CHAPTER THREE
SOME ANCIENT INDIAN TEXTS
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The third chapter details in short a few ancient scriptures and their relevance to environment. Prthvi Sukta, Vrikshayurveda, Ramayana and Environmental Legislative implications of Manushastra and Kautilya Arthashastra find mentioned in this chapter. A brief note on environment sighted in some of our ancient text is attempted in this chapter.

PRTHVI SUKTA

Prthvi Sukta, a valuable source of knowledge has depiction of prthvi or earth in terms of present, past and future\(^{114}\). It finds mentioned in A.V. and is the only place where a set of sixty three verses on prthvi has been compiled together. These verses highlight the opulence of the earth by glorifying the various treasures found on it. In it we find a description of flora and fauna including non-living materials being available for the use of all creatures and more so for human beings. It is just that mankind has to use them wisely.

In the very first verse of Sukta, the Vedic seers acknowledge the virtues required to uphold the earth namely truth, justice, consecration, austerity, prayer,

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\(^{114}\) The matter for Prthvi Sukta has been taken from the following sources:


ritual, efficiency, knowledge, hard work, mutual regard, unity and charity. Let earth give us ample scope for advancement is a way of seeking blessings from earth for helping man to prosper in all his endeavours\textsuperscript{115}.

That the food needed by all living creatures can be cultivated only on earth is suggested in attributing earth to be a “bearer of cornfields”. The highest truth can be seen in the verse wherein the poet regards himself as the son and the earth as his mother “mata bhumi putroham prthivyah”. Thus we see filial allegiance declared of humankind to mother earth. Earth is requested to provide milk (food) for mankind, similar to mother providing to her son. Earth is considered as mother that nourishes and protects, while cloud is the father, the rain giver and provider of food\textsuperscript{116}.

In earth lie canals, lakes, wells, tanks, rivers, sea and oceans. Earlier to having a form as earth, there was only water all around. Earth is solid brown, black, red, multihued having forests, hills, woodlands and snow-clad mountains. All of them being auspicious, earth is being reverentially asked to show kindliness to humankind. Earth has many heights, varying slopes and vast plains all of which assist men in cultivating different kind of crops\textsuperscript{117}.

\textsuperscript{115} Raimundo Panikkar (Ed.), \textit{The Vedic Experience - Mantramanjari}, Motilal Banarsidass, New Delhi, 1994, p.123: A.V. 12.1.1
\textsuperscript{117} Ibid., Pp.123-124: A.V. 12.1.2, 3, 8, 11.
The Vedic man knew about the various seasons that form a year and benefit of each season to man. Narrating about all seasons namely summer, rainy, autumn, winter, spring which comes in a year, they request the seasons to pour their abundance on men day and night. The verse states:

**Grishmaste bhume varshaani sharaddhemantah shishiro vasantah**

**Rtavaste vihitaa haayanirahoraatre prthivi no duhyataam||**  

The importance of yajna is also seen mentioned in this sukta. The altar for yajna performance is done by using tall and bright sacrificial poles and fixed on earth’s surface. Oblations are offered by chanting the mantras with sincerity and benevolence is asked of earth to be prosperous so that in turn we might prosper. Earth is requested to provide mankind a long life by assuring good health and breath for all.  

Earth is held firm and consolidated as it is composed of rock, stone, soil and dust. Vedic seers offer venerations to earth as he knew that man needs to dig earth to benefit from its vast treasures. This suggests that they were aware of the existence of minerals underneath earth. While acknowledging that earth needs to

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replenish itself, there is underlying imprint that minerals need time to form. Man needs to offer prayers of being sincere in not injuring the earth’s heart\textsuperscript{120}.

Golden breasted earth is the bearer of sacred universal fire. Mention is made of Agni or fire as being present in everything such as earth, plants, water, stones, horses and human beings. Fire from the sun gives shine and heat to the earth. Air is also under the control of lustrous fire\textsuperscript{121}.

The trees, plants and herbs stand firm, unshakable, immovable on the long enduring earth. The verse states:

\begin{quote}
\textit{Yasyaam vrkshaa vaanaspatyaa dhruvaastishthanti vishwahaa}

\textit{Prtihivim vishwadhaayasaam dhritaamachchaavadaamasii}\textsuperscript{122}
\end{quote}

Earth bears plants that have healing powers which is made use of not only by birds and animals but also by humans\textsuperscript{123}. A variety of birds and animals find mentioned in the verses which highlight their knowledge about these creatures and gives an idea of what kind of animals existed during that period. Earth carries creatures that have two, three, four legs and the animals such as cattle, serpents, scorpions, worms, lions, tigers, man-eaters, hyena, wolf, bear, horse and birds like swans, eagles and birds of various kinds\textsuperscript{124}.

\textsuperscript{120} Ibid., Pp.125-126 : A.V. 12.1.26, 35.
The word ‘together’ is used in quite a few places suggesting that Earth is regarded as a symbol of unity which unfortunately has become a place of hatred now. Every action performed on earth binds men together explaining the solidarity that human beings have to have for each other.\textsuperscript{125}

On earth live all creatures that breathe and move, whom she protects. Earth is the bearer or storehouse of treasures, sustainers of mankind and home of all moving life. The poet requests earth not to injure creatures which lie on it as it is the bed of whole creation. Earth is mighty and vast, dwelling place for all creatures and nourishes all\textsuperscript{126}.

The Prthvi sukta also affirms the law of Rta which we have seen already in brief in previous chapter\textsuperscript{127}. They acknowledge that in accordance with this universal law, rivers flow on the earth day and night tirelessly without fail. Earth is sustained by eternal law and she pours out her lovely knowledge towards us. In other words we learn from our environment. Earth never faults as she is ever protected with ceaseless care by the never sleeping cosmic powers\textsuperscript{128}.

Earth establishes a delightful dwelling place and home to all races of men. It provides “thousand streams of treasure” like a placid cow that pours milk non-stop.

\textsuperscript{126} Ibid., Pp.123,125-126 : A.V. 12.1.3 - 4, 6, 18, 34.
\textsuperscript{127} See Vide p.30 in this thesis.
\textsuperscript{128} Ibid., Pp. 123 - 124 : A.V. 12.1.9, 7, 17.
We see the comparison being made of earth to cow. Cow is symbolic of peace, purity, love and bountifulness in respect of food (milk). It is peculiar that cow is compared to earth while cow is part of earth\textsuperscript{129}.

The seers request mother earth to be gracious in granting nature’s bounties that is wholesome to all. The poet bequeaths earth that children reared in her lap be free from sickness and decay so that they can be active, watchful, wakeful, and vigilant having a long life\textsuperscript{130}.

The Vedic seers pray to earth to be generous and share, impart, bestow the riches of gold and gems with love and favour. The earth is described as “purifier and patient, bearer of nourishment and strength”, peaceful, fragrant and protector of forest trees and plants\textsuperscript{131}.

The poet requests mother earth to give man the capacity to have “honeyed speech” or speak pleasantly and thus have a harmonious interaction with other beings without having any aggressive intentions as stated in the verses below:

1) \textit{Taa nah prajaah sam duhrtaam samagran vacho madhu prthivi dhehi mahyam}\textsuperscript{132} ||

2) \textit{Yad vadaami madhumat tad vadaami yadikshe tad vananti maa}\textsuperscript{133} ||

\textsuperscript{130}Ibid., Pp.129 : A.V. 12.1.62 – 63.
The belief behind this statement seems to be that earth bestows art of communication to man. Every being has a language; it doesn’t mean that if you do not understand their language, it isn’t any language at all.

Earth bears both the good and the wicked. Earth supports all things that are light and heavy and receives ample water from the clouds. Vedic people were already aware of the heliocentric theory when they declare that the earth revolves round the sun\textsuperscript{134}. They were also aware of the fact that the earth moves and shakes, “great is your movement, great your trembling, your quaking”\textsuperscript{135}.

The poet prays earth to assure man a long life by showing us the right path to living, to sharpen our wits, make us noble and energetic, and furnish us with splendour\textsuperscript{136}. Vedic man bequests earth to see to it that ‘no enemy ever wish us ill’ \textit{(maa no dvikshata kaschchana)}\textsuperscript{137}. Man has to serve earth with devotion, showing restraint and responsibility in his actions.

Thus we see that this poem is an exemplary of poetic beauty describing earth in its varied forms. In it we find the physical description of the earth along with details of the environment that include living creatures, plants and food aspects covered. Sacred and reverential attitude towards Nature can be seen in the verses.

\textsuperscript{134} \textit{Ibid.}, p.128 : A.V. 12.1.48.
\textsuperscript{135} \textit{Ibid.}, p. 125 : A.V. 12.1.18.
\textsuperscript{136} \textit{Ibid.}, Pp.125, 127 : A.V. 12.1.21 , 40.
Divine status is accorded to the powers of Nature. Earth by its very nature is peaceful, fragrant, gracious and not only bestows gifts to mankind but also it itself is a beholder of virtues. For all that the earth provides, if man has to cherish them; then a devotional attitude needs to be shown by man towards earth. Earth needs to be celebrated for offering all her natural bounties, thus a covenant is made that mankind shall guard the earth from all kinds of environmental oppression.

**RAMAYANA’S ARANYA KANDA**

Sage Valmiki’s Ramayana comprising 24,000 verses can be thought of as being a Kavya (song), Itihasa (history) or Akhyana (legendary story)\(^{138}\). It is a rare jewel that is of tremendous value to humankind. Whether Sage Valmiki was a contemporary of Sri Rama is not the point of discussion here, but it is the poem itself which highlights the writer’s imagination and vivid poetic sense comparing natural surroundings with human sentimental nature. A world class poet in his own right and very talented in describing natural beauty, he has depicted Nature in all its artistic qualities in Ramayana. If one can perceive beauty in Nature, naturally the beautiful feeling can be seen internally too. Happiness is a product of beauty. What one needs is an inner eye to discover internal beauty even in the so called evil, which is the hallmark of Valmiki.

The prophet Valmiki makes use of illustrations and similes. He has mastered the art of comparison in order to depict his thoughts. There is both direct and indirect meaning that can be gauged by the readers from this epic poem. The poet has different styles of portraying sadness or ‘dukha’ such as in depicting weeping and anger. Even the portrayal of happiness is narrated using natural objects like birds, animals and beautiful flowering trees. Such is the treatise that only a Jnani (person who has realized truth) could have written them. Words effortlessly pour out of his mind and he doesn’t have to go in search of eloquent words for describing the characters in this epic.

Valmiki uses both empathetic identity and psychic distance\textsuperscript{139} in the poetry making the reader to totally identify with the feelings depicted in this treatise. So it is a case of identity and maintaining the detachment also. It is an objective observation of the situation without oneself totally identifying with the situation which is called psychic distance in the modern terminology. Both of these factors namely empathy and psychic distance have helped Valmiki to create such a wonderful epic called Ramayana.

Aranya Kanda chronicles Rama’s tryst with forest life. Forests are reservoirs of ample knowledge, according to Indian scriptures and the same is highlighted in this chapter. With an eye for detail, the sage skillfully describes the forests.

\textsuperscript{139} M.Hiriyanna, \textit{Art Experience}, Issue 50 of Indira Gandhi National Centre for the Arts Series, New Delhi, 1997.
mentioning the trees by their respective names namely sal, palmyra, tamala, date, jack-fruit, nivara, tinisa and punnaga among others. Not only these trees provide shade, but also provide the natural fragrance from their blooming flowers. The sage also gives a beautiful sketch of Panchavati, where Rama, Sita and Lakshmana set up a base to spend the last few years of their exile period. The place is enshrined by tall mountains all around, Godavari river and with trees bearing fruits and flowers. Rama choosing a location for building a cottage also shows the importance given to having a water stream as a water source and to trees as a source of pure oxygen in their environment.\textsuperscript{140}

The episode of Jatayu symbolizes the importance give to birds and also reflects the necessity of association of human beings with other beings. Rama states, “This spot is holy, this is charming, this abounds in deer and birds, O son of Sumitra! We will stay here with this bird (Jatayu)”\textsuperscript{141}. Staying along with birds and deer shows the inclusiveness of animals and birds as part of their life.

The poet states that the whole world of both the animate and inanimate creation went out of order and was enveloped in thick darkness, when Ravana comes to abduct Sita. The wind refuses to blow and sun becomes lusterless\textsuperscript{142}. In his depiction, the poet shares the ancient belief held of the Sun being aware of all


\textsuperscript{141} Ibid., p.690 : Canto XV, Verse 19.

\textsuperscript{142} Ibid., p.791 : Canto LII, Verses 8-9.
that is occurring on the earth. Likewise the movement of wind is shown to be the witness to all the happenings. This shows that the earth is a whole being and events happening at one place do affect other regions.

Earlier the sage states the trees, wind and even the river had a prediction of sinful act going to be committed by Ravana. He states “perceiving the sinful deeds, the trees existing in Janasthana did not wave nor did the wind blow freely”. Feeling the forbidding and hostile look of Ravana on her, the Godavari river too which had a swift current began to flow slowly out of fear for him\textsuperscript{143}. Sensing evilness or evil intention in Maricha who is in the form of a deer, the other deer’s scattered away in all directions\textsuperscript{144}. Valmiki through narrating this episode shows that other living and non-living beings have pre-monition of negative events befalling the environment. He also implies that bad can be seen as good and one needs to have ‘viveka’ (discretion) in finding the true reality.

It will not be out of place here to state that birds and animals are known to display extreme behaviour on the slightest hint of something averse in their natural surroundings. They are known to sense earth’s earthquake vibrations and

\textsuperscript{143} Ibid., p.771 : Canto XLVI, Verses 3-13.
\textsuperscript{144} Ibid., p.760 : Canto XLII, Verse 28.
electromagnetic changes in atmosphere before an impending storm much before the occurrence of the actual event\textsuperscript{145}.

Ravana’s plan to do evil act clearly indicates that a person by perpetrating heinous crimes without caring for other’s feelings invariably affects Nature negatively. That means environment does get affected with the misplaced actions done by person with evil intention. Also, the cumulative effect of many people’s wrong actions has its repercussions in the form of derailment of Nature’s seasonal activities.

Personality affects a Nature force which in turn has its repercussions on other natural events as earth is a whole being inclusive of living and so called non-living things. Whatever happens in the human personality has it repercussions on the other natural events. For example, the sun is said to be afraid of Ravana and lessens his brightness and heat. The speed of the wind becomes slow.

The sage narrating the incident of abduction of Sita by Ravana, gives a grim outline of the agonizing scene being unfolded using Nature as a framework. This incident is highlighted here, to show the effect of man’s evil actions onto the non-human life and Nature. Sita crying out to the trees, rivers, mountains, birds,

\footnote{\textsuperscript{145}<http://news.nationalgeographic.com/news/2005/01/0104_050104_tsunami_animals.html>, accessed on 16.06.2015.}

Foot note: It is reported that during the 2014 tsunami that hit the Asian coastal areas such as India and Sri Lanka, animals such as dogs did not go outdoors, elephants reached upper ground, flamingos left their low-lying breeding areas and zoo animals went to their shelters and did not come out.
animals, sun, wind as being witness to her abduction indicates that Nature was not seen as dead.

To describe the heinousness of the crime, the sage illustrates the result of the action on the surrounding environment. The beauty of the lotus had faded, the fishes were frightened, animals were agitated and the sun had lost its splendor\textsuperscript{146}. Living beings in multitude lamented, “‘Righteousness is extinct, how (then) could truth prevail’\textsuperscript{147}? All these descriptions elucidate that trees, plants, animals, birds, sun and elements such as the wind reciprocate to the happenings around them.

The poet’s portrayal of sun, winds, mountains and rivers as witnesses to this outrageous crime is an indication of how the natural forces fail to operate in their natural character because of the presence of evil forces brought out by human beings endowed with evil qualities. The poetic eye suggests here that there is a close connection between the natural order in Nature and ethical order in society and the very presence of evil in human mind is capable of changing the natural order. An evil action in thought, kind and deed does harm the environment. This is portrayed by the poet in his depiction of negative feelings in the environment in all three phases – Ravana’s intention before carrying out his act, the actual abduction of Sita and the repercussions felt in the aftermath.


\textsuperscript{147} Ibid., p.794 : Canto LII ,Verses 39-40.
Like the evil influences on Nature by evil actions, the poet has also portrayed the good influences on Nature brought by doing good actions. Nature loses or regains its svabhava (inner tatva or essence) depending upon the actions committed upon it. The society can benefit only if the human beings who are part of Nature and within it such as in the society, understand their responsibility and stop their evil actions thus help in curtailing the distortions on Nature.

Sage Valmiki’s greatest tribute of being a proficient poet can be seen in the words he uses to represent the virtues of animals and birds. Rama, highlighting Jatayu’s death at the hands of Ravana says to Lakshmana, “Indeed pious and valiant souls practicing virtues and worth approaching for protection are found everywhere – even in those belonging to the sub-human species”. It can be noted here that the sage does not use the word non-human but sub-human to address the vulture Jatayu. The verse states:

\[
\text{Sarvatra khalu drshyante saadhavo dharmachaarinah} \\
\text{Shuraah sharanyaah saumitre tiryagyongateshwapi} \|^{148}
\]

Rama is grief-stricken as he is unaware of Sita’s whereabouts. In his frustration to find Sita, he gives vent to his anger and vehemently pronounces to destroy everything from planets including the moon. He wants to annihilate the

\[^{148} \text{Ibid., Pp.841 – 842 : Canto LXVIII, Verse 24.} \]
elements of fire and air, and obstruct the brightness of sun; crush the mountains, dry the river, lake and pond beds. He wants to uproot the trees and shrubs and drain the whole of the ocean. Rama’s fearsome anger does not leave alone the animate and inanimate creations of the world\textsuperscript{149}.

But, Lakshmana reminds Rama of his benevolent character, being devoted to welfare of all creations. Hence Rama should not fall prey to anger. Comparing a perfect person such as Rama to the “loveliness that dwells in moon”, “brilliance in the sun”, movement in the wind and forbearance in the earth”, Lakshmana chides Rama “not to annihilate the worlds for the offence of one individual” \textsuperscript{150}. Sage Valmiki has infused environmental concern in almost every character in one stage or the other. These are the values having environmental concern which have been inculcated in our epics. Without understanding the true essence of the values, modern man is bent upon destroying Nature for satisfying his selfish needs.

Lakshmana in seeking to inspire Rama who was aghast at losing Sita says, “What object of yours will be achieved through universal destruction wrought by you? Therefore, finding out your sinful adversary, you ought to root out him alone”.

The verse states:

\textsuperscript{149} \textit{Ibid.}, p.832 : Canto LXIV, Verses 60 - 71.
\textsuperscript{150} \textit{Ibid.}, p.834 : Canto LXV, Verses 1 - 5.
Kim te sarvavinaashena krtena purushartshabha |
Tameva tu ripuam paapam vijnayoddhartumarhati ||\textsuperscript{151}

By this statement, the sage excellently imparts profound insight to humans not to vent their anger on Nature and its surroundings. This age is bent upon creating nuclear bombs as each nation wants to create its own nuclear weapons as a security tool. In effect these weapons when used create nuclear holocaust or mass destruction thus permanently damaging all life forms\textsuperscript{152}. This shows man’s aggressive attitude and his intention to destroy Nature for his selfish ends.

The sage conveys the grief of Rama after Sita’s abduction by portraying Nature’s disturbance and sketches the feeling of sorrowfulness. Similarly, the sage aptly expresses how the positive vibrations bring about harmony in Nature. He communicates the happiness at Panchavati through the joyous moments exhibited in Nature such as chirping of birds, blooming of flowers, the shade of trees and perfume enveloping the surrounding environment. One can see the concern for flora, fauna, elements, plants, birds and animals enumerated in this treatise. To understand the charm in Nature, one needs a different kind of temperament. The touching scenes depicted with regard to deer, trees, flowers, birds and, everything in Nature makes the reading of this treatise full of feelings of tenderness towards

\textsuperscript{151} Ibid., Pp.836 - 837: Canto LXVI, Verse 21.
\textsuperscript{152} <http://www.nuclearfiles.org/menu/key-issues/nuclear-weapons/basics/weapons-basics.htm>, accessed on 16.06.2015.
all manifestations. The charm of the forest lies in being a silent spectator while present in the forest. Similarly, whatever be the situation, rain or shine, the trees stand upright and straight. There are umpteen ethical ideals that can be taken from Ramayana to shape our life. **One needs to cultivate these environmental values which can be understood only by observing Nature.**

**ENVIRONMENTAL JURISPRUDENCE**

Laws are framed to instil a sense of doer-ship for the proper functioning of any system. Vedic man saw the orderly laws in the Nature which helped in the smooth functioning of the complicated cosmos. This he framed as Rta and gradually, he deduced them to moral and ethical laws that can be used to regulate the functioning of human beings.

Manusmriti’s Dharmashastra and Kautalya’s Arthashastra are the foremost books on ethics which are known to man. Hence deducing the environmental laws from these treatises would help the modern man in understanding the ancient laws. These laws have been preserving and conserving the environment, thus their relevance for the present day environmental situation is magnanimous.

**MANUSMTRITI’S DHARMASHASTRA**

Sage Manu is said to have composed Manusmriti 5000 years ago which consists of twelve chapters having 2,684 verses in totality. It has rules and regulations that have profound environmental significance even to this day. There
are quite a few definitions enumerated in the treatise. Physical environment is referred to as consisting of the five gross elements (panchamahabhutas)\textsuperscript{153}. A broad definition for ecology is also highlighted stating it to be the actions and living conditions of all creatures\textsuperscript{154}. There are details of how for a conducive environment, humans should take into consideration the biological, geographical, political, cultural and social factors\textsuperscript{155}.

Pollution is defined as spoilage of panchamahabhutas in all unethical ways. We find reference made to panchamahayajnas in the treatise\textsuperscript{156}. The term biodiversity categorises all living forms into chara and achara i.e., moving animal and stationery plant world\textsuperscript{157}. Reference is also made to what constitute cleanliness which has to be taken into consideration from four points namely physical, mental, physiological and metaphysical aspects. Contamination implies any action done against wholesomeness\textsuperscript{158}.

Animals are classified on the basis of their birth into Jaraayuja, Andaja and Swedaja\textsuperscript{159}. Trees that bear fruit without flowering are referred as Vanaspati and Vruksha refers to the trees that bear both fruits and flowers. There are also varieties

\textsuperscript{154} \textit{Ibid.}, p.3 : I/21.
\textsuperscript{155} \textit{Ibid.}, p.3 : II-17,24; IV/60-61.
\textsuperscript{156} \textit{Ibid.}, p.3 : IV/21.
\textsuperscript{157} \textit{Ibid.}, p.3 : I/41; V/29.
\textsuperscript{158} \textit{Ibid.}, p.3 : V/105; V/137,146.
\textsuperscript{159} \textit{Ibid.}, p.3 : I/42-45 ; Also see Vide p.35 in this thesis.
of plants on earth that grow from seeds or graft such as herbs having medicinal value, weeds, shrubs, bushy plants, grasses, creepers and trailing plants.\textsuperscript{160}

Plants are deemed conscious susceptible to pain and pleasure and hence conservation implies not spoiling the plants and not using them for unlawful purposes, the verse is:

\textit{Tamasa bahurupena veshtithah karmahethuna |}
\textit{Antahsamjna bhavantyete sukhaduhkhasamanvitah} \textsuperscript{161}

One has to do penance for cutting shrubs, creepers, lianas, flowering plants and fruit trees which was to recite hundred Rikas.\textsuperscript{162} Destruction of medicinal herbs was not allowed (himsaushadhinaam)\textsuperscript{163}. Spoiling plant diversity, destroying trees, injuring living plants, cutting down green trees for firewood (indhanaartham ashushkaanaam drumaanaamavapaatanam)\textsuperscript{164}, spoilage of forest habitat that has creepers, shrubs, flowering plants were forbidden. Destruction of agricultural species and plants that sprout spontaneously in the forest was considered to be sin

\textsuperscript{161} Ibid., p.18 : I/49.
\textsuperscript{162} Ibid., p.505.
\textsuperscript{163} XI/43:Phaladaanam tu vrikshanaam chchedane japyamrekshhatam| Gulmavallilataanaam cha pushpitaanaam cha virudhaam ||
\textsuperscript{164} Ibid., p.490 : XI/64.
for which penance was to look after a cow by fasting only on cow’s milk for a day\(^{165}\).

Killing insects either small or large and killing birds were offences\(^{166}\). Penance was specified for destroying any kind of creatures that bred in food, fruits and flowers\(^{167}\). One has to do penance for removing guilt incurred intentionally or unintentionally because of injuring created beings (etairvratairapohyam syaadeno himsaasamudbhavam)\(^{168}\).

Sufficient reserve space had to be provided for pasture purposes to the extent of four hundred cubit or three large sticks in the village vicinity and three times of it for grazing purposes surrounding a town. The verse states

\[
\text{Dhanuhshatam pariiharogramsungasyasyatamarantatah |} \\
\text{Shamyapaataastrayo vaapi trigune nagaryatun}||^{169}
\]

Trees namely nyagrodhsha, ashvatha, kinsuka, salmali, sala, tala and ksheri should be planted as boundaries. Several types of plants like shrubs, bamboos, creepers, kuvjaka plants and samis should be planted along the boundaries of

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\(^{165}\) Ibid., p.505. \\
\(^{167}\) Ibid., p. 459 : XI/144. \\
\(^{169}\) Ibid., p.359 : VIII/237.
villages. Depending on the usefulness of trees, fines were imposed for any injury done to them\textsuperscript{170}.

Manusmriti has rules and regulations for benefitting preservation of animal species. Urinating on public road and in ploughed land (\textit{namutram pathi kurvita na bhasmani na govraje})\textsuperscript{171}, at a ruined temple, on top of the hill and on holes that serve as habitats for other creatures should be avoided\textsuperscript{172}. Hurting knowingly or unknowingly a wide range of insects, microbes, animals, birds and mammals is taken as committing crime and penance had been prescribed accordingly. Ahimsa was given prime importance among social laws which constitute the general duties to be carried out by all classes of people. A noteworthy point is ahimsa occupies first in the list of virtues prescribed by Manu, which implies the importance attached to that virtue. Quoting the verse:

\textit{Ahimsa satyamasteyam shauchamindriyanigrahah |}

\textit{Etam samasikam dharmam chaturvaranye Abravinmanuh ||}\textsuperscript{173}

The animals irrespective of being wild or domesticated were not to be killed unnecessarily. Man immaterial of his place of stay or pain in body should not cause any injury to creatures even during his time of peril implying that non violence had

to be observed in all walks of life\textsuperscript{174}. Man should tread carefully at all times be it day or night\textsuperscript{175}. Killing the harmless creatures for one’s own pleasure will not provide any happiness to man\textsuperscript{176}, instead one who does not inflict pain on any animal but wishes good for all beings obtains bliss. This is amplified in this verse:

\begin{quote}
Yo bandhanavadhakleshaanpraaninaam na chikirshati |
Sa sarvasya hitaprepsuh sukhamatyantamashnute ||\textsuperscript{177}
\end{quote}

Black Buck, an indigenous species of India is sensitive to the surrounding environmental parameters. Distribution of these animals was used as an ecological indicator. This helped the Vedic people to determine whether a particular area is conducive for human habitation or not, showing the existence of eco-consciousness in early times. The academic environment of a student studying under the guidance of a Guru also indicates the eco-consciousness being mooted in the initial years of learning\textsuperscript{178}.

Rules were framed on air pollution such as ‘impure substance should not be thrown in fire’ and water pollution namely ‘filthy substances such as faeces, urine,
poisonous things and blood should not be thrown in water’. Purity of the water is also ascertained in the sense that water which has proper smell, colour, taste and un-mixed with impure substances can be considered clean and pure. Also, one should neither dump in public places nor step on garbage like hair, ashes, bones and so forth. There are also general directions on ethical procurement of quality food and non acceptance of forbidden food items\textsuperscript{179}.

Manusmriti has reference to **adulteration in commodities**, and as such fines are imposed on ‘adultering unadulterated commodities’ and ‘selling seed-corn that which is not seed-corn’. One should ensure cleanliness and purity in utilisation by not robbing seeds already soon. Thus general ethics find mention in Manusmriti\textsuperscript{180}.

The Smriti had a positive approach towards maintaining the cleanliness of the environment. The words pollution and contamination and their annihilation has a negative ecological suggestion. An interesting note about penance is that it is a process of restricting oneself from committing crimes thus penance helps in preventing a crime and repeating an offence\textsuperscript{181}. Penance has positive vibrations to the surroundings. Thus these laws have been framed with regard to ecological

conservation and preservation instructing mankind to be in constant harmony with all creatures and surroundings.

KAUTILYA’S ARTHASHASTRA

Arthashastra is another treatise which is a prose work recited in fifteen books and contains 6000 units or slokas pertaining to certain rules framed by our ancients, a few of which have environmental flavour. Though known to deal with several branches of state governance, and dating to 321-296 B.C, specific laws with regard to plant, tree and forest conservation have been noted here.

Forest was the main source for obtaining large variety of required produce to the ancient people. Ancients understood the significance of forests in providing sustainable ecological benefits to mankind. The word used for forest was Abhayaranaya\(^{182}\) meaning “fearless forest” which was under state protection. The word Abhayaranya has two implied meanings. It is not only the inhabitants that have no fear of the forest but also the visitors to the forest have also no fear\(^{183}\).

There are two separate forests one for human beings named as **produce forest** and another for animals designated as **elephant forest**\(^{184}\). Timber forests or **produce forests** as the name suggests are to be used for sourcing raw materials for construction purposes while the **elephant forest** are to be exclusive left alone for

\(^{182}\) Dr.R.Shamaasrty (Tr.), *Kautilya’s Arthasastra*, Padam Printers, Mysore, 1988, p.138.
\(^{184}\) Dr.R.Shamaasrty (Tr.), *Kautilya’s Arthasastra*, Op.Cit., p.339.
elephants. The forest superintendents are responsible for taking care of these forests. They have to prevent damage and poaching by imposing fines and penalties for the wrong doers. The **produce forests** though used for productive purposes had fines levied on those who damaged these forests\(^{185}\). The ruler should not only keep the forests in good condition but also new ones have to be set up\(^{186}\).

There are sub chapters that give guidelines with regards to maintenance of cows, horses and with handling and training of elephants\(^{187}\). Names are given of elephants that are forbidden from capturing such as young elephants known as bikka, mugdha or infatuated elephants, diseased elephants, female elephants known as hastini, elephants without tusks and dhenuka or elephants which take care of young ones\(^{188}\). There is strong advocacy for elephant conservation in the rule ‘**Whoever kills an elephant shall be put to death**’ (**hastighatinam hanyuh**)\(^{189}\).

All animals such as deer, bison, fish birds and beasts (mrgapasu) residing in the forest were to be protected and killing of any animal or bird was heavily fined. Specific names of birds namely krauncha (type of heron), utkrosaka (osprey), datyuha (kind of cuckoo), hamsa (swan), chakravaka (duck), jivanjivika (type of pheasant), bhringaraja, chakora (partridge), mattakokila (cuckoo), peacock, parrot,

\[^{185}\text{Ibid., p.109.}\]
\[^{186}\text{Ibid., p.48.}\]
\[^{187}\text{Ibid., Pp.145 - 156.}\]
\[^{188}\text{Ibid., Pp.154 - 155.}\]
\[^{189}\text{H.P. Malledevaru (Gen.Ed), *Arthashastra of Kautilya*, ORI, Mysore, 1986, p.72; See also R.Shamasastry(Tr.), *Kautilya’s Arthashastra*, Op.Cit., p.48.}\]
and madanasarika (maina) and all auspicious animals including elephants and horses along with animals like bull or ass living in oceans, fish in tanks, lakes, channels, rivers are listed in the treatise thus ensuring the protection to wildlife. Cattle like calf, bull and milch cow were forbidden from killing\textsuperscript{190}. Framing of such rules took into consideration the prosperity of man and in turn of society. Present day scenario is such that no forest is spared under the ruse of development.

Seasonal crops such as wet crops (kedara), winter crops (haimana) or summer crops (graishmika) were grown taking into consideration the availability of manual labourers and water. Lands beaten by foam (phenaghatah) implying the banks of rivers are suitable for growing vegetables such as valiiphala (pumpkin gourd) while lands overflowing with water (parivahanta) for crops such as long pepper, mrdvika (grapes) and sugarcane. Vegetables and roots can be grown in the vicinity of the well and low grounds such as moist beds of lakes (haraniparyanatah) for green crops. The place between rows of crops can be used to grow fragrant plants, medicinal herbs, casuks roots (usinara), hira, beraka and pindaluka (lac) among others. There is mention of growing medicinal herbs in pots (sthalyam)\textsuperscript{191}.

Before sowing the first seeds in the fields, they should be washed in water which has a piece of gold submerged in it and a mantra in praise of Kasyapa

\textsuperscript{190} Ibid., Pp.137 - 138.
\textsuperscript{191} Ibid., Pp.131 - 132.
stating “Salutations to God Prajapathi Kasyapa! Agriculture may always flourish and the goddess (may reside) in seeds and wealth” had to be recited.

Quoting the mantra:

Prajapataye Kasyapaya devaya namah Sada

Sita me rdhyatam devi bijeshu cha dhaneshu cha ||\textsuperscript{192}

Various fines were levied for all acts, be it minute or major. The amount of fine was proportionate to the intensity of the offence committed. **Fines were levied on those who would throw dirt on the streets and also on those who let water to stagnate on the streets.** Stricter fines were levied on people who polluted (urinated and defecated) pilgrimage places, temple premises and water reservoirs. Double fines were imposed for spoiling the king’s roads but no fines were imposed on people who were under medication. The verse states:

Paamsunyase rathyaanaamashtabhago damdah |

Pamkodakasannirodh paadah | Raajamaarge dvigunah |

Punyasthaana-udakashtaana-devagraharaajaparigraheshu

Panottaraa vishtaadamdaah mutreshu ardhadamadaah |

Bhaishajyavyaadhibhayanimittam adamdyaaah ||\textsuperscript{193}

\textsuperscript{192} Ibid., Pp.132 – 133.
Again, fines were imposed on persons for obstructing roads for elephants and beasts. Beasts (animals) from reserve forests if found outside their habitat and grazing in field should be duly bought to the notice of the concerned forest officers and carefully driven back to the forests without them being hurt or killed. This law by itself goes to prove that wild animals do go astray from forests as we see in the present case of elephants and wild animals like tigers, cheetah venturing out of their habitats. But they need to be driven back with care without any assault and harm befalling them and also people.

Fines were levies for harming plants and trees too. Fines were imposed for offences committed such as cutting off tender sprouts of fruit or flower or shade bearing plants and trees that grew in the parks in vicinity of cities. Heavier fines were laid for cutting of minor branches, big branches or trunks of such trees. Felling of such trees in the city parts were also punishable offence. Similarly, fines were levied on destroying plants and trees that grew in pilgrimage places, forests, hermits and burial grounds. Also on trees that marked boundaries and trees that were worshipped or observed. Thus cutting of trees was treated as an assault on Nature. All these laws point out to the fact that the ancients had clarity regarding the ecological usefulness of plants, trees and forests.

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194 Ibid., Pp.166,196,198.
that needed protection. The ancients were aware of the amount of produce that can be procured from the forests and what portion of the forest produce that needed to be left untouched.

In the modern age, environmental law is defined as “an instrument to protect and improve the environment to control or prevent any act or omission polluting or likely to pollute the environment”\(^\text{196}\). Irrespective of how far the laws have been effective, it is mandatory on our part to have them framed, regulated and enforced in not only societal, local, national and global level but also at personal and individual levels.

An example can be stated here is that of a government agency in Bangalore that had plans to penalize public for polluting public roads. The punishable offences included throwing garbage or litter in open spaces, drains and roadsides but they failed as it could not be implemented in full force. It was proposed for implementation through a policy. Designated cops were to be roped in to ensure the follow up of these rules by the citizens. Initially penalizing for littering was to be considered and later on to urinating and spitting in public places\(^\text{197}\). We find the same set of rules being framed in Manu’s environmental codes\(^\text{198}\).

\(^\text{197}\) Littering to be fined, Times of India, 5.6.2011, p.9.
These laws that were framed centuries back point out to the fact that people were committing such offences even during that period. They necessitated the framing of strict rules to prevent such offences. Varied fines covering a whole range of such offences had to be levied. It indicates the awareness and importance given to these environmental issues during that earlier time itself. They did not stop at the recognition of the problem. They also gave serious attention to solve the problem.

Thus, the laws composed in Manusmriti and Kautilaya’s Arthashastra help in guiding the present policy and law makers. They help not only in framing of the environmental laws according to the prevailing conditions, but also in having a broader perspective required for enforcement. Awareness and understanding of these ancient laws help in actual implementation of the modern environmental laws at all levels, as non adherence to them affects earth in all spheres.

VRIKSHAYURVEDA BY SURAPALA

Vrikshayurveda199 is an ancient manuscript that alludes to 170 species of plants mentioned in 325 verses in Sanskrit that speaks about the science of plant life. It is ancient science and a treatise of tenth century. Surapala is taken to be the

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199 References of this text is seen in ancient Indian literature such as Atharvana Veda (c.1000 BC), Kautilya’s Arthashastra (321-296 BC) and Sarngadharapaddhati of Sarngadhara (13th Century AD). It appears as a title in Brhatsamhita of Varahamiira (6th Century AD) and also mentioned in Upavanavinoda.
compiler of this text from various sources\textsuperscript{200}. It is an assemblage of verses, a study of which helps in tree and plant conservation. It is a systematic composition containing chapters pertaining to classification of plants, plantation of specific trees, types of protection and various ways of nourishment done to plants. It also contains treatments for various diseases and ailments of plants. On the whole, a wide range of topics pertaining to plants and trees are covered\textsuperscript{201}.

The importance of trees in maintaining the wellbeing of humans was articulated by the sages and philosophers of that time. For example, “Planting five trees is equivalent to bearing ten sons” (\textit{dashaputrasamodrumah})\textsuperscript{202}. Environmentalism was promoted to the extent of making use of the existing belief during those times that bearing a son is a means of attaining heaven. Setting aside the sociological implications of this analogy, it shows that sages did not even hesitate in making use of such prevailing believes to safeguard the environment.

The tree is a source of shade, leaves, flowers, fruits and as such provider of boundless rewards. There is a set of verses which ascertains the merits and demerits of planting certain types of trees around the house. Specific trees are mentioned such as plaksa tree to north, udumbara (cluster fig) tree to south,
nyagrodha (banyan) tree to the east and pippala (sacred fig) tree to the west which have to be planted around the house\textsuperscript{203}.

Three land types namely arid, marshy and ordinary are favourable for growing trees. Soil having stones, holes, gravel, ant hills, poisonous elements and non accessibility to water is unfit for tree plantation. Likewise land that is even and having abundant water source is ideal for growing all types of trees. Different names of trees have also been mentioned that can be planted in these specific land types\textsuperscript{204}.

Plants grow from seed such as jambu (plum) and champaka; from stalk like mallika (Arabian jasmine) and udumbara or from bulb namely kumkuma (saffron) and rasona (garlic). Padma (sacred lotus), utpala (blue lotus), ela (cardamom) grow from both seeds and bulbs. Many other plant names have also been cited under each category\textsuperscript{205}.

Plants have been divided into four types\textsuperscript{206}, which are

1) Vanaspati - Fruit bearing trees without flowers

2) Druma - Fruit bearing trees with flowers

3) Lata – Trees that spread with tendrils

4) Gulma – Trees that are short having branches

\textsuperscript{203} Nalini Sadhale (Tr.), \textit{Vrikshayurveda by Surapala}, \textit{Op.Cit.}, Pp.43-44 : Verses 5-6, 24-34.

\textsuperscript{204} Ibid., p.45 : Verses 35- 40.

\textsuperscript{205} Ibid., p.45 : Verses 48 - 51.

\textsuperscript{206} Ibid., p.45 : Verses 45 - 47.
The treatise has a whole set of verses enlisting details about various methods of planting trees. For example, depending upon the distance between two plants, one can gauge the yield of trees being inferior, mediocre or excellent. The reason given for strict adherence to the given measurement is that if plants are planted too close, then the yield would be improper and if planted too far, then there is danger of strong winds disrupting the growth of plants\textsuperscript{207}. Also, definite plant names have been mentioned that has to be planted in different months\textsuperscript{208}.

The ways and means of transplanting of both small and big trees with recitation of proper mantras is a clear cut indication of having one to one communication with plants and trees. This indicates that the plants were considered to be living and a mantra recited the previous day was believed to have great impact on them before transplantation. The mantra states: “Oh tree, I shall take you to a better place from here and shall water you in such a way that you shall be satisfied. You will grow there and shall have no fear from lightning etc. I shall look after you there, like a dear son”\textsuperscript{209}.

Again, there is a verse that states that trees alone on the earth give happiness. Since they ‘save’ from abject poverty they are named ‘taravah’, meaning ‘the saviours’. Explanation given to this is that ‘tri’ means ‘to cross over or to go

\textsuperscript{207} Ibid., p.46 : Verses 64 - 66.
\textsuperscript{208} Ibid., Pp.47-48 : Verses 87 - 90.
\textsuperscript{209} Ibid., p.47 : Verses 85 - 86.
beyond’ thus implying saving or making someone cross over in times of distress. This is true as trees even today are considered to be great benefactors of human beings. Hence the protection of trees is an obligatory duty for man. Protecting trees help him in the pursuit of purusharthas\textsuperscript{210} which indicates the holistic angle given to the plantation of trees.

Plants grown on different land types have to be watered at varied times. Newly planted trees in arid land should be watered morning and evening for fifteen days until the soil is soaked with water, where as those planted in marshy land need to be watered once every five days, and plants planted in ordinary soil have to be watered continuously for ten days at both times of the day\textsuperscript{211}.

Physiology of the trees was viewed as comparable to that of human beings. The diseases affecting every type of tree were articulated to be either internally caused due to \textit{vata (vayu), pitta (acidity), kafa (phelgm)} or externally caused due to vagaries in weather or by insects and ants. Thus the balance of ‘\textit{thridhatu}’ is indicative of plants having robust health and imbalance caused due to vitiation of one or many indicates disease in plants. This profoundly shows that Surapala

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\textsuperscript{210} \textit{Ibid.}, p.48 : Verses 97 - 98. For more on Purusharthas see Vide p.230 in this thesis.
\textsuperscript{211} \textit{Ibid.}, p.49 : Verses 109 - 110.
\end{flushleft}
considered plants as equal and maybe even superior to humans but he treated them specifically equal to humans\textsuperscript{212}.

Vata in trees is caused by excessive supply of dry and pungent matters and the trees appear thin and crooked, fruits are hard with less juice and sweetness. Kafa which occur in winter in trees is caused due to materials such as sweet, oil, sour or cold added with water resulting in trees having dwarf leaves, tastelessness and prematurity of fruits. Pitta occurs during end of summer in trees and is caused when watered with excess of bitter, sour, salty and strong materials causing untimely dropping of fruits, paleness of leaves and decay\textsuperscript{213}.

The external factors include scorching heat, stormy winds and exposure to fire, all of them being harmful to trees. Excessive heat causes dryness along with yellowness and paleness of leaves. Stormy winds result in breaking, uprooting and twisting of trees. A verse states “When stuck with an axe, etc. the trees are wounded and there results dryness of all types of trees” which amply justifies the fact that trees like human being feel pain\textsuperscript{214}.

It is prudent to note here that in the current environment scenario, the vegetarian commodities are without taste, smell or having any essence. It is a matter of concern and needs further analysis to find out whether the pesticides and

\textsuperscript{212} Nalini Sdahale and YL Nene, \textit{Ancient Indian traditional and scientific thought on plants: Sir J C Bose and Vrikshayurveda}, \textit{Op.Cit.}, p.110.


\textsuperscript{214} \textit{Ibid.}, p.53 : Verses 173 – 176.
chemicals in the form of fertilisers used on these plants have a bearing on the output. Also, the quality of the water source distributed to the irrigated plants is an added factor.

The knowledge about the natural indication of groundwater for digging wells is ascertained after undertaking a thorough investigation of land. There are several verses that state that one can find availability of ground water depending upon the type of trees that is grown in the surrounding environment. Certain verses give details about the availability of groundwater depending upon the sighting of cranes, ant hills, fishes, earthworms, mouse, scorpion, snake and frog\textsuperscript{215}.

An interesting point that can be noted here is that in Yaska's Nirukta, in a treatise on etymology of Vedic words, life or being has been stated to undergo six modifications (\textit{shad bhaavavikaaraah}) which are

1) jayate - birth
2) asti – existence
3) vardhate – growth
4) viparinamate – change
5) apakshiyate – emaciation or decay
6) mriyate - death

\textsuperscript{215} \textit{Ibid.}, p.60 : Verses 301, 302-317.
All living beings undergo these six modifications and this applies to plants also\textsuperscript{216}. Though some verses, for example verse 149 in this text seem to be based on superstitious beliefs to the modern man, certain other verses in the text definitely have environmental implications. A few verses highlighting the nourishment and treatment of ailment of plants, for example plants being nourished with blood are cited. These verses may have been tribal beliefs prevalent during those times. However these facts stated in the treatise might not have any scientific basis.

By correlating tree plantation with religious beliefs, reverence for planting trees has been stressed. The statements in this treatise validate the scientific experiments conducted by Dr. J. C. Bose, which is going to be discussed later on in this thesis. All these prove beyond doubt that the plant knowledge of our ancient people was authentic and well developed.

\textsuperscript{216} Nalini Sdahale and YL Nene, \textit{Ancient Indian traditional and scientific thought on plants: Sir J C Bose and Vrikshayurveda}, Op.Cit.,p.103.