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Behavior Changes of Life Style & Innovative Choices for Quality Air Atmosphere in India: A Comprehensive Report

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Abstract

Climate change: The trophosphere layer is (approximately 15 km) very shortest length between the surface of Earth and to the next layer of stratosphere (50 km) is very important for life of livings. The World populations reached approximately 8 billions and 9 millions without including animal's statistics. All of them required quality air for breath, portable water and fertile soil for cultivation of food sources. The trophosphere layer is highly polluted with increased anthropogenic activities for 100 of years, the next layer of stratosphere where the ozone layer formed to protect us from ultra violet rays, which the layer is penetrated by high toxic chemical pollutants is the reason to enter the ultra violet rays to trophosphere atmosphere of Earth. The clouds cause rains where the toxic harmful chemicals and gases are concentrated it falls as rain drops and it reaches soil and surface water sources, then it reaches ground water as well. Due to the climate change the temperature is globally changing either it is too hot or extreme cold and always fluctuating weather unable to predict the seasons of winter, spring, summer and monsoon. The temperature raises or it reaches extreme cold for oceans, Antartic glaciers is melting and raising sea level and invading land spaces. The climate policy initiatives aimed at maintaining global average temperatures 1.5^{O}C and reaching zero emissions by 2050.

Global warming: The Earth has a natural Green House Effect (GHE) due to trace amounts of water vapor (H_2O), carbon dioxide (CO_2), methane (CH4) and nitrous oxide (N_2O) in the atmosphere.In the absence of the natural greenhouse effect the surface of the Earth would be approximately 33°C cooler. The enhanced greenhouse effect refers to the additional radiative forcing resulting from increased concentrations of greenhouse gases induced by human activities. The main greenhouse gases whose concentrations are raising carbon dioxide, hydrochlorofluorocarbons (HCFCs), hydrofluorocarbons (HFCs) methane, nitrous oxide, and ozone in the lower atmosphere. The major green house gases stay in the atmosphere for tens to hundreds of years after being released, their warming effects on the climate persists over a long time and it affects present and future generations. A green house gas emissions from human activities increase, they build up in the atmosphere, on land and in the oceans.

E1 Nino is the warming of sea waters in the central-east Equatorial Pacific that occurs every few years.

La Nina is the more cooler of sea waters than average temperature in the east Equatorial Pacific region. The neutral state between E1 Nina and La Nino this antithetical effects is called the E1 Nino Southern Oscillation. The *Air Quality Index*. Purity of air is assessed in atmosphere by AQI – it ranges from 0- 301+. The good index level is 0-50 (Green). Moderate level is 51-100 and unhealthy is 151-200. Very unhealthy is 201-300 and above 300 + is hazardous category. New Delhi already reached above 300 and few states are unhealthy to hazardous category in India.

Life Style Changes & Innovative Choices: Recognizes that small individual actions can change the planet's favor than framing the climate change in broader aspect, it is directed a life style changes or right choices and selected

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by the innovative choices to reduce the further worsening of health of people. The Government recommended activities are, each can consume vegetarian food (the less wastage), Alternate of using individual car and bike and to focus public transports of buses and trains, e-vehicles for the reduction of emissions. Cultivating paddy other than different choices of yield for economically equal to farmers of the states of Punjab, Haryana to prevent stubble burning land for thousands of acres at the same time line. It needs good collaboration with farmers and Government to work together to plan yield cultivation in different demographic lands at a time.

Government Regulatories & Policy Making: It is ineffective and failure of laws and regulations to monitor and control measures. It is emergency need to revise the rules and mandatory to create new Indian penal code section of penalty and imprisonment of violating the act. The policy alone not going to change the people attitudes and made them to understand the real facts is important. Change is not easy, it takes time, but really we don't have time for gradual progress to implement step by step procedure of initiation of pollution control by Government.

Conclusion: It need revolutionary changes to contribute each one from society, follow the right behaviors and immediate behavior of life style changes. Government of India made goals and objectives of quality air atmosphere but it is not reach every citizen of India. Each member of universe can realize the seriousness of the issue and follow the right behaviors and actions to control further worsening of polluted atmosphere on Earth and humans need to follow the right choices for healthier life.

Recommendations: on Behavior of Life style changes & Innovative choices, 1. Emission free environment, 2. Quality air atmosphere for healthy life, 3. Value based traditional practices, 4. Deforestation, 5. Policy making plan & Implementation process.

Keywords: Troposphere; Stratosphere; Global Warming; Climate Change; GHE-Green House Effect; E1 Nino-La Nina; Air Quality Index; Smog; Fog; Fossil Fuel; Paddy Stubble; Life Style Changes; Innovative Choices; Gas Emissions; Oxygen Trees; e-vehicles.

Introduction

Earth's Atmosphere

When you look at the sky, it is white clouds in different sizes, figures and also sometimes dark black clouds moving fast and ready to rain, rarely the rain falls on ice crystals with throwing like stones and you may feel of breeze air to inhale in early morning in winter season and when you walk on the hill station a mist can spread on the road to block the path when you walk with bare foot in valley you feel a gentle winds touch and cross you this all experience just the effects of trophosphere atmosphere.

Earth's atmosphere stretches from the surface of the planet up to as far as 10,000 kilometers (6,214 miles) above. After that, the atmosphere blends into space. Most of the scientists can agree that the bulk of the atmosphere is located close to Earth's surface troposphere up to a distance of around eight to 15 kilometers (five to 10 miles). While oxygen is necessary for most life on Earth, the atmosphere is composed of about 78 percent nitrogen, 21 percent oxygen, 0.9 percent argon, and 0.1 percent other gases. Trace amounts of carbon dioxide, methane, water vapor, and neon are some of the other gases that make up the remaining 0.1 percent. The atmosphere is divided into five different layers, based on temperature.

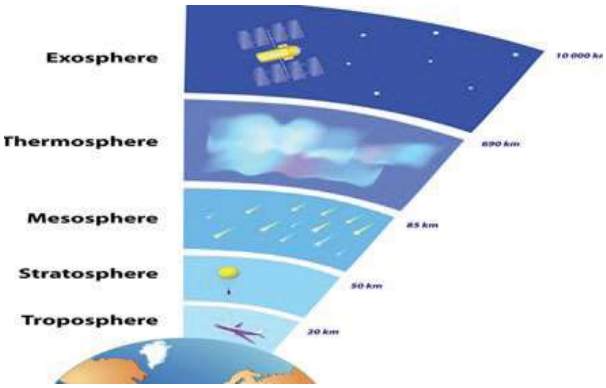
The layer closest to Earth's surface is the Troposphere, reaching from about eight and 15 kilometers (five to 10 miles) from the surface. The troposphere is thickest at the equator, and much thinner at the North and South Poles. The majority of the mass of the entire atmosphere is contained in the troposphere between approximately 75 and 80 percent. Most of the water vapor in the atmosphere, along with dust and ash particles, is found in the troposphere. Temperatures in the troposphere decrease with altitude.

The Stratosphere is the next layer up from Earth's surface. It reaches from the top of the troposphere, which is called the tropopause, to an altitude of approximately 50 kilometers (30 miles). Temperatures in the stratosphere increase with altitude. A high concentration of ozone, a molecule composed of three atoms of oxygen, makes up the ozone layer of the stratosphere. This ozone absorbs some of the incoming solar radiation, shielding life on Earth from potentially harmful ultraviolet (UV) light and is responsible for the temperature increase in altitude. The top of the stratosphere is called the stratopause.

Above the stratopause that is the Mesosphere, which reaches as far as about 85 kilometers (53 miles) above Earth's surface. Temperatures decrease in the mesosphere with altitude. In fact, the coldest temperatures in the atmosphere are near the top of the mesosphere about -90°C (-130°F). The atmosphere is thin here, but still thick enough so that meteors will burn up as they pass through the mesosphere creating what we see as "shooting

stars." The upper boundary of the mesosphere is called the mesopause.

The thermosphere is located above the mesopause and reaches out to around 600 kilometers (372 miles). Not much is known about the thermosphere except that temperatures increase with altitude. Solar radiation makes the upper regions of the thermosphere very hot, reaching temperatures as high as 2,000°C (3,600°F).The uppermost layer, that blends with what is considered to be outer space, is the exosphere. The pull of Earth's gravity is so small here that molecules of gas escape into outer space.[1] Air



Source; Quora[2]

Air

Clean air is a basic human right. Air requires for every living being breath for life. Yet, air pollution continues for decades, it is worsening seriously in highly hazardous polluted environment is top most topic try to find solution for the issue. According to the World Health Organization, there are 7 million premature newborn deaths every year due to the combined effects of outdoor and household air pollution. Millions more people falling diseases from breathing polluted air. More than half of these deaths are reported in developing countries.[3]

What is Air Pollution?

Air pollution is a mixing of particles of solid dust in various sizes, droplets made up of liquid sources, gases of fossil fuel emissions and complex mixture of solid particles, It can come from many sources for example: household fuel burning, industrial chimneys, traffic exhausts, power generation, open burning of waste, agricultural practices, desert dust and many other sources.[3]

Warming Effect in Atmosphere

The increase in anthropogenic activities has contributed to the variation in greenhouse gas (GHG) concentrations in the atmosphere; globally, between 1990 and 2010, net GHG increased by 35%, causing changing effect of atmosphere. reflected in changes in ocean temperature, with increases from 0.65 C to 1.06C, the melting of glaciers and Arctic thaw, an increase in warm days and nights, it raises the frequency of heat waves in Asia, Europe, and Australia, variability in the distribution of rainfall, enhance the occurrence of extreme meteorological phenomena (Jose et al., 2016).[4] From 1990 to 2015, the cumulative warming effect of GHG from more anthropogenic enhanced activities by 37% (Jose et al., 2016; EPA, 2020a,b).[5,6]

Global Climate change

The enhanced GHE influence the pollution of air, water and soil pollutions of atmosphere of Earth. Emissions of carbon dioxide, which account for about three-fourths of total emissions, increased by 51 percent from 1990- 2015.[7] Climate forcing refers to a change in the Earth's energy neutral to enhance either a warming or cooling temperature over a time. From 1990 to 2019, the total warming effect from greenhouse gases added by humans activities to the Earth's atmosphere increased by 45 percent. The warming effect associated with carbon dioxide alone increased by 36 percent.[8]

The 2022 Lancet Court down on Health and Climate Change: Health at the Mercy of Fossil Fuels points out that the world's reliance on fossil fuels increases the risk of health issues, food scarcity and other diseases related to increased temperature. Climate change affects the social and environmental determinants of health clean air, safe drinking water, sufficient food and secure shelter by WHO report. The Lancet report indicates that rapidly increasing temperature exposed people, especially vulnerable population (adults above 65 years old and children younger than one) to 3.7 billion more heat wave days in 2021 than annually in 1985-2005. The changing climate is impacting the spread of the contagious diseases and co-epidemics. The WHO has predicted that between 2030 and 2050, The climate change is expected to cause approximately 2,50,000 additional deaths per year, from malnutrition, malaria, diarrhea and heat stress. Every dimension of food security is being affected by climate change between 2030-2050 expected result from WHO report. Raised temperatures threaten crop yields directly, with the specific growing seasons. Extreme hot weather events disrupt supply chains, this affects the food availability, access, stability, and utilization. Most of the major emission of green gas gases stay in

the atmosphere for 10 to 100 of years after being released, gas warming effects on the climate existing over a long time and thus affect both present and future generations.[9]

Climate change will significantly impact E1Nino and La Nina weather patterns approximately by 2030 a decade before what was earlier predicted by a project report. E1 Nino is the warming of sea waters in the Central-East Equatorial Pacific that occurs every few years. La Nina is the contradictory wherein we see cooler than average sea surface temperature in the Central–East Equatorial Pacific region. The neutral state between the two opposite effects in called the E1 Nino southern oscillation.[10] The European Union (EU) has set the objective of green house gas(GHG) neutrality, meaning to emit net-zero greenhouse gases, by2050.[11]

Global Warming

Are E1 Nino-La Nina Weather patterns changing?

What is the E1 Nino phenomenon?

Due to E1 Nino, they falter and change direction to turn into waster lies, bringing warm water from the western Pacific towards the Americas. The sea water where the nutrient rich waters rise towards the surface is reduced under E1 Nino. This in turn reduces phytoplankton growth. The fish main food for phytoplankton (Marine Algae) are affected. Warm waters also carry tropical species towards colder areas, which disrupting ecosystem of food chains. Since the Pacific covers almost one-third of the Earth, changes in its temperature and subsequent alteration of wind patterns disrupt global weather patterns E1 Nino. It causes dry, warm winter in Northern U.S. and Canada and increases the risk of flooding in the United States, Gulf coast and South Eastern United States.[10]

What is La Nina?

La Nina: seas cooler than average sea surface temperature in the Equatorial Pacific region. Trade winds are stronger than normal it pushing warm water towards Asia. On the American West Coast, upwelling increases, bringing nutrient rich water to the surface of the Pacific cold waters close to the Americas push jet streams and narrow bands of strong winds in the upper atmosphere Northwards. This climate enhances drier conditions in Southern U.S. and heavy rainfall in Canada. La Nina has also been associated with heavy floods in Australia. La Nina two successive events in last two years caused heavy flooding in Australia, resulting in significant damage.[10]

Global energy inequality in Fossil Fuel Consumption

The sources of fuels and electricity uses are not equal to everyone. The Global energy poverty is concentrated in the developing countries. The report in 2021, people of 733 million had no access to electricity facility and 2.6 billion lacked access to use clean fuels and no technologies update. The average per capita energy use of the 20 richest countries is 85 times higher than that of the 20 poorest countries.[12,13]

Hypocrisy of the Global North

The data of using fuels in the United States, 81%, in Europe, fossil fuels constitute 76% of the energy consumption (coal, oil and natural gas contribute 11%, 31% and 34%). Thirty years after acknowledging the problem of anthropogenic global warming and committing in the UNFCCC, to take the lead in climate change mitigation, the level of decarbonisation in the global North has been minuscule.

Air quality is a global concern that is well known for its significant impact on human health and ecosystems (Fang et al., 2019; Gardiner, 2019; Holmes, 2014; Thompson, 2001; Wang et al.,2016).[14] Primary air pollutants include PM, Ozone, Nitrogen, Carbon monoxide, and Sulfur dioxide. WHO reported that 9 of 10 people breathe polluted air that exceeds WHO guideline limits. Moreover, air pollution damages crops, forests, water, and other environmental matrices. For example, particulate pollution has been found to directly or indirectly decrease agricultural productivity by altering crop physiology (Das et al., 2021).[15] Pollutant gases and acid rain increase soil acidification, contribute to increased heavy metal solubility, and destroy forest ecosystems (Budianu et al., 2010).[16]

Air pollution is a heterogenous phenomenon that is influenced by multiple variables, including anthropogenic emissions, meteorological conditions, chemical processes, and topography (Carvalho et al., 2006; Lazaridis, 2011; Monks et al., 2009; Thompson, 2001).[17] Winds in the atmospheric boundary layer are among the most important factors influencing air quality (Gao et al., 2012; Zhai et al., 2018; Stirnberg et al., 2021; Fan et al., 2008; Soriano et al., 2006).[18] They have three effects on air quality: elimination, transport, and accumulation; Prevailing winds can both introduce and remove air pollutants, depending on their strength and persistence. Hence, intense and continuous

prevailing winds can clear air pollutants (Xiao et al., 2006; Yassin, 2013; Yu et al., 2020; Luo et al., 2018).[19]

Indian Scenario's

What is the effect on India's monsoons?

E1 Nino causes weak rainfall and more heat in India. Where as La Nina intensifies rainfall across South Asia, particularly in India's Northwest and Bangladesh during the monsoon season. At present, India like the rest of the Globe, is witnessing an extended 'triple dip' due to La Nina. As reported by *The Hindu*.[10]

Table 1: Global Warming Potential and Atmospheric Lifetime for Major Greenhouse Gases

Greenhouse Gas	Chemical Formula	Global Warming Potential, 100-year time horizon	Atmospheric Lifetime (years)
Carbon Dioxide	CO_2	1	100*
Methane	CH_4	25	12
Nitrous Oxide	NO	265	121
Chlorofluorocarbon-12 (CFC-12)	CCl_2F_2	10,200	100
Hydrofluorocarbon-23 (HFC-23)	CHF_3	12,400	222
Sulfur Hexafluoride	SF_6	23,500	3,200
Nitrogen Trifluoride	NF_3	16,100	500

Source; Fifth Assessment Report (Intergovernmental Panel on Climate Change IPCC, 2014)

*No single lifetime can be given for carbon dioxide because it moves throughout the earth system at differing rates. Some carbon dioxide will be absorbed very quickly, while some will remain in the atmosphere for thousands of years.[20]

Stubble Burning

Addressing north India's burning issue sustainably

North India is bracing for a smoggy winter and with that the feverish focus on crop stubble burning has returned to India's public discourse. Like each year, discussions have begun on how bad this year's stubble burning season will likely be and what potential ad hoc techno-fixes could solve the issue in the short term, but not found any appropriate solution.[21]

A problem that is historic to continue

There are evidences gathered in-depth analyses of satellite image derived counts of the number of fires observed in land for the stubble burning on each day and source apportionment studies that determine the exact contribution of poor air quality. The root cause of stubble burning can be traced back to the 1960s-70s, when to meet the urgent challenge of feeding it is rapidly growing population, India introduced several measures as part of its Green Revolution. The Green Revolution transformed the way of agriculture was practiced, especially in Punjab and Haryana. Where the stubble is burned in Punjab and Haryana has an impact on air quality all the way down to Bihar and West Bengal. Observational studies showing a huge contribution of stubble burning emissions on winter the very poor to hazardous air quality in Delhi and North Zone. The demand for governments to act on this seemingly avoidable practice translated initially into a criminalization of the act.[21]

Air Quality

The research study showed that stubble burning accounted for 22% of the city's PM 2.5 pollution on Monday October 31st 2022. It was 26% on Sunday October 30st 2022, the highest this year so far, and 21% on Saturday October 29st 2022. The city's 24-hour average Air Quality Index (AQI) stood at 392 (very poor), worsening from 352 on Sunday October 30th 2022.[22] It is hazardous category. Data from the system of Air Quality and Weather Forecasting and Research (SAFAR), a forecasting agency under the Ministry of Earth Sciences. The air quality in the

Table 2: AQI Category, Pollutants and Health Break points

AQI Category (Range)	PM10 24-hrs	NO_2 24-hrs
Good (0-50)	0-50	0-40
Satisfactory (51-100)	51-100	41-80
Moderately polluted (101-200)	101-250	81-180

PM - Particulate Matter NO_2- Nitrogen Dioxide

Delhi and North Zone remained in the worst or "severe" category of the air quality index as thick haze blanketed the city. Burning of paddy stubble in Punjab said to be a significant contributing factor of poor air quality.[23]

Warning that no amount of exposure to air pollution is safe and that a child born in the Indo-Gangetic Plain today (November 5, 2022) is "taking in smoke equivalent to 2025 cigarettes a day", doctors have advised that it is best to stay indoors for the next few days "during peak pollution levels".[24]

Air Quality Index

Air Quality Index (AQI) Basics

AQI value of 50 or below indicate good air quality, while an AQI value over 300 represents hazardous category. For each pollutant an AQI value of 100 generally corresponds to an ambient air concentration and somewhat better quality for protection of public health. AQI values at or below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is unhealthy to live life, exclusive for certain sensitive groups of people, The AQI is divided into six categories. Each category corresponds to a different level of health concern. Each category also has a specific color code. The color makes it easy for people to quickly understand whether air quality is good, moderate or it reaching unhealthy levels in their demographic regions. Five major pollutants

Table 3: AQI Basics for Ozone and Particle Pollution

Daily AQI Color	Levels of Concern	Values of Index	Description of Air Quality
Green	Good	0 to 50	Air quality is satisfactory, and air pollution poses little or no risk.
Yellow	Moderate	51 to 100	Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution.
Orange	Unhealthy for Sensitive Groups	101 to 150	Members of sensitive groups may experience health effects. The general public is less likely to be affected.
Red	Unhealthy	151 to 200	Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects.
Purple	Very Unhealthy	201 to 300	Health alert: The risk of health effects is increased for everyone.
Maroon	Hazardous	301 and higher	Health warning of emergency conditions: everyone is more likely to be affected.

Source; AirNow.gov - Home of the U.S. Air Quality Index

EPA establishes an AQI for five major air pollutants regulated by the Clean Air Act. Each of these pollutants has a national air quality standard set by EPA to protect public health;[25]

- Ground level ozone
- Particle pollution (also known as particulate matter, including 2.5 pm and 10 pm)
- Carbon monoxide
- Sulfur dioxide
- Nitrogen dioxide

November 4, 2022: The Hindu News paper reported Delhi as the air quality remained in the "severe" hazardous zone a thick smog covered the whole city for the second consecutive day, Primary schools would remain shut till the situation improves and declared holidays for schools, remain shut till the situation improves. Mr. Kejriwal reported by the Centre for Science and Environment stated that 33% of the pollution in Delhi was due to local sources. This is happened due to stubble burning of land of farmers of Punjab and Haryana. It is a serious allegations, it should take legal action against who is involved in such activities. The farmers have good prosperity in agriculture and same such pollution should not be created by them for sake of Global Mr. Kejriwal said.[26]

The poorest condition of air quality in north India is facing hazardous health of people. The poor air inhalation causes every tissue of body organ deprived for oxygen it further worsens the condition of life. Facing more in vulnerable group pregnant women, children and geriatric population. In India, in 2019, 17.8% of all deaths and 11.5% of respiratory, cardiovascular and other related diseases are attributable to high exposure to pollution (The Lancet). This public health emergency has resulted in calls for health to be made central to air pollution policy making.[27]

Table 4: World Air Quality Index (AQI) Ranking IQAir

Sr. No.	Major City	US AQI
1	Dhoka, Bangladesh	244
2	Kolkata, India	199
3	Lahore, Pakistan	180
4	Karachi, Pakistan	176
5	Ho Chi Minh City, Vietnam	175
6	Sarajevo, Bosnia Herzegovina	169
7	Delhi, India	166
8	Wroclaw, Poland	161
9	Wuhan, China	157
10	Krakow, Poland	154
11	Bishkek, Kyrgyzstan	154
12	Kathmandu, Nepal	151
13	Tashkent, Uzbekistan	137
14	Chengdu, China	129
15	Doha, Qatar	126
16	Mumbai, India	126
17	Baghdad, Iraq	122
18	Warsaw, Poland	117
19	Accra, Ghana	114
20	Poznam, Poland	111
21	Ulaanbaatar, Mongolia	111
22	Chongqing, China	110
23	Dubai, United Arab Emirates	107
24	Pristina, Kosovo	106
25	Zagreb, Croatia	101
26	Jerusalem, Israel	100
27	Astana, Kazakhstan	100
28	Kuwait City, Kuwait	97
29	Hanoi, Vietnam	97
30	Krasnoyarsk, Russia	97
31	Skopje, North Macedonia	96
32	Prague, Czech Republic	96
33	Kampala, Uganda	95
34	Kaohsiung, Taiwan	92
35	Chiang Mai, Thailand	90
36	Mexico City, Mexico	88
37	Budapest, Hungary	87
38	Milano, Italy	87
39	Portland, USA	87
40	Riyadh, Saudi Arabia	86
41	Detroit, USA	80
42	Paris, France	79
43	Bangkok, Thailand	78
44	Tel Aviv-Yafo, Israel	77
45	Guangzhou, China	76
46	London, United Kingdom	76
47	Birmingham, United Kingdom	75
48	Yangon, Myanmar	74
49	Belgrade, Serbia	74
50	Amsterdam, Netherlands,	72
51	Bratislava, Slovakia	69
52	Vienna, Austria	68
53	Brussels, Belgium	67
54	Hangzhou, China	66
55	Rotterdam, Netherlands	65
56	Seattle, USA	65
57	Munich, Germany	63
58	Berlin, Germany	63
59	Bogota, Colombia	63
60	Beijing, China	63
61	Rome, Italy	61
62	Vancouver BC, Canada	59
63	Lyon, France	56
64	Los Angeles, USA	54
65	Algiers, Algeria	53
66	Shanghai, China	53
67	Jakarta, Indonesia	53
68	Kuala Lumpur, Malaysia	52
69	Moscow, Russia	45
70	Lima, Peru	45
71	Shenyang, China	45
72	Denver, USA	45

73	Seoul, South Korea	45
74	Taipei, Taiwan	43
75	Kyiv, Ukraine	41
76	Busan, South Korea	37
77	Tokyo, Japan	37
78	Salt Lake City, USA	36
79	Sofia, Bulgaria	35
80	Istanbul, Turkey	35
81	Nice, France	33
82	Hong Kong, Hong Kong SAR	33
83	Nairobi, Kenya	31
84	Phnom Penh, Cambodia	29
85	Incheon, South Korea	29
86	Kuching, Malaysia	27
87	Sao Paulo, Brazil	25
88	Singapore, Singapore	23
89	Kyoto, Japan	21
90	Johannesburg, South Africa	21
91	Santiago, Chile	21
92	Madrid, Spain	21
93	New York City, USA	20
94	Shenzhen, China	19
95	Helsinki, Finland	17
96	Toronto, Canada	17
97	San Francisco, USA	16
98	Osla, Norway	13
99	Melbourne, Australia	6
100	Canberra, Australia	4
101	Sydney, Australia	0

Source; https://www.iqair.com/in-en/world-air-quality-ranking[28]

Life Style Changes & Innovative Choices

LIFE, a fresh perspective – India

LIFE or Lifestyle for Environment, announced by Prime Minister Narendra Modi at COP26 in November 2021, brings a fresh and much-needed a small actions by citizen's can improve the Global warming and climate change favorable. Mindful choices cultivated by LIFE animate this spirit – actions such as saving energy at home; cycling and using public transport instead of driving; eating more plant-based foods and wasting less.

India's track record

The Prime Minister Mr. Narendra Modi and United Nations Secretary General Mr. Guterres are recommending to adopt simple life style change can collectively lead to transformational change. India has a proven track record translating the aspirations of national missions into whole of society efforts.

Indian Scenario's

Mr. Modi Said described Mission Life as a global initiative by India to help the world in its fight against climate change and lead to a sustainable way of life to achieve the sustainable development goals set by the U.N.

Innovative Approaches in day to day practices

Change the practice to use plastic plates and cups in daily life. Use of individual plate, glass, cloth pieces /tissue papers or a small towel to wipe in each use and carrying a multi folded jute bag for purchase. Plan to use plastic containers and other products to reuse for daily needs to avoid the pollution it change the climates.[29] This will prevent accumulation of plastics and burning of plastics emissions cause hazardous air polluted environment.

Mustard oil: It boosts the stimulation of gastric and bile juices.

Turmeric: It has a lot of antibacterial properties and helps the body to fight infections.

Herbal tea: it can help to treat sore throat.

Ghee: It reduces the negative effects of polluted air.

Jaggery: It boosts the hemoglobin levels in blood and helps to fight against the ill effects of bad air.

Beta-carotene found in fenugreek, spinach, coriander, and lettuce it controls inflammation levels.[30]

i) Air Therapy

Air is important for each tissue to get oxygen for nourishment to work in each second. If we not received oxygen for brain and heart within few minutes the vital organs stop to work it lead fatal condition of person. From birth to end of life

process the air of oxygen is required for throughout just we are breathing from atmosphere air what is available whether it is pure or not. We should take good oxygen and it revitalizing all organs and rejuvenating the repaired cells and tissues. There are 2 methods the deep breathing . Though taking deep breaths refreshes the body and improves its resistance, The air bath every day for around 20 minutes with light clothes on has a positive impact on our body. The air therapy plays a pivotal role in retrieving positive energy in the human body and restores the natural strength in the body.

Source: https://www.thinkrightme.com/what-is-mountain-meditation-how-can-you-benefit-from-it/

Mechanism

The central nervous system which regulate the circulation, send the blood to the surface in large quantities. The flow of the bloodstream helps to eliminate the morbid matter of the body.

Benefits

Apart from soothing and nurturing the inner mechanism of the body, Air therapy also works effectively in the condition of neurasthenia, nervousness, and skin disorders. Air therapy is known to be efficacious on heart health as oxygen is pumped to the heart's muscles and all the organs of the body.[31]

ii) Why Air Purifiers?

In indoor the air pollutants are spread in ultra fine dust particles normally not visible to see the eyes. When we breathe, these Air pollutants get into our respiratory system. Exposure over longer period of time, leads to respiratory diseases, asthma & lung problems, allergy, etc. An average human spends 21 hours/day indoors and hence indoor air quality is utmost important. As per various test research, if we are exposed to air pollution with PM 2.5 index of 150+ for longer period, it seriously affects the respiratory system thereby reducing life expectancy by 2 to 5 years. Air Purifiers are a necessity not only at homes but also in office area. Air Purifier helps in reducing Odor and Harmful Pollutants. Air Purifier from reputed brands generally come with 3 filters viz. Pre-Filter (Captures PM 10 particles), Activated Carbon Filter (Removes bad odor), HEPA Filter (Eliminates PM 0.1 & PM 2.5 particles, Virus & Bacteria). This arrangement of Filters offers complete solution to Air Pollution problem ensuring safe indoor Air environment.[32]

Source: https://cowayindia.in/[32]

(iii) Hyperbaric Oxygen Chamber

The Hyperbaric Oxygen Chamber is found to be very effective in healing inflammation and repair of tissues. The AIMS hospital authorities said that, with the advent of modern technology in medicine, many diseases have come under control and longevity of life has increased.[33]

Source: The New India Express[33]

"Hence, the focus of attention of physical medicine and rehabilitation specialty is improving the quality of life and the new technology, the Hyperbaric Oxygen Chamber is a right move in this direction," the experts of AIMS said. Hyperbaric Oxygen Therapy is especially useful in non-healing ulcers as in Diabetes and vascular diseases. Limb amputation can be avoided in a number of diabetic patients with this treatment. This therapy also benefiting from the treatment of cancer and brain

surgery patients. The Hyperbaric Oxygen Chamber was introduced by Dr Ravi Shankaran, AIMS, Kochi, Kerala.[33]

Green Revolution

It is developing new planting of different variety of trees and plants wherever possible in space is available. Government forests, road high ways, home garden, public parks, there is need to plant oxygen trees for specific places where there are more fossil fuel emissions.

iv) List of trees that produce the most oxygen[34]

Banyan Tree: The national tree of India and also referred to as the old mighty tree, the banyan tree is popularly known for its ability to emit a large amount of oxygen. Planting such trees in surroundings can be extremely beneficial as they ensure the purity of air and reduce the presence of carbon dioxide in the atmosphere.

Every part of the Banyan tree comes in handy and has a sizeable amount of medicinal and herbal properties.

Neem Tree: The Neem tree is the most valuable medicinal plant that reduces the volume of greenhouse gases through photosynthesis, absorbing a wide amount of carbon dioxide from the air. It releases a significant amount of oxygen in its surroundings and possesses a plethora of health benefits. There is a need to increase tree plantations on our planet and neem trees are a wondrous creation of mother nature that comes with no cost to pay.

It is recommended to plant the Neem tree inside the house, especially in the center of the courtyard of house, and this fact is scientifically true as it acts as a natural pesticide. Neem is truly the magical plant that is used in almost every kind of medicine in treating leprosy, eye disorders, bloody nose, stomach bug, skin diseases, heart-related problems, and liver issues. The plant is versatile and enriches the air around you, leaving a strong fragrance of purity in its surroundings.

Peepal Tree: One of the most popular trees that emit oxygen in the air is the Peepal tree. While most trees release oxygen only in the presence of sunlight, peepal tree emits some amount of oxygen at night too. Peepal tree is also referred to *as, sacred fig.*

Peepal tree emits oxygen round the clock and absorbs carbon dioxide from the atmosphere that ensures clean breathable air around it. Its unique feature of being able to emit oxygen throughout the day makes it the most environmentally friendly tree.

Arjuna Tree: Having a wealth of ayurvedic properties, the arjuna is also the perfect tree for air purification. The tree reduces the number of harmful gases in the atmosphere and replaces them with fresh oxygen. Generally, people plant more than one arjuna tree around their surroundings to increase the oxygen level that helps reduce numerous respiratory problems.

Ashoka tree: Ashoka tree is an extraordinary tree with aromatic flowers and an erect stem. The tree is popular for its mesmerizing beauty along with its ability to cleanse the air around it. They absorb toxic gases, particulate matter and enrich the atmosphere with clean oxygen.

Indian Bael: Native to India, bael is commonly known as bael, Bengal quince, golden apple among many names it has to its credit. An Indian bael usually lives for about 30-60 years and can grow up to 40-50 feet above the ground. This Southeast Asian tree is celebrated for its competence to absorb all chemical pollutants, poisonous gases from the atmosphere and neutralize the surroundings. These air purifying trees ensure a steady flow of oxygen in the presence of sunlight as opposed to others.

Curry Tree: Native to India, it is also one of the most commonly grown trees in Indian households that are not only used for cooking but also for improving the air quality around it. It has a high rate of oxygen emission, the curry tree also contributes to a large amount of oxygen present in the atmosphere.

Saptaparni Tree: A winter specialty in India, the flowers of Saptaparni fill the atmosphere with their strong smell which is usually attributed to the season. The Saptaparni tree grows in tight clusters and stays till the end of the winters. Research has proven that these trees improve the air quality by removing pollutants and replacing them with fresh oxygen.

Jamun Tree: The tree has the capability to absorb

toxic gases especially, sulfur dioxide and nitrogen from the air. The cleansing of the air helps in keeping the surrounding rich in oxygen and full of life. Owing to its refreshing qualities the tree is not just popular for its fruit but also for its ability to emit large quantities of oxygen.

Bamboo Tree: Known as a natural air purifier, a bamboo plant can produce more than 70 tons of oxygen and absorb 80 tons of carbon dioxide per acre per year. Even though bamboo is essentially a grass plant, due to its large woody structure and very tree like appearance, they are often called bamboo trees. Bamboos have a reputation to live for as long as 120 years. A closer study of the atomic bombings in Hiroshima revealed that bamboos could survive even an atomic radiation tragedy. A grove of bamboos has the ability to release 35% more oxygen than other groups of trees.

Snake Plant: It holds a unique quality to it absorb harmful materials from the air to create a pure atmosphere, even during the night. This plant is one of the very few plants that have the ability to stay in and produce a large amount of oxygen that helps clean the surroundings. The plant is usually very easy to maintain indoors and requires watering only a few days a week.

Aloe Vera: Aloe vera is among those indoor plants that emit oxygen at night whilst simultaneously taking in the carbon dioxide from the atmosphere. Aloe vera plant has a reputation for being able to remove toxins from the air like aldehydes and Benzene.

The aloe vera plant requires very little watering and can easily survive in a well-lit atmosphere. Aloe vera releases oxygen at night therefore, it purifies the air and provides fresh oxygen to breathe at night. Placing a small aloe vera plant in bedroom or indoor garden can be a useful tip to improve the quality of air in house.

Tulsi: Also known as the holy basil, tulsi is native to India and is mostly utilized in the southern eastern part of Asia. The holy basil comes in various forms and can both survive in sunlight and indoors owing to its unique properties. Having a tulsi plant at home is super convenient and enriching reaching at the same time. Tulsi can be a great air purifier and supplier of fresh breathable air.

Money plant: Essentially, an indoor plant, a money plant is commonly used in households for filtering air. Money plants can promote a healthy lifestyle by removing harmful pollutants such as carbon monoxide, xylene, formaldehyde, and benzene from the atmosphere. The plant is known to produce large quantities of oxygen making it easy to breathe around the room. Money plants also act as an anti-radiator inside your home and minimize radiation emissions from electronic devices such as computers, mobile phones, and laptops.

Lavender: Lavender plants release oxygen at night and ensure a goodnight's sleep. Proper warmth and sunlight are desirable for this plant to ensure that the plant has a sunny windowsill and gets water sparingly.

Government Regulatories / Policy Making

In the fight against air pollution in the Indo-Gangetic Plain, there are several important protagonists, none more so than India's frontline environmental regulators, the State Pollution Control Boards (SPCBs), and the Pollution Control Committees (PCCs) in the Union Territories. Their primary role is to regulate emissions from point sources such as industries and power plants that contribute substantially to ambient air pollution in urban and rural areas. More recently, they have also been tasked with guiding cities in meeting targets under the National Clean Air Program and spending Finance Commission grants for air quality improvements. In short, there is no future with clean air in which the SPCBs do not perform at the highest level possible.

The SPCBs were initially constituted under the water PACP (Prevention and control of Pollution) Act, 1974. Under the Air (Prevention and Control of Pollution) Act, 1981, the SPCB mandate was expanded to include air quality management. Subsequently, several new environmental regulations added to their roles and functions. Unfortunately, this enhanced mandate has not been matched with increased capacity and capability in the Boards. As environmental indicators such as air quality and water quality worsen in many parts of the country, the Boards are evidently failing to effectively discharge their statutory mandate.[35]

More recently, the Glasgow climate pack of 2021, dubbed COP26 provided a chance for the Parties to evaluate the progress already made, renew and update their commitments towards limiting global average temperatures to 1.5°C. With the primordial objective of transforming the 2020's in to a decade of climate support and action, the Parties were urged to increase their Nationally Determined Contributions (NDCs) in2022 in view of achieving the 2030 targets. It also called on accelerating development, deploying and distributing technologies as well as adopting low-carbon emissions policies by governments and accelerating the transition from nonrenewable to renewable energy sources.[36]

The current status of Policy Making/Implications

How can governments use them?

The world around the countries use the different policies based on their technical availability, economic potentials, air quality policies and regulatories and political, social factors will be evaluated for policy guidelines plan and implementation process. Before adopting the WHO guideline values as legally based standards, governments should consider their unique, local conditions.[3]

The final step would require a radical rethinking of the way to design policy from the ground up. We are at a crossroads in our fight against air pollution. The contemporaneous approach to tackling this issue has been tried for decades and has proven ineffective. The choice lies before us now on whether we want to centre science and health in what will likely be a long road to fixing this problem, or continue down the same path that has led us to this smoggy quo.[27]

Recent efforts to mitigate climate change by reducing GHG emissions in concept mapping of climate change agreements involve the flow of climate related development finance from donor countries to the recipients (mostly developing countries). In this perspective, renewable energies have been identified as the primary path through which the impact of climate related development finance on GHG emissions reduction can be realized.

Guidelines

Many of the goals of LIFE can be achieved by

deploying 'nudges' gentle persuasion techniques to encourage positive behavior. The UN Environment Program (UNEP) employs proven nudging techniques such as discouraging food waste by offering smaller plates in cafaterias; encouraging recycling by making bin lids eye catching; and encouraging cycling by creating cycle paths. According to the UNEP, more than two-thirds of greenhouse gas emissions can be attributed to household consumption and lifestyles the urgent cuts to global emissions we need can only be achieved through widespread adoption or greener consumption habits.

"This applies especially for the vulnerable population including children pregnant women, older people, and those with compromised immunity going outside during early mornings and evenings should be avoided and noon would be relatively safe", said (AIIMS, New Delhi) Director Dr. Randeep Guleria.

Hospitals in the region have confirmed that outpatient departments are seeing a three-fold rise in patients with pollution related complaints.[23]

Air pollution is a threat to health in all countries, but it hits people in low and middle income countries the hardest."WHO's new Air Quality Guidelines are an evidence based and practical tool for improving the quality of the air on which all life depends." said WHO Director General, Dr Tedros Adhanom Ghebreyesus.

WHO's new guidelines recommend air quality levels for 6 pollutants, where evidence has advanced the most on health effects from exposure. When action is taken on these so-called classical pollutants – particulate matter (PM), ozone (O_2), nitrogen dioxide (NO_2) sulfur dioxide (SO_2) and carbon monoxide (CO), it also has an impact on other damaging pollutants. External air pollution and PM matter were listed in carcinogenic by International Agency for Research on Cancer.[37]

A base camp for equitable priorities

At COP27, the global South must put the question of its energy poverty and the severe global inequalities in energy access squarely at the centre of all discussions. We need to achieve zero hunger, zero malnutrition, zero poverty, and universal well being even as we collectively contribute to ensuring effective climate action.[12,13]

Meaningful steps that are needed

Driven largely by short term thinking, these techno fixes or alternative uses work at the margins, without addressing the root cause. As pointed out in a recent article, the entire value chain of agriculture in the region needs to change if air quality, water, nutrition, and climate goals are to be addressed. In practical terms, this means substantially reducing the amount of paddy being grown in the region and replacing it with order crops that are equally high yielding, indemand, and agro-ecologically suitable such as cotton, maize pulses and oil seeds, it will also require building trust with farmers to ensure they are seen as partners (rather than perpetrators) and providing them the financial support necessary.[21]

Conclusion

It is need of revolutionary changes to contribute each one right behavior and immediate adoption of life style changes. Government of India made very clear goals and objectives to reach every citizen of India. Each member of universe can realize the seriousness of issue and follow the right behaviors and actions to control further worsening of polluted atmosphere. The more numbers of environmental scientists to include in panel members of all the committees for planning and policy making responsibilities. The scientists can write awareness article to public to understand easy way. Government of India can use mass media as powerful source to communicate through documentary, short film, advertisement to make people alert about the current status. Children are possible to change the entire world through right behaviors hence it is more essential to add in curriculum design for Global warming and climate change. The life style changes to adopt eco friendly behaviors and innovative choices to identify from geriatric population from above 60 years to get information of their parents and grandparents what they were used for healthier life. The choices to add in innovative approach for alternatives for chemical, pollutant free and less emission free environment.

Recommendations

Prime Minister of India announced Life style changes required in each small actions made big changes in environment. The small actions are given such as eating vegetarian sources will produce less wastages than animal meats, using big plates in cafeteria will minimize the waste, driving by e vehicles, using cycle for further redu ction of emissions. In this, it required detailed information of Life style changes in small actions in how by where and by whom and when like such questions need to fill the gap of protecting atmosphere pollutions. Based on these brief guidelines the author recommended few goals.

1. Emission free environment

- Mass media sources televisions news, news paper and public gathering places such as railway stations, air port, bus stand and internet assisted devices to be announced the Air quality index of states of cities, towns, villages in scheduled time period to public to create the present status of air quality.
- Air pollution is monitored by Government management system, there is need for portable device to monitor big industries, small companies, fire or fuming area to identify the earlier risk of very bad to hazardous category air pollution for appropriate handing of critical situation.
- The Government of India, need to add or revise policy for zero emission from 2050 with the amendment of in first seven years 2030 only Government transports bus, double decker can be used for fossil fuels for benefits for more routes and passengers.
- The car and bike manufacturing companies change their petrol and diesel production to e-vehicles with chargeable batteries bikes, cars, vans first 7 years production in 2030 and later mini bus, bus, double decker bus for long routes near 5–10 years of next plan 2030-2040. During the time all fossil fuels vehicles should be banned by Government of India including public Government transports.
- Each point is available for charging station for electric vehicles and charged batteries very fast within 15 minutes or replacement of empty charger exchange with charged batteries is with payment. In future the batteries size and chargeable time to be same in all vehicles.
- Metro train will be best choice for travelling by many passengers at a time in short routes. This facilities may be provided all cities, towns and villages will reduce emissions.
- Solar panel trains may be used for next 5 years where the states Sun source is available 7-8 hours and wind mills can install where the air wind is enormous to produce electricity.
- Bicycles will be used children for school children and employees can use regular practice of office going by bicycle. A cycle path required for right and left in both sides of road. It is immediate need to add in road planning and implementation. Imported car for fossil fuel should be banned.

2. Quality air atmosphere for healthy life

- Air don't have any specific smell, only we can feel through breath, but sometimes the air have unwanted bad odor from poor Municipality solid waste management. Early morning atmosphere have smog due to emissions pollutants cause poor quality air for breathing. When who have good garden with oxygen plants to inhale good breath such as air therapy for deep breathing and air bath for tissues at your home premises itself. Indoor exercises are advisable for industrial and polluted area.
- Municipality Solid waste management is influenced environmental air pollution with very obvious bad odor for 24 hours from each street municipality waste containers and transportation vehicle when it crosses you, need to withhold for breath for few seconds and closing the nose and mouth with hand kerchief spontaneously by each one experience of Indian citizen.
- Wastages to be disposed in appropriate system everywhere in urban or rural the same standards will be followed for color coding of dustbins, single point disposable of wet and solid waste and same time segregating and send reusable of plastics, glass, metals, tins or any solid products for reuse of money value by each municipality and panchayat administration. Food wastes to be categorized and disposable to be done on the basis of vegetables wastes to be used for animal feeds and food wastes of cooked meals. animal flesh eatable portions, bones, egg shells to be distributed to animal shelters and specific places for stray dogs in daily basis. The current practice in many places the disposable done alternative days or weekly twice and some places weekly once after filling the wastage bins only cleared. There is no monitoring and reporting to officials is not a existing practice. Due to this the poor disposable in days of waste is accumulated unusable and decayed with plastic bags, bad odor mixing in environmental atmosphere and same difficult to handle sanitary workers to segregate wastes and finding re-usable products to reuse. Reduce the use of plastics through reuse the same in meaningful way,

reuse the plastics and other metals to store in different small containers and sale it after sometimes when it is accumulated. The plan of waste disposable is very ineffective and failure of all sectors in implementation.

Source; Provide by author.[29]

- The Indian population ranking 1 in world population it reached one billion and 414 millions, the individual waste per day is 1.5 to 2 kg minimum range to 4-5 kg the maximum range, imagine the daily wastes for this population is very huge and it is not easy to dispose and solve the issue. It is dumped somewhere like mountains or hills in land of public. These wastes mountains staying years with increasing size, there is no one possible to make disappear or reduce the size is big problem. Government of India have to give first priority of the issue and solve with good planning and implementation. Cleaning of water sources of rivers, lakes, fountains is mandatory to reserve hygienic unpolluted water for all the use of people.

3. Value based traditional practices to add on innovative choices in daily life.

- We have to consider the traditional practices to bring back as added innovative interventions to adopt for naturally bound to environment friendly choices. Discuss with geriatrics population 60 years and above 80-100 years from their childhood what they observed from their parents, grandparents of any specific practices observed and how it is good practice for long healthy life when they are following.
- Declare national level knowledge discussion or essay competition to participate and explore their family practices to identify the new practice to add on innovative choices for eco friendly life. It may be use of oxygen trees and plants their homes for good aeration, ventilation system, practice of food preparation, skin care, disease prevention, long life, prevention of aging, use of special herbals, remedies for health issues, where is the possibility to fill the gap such as the wood cork for bottle lids, dry leaf plates, there is no alternative for feeding bottle nipple and flask lid (plastics) it melts and releases Bisphenol A which is identified as carcinogenic agent. The ill effects of plastic storage of liquid food sources like milk, curd, yogurt, ice cream, cooking oils, pickles, processed food tins, canes few days to months or years stored for long time there is no evidence of scientific enquiry.
- Plastic containers are not good for health this everybody knowing, but not possible to change the practice because of no alternatives. In traditional practices stored in mud pots with lids, ceramic containers, good metals like copper, brass, bronze, glass jars with cork lids. Alternative sources are not available to use for less cost and more number of availability to public.

4. Deforestation

- Acres of forests were destroyed for urbanization, tunnel creation, National high ways - NH7 bypass short route connection for major cities which includes many small villages and two NH 7 roads in same places which is not necessary to spend money and yield lands in acres used for such road works. Example of Salem NH 7 Road plan, Tamil Nadu.
- Government of India have contract with other countries for new industries to start villages where is the source of cultivation.

It should consider only the land which is not for yield. The high priority to given for protection of forest for trees, farm lands should never be used for industries. Need to develop new rules and regulations to follow everyone. Example of Kudankulam Nuclear power point plant, Tamil Nadu.

- For building construction wood requirement is to be minimal use such as decorated art work of doors other alternatives of steel or any other metals can be used. The high school, secondary education, academic assignments, tests, theory examinations will be conducted by online instead of using papers may be saved thousands of tree per day. Recycled papers and reuse is another good way to minimize the use of papers.
- ATM withdrawal a phone message is adequate for confirmation of amount debited and the balance available no need the options of print request yes or no. This is to be implement everywhere in India in all ATMS.

5. Policy making plan & Implementation process.

The steering committee includes Chairperson and advisory board members which includes scientists from environmental sciences, environmental designers, air quality control body members and experts from relevant field, representatives from International experts from Air policy regulatories body members, representative from social reformers.

The committee can do the following activities.

- Assess the current air quality statistics: division of work to distribution with timeline.
- Based on statistics of Air quality: plan for policy budget, formulate goals and objectives, plan of action with time period and when it is implementing period and observe the ongoing process, evaluate the process in periodical report.
- Conduct meeting for discussion about the outcome and assess the benefits of potential and risks of weak or failure of action.
- Revise the goals, objectives and expected outcome is carefully evaluated with experts opinions.
- Establish policy success will be measured in evaluation and feedback report.
- Monitor policy processes and plans through out the period.
- Resolve conflicts if anything for immediate action .
- Provide expert input on concerns and issues related to new policy implementation.
- Identify, monitor, and eliminate which is not practicable.
- Monitor policy quality and if any new things to add or existing can modify accordingly with sound rationale and justification.
- Develop quality assurance steering committee with experts to monitor and evaluate the plan, goals and objectives of policy. Implementation process and evaluation will be discussed in periodical meetings in every 3 months for specific time period it may be 5 years plan or 3 years plan.

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