASIL in 1956, 1958 etc. Myres McDougal and Leon Lipson wrote a small paper in ASIL. During debates, John Cobb Cooper, considered father of air law was keen for determining a boundary between airspace and outer space. However, Myres McDougal argued in favour of functional approach to this issue. He was in favour of keeping space free for exploration like the high seas. Space law, he said will develop

according to what humankind can do in space, he said. His vision seems to have put a stamp on modern space law and application of space technology. India took keen interest in peaceful uses of space. Mr. V. K. Krishna Menon told in UNGA first time that mankind must share benefits from space exploration. Dr Krishna Rao then Chairman L & T Division of External Affairs took great part in developing the liability convention. Some UN sessions were held in ISIL. We were observers as students. In view of our association with ISIL and with its academic programmes, I helped start a Diploma Course in air and space law in ISIL. We published some good articles in IJIL. Mr Krishna Menon was a great source of inspiration. He had started ISIL with Jawaharlal Nehru then PM inaugurating the learned society. My later guide Prof. R. P. Anand along with Prof. Rahmatullah Khan built a new building complex for ISIL in front of Supreme Court of India. Many jurists were involved in the conferences held by ISIL. In fact it was UN Secretary General U Thant who inaugurated ISIL Diploma Course in air and space law. My Ph. D. thesis was published in 1974 after my return from US where I went for post-doctoral Fulbright fellow in School of Law, SMU, Dallas, Texas, USA. The book release was a big occasion in ISIL under chairmanship of Mr Krishna Menon who invited a large number of jurists, academics to a discussion on evolving field of space law. Some discussions took place between Mr Menon and Attorney General M. C. Setelwad on sovereignty over Moon. In 1968, when I finished Ph. D. course, I met the pioneer of space exploration in India, Dr Vikram Sarabhai. The meeting was short and took place in Space Office then located in South Block in New Delhi. Space ventures were in infancy then and primitive technology in Thumba rocket launch was used to send up rockets up and down for observing upper air atmosphere for agriculture purpose. The UN Secretary General was invited to inaugurate Thumba rocket site for peaceful uses of outer space. During my Ph. D. days in Sapru House, I had occasions to interact with eminent foreign scholars who visited India then. These included Prof. Myres McDougal from Yale, Prof. Harold Lasswell from Yale, Prof. Julius Stone from Australia, Prof. Georg schwazenberger from UK, Prof. Hans J. Morgenthau from US, Prof. Richard Gardner from Columbia University who later wanted me to join UN Outer Space Division

then located in New York. However, Prof. Gardener was told by UN that Nandani Jasuntilyana from McGill university has just then joined UN Space Division. He later did a splendid job as Director General of Space Devison. His shortcoming was that he didn't involve air law pattern from Chicago Convention to fill up gaps in space law. Chicago Convention of 1944 has over 18 Annexes that are part of Convention and involve issues like air safety, air worthiness, licences, rules of air, environment issues. Today in 2016, we see ICAO taking up work of regulating aerospace transport by involving air law concepts in sub-orbital flights. Sooner, there are prospects of aerospace transport, based on combining reuseable space rockets, and aircraft for coming down on airports. The next ICAO conference for this area of global interest is in Dubai in summer of 2016. My visit to US as Post-doctoral Fulbright Fellow was for one year during 1969-70. I worked with Prof. Howad Taubenfeld. It was a new experience for me to be in US. Apart from air law, space law, I found great academic interest in US universities on problems of environment such as air and water pollution. I got good exposure to issues of environment law. The UN Declaration on Human Environment was adopted in 1972 when I had returned to India and got invited to work in DST in 1975 as Legal Specialist, and Secretary, National Committee on Environment Planning and Coordination with DR B. D. Nag Chaudhury as the Chairman of Committee. I will deal with this aspect of my deep involment in environments in my next chapter

ENVIRONMENT MOVEMENT AND PROF. SALIGRAM BHATT'S STUDIES IN JOURNEY OF MY LIFE

INTRODUCTION

I went to University of Hawaii, East-West Centre for post-doctoral Fulbright orientation programme in month of August 1969 for two weeks. it was an amazing academic venture, meeting over 70 fulbrht Scholars from various countries, having daily academic seminars and good interaction with faculty some of whom took us home for dinners, lunches on top of hills was a house overlooking Pearl Harbour where Japan had attacked US in WW Two. My exposure to issues of environment

began in Hawaii. The university was creating awareness about global environment issues. The mood in the campus was sober. There was no joy shown on US landing man on the Moon. Instead, our attention was drawn towards global poverty and environment degradation. i remember one book circulated among all Fulbrighters:it was titled “The Subversive Science, Essays Towards An Ecology of Man”, by Dr Hacol. The book said that science was damaging planet earth by conquering earthly environment. Yet another book said “Man’s impact on earth’s plunder is grave.”Biologist Rene Dubos wrote an extensive piece in Brittanica Perspective on man’s impact on conquering nature. India was in poor shape of economy in 1969, feeding millions on food from US under food for aid programme. I met US academics more worried about India over-populated, and with poor food output. I think Hawaii East-West Centre had done a great job teaching global scholars to worry about global environments. UNESCO was active to call a conference on Biosphere management in 1968. Julian Huxley was then chairman of this global academic institution. Helped by academics like Rene Dubos, Huxley called another conference in New York in 1971 on Synthesis Of Science on anniversary of Einstein and biologist Chardin. The conference declared a biologist view of world. In the meanwhile, there was a global concern on environment degradation. The UNESCO was able to push UNGA adopt in 1972 the first Declaration on protection of global human environment. The Report for this conference was prepared by Rene Dubas and Barbara Ward the economist, called Only One Earth:Care And Maintenance Of A Small Planet. This is a wonderful book today even. Though mankind has moved towards sustainable development, the 1972 Stockholm Declaration made a call of history to protect and save global environment. Historians wrote about environment dangers. Arnold Toynbee was an outstanding scholar who has left behind his glorious books warning mankind to take care of earth. His last book was titled Mother Earth. He came to India during his last survey of global countries. Coming to India in 1963 or so from Japan, he criticised extra use of technology in Japan for household goods. No place to sit inside homes, Toynbee commented. He wrote two articles in Hindustan Times. One had a title:Man And His Soul. In this he warned that to discover soul, mankind must first control technology. In his second article:Mankind’ Pinnacle Of Hope, Toynbee said democracy was the choice before nations that should be

based on federalism and the rule of law. The majority must take care of minorities, and minorities must cooperate with majority for good governance. I think Toynbee is right in his recommendations. In his Maulaana Azad Memorial Lecture before Jawaharlal Nehru then prime minister in India, Toynbee lauded the India tradition on meditation, or the art of living, that makes man as human being. He said the art of meditation was in practice in West as well in middle ages, but has been forgotten today. He wanted India to teach meditation in the West as well. In fact we see world has taken up meditation seriously, and UN has declared June 21 as global yoga day. All this history is important to relate to mankind here as Arnold Toynbee is a hero in history. He has given us all a pathway to go on in global environment history.

My Stay In School Of Law, SMU, Dallas, Texas 1969-70 And Concern For Environments In USA

I was engaged in research in air and space law during my one year Fulbright assignment 1969-70. I however missed the hectic academic life seen in JNU then in Sapru House New Delhi. I wrote an extensive article on space law in JALC in 1970 year that was liked by many academics including Prof. Carl Christol a leading space law scholar in US. He invited me as a panel-member for a global conference on space law in University of Southern California. Prof. Christol remained my good friend until late 1980s when he died. He reviewed my books in AJIL. Prof. Taubenfeld was equally good to me and enabled me teach students especially from Africa. I took part in various seminars in SMU. I continued to read books from Yale Law School. After Myres McDougal, Prof. Richard Falk had initiated collective enterprise on world public order. Both these academics created a network of scholars in international law and this academic became more interesting in an interdependent global society. I feel today international law makes the whole background for cooperative federalism among 196 countries. Federalism, regionalism have grown in international relations. Ecological planning in environment is taken as a norm to meet federal, regional goals of economic planning. Sustainable development is based on local ecological world order. I had occasion to visit for my viva for Ph. D. in university of Pennsylvania before Prof. Quincy Wright and Prof. Masson Willrich. It was a very long session before the two dignitaries, asking me my questions about my long Ph. D. work. I was partly tired after long bus journey from Dallas to Pennsylvania. Prof. Wright called me for tea at his

home in the evening. Mrs Write was also present who wanted to know more on Indian caste system. She was working on population problem of India. After my viva for Ph. D. with Prof. Quincy Wright, I went to nearby New York to attend 1970 Annual Conference of American Society of International Law. I took part in the proceedings, had discussions with Prof. Cardwell. Ved P. Nanda had joined as research assistant in a nearby university. I met him first time in ASIL in Waldorf Hotel, a magnificent building for conferences. I went to visit Yale, Princeton, Tufts, Columbia universities. Met Prof. Leo Gross in Tufts, Prof. Richard Gardener in Columbia university. After hectic academic tour, I returned to SMU Dallas. By this time, I had a good idea of future studies. India needed my expertise in space law, air law and my latest interest, environment law. I returned via London to spend a week-end with my friend V. S. Mani. Went round London for a while and reached New Delhi in June 1970 or so. Now my placement problems began. There was no vacancy in JNU; no suitable place in DGCA, and after near six months anxious wait, I was sent to Rajkot as airport officer. All my enthusiasm for research and teaching had evaporated in the six months that I waited in New Delhi. Reaching Rajkot, I asked to join Sri Ramakrishna Temple to read Swami Vivekananda Volumes. The local Swami Atmasthananda presently President R. K. Math, Belur Math took kindly on me and my family with two children. After one year stay in Rajkot, my Department of Civil Aviation posted me to Delhi airport wherefrom I had gone to USA on Fulbright Fellowship in 1969. I worked at Delhi airport for next almost five years. Then got posted to DGCA HQRs in 1975, still looking for a university placement. In 1975, I got a call from DST, GOI that Dr B. D. Nag Chaudhury then Chairman National Committee on Environment Planning wants to see me. He had seen my article published in journal of ILI on weather modification law and science in India.

My Short Stay In DST As Legal Specialist and Secretary, National Committee on Environment Planning and Coordination NCEPC

Dr B. D. Nag Chowdhury was the Chairman NCEPC. He called me in his office in DST a high-level academic atmosphere. I think he had on his table my article on weather modification. I had seen Prof. Taubenfeld in SMU working on such issues that involved legal issues between those liking to precipitate clouds with ice particles injected from aircraft and get rains for agriculture, and those who

owned livestock who did not want rain. Dr Nag Chaudhury was a member of science planning in Planning Commission. I saw he showed great interest in my science background from Punjab University Hons. School. He talked of prof. Bal Mukund HOD physics in Punjab University often. He had been visiting Punjab University in Hoshiarpur often. I was encouraged by his interview. When I said that my knowledge in environment law was limited, he looked to my Ph. D. thesis, and said space is part of environment law. His told me that I have to update certain laws recommended in Tiwari Committee Report made by DST recently as a follow-up action to UN Declaration 1972 on Human Environment, a UN Conference attended by then PM of India, Smt Indira Gandhi. Dr Nag Choudhury introduced me to some colleagues who appeared outstanding scientists. These included Dr Ashok Khosla who later left for UNEP assignment, and on return to India made some institutions to protect the environment. Lately, I saw his name as Chairperson of IUCN, a global institution for conservation of nature. The NCEPC was a high-level national body of experts in various disciplines. Dr Nag Chowdhury being chairperson, conducted the proceedings very well. There were top experts from air pollution, water resources, forests management, wildlife, natural history, and many academics. Even a few junior scientists made big in later years. A lady Asst. Director was later chosen as Secretary Bio-technology Department. Dr Arcot Ramachandran was the Secretary DST. Another Director level officer became Secretary of new Environment Ministry. Dr M. G. K. Menon whom I got to know then was the first Secretary of DOE, now called DOE and Forests and Climate Change.

Let me recall that my exposure to top level scientists in DST was a new experience. I had nobody to help me show my work in environmental law. Since 1975 when I spent few months in DST, I have known a great deal on this subject, written nearly 20 odd books. Dr Nag Choudhuri also established The School Of Environmental Sciences in JNU. He suggested my name to the Dean of Environmental Sciences, Prof. B. M. Bhatia. The latter asked UGC for the post, but by then I had climbed in the aviation department having become Director and DDG of Civil Aviation in GOI. Soon then UN ICAO offered me the coveted job as Consultant/Adviser in aviation to Govt of Lesotho, then Botswana for four years. Alongside, ISRO was keen to offer a

National Chair as Prof. Space Law in JNU. I took this offer in 1992 and worked subsequently as Honorary Prof. Int. Law in JNU. Here were golden years of my academic life with research projects in air law, space law, environment law. As Convenor, we held one JNU seminar on liberalisation and privatisation of civil aviation. The policies were changed in Ministry of Aviation in response to global changes, and ICAO recommendations. Another seminar that we convened was with JNU, MOEF, and National Science Academy in 1985 titled Law, Science And Environment held in India International Centre. It was a pioneering seminar combining jurists like Justice Krishna Iyer, scientists like Dr T. N. Khoshoo, then Secretary MOEF who also donated a Chair in Environmental Law to JNU. He later in 1986 delivered the Annual Science Congress address on sustainable development and protection of environment in India. I met Prof. Satish Dwawan then ISRO chairman in Dr Khoshoo's office. Perhaps that was the beginning of interaction between space sciences and environment management in India. Dr Khoshoo died early after leaving MOEF. He joined TERI and was mentor in research works that was followed by other scholars. UNEP awarded Dr Khoshoo perhaps two lac USD for his tiny book on Mahatma Gandhi And Environment Protection. He was surely ahead of his time for environment planning. Dr M. S. Swaminathan has praised Dr Khoshoo's address to Indian Science Congress.

THE ENVIRONMENT MOVEMENT TODAY 2016, A REVIEW SINCE 1975 WHEN I WAS IN DST

We have come a long way in managing the environment since 1975. Indeed New Delhi or other such big towns have become huge megalopolis with two crores of people and 42 registered vehicles in Delhi alone. Population in world state is 7.2 billion in place of say 3.5 billion in 1975. Thus man is jostling for space and pure air which is a luxury. Prof. Iliya Preregogine a Noble Laureate scientist has come forth with a book with his colleague called Order Out Of Chaos: Man's New Dialogue With Nature. He says with limited earth resources, conservation of nature is inevitable. Thus we see worldwide, a human urge to protect Mother Earth. The UN Declaration 1972 has said enough to save the environment. Man today is concerned overall to promote sustainable development. The UN has laid 17 goals for SD that is a new charter with nature.

Pregogine asked in india to revive Mahatma Gandhi and his economic philosophy of life in villages and control of global rampant technology of cars, factories, and armaments. Arnold Toynbee the global seer of world history said the same observation. India is a hope for new world order of inclusive growth and poverty removal. We can reverse the megalopolis that we find in large parts of globe. The choice is today smart villages, not as much smart twns.

THE NEW BUDGET PROPOSALS OF INDIA 2016–17

I see most of reforms made to move to the glory of village life. The following comments I see are made in Times Of India, Hindustan Times of 1 March 2016. We see a balance between economic growth of 7.5 % of GDP and, equality. All sections of population are cared for. We have funds for skills developments with HRD giving shape to this venture. A large sum goes to MGNREGA, to awaken villages to dynamic economic growth. TOI says a big leap forward for equitable growth. Foreign hands to clean debts. Banks can give major push for investments. Overseass investors can have residency status. There is push to open up new markets. Medical insurance has increased to Rupee one lac per person per year compared to Rs 30, 000/ earlier. Medical science is booming in India. Just see hospitals flooded by foreign national especially from Africa, Central Asia, Middle East and other countries. Regional connectivity is increased by new 160 small and medium airports/airstrips. This has never happened before. A new aviation policy finds new markets, new tourist centres, new regional trade and commerce. And what great boost to jobs and employment. In the energy front, solar energy is going to change India and India has taken lead for new solar powered world. To transform India, women are being given social status and power. Indian shipping companies can compete with foreign ones and many new customs seaports are opening as gateways for India. Branded garments are not favoured. In place local made goods are to be cheaper and more suited to climate conditions. More funds are given for research and higher education. I see a big boom in quality education, in IT, space sciences and application, more irrigation for agriculture, forestry, and less trends for smart towns/cities. The new focus is towards rural areas and rural economy. As a villager myself, I feel Gandhiji is born for billions. PM Narendra Modi is the new seer of India. His budjet is a

new pathway for future. All political, social, economic organisation see this new budget a new transformation of India. I salute these great economists, social scientists who have produced the response to national, global challenges of a small planet earth laiden with global warming and climate change.

Appendix 1

PROFESSOR SALIGRAM BHATT, EMERITUS PROFESSOR, SCHOOL OF LAW, NORTHCAP UNIVERSITY, GURGAON

Books published, reprinted, articles, reviews, seminar presentation published from leading academic universities, during last three years 2013, 2014, 2015

Introduction. It is submitted that past three years have been very productive while being in SOL, NCU, and with new developments in law, international law, environmental law, aviation law, space law, law relating to sustainable development, global warming and climate change until end of 2015. I have not kept record upto date with me in view of numerous academic research engagements. Therefore, I submit whatever I can bring up here before you. Some references are not with me, as I pass on my articles, books to universities I visit for academic lectures.

BOOKS PUBLISHED IN 2015

1. Global Warming And Climate Change. APH Publishing Corporation, 4435-36/7, Ansari Road, Daryaganj, New Delhi 110002. aphbooks@gmail.com, 2016, (actually Dec 15), pp. 385. Foreword by Prof. Prem Vrat, Pro-Chancellor, NCU, Gurgaon.
2. Space Law And Policy, Eds with Prof. V. S. Mani, Prof. V. B. Reddy, APH Publishing, reprinted in SOL, Nalsar University in November 2015, pp. 68
3. Air Law And Policy, Eds, with Prof. V. B. Reddy, and Prof. V. S. Mani, reprinted 2015, pp. 620 by APH Publishing done by Nalsar University.

4. International Environmental law And Future Studies, Reprinted, APH, 2015, pp. 288.

BOOKS IN YEAR 2014

1. Environment Protection And Sustainable Development, APH, 2014, pp. 241.
2. The Global Environment Movement, with Dr. B. D. Nag Chowdhury, APH, reprinted 2014, pp. 69.
3. Studies In Aerospace Law, reprinted by APH 2014, pp. 208.
4. Kashmiri Pandits: A Cultural Heritage, Ed, reprinted by APH, 2014

BOOKS IN YEAR 2013

1. Legal Controls of Outer Space, reprinted by APH, 2013, pp. 404.
2. Environmen Protection And International law, reprinted by APH, 2013, pp. 152

ARTICLES PUBLISHED IN 2015

1. Sustainable development In Haryana. Published in SAARC Journal, Gurgaon, Dec. 2015, pp. 4. Also in forthcoming E-Book Ed by Praveen Lohchab, SOL, NCU.
2. Space law And Economic Development n India, Fortcoming E-Book Ed, by Praveen Lohchab.
3. Space—The Gateway For Mankind’s Future, paper for global conference in Kerala Law Academy, 21. 3. 2015, published by Kerala Law Academy, E-Book, titled International Conference On Space Law, pp. 1-7. Trivandrum, India. Also published, in APH Journal, Vol Iv, No 1, ISSN No 2320-0316.
4. Journey Of My Life 1931-2016. pp. 289-294. APH Journal Vol IV, No 1, ISSN No 2320-1762, Jan-Dec 2015.
5. Journey Of My Life, 1931-2016, Memoirs, APH Journal, Vol Iv No I, ISSN-2319-5282. pp. 363-365.
6. Draft Space Act By India:Draft Suggested By Prof. S. Bhatt in National Conference in ISRO HQrs Bangalore, published by ISRO.

7. Paper sent to NLSI University Bangalore and published by University after National Conference on New Developments In Space Law In Sub-orbital Region For Industrial Development.
8. Completed three lectures on Env. Law and global warming and climate change, to be delivered in Dept of Environmental Sciences, Jammu University during 11 Jan16 to 15 Jan16. To be published soon by Nalsar University in a forthcoming book titled Trends In Environmental Laws.
9. Perspective on global space transport, APH Journal, Vol IV, No I, ISSN No 2321-0885, Jan-Dec 2015.
10. Kashmir Environment:A Historical perspective, APH Journal Vol Iv, No I ISSN-2278-232X. pp. 343-346.

ARTICLES PUBLISHED IN 2014

1. Perspectives on water laws in India. Paper for global conference held by BHU on “Law, Science And Technology”, in 2013, published by SOL in Journal in 2014.
2. Space law and economic applications in India. paper presented 2014. before ISIL, New Delhi, and published in their Proceedings

ARTICLES PUBLISHED IN YEAR 2013

1. Space law and application to achive innovative goals. Published by Ma Vishnav Devi University in their Journal as Conference Proceedings by University in cooperation with Nalsar University in 2013 Inaugurated by Sh N. N. Vohra as Chairman of Conference.
2. Space law and piracy on high seas. Paper for global seminar held by GNLU and Leiden University in 2013 chaired by Sh Narendra Modi then CM of Gugarat. Paper published by GNLU in Conference Proceedings.
3. Lectures delivered in Christ University in 2013 on space law and environmental law:Space application in India. Paper circulated by Christ University to their vast gathering of students. One faculty member started Ph. D. research on global warming and CC. Later shifted to Jaipur University.

4. Paper published in Global Conference Proceedings by Air Traffic Control Guild of India on role of air law and air traffic control for economic development. Guild a powerful professional body to manage and control air space in India for safety of operation.
5. Environment issues in air transport operation. Paper for one day seminar in SOL, NCU with Aviation Secretary as Chief Guest in 2013.

Appendix 2

BOOKS PUBLISHED

1. **“Legal Controls o Outer Space: Law, Freedom and Responsibility”**, Ph.D. thesis, pages 327, 1973. S. Chand & Co., New Delhi. Foreword: Professor Quincy Wright, University of Virginia, USA. Book released in ISJLL by Mr. V. K. Krishna Menon.
2. **“Studies in Aerospace Law: From Competition to Cooperation”**, pages 208, 1974. Sterling Publishers, New Delhi. Foreword: Dr. Nagendra Singh, Judge, ICJ, Hague.
3. **“Aviation Environment and World Order”**, pages 181, 1980. Radiant Publishers, New Delhi. Foreword: Justice V. R. Krishna Iyer, Former Judge Supreme Court of India.
4. **“Environment Protection and International Law”**, pages 122, 1985, Radiant Publishers, New Delhi. Foreword: Professor J. M. Dave, JNU.
5. **“Environmental Laws and Water Resources Management”**, pages 355, 1986, Radiant Publishers, New Delhi. MOEF Research Project
6. **“The Global Environment Movement: A New Hope for Mankind”**, with Dr. B. D. Nag Chaudhuri, former Vice-Chancellor, JNU, and Chairman, National Committee on Environmental Planning, Government of India, 69 pages, 1987, Sterling Publishers, New Delhi.
7. **“Law, Science and Environment”**, Eds. with Professor R. P. Anand and Professor Rahmatullah Khan, pages 297, 1987. Lancers Books, New Delhi. Proceedings of a National Seminar by JNU, MOEF, INS A. Professor Bhatt was the Convenor of the Seminar.
8. **“Recent Developments in Civil Aviation in India”**, Eds. with Professor R. P. Anand, Dr. S. S. Sidhu et.al. pages 243, 1987. Lancers Books, New Delhi. Proceedings of a National Seminar. Professor Bhatt was the Convenor of the Seminar.
9. **“Air Law and Policy in India”**, Eds. with Professor VS. Mani, Professor V. B. Reddy, pages 620, 1994, Lancers Books, New Delhi. Reprinted 2002.
10. **“Kashmiri Pandits: A Cultural Heritage”**, Ed., pages 631, 1994, Lancers Books, New Delhi. An international volume with participation of over forty eminent Kashmiri scholars.
11. **“International Aviation and Outer Space Law and Relations: Reflections on Future Trends”**, pages 175, 1996. Asian Institute of Transport Development, New Delhi. Foreword by Professor I.H. Ph. Diederiks-Vezschoor, President Emeritus, International Astronautical Federation, Paris, France.
12. **“Recent Trends in International Space Law and Policy”**, Eds. with Prof. V. S. Mani, Professor V. B. Reddy, pages 683, 1997, Lancers Books, New Delhi, with participation of leading scholars in India and abroad.
13. **“The New Aviation Policy of India: Liberalization and Deregulation”**, pages 256, 1997, Lancers Books, ij New Delhi.
14. **“India on Threshold of 21st Century: Shape of Things to Come”**, Eds. with Prof. V. S. Mani. A JNU product, pages 413, 1998, Lancers Books, New Delhi. Foreword, Mr. P. N. Haksar.
15. **“Kashmiri Pandits: Looking to the Future”**, co-editor with Mr. M. K. Kaw etc., A.P.H. Publications, New Delhi, pages 296.
16. **“Environmental Law and Federalism”**, co-editor with Prof. Akhtar Majeed, Seminar proceedings. Hamdard University, Uppal Publications, New Delhi, 2002 pages. Prof. Bhatt was the Convenor of the Seminar.
17. **“Environmental Protection and Sustainable Development in India”**, a project of Ministry of Environment and Forest, Government of India, 2003. Foreword by Prof. M.G.K. Menon, FRS. A.P.H. Publishing Corporation, New Delhi, pages 241.
18. **“Kashmir Ecology and Environment”**, APH Publication Corporation, New Delhi, p. 305, 2004. Proceedings of a national seminar held

on 8th November, 2003 by Kashmir Education, Culture and Science Society, New Delhi in collaboration with scholars from JNU, Kashmir University and MOEF, etc. Professor Bhatt was the Convener of the seminar.

19. **International Environmental Law And Future Studies.** APH Publication Corporation, New Delhi. 288 pages, 2006. Have chapters on latest developments of air and space law etc.
20. **New Draft Aviation Security Regulation Botswana** (United Nations. **ICAO**). 1992.
21. Report on over-view of **Bilateral Air Services Agreement Botswana** (United Nations. **ICAO**). 1992.
22. Overview of **Air Transport Policy of Botswana** (United Nations, **ICAO**), 1992.
23. Report on **Facilitation of Air Transport Botswana** (United Nations, **ICAO**), 1992.
24. **New Draft Aviation Security Act Botswana** (United Nations, **ICAO**), 1991.
25. **New Draft Air Navigation Regulations Botswana** (United Nations, **ICAO**) 112 pages, 1990-1991.
26. Review of **Civil Aviation Laws in Lesotho**, Africa: Report for International Civil Aviation Organization (United Nations, **ICAO**), 2nd Sep. 1988 to 2nd Mar. 1989, 104 pages.
27. **New Draft Licensing of Air Services Regulations Botswana** (United Nations, **ICAO**), 1989.
28. Report of **Establishment of an Autonomous Civil Aviation Authority in Somalia**: with KJM Shetty and TS Vankatraman prepared for International Civil Aviation Organization (United Nations, **ICAO**), for reorganization of Civil Aviation, Apr. & Aug. 1988, pp. 120.
29. **Current Developments in Civil Aviation in India: Proceedings of National Seminar, 1987**, p p. 243 Anand, Sidhu, Khan, Bhatt Eds. Lancers Publication, New Delhi.

Appendix 3

DECLARATION OF THE UNITED NATIONS CONFERENCE ON THE HUMAN ENVIRONMENT

The United Nations Conference on the Human Environment, having met at Stockholm from 5 to 16 June 1972, having considered the need for a common outlook and for common principles to inspire and guide the peoples of the world in the preservation and enhancement of the human environment,

Proclaims that:

1. Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic human rights the right to life itself.
2. The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent desire of the peoples of the whole world and the duty of all Governments.
3. Man has constantly to sum up experience and go on discovering, inventing, creating and advancing. In our time, man's capability to transform his surroundings, if used wisely, can bring to all peoples

the benefits of development and the opportunity to enhance the quality of life. Wrongly or heedlessly applied, the same power can do incalculable harm to human beings and the human environment. We see around us growing evidence of man-made harm in many regions of the earth: dangerous levels of pollution in water, air, earth and living beings; major and undesirable disturbances to the ecological balance of the biosphere; destruction and depletion of irreplaceable resources; and gross deficiencies, harmful to the physical, mental and social health of man, in the man-made environment, particularly in the living and working environment.

4. In the developing countries most of the environmental problems are caused by under-development. Millions continue to live far below the minimum levels required for a decent human existence, deprived of adequate food and clothing, shelter and education, health and sanitation. Therefore, the developing countries must direct their efforts to development, bearing in mind their priorities and the need to safeguard and improve the environment. For the same purpose, the industrialized countries should make efforts to reduce the gap themselves and the developing countries. In the industrialized countries, environmental problems are generally related to industrialization and technological development.
5. The natural growth of population continuously presents problems for the preservation of the environment, and adequate policies and measures should be adopted, as appropriate, to face these problems. Of all things in the world, people are the most precious. It is the people that propel social progress, create social wealth, develop science and technology and, through their hard work, continuously transform the human environment. Along with social progress and the advance of production, science and technology, the capability of man to improve the environment increases with each passing day.
6. A point has been reached in history when we must shape our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference we can do massive and irreversible harm to the earthly environment on which our life and well being depend. Conversely, through fuller knowledge and wiser action, we can achieve for ourselves and

our posterity a better life in an environment more in keeping with human needs and hopes. There are broad vistas for the enhancement of environmental quality and the creation of a good life. What is needed is an enthusiastic but calm state of mind and intense but orderly work. For the purpose of attaining freedom in the world of nature, man must use knowledge to build, in collaboration with nature, a better environment. To defend and improve the human environment for present and future generations has become an imperative goal for mankind—a goal to be pursued together with, and in harmony with, the established and fundamental goals of peace and of worldwide economic and social development.

7. To achieve this environmental goal will demand the acceptance of responsibility by citizens and communities and by enterprises and institutions at every level, all sharing equitably in common efforts. Individuals in all walks of life as well as organizations in many fields, by their values and the sum of their actions, will shape the world environment of the future.

Local and national governments will bear the greatest burden for large-scale environmental policy and action within their jurisdictions. International cooperation is also needed in order to raise resources to support the developing countries in carrying out their responsibilities in this field. A growing class of environmental problems, because they are regional or global in extent or because they affect the common international realm, will require extensive cooperation among nations and action by international organizations in the common interest.

The Conference calls upon Governments and peoples to exert common efforts for the preservation and improvement of the human environment, for the benefit of all the people and for their posterity.

PRINCIPLES

States the common conviction that:

Principle 1

Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation,

discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.

Principle 2

The natural resources of the earth, including the air, water, land, flora and fauna and especially representative samples of natural ecosystems, must be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.

Principle 3

The capacity of the earth to produce vital renewable resources must be maintained and, wherever practicable, restored or improved.

Principle 4

Man has a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat, which are now gravely imperilled by a combination of adverse factors. Nature conservation, including wildlife, must therefore receive importance in planning for economic development.

Principle 5

The non-renewable resources of the earth must be employed in such a way as to guard against the danger of their future exhaustion and to ensure that benefits from such employment are shared by all mankind.

Principle 6

The discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems. The just struggle of the peoples of ill countries against pollution should be supported.

Principle 7

States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

Principle 8

Economic and social development is essential for ensuring a favorable living and working environment for man and for creating conditions on earth that are necessary for the improvement of the quality of life.

Principle 9

Environmental deficiencies generated by the conditions of under-development and natural disasters pose grave problems and can best be remedied by accelerated development through the transfer of substantial quantities of financial and technological assistance as a supplement to the domestic effort of the developing countries and such timely assistance as may be required.

Principle 10

For the developing countries, stability of prices and adequate earnings for primary commodities and raw materials are essential to environmental management, since economic factors as well as ecological processes must be taken into account.

Principle 11

The environmental policies of all States should enhance and not adversely affect the present or future development potential of developing countries, nor should they hamper the attainment of better living conditions for all, and appropriate steps should be taken by States and international organizations with a view to reaching agreement on meeting the possible national and international economic consequences resulting from the application of environmental measures.

Principle 12

Resources should be made available to preserve and improve the environment, taking into account the circumstances and particular requirements of developing countries and any costs which may emanate- from their incorporating environmental safeguards into their development planning and the need for making available to them, upon their request, additional international technical and financial assistance for this purpose.

Principle 13

In order to achieve a more rational management of resources and thus to improve the environment, States should adopt an integrated and coordinated approach to their development planning so as to ensure that development is compatible with the need to protect and improve environment for the benefit of their population.

Principle 14

Rational planning constitutes an essential tool for reconciling any conflict between the needs of development and the need to protect and improve the environment.

Principle 15

Planning must be applied to human settlements and urbanization with a view to avoiding adverse effects on the environment and obtaining maximum social, economic and environmental benefits for all. In this respect projects which are designed for colonialist and racist domination must be abandoned.

Principle 16

Demographic policies which are without prejudice to basic human rights and which are deemed appropriate by Governments concerned should be applied in those regions where the rate of population growth or excessive population concentrations are likely to have adverse effects on the environment of the human environment and impede development.

Principle 17

Appropriate national institutions must be entrusted with the task of planning, managing or controlling the 9 environmental resources of States with a view to enhancing environmental quality.

Principle 18

Science and technology, as part of their contribution to economic and social development, must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind.

Principle 19

Education in environmental matters, for the younger generation as well as adults, giving due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension. It is also essential that mass media of communications avoid contributing to the deterioration of the environment, but, on the contrary, disseminates information of an educational nature on the need to protect and improve the environment in order to enable man to develop in every respect.

Principle 20

Scientific research and development in the context of environmental problems, both national and multinational, must be promoted in all countries, especially the developing countries. In this connection, the free flow of up-to-date scientific information and transfer of experience must be supported and assisted, to facilitate the solution of environmental problems; environmental technologies should be made available to developing countries on terms which would encourage their wide dissemination without constituting an economic burden on the developing countries.

Principle 21

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

Principle 22

States shall cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such States to areas beyond their jurisdiction.

Principle 23

Without prejudice to such criteria as may be agreed upon by the international community, or to standards which will have to be

determined nationally, it will be essential in all cases to consider the systems of values prevailing in each country, and the extent of the applicability of standards which are valid for the most advanced countries but which may be inappropriate and of unwarranted social cost for the developing countries.

Principle 24

International matters concerning the protection and improvement of the environment should be handled in a cooperative spirit by all countries, big and small, on an equal footing.

Cooperation through multilateral or bilateral arrangements or other appropriate means is essential to effectively control, prevent, reduce and eliminate adverse environmental effects resulting from activities conducted in all spheres, in such a way that due account is taken of the sovereignty and interests of all States.

Principle 25

States shall ensure that international organizations play a coordinated, efficient and dynamic role for the protection and improvement of the environment.

Principle 26

Man and his environment must be spared the effects of nuclear weapons and all other means of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons.





IN 2000, 189 COUNTRIES OF THE WORLD CAME TOGETHER TO FACE THE FUTURE.

And what they saw was daunting. Famines. Drought. Wars. Plagues. Poverty. The perennial problems of the world. Not just in some faraway place, but in their own cities and towns and villages.

They knew things didn't have to be this way. They knew we had enough food to feed the world, but that it wasn't getting shared. They knew there were medicines for HIV and other diseases, but that they cost a lot. They knew that earthquakes and floods were inevitable, but that the high death tolls were not.

They also knew that billions of people worldwide shared their hope for a better future.

So leaders from these countries created a plan called the Millennium Development Goals (MDGs). This set of 8 goals imagined a future just 15 years off that would be rid of poverty and hunger. It was an ambitious plan.

The United Nations Development Programme (UNDP) has been one of the leading organizations working to achieve the MDGs. Present in more than 170 countries and territories, we funded projects that helped fulfil the Goals. We championed the Goals so that people everywhere would know how to do their part. And we acted as "scorekeeper," helping countries track their progress.

And the progress in those 15 years has been tremendous. Hunger has been cut in half. Extreme poverty is down nearly by half. More kids are going to school and fewer are dying.

Now these countries want to build on the many successes of the past 15 years, and go further. The new set of goals, the Sustainable Development Goals (SDGs), aims to end poverty and hunger by 2030. World leaders, recognizing the connection between people and planet, have set goals for the land, the oceans and the waterways. The world is also better connected now than it was in 2000, and is building a consensus about the future we want.

That future is one where everybody has enough food, and can work, and where living on less than \$1.25 a day is a thing of the past.

UNDP is proud to continue as a leader in this global movement.

Introducing the new Sustainable Development Goals. What's your Goal?



END POVERTY IN ALL ITS FORMS EVERYWHERE

End extreme poverty in all forms by 2030. Yes, it's an ambitious goal—but we believe it can be done. In 2000, the world committed to cutting the number of people living in extreme poverty by half in 15 years and we met this goal. However, more than 800 million people around the world still live on less than \$1.25 a day—that's about the equivalent of the entire population of Europe living in extreme poverty. Now it's time to build on what we learned and end poverty altogether.



END HUNGER, ACHIEVE FOOD SECURITY AND IMPROVED NUTRITION AND PROMOTE SUSTAINABLE AGRICULTURE

In the past 20 years, hunger has dropped by almost half. Many countries that used to suffer from famine and hunger can now meet the nutritional needs of their most vulnerable people. It's an incredible accomplishment. Now we can go further and end hunger and malnutrition once and for all. That means doing things such as promoting sustainable agriculture and supporting small farmers. It's a tall order. But for the sake of the nearly 1 out of every 9 people on earth who go to bed hungry every night, we've got to try. Imagine a world where everyone has access to sufficient and nutritious food all year round. Together, we can make that a reality by 2030.

3 GOOD HEALTH AND WELL-BEING



ENSURE HEALTHY LIVES AND PROMOTE WELL-BEING FOR ALL AT ALL AGES

We all know how important it is to be in good health. Our health affects everything from how much we enjoy life to what work we can perform. That's why there's a Goal to make sure everyone has health coverage and access to safe and effective medicines and vaccines. Since 1990, we've made big strides—preventable child deaths are down by more than half, and maternal mortality is down by almost as much. And yet some other numbers remain tragically high, like the fact that every year 6 million children die before their fifth birthday, or that AIDS is the leading cause of death for adolescents in sub-Saharan Africa. We have the means to turn that around and make good health more than just a wish.

4 QUALITY EDUCATION



ENSURE INCLUSIVE AND EQUITABLE QUALITY EDUCATION AND PROMOTE LIFE-LONG LEARNING OPPORTUNITIES FOR ALL

First, the bad news on education. Poverty, armed conflict and other emergencies keep many, many kids around the world out of school. In fact, in developing regions, kids from the poorest households are four times more likely to be out of school than those of the richest households. Now for some good news. Since 2000, there has been enormous progress on the goal to provide primary education to all children worldwide. The primary school enrolment rate in developing regions reached 91%. By measures in any school, that's a good grade. Now, let's get an even better grade for all kids and achieve the goal of universal primary and secondary education, affordable vocational training, access to higher education and more.

5 GENDER EQUALITY



ACHIEVE GENDER EQUALITY AND EMPOWER ALL WOMEN AND GIRLS

The great progress the world has made in becoming more prosperous and fair is worth celebrating. And yet, in just about every way, women and girls lag behind. There are still gross inequalities in work and wages, lots of unpaid “women’s work” such as child care and domestic work and discrimination in public decision-making. But there are grounds for hope. More girls are in school now compared to in 2000. Most regions have reached gender parity in primary education. The percentage of women getting paid for their work is on the rise. The Sustainable Development Goals aim to build on these achievements to ensure that there is an end to discrimination against women and girls everywhere. It’s a basic human right.

6 CLEAN WATER AND SANITATION



ENSURE AVAILABILITY AND SUSTAINABLE MANAGEMENT OF WATER AND SANITATION FOR ALL

Everyone on earth should have access to safe and affordable drinking water. That’s the goal for 2030. While many people around the world take clean drinking water and sanitation for granted, many others don’t. Water scarcity affects more than 40 percent of people around the world, and that number is projected to go even higher as a result of climate change. If we continue the path we’re on, by 2050 at least one in four people are likely to be affected by recurring water shortages. But we can take a new path—more international cooperation, protecting wetlands and rivers, sharing water-treatment technologies and more—that leads to accomplishing this Goal.

7 AFFORDABLE AND CLEAN ENERGY



ENSURE ACCESS TO AFFORDABLE, RELIABLE, SUSTAINABLE AND MODERN ENERGY FOR ALL

Between 1990 and 2010, the number of people with access to electricity increased by 1.7 billion. That's progress to be proud of. And yet, as the world's population continues to rise, still more people will need cheap energy to light their homes and streets, use phones and computers and do their everyday business. The way we get that energy is at issue; fossil fuels and greenhouse gas emissions are making drastic changes in the climate, leading to big problems on every continent. Instead, we can become more energy-efficient and invest in clean energy sources such as solar and wind. That way we'll meet electricity needs and protect the environment. How's that for a balancing act?

8 DECENT WORK AND ECONOMIC GROWTH



PROMOTE SUSTAINED, INCLUSIVE AND SUSTAINABLE ECONOMIC GROWTH, FULL AND PRODUCTIVE EMPLOYMENT AND DECENT WORK FOR ALL

An important part of economic growth is that people have jobs that pay enough to support themselves and their families. The good news is that the middle class is growing worldwide—almost tripling in size in developing countries in the last 25 years, to more than a third of the population. But in 2015, we also have widening inequalities, and job growth is not keeping pace with the growing labour force—over 200 million people don't have jobs. That's the equivalent of the entire population of Brazil. Things don't have to be that way. We can promote policies that encourage entrepreneurship and job creation. We can eradicate forced labour, slavery and human trafficking. And in the end we can achieve the goal of decent work for all women and men by 2030.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



BUILD RESILIENT INFRASTRUCTURE, PROMOTE INCLUSIVE AND SUSTAINABLE INDUSTRIALIZATION AND FOSTER INNOVATION

Technological progress helps us address big global challenges such as creating jobs and becoming more energy efficient. The world is becoming ever more interconnected and prosperous thanks to the internet. The more connected we are, the more we can all benefit from the wisdom and contributions of people everywhere on earth. And yet four billion people have no way of getting online, the vast majority of them in developing countries. The more we invest in innovation and infrastructure, the better off we'll all be. Bridging the digital divide, promoting sustainable industries, and investing in scientific research and innovation are all important ways to facilitate sustainable development.

10 REDUCED INEQUALITIES



REDUCE INEQUALITY WITHIN AND AMONG COUNTRIES

It's an old story: the rich get richer, and the poor get poorer. The divide has never been starker. We can and must adopt policies that create opportunity for everyone, regardless of who they are or where they come from. Income inequality is a global problem that requires global solutions. That means improving the regulation of financial markets and institutions, sending development aid where it is most needed and helping people migrate safely so they can pursue opportunities. We've made so much progress on poverty in the last 15 years, and now we can change the direction of the old story of inequality.

11 SUSTAINABLE CITIES AND COMMUNITIES



MAKE CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE, RESILIENT AND SUSTAINABLE

If you're like most people, you live in a city. More than half the world's population now lives in cities, and that figure will go to about two-thirds of humanity by the year 2050. Cities are getting bigger. In 1990 there were ten "mega-cities" with 10 million inhabitants or more. In 2014, there were 28 mega-cities, home to 453 million people. Incredible, huh? A lot of people love cities; they're centers of culture and business and life. The thing is, they're also often centers of extreme poverty. To make cities sustainable for all, we can create good, affordable public housing. We can upgrade slum settlements. We can invest in public transport, create green spaces and get a broader range of people involved in urban planning decisions. That way, we can keep the things we love about cities and change the things we don't.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS

Some people use a lot of stuff, and some people use very little—in fact, a big share of the world population is consuming too little to meet even their basic needs. It doesn't have to be this way. We can have a world where everybody gets what they need to survive and thrive. And we can consume in a way that preserves our natural resources so that our children can enjoy them, and their children and their children after that. The hard part is how to achieve that goal. We can manage our natural resources more efficiently and dispose of toxic waste better. Cut per capita food waste in half globally. Get businesses and consumers to reduce and recycle waste. And help countries that have typically not consumed a lot to move towards more responsible consumption patterns.



TAKE URGENT ACTION TO COMBAT CLIMATE CHANGE AND ITS IMPACTS

Every country in the world is seeing the drastic effects of climate change, some more than others. On average, the annual losses just from earthquakes, tsunamis, tropical cyclones and flooding count in the hundreds of billions of dollars. We can reduce the loss of life and property by helping more vulnerable regions—such as land-locked countries and island states—become more resilient. The impact of global warming is getting worse. We're seeing more storms, more droughts and more extremes than ever before. It is still possible, with political will and technological measures, to limit the increase in global mean temperature to two degrees Celsius above pre-industrial levels—and thus avoid the worst effects of climate change. The Sustainable Development Goals lay out a way for countries to work together to meet this urgent challenge.



CONSERVE AND SUSTAINABLY USE THE OCEANS, SEAS AND MARINE RESOURCES FOR SUSTAINABLE DEVELOPMENT

The oceans make human life possible. Their temperature, their chemistry, their currents, their life forms. For one thing, more than 3 billion people depend on marine and coastal diversity for their livelihoods. But today we are seeing nearly a third of the world's fish stocks overexploited. That's not a sustainable way of life. Even people who live nowhere near the ocean can't live without it. Oceans absorb about 30 percent of the carbon dioxide that humans produce; but we're producing more carbon dioxide than ever before and that makes the oceans more acidic—26% more, since the start of the industrial revolution. Our trash doesn't help either—13,000 pieces of plastic litter on every square kilometer of ocean. Sounds bad, right? Don't despair! The Sustainable Development Goals indicate targets for managing and protecting life below water.



PROTECT, RESTORE AND PROMOTE SUSTAINABLE USE OF TERRESTRIAL ECOSYSTEMS, SUSTAINABLY MANAGE FORESTS, COMBAT DESERTIFICATION, AND HALT AND REVERSE LAND DEGRADATION AND HALT BIODIVERSITY LOSS

Humans and other animals rely on other forms of life on land for food, clean air, clean water, and as a means of combatting climate change. Plant life makes up 80% of the human diet. Forests, which cover 30% of the Earth's surface, help keep the air and water clean and the Earth's climate in balance. That's not to mention they're home to millions of animal species. But the land and life on it are in trouble. Arable land is disappearing 30 to 35 times faster than it has historically. Deserts are spreading. Animal breeds are going extinct. We can turn these trends around. Fortunately, the Sustainable Development Goals aim to conserve and restore the use of terrestrial ecosystems such as forests, wetlands, drylands and mountains by 2020.



PROMOTE PEACEFUL AND INCLUSIVE SOCIETIES FOR SUSTAINABLE DEVELOPMENT, PROVIDE ACCESS TO JUSTICE FOR ALL AND BUILD EFFECTIVE, ACCOUNTABLE AND INCLUSIVE INSTITUTIONS AT ALL LEVELS

How can a country develop—how can people eat and teach and learn and work and raise families—without peace? And how can a country have peace without justice, without human rights, without government based on the rule of law? Some regions of the world enjoy relative peace and justice, and may come to take it for granted. Other regions seem to be plagued by armed conflict, crime, torture and exploitation, all of which hinders their development. The goal of peace and justice is one for all countries to strive towards. The Sustainable Development Goals aim to reduce all forms of violence and propose that governments and communities find lasting solutions to conflict and insecurity. That means strengthening the rule of law, reducing the flow of illicit arms and bringing developing countries more into the center of institutions of global governance.

17 PARTNERSHIPS FOR THE GOALS



STRENGTHEN THE MEANS OF IMPLEMENTATION AND REVITALIZE THE GLOBAL PARTNERSHIP FOR SUSTAINABLE DEVELOPMENT

The Sustainable Development Goals are pretty big to-do list, don't you think? In fact, it's so big, you may just want to throw your hands up in the air. "Forget it! Can't be done! Why even try!" But we've got a lot going for us. The world is more interconnected today than ever before, thanks to the internet, travel and global institutions. There's a growing consensus about the need to work together to stop climate change. And the Sustainable Development Goals are no small matter either. 193 countries agreed on these Goals. Pretty incredible, isn't it? 193 countries agreeing on anything? The final Goal lays out a way for nations to work together to achieve all the other Goals.



*Empowered lives.
Resilient nations.*

