

## MANAGEMENT OF ENVIRONMENTAL POLLUTION BY VIEW OF AYURVEDA

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### ABSTRACT

Environment is the external factor present around man and has got an influence on the health of the human being. Ecologist considers as health is a state of dynamic equilibrium between man and his environment and when this equilibrium is disturbed ill health (disease) occurs. Healthy environment promotes health. Pollution is termed as the presence of offensive matter in the environment. This offensive matter denotes presence of various pollutants in the surrounding environment. Fast human life as it is called now a day creates distance between human and nature and that is the result of the carelessness of human to preserve the beauty of the nature and that causes disequilibrium. Present article helps to think protocol and measures about the environmental pollution management by means of *Ayurveda*. Air purification as well as water purification protocol is described in *Samhita*.

**Keywords:** Environment, Human, *Ayurveda*, Pollution, Nature, *Samhita*

### INTRODUCTION

Human being is the wisest entity on the earth. Different modern machines are used by man to improve his life but the changing life style makes man careless towards the nature. Man never thinks about the surroundings and the bio system. Man forgets the lesson told in ayurveda that whatever changes occurs in nature, their reflection occur in human being. The carelessness done by human being leads to disturbed or should say the deteriorated relation between human being and the nature and that alters the environmental balance. Pollution is termed as the presence of offensive matter in the environment<sup>1</sup>. The selfishness nature of man creates environmental hazards and those hazards cause serious health issues in human beings.

The growing population and increase in materialistic desire causes a strain on the environment, natural resources and the infrastructure. Human beings are biggest threat to nature as in response of speedily exploitation of nature by man, earth reacts in the form of devastating forces and these forces brings natural disasters like Earth quake, Super cyclones, Flood etc.

#### **Material and Method:**

All the literature of *Ayurveda* especially *Brihatrayee* and Literature of modern science like environmental science, social and preventive medicines etc. are the sources of information.

Attempts have been made to establish a relation between nature and human being in the context of environmental pollution and natural calamities on the basis of ayurveda and modern thoughts. An attempt is made to aware the people about the bad outcome of the nature if nature is exploited greatly. The 2016 Environmental Performance Index (EPI) ranked India 141 out of 180 countries surveyed under Study of air quality in India <sup>2</sup>.

The open burning of waste is a large source of toxic air pollutants such as particulates, carbon monoxide, black carbon, dioxins, furans, and mercury. Air pollution in India is caused by fuel wood and biomass burning, burning of crop residue in agriculture fields on a large scale, use of adulterated fuel, emission from vehicles and traffic congestion.

India is the third largest in the emission of greenhouse gases after China and the United States. The severity of air pollution is so much that life expectancy among Indians on an average reduces by 3.4 years while among the residents of Delhi it reduces by almost 6.3 years.

The World Health Organization considers air unsafe when average exposure to any of these matters exceeds the limit. According to the 2016 EPI, more than 3.5 billion people – half of the world's population – are exposed to unsafe air quality which also includes 75% of India's population. WHO report also suggest that urban outdoor air pollution has increased by about 8% between 2008 and 2013. It has also been found that in 2012, approximately around 127,000 children under the age of five died from outdoor air pollution, while 531,000 died from household air pollution. China and India have time and again been observed as areas where air pollution is at its worst. Ayurveda samhita has described means and modes to purify air.

#### **Environmental pollution:**

Environment is the external factor present around man and has got an influence on the health of the human being. Pollution is the introduction of contaminants into the natural environment. Environmental pollution is the unfavorable alteration of our sur-

rounding largely as a byproduct of man's action. There are various means and modes by which environmental pollution takes place.

#### **Pollutants:**

Pollutant can be defined as a waste material that pollutes air, water, soil and seasonal cycle (*Vayu, Jala, Desha* and *Kala*). The severity of the pollutant depends upon its chemical nature, its concentration and its persistence.

#### **General causes of environmental pollution are:**

- Carelessness towards nature
- Over population
- Industrialization
- Deforestation
- Use of artificial fertilizers, pesticides, insecticides
- War (war between country communities, nuclear weapon testing)
- Miscellaneous – Polythene use, Excess use of AC, TV and Refrigerator, Improper disposal of biomedical waste etc.<sup>3</sup>

#### **Different types of Pollution:**

- **Air pollution:** Air pollution includes release of chemicals and particulates into the atmosphere. Sources of air pollution include the following;<sup>4</sup>
    - Domestic sources – burning of fire wood, kerosene oil, coal etc.
    - Industrial sources - Factory of iron, steel, paper, cement, fertilizers, thermal power plant, petroleum refineries etc.
    - Vehicular sources – Motor vehicles, railway, ships, aeroplanes etc.
    - Miscellaneous – Tobacco smoking, nuclear explosions, forest fires, Volcanoes, dust storm etc.
- Respiratory system gets affected mainly due to dust or RSPM (Respirable suspended particulate matter). Hazards of air pollution includes Bronchial asthma, allergic rhinitis, acute bronchitis as immediate and acute effects and chronic bronchitis, bronchiectasis, emphysema, COPD, bronchial asthma and even lung cancer as chronic effects of air pollution <sup>5</sup>

• **Water pollution:**

Water pollution by different modes makes the water unsafe for human use. By the release of waste products and contaminants into surface run off into river drainage systems, leading into ground water, liquid spills, waste water discharge, Littering. Water pollution causes biological as well as chemical hazards in the form of various infective agents induced diseases, various essential element deficiencies and over accumulated metals induced disorders in the body <sup>6</sup>

• **Soil pollution:**

It occurs when chemicals are released by spill or underground leakage. The most significant soil contaminants are hydrocarbons, heavy metals, herbicides

• **Noise pollution:**

Noise pollution signifies the cacophony of sounds that are being produced in the modern life, leading to health hazards <sup>7</sup>. It includes road way noise, aircraft noise, and industrial noise. Motor vehicle comprises the largest source of noise pollution. Amount of noise is measured in the form of its loudness. Loudness of sound without harm is up to 50 db, Irritant sound >70 db, Risk of hearing loss >110 db. Noise pollution hazards includes Auditory effects including auditory fatigue and deafness and non auditory effects include interference with speech communication, Annoyance (irritability, short temperedness, impatience, quarreling), lack of concentration, Physiological disturbance like disturbed sleep, rise in Blood pressure, rise in intracranial pressure, Palpitation, giddiness, fatigue, nausea, visual disturbance etc <sup>8</sup>

• **Radioactive contamination:**

Outcome of nuclear power generator, nuclear weapons, nuclear research etc

• **Thermal pollution:**

It is a change in temperature of natural water bodies caused by human influence such as use of water coolant in power plant

**Pollution Management:**

Extent of Pollution can be managed by following ways:

- Afforestation
- Use of eco friendly bi – cycle for short distances
- Detoxification of waste material of industries, houses and biomedical should be done before disposal into rivers
- Shifting of industries away from river banks
- Usage of Natural fertilizer
- Banning of atomic explosion and testing of nuclear weapons
- Limited usage of motor vehicle for small distances
- Use of turban made up from cotton to cover the head and ears so that irritating sound waves could not enter the ears
- Plantation of air purifier plants like *Neem, Karpura, Arjuna, Ashok, Guggulu, Shigru, Tulsi* etc.
- *Hawan* (Home) – *Hawan* is practiced as a part of god worship as well as it has a good impact on the environment also. It has been proved on the criteria of science that the burning of cow ghee mixed with rice releases formaldehyde, ethylene oxide, propylene oxide, Beta- propeolactane gases. *Sushruta samhita* has given use of particular plants for the purification of the air and water. Plants told for air purification are *Ashwakarna, Asana paribhadra, Patla, Siddhak (Nirgundi), Mokshak, Somavalka (vitkhadir)*<sup>9</sup>. Bhasma of these respective plants is told to use.

Plants told for water purification are *Laksha, Haridra, Ativisha, Hrenuka and Priyangu* <sup>10</sup>

Apart from this, *Marjana, Prasadana and Paristravana* are told in *samhita* for water purification

**Marjana** – Heating of Impure water

**Prasadana** – 7 things for *Jala Prasadana* are told by *Acharya Sushruta* i.e. *Katak, Gomeda, Vishgrathi, Shaiwal- mool, Vastra, Mukta, Mani* <sup>11</sup>

**Paristravana**- Filtration of water with the help of cloth

### Ayurvedic view of environmental pollution problem:

It is stated in one of the *Ayurveda* text book that an individual is an epitome of the universe as all the material & spiritual phenomenon of universe are present in the individual and vice – versa<sup>12</sup>. There should be such type of integral relation between human and environment. If human beings think about the maintenance of the environment, environment itself will function in the interest of the human being. We can avoid natural calamities like flood, heavy rain fall, cyclones or earthquakes if this relationship becomes strong.

*Acharya Charaka* described two types of *Laukika vayu*. First is *Prakruta* and second one is *Aprakruta*<sup>13</sup>. Characteristic features of *Aprakruta vayu* are very similar to the disasters happening these days everywhere across the world e.g. Uprooting of trees, disturbing oceans, changing course of rivers, bringing about earthquakes, causing thunders in the cloud, thunder with dust etc. So the air should be free from pollution so that *Aprakruta vayu* can be reverted to *Prakruta vayu*.

*Acharya Charaka* has explained 4 factors i.e. *Vayu, Jala, Desha* and *Kala*<sup>14</sup> in context of *Janapadodwamsa*. These factors should be in *prakruta* state and the *aprakruta* state of these factors represents pollution of air, water, soil and seasonal cycle in present scenario. *Acharya Charaka* says clearly that the sins of the present life or the misdeeds of the past life are at the root cause of vitiation of all these factors i.e. *Vayu, Jala, Desha* and *Kala*. Ignoring the misdeeds of the past life, if we concentrate only the sins of the present life it can be easily analyzed that the only human beings are responsible for today's vulnerable condition of nature. Describing the importance of clean beautiful, charming nature in disease *Acharya Charaka* in context of *Rakta pitta vyadhi* says that '*Dharagriham bhoomigriham susheetam, vanam cha ramyam jalavatasheetam*'<sup>15</sup>

### DISCUSSION

The people of India of Vedic period had very firm faith in God and his creatures. In Indian philosophy it is the tradition to propitiate the sun, the planet and the trees. The people of that time were in deep love of nature but present scenario has changed dramatically. Therefore it is the need of the hour to maintain the equilibrium state between human being and nature. Rapid growth of population, reckless cutting of trees, materialistic life style made the condition of nature vulnerable, therefore *Ayurvedic* philosophy not to cut trees, plant new ones and behave eco-friendly should be adopted. In *Ayurveda* text books methods to make air and water pure are given which helps to deliver pure air and water so that human being as well as other living creatures live long. Importance should be given to *Hawan, Marjana, Prasadana*, and *Paristravana* for air and water purification.

### CONCLUSION

Environmental pollution now days have become a matter of worry due to its adverse effects on human being. Environmental pollution affects the ecosystem badly. The result of the disequilibrium between human and nature creates disturbances in the form of health hazards. *Ayurveda* has given a solution for the problem of environmental pollution by giving methods of air and water purification. In Present article the *Ayurveda* view of handling of this problem is quoted which definitely will give benefits to the viewers.

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