

The Vedic literature is the oldest Indian cultural document. The Veda means the knowledge. This knowledge not only leads the human beings to their material glory but also help to conceive the eternal principle. This Veda has two branches – Mantra and Brahamana. The Brahamana has also two divisions – Aranyaka and Upanishad. This is ultimate layer of Vedic literature where maximum manifestation of knowledge takes place. Each Veda has many schools. After Vedic samhita there are three divisions in Brahaman part, i.e. Brahman, Aranyaka and Upanishad. The following are the different division in each Veda:

Rigveda Brahaman - Aitareya, Koushitaki

Aranyaka - Aitareya, Koushitaki

Upanishad - Aitareya, Koushitaki

Shukla Yajurveda: Brahaman – Satapath Brahman

Aranyaka - Brihatarynaka

Upanishad - Brihatarynaka, Isa

Krishna Yajurveda: Brahaman – Taittiriya

Aranyaka - Taittiriya

Upanishad - Taittiriya, Katha, Swetaswtara, Mahanarayan,

Maitrayania

Samaveda: Brahaman – Eight Brahamana like *Chandyogyabrahamana*

Aranyaka - Chandyogyabrahamana

Upanishad - Chandyogyabrahamana, kena

Atharvaveda: Brahaman – Gopatha

Aranyaka - Not found

Upanishad - Prasna, Mudaka, Mandukya

No of Upanishads are so many. It may be more than two hundred. Somebody says it is two hundred seventy two¹. Great commentator Shankara had written commentary on twelve Upanishads i.e. Isa, Kena, Katha, Prashan, Mundaka, Mahanarayana, Aitareya, Tattiriya, Koushitaki, Brihatarynaka, Chandogyo and Swetaswtara. M.Winternitz in

his book 'History of Indian Literature' has mentioned fourteen (14) Upanishads². Winternitz has classified the Upanishads into four groups according to the period of composing the Upanishads.

1st Period: Brihadaranyaka, Chandogya, Taittiriya, Aitareya, Koushitaki, Kena

2nd Period: Katha, Isa, Swetaswtara, Mundaka, Mahanarayana

3rd Period: Prashna, Maitrayniya, Mandukya

4th Period: Rest Upanishads

Upanishadic seers consider different gods in the mantra and *samhita* portion of the literature. They consider different gods in each phenomenon of the nature. In this way the Gods like *Agni, Vayu, Earth, Indra, Varuna*, etc. are evolved to highlight their role and importance. They feel the supreme reality in the living world and nonliving world, manifested and not manifested domain of the universe. So the ecology which is nothing but the interrelatedness of different elements present in the nature is one of the important aspects in Upanishads. In following thirteen (13) Upanishads many ecological elements are depicted. These are listed and analysed below.

Aitareya Upanishad describes some ideas regarding manifested biotic and abiotic world. Aitareya Upanishad has three chapters. The theory of creation is described here. The creation is evolved gradually. The proper balance between the all living beings right from human to unicellular animal cell, plant cell, all other inorganic elements are present in a perfect balanced condition. In the very beginning of creation only atman as an unmanifested form exists but with time being the manifested world is gradually evolved from unmanifested one. From this supreme reality sky and air are formed. Then the *ambha*, *marichi*, *martya*, and *apa* these four *lokas* are formed. Antaloka is present above the *dyuloka* (sky). This *dyuloka* is substratum of *Antaloka*. *Marichi loka* is above *martya loka* (earth). Below earth *apa loka* (water) is present.

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आत्माव वा इदमेक एकवाग्र आसीत् ।
नान्यत् किञ्चन मिषत् ।
स ईक्षत लोकान्न् मृजा इति ॥ (Aitareya Upanishad, 1.1.1)
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सइमॉल्लोकानसृजत । अम्भो मरीचीर्मरमापः । अदोऽम्भः परेण दिवं , द्यौः प्रतिष्ठा । अन्तरिक्षं मरीचयः । पृथिवी मरः । या अधस्तात्ता आपः ॥ (Aitareya Upanishad, 1.1.2)

In the beginning all this verily was Atman only, one and without a second. There was nothing else that winked. He be thought Himself: "Let Me now create the worlds." He created these worlds: *Ambhah*, the world of water—bearing clouds, *Marichi*, the world of the solar rays, Mara, the world of mortals and *Ap*, the world of waters. Yon is *Ambhah*, above heaven; heaven is its support. The *Marichis* are the inter-space. Mara is the earth. What is underneath is *Ap*.

So at first five gross elements are formed. These are earth, water, fire, air and ether. From these all the living world born out of egg, of womb, of sweat and of sprout are created. These living being are scattered on the earth in different names. They have different activities. Of all living beings human is superior. Human is the highest manifestation of the supreme reality which is being unmanifested. These creation process indicates a clear relation between the different living worlds.

एष व्रह्मा, एष इन्द्रः , एष प्रजापितः , एते सर्वे देवाः , इमानि च पञ्च महाभूतािन — पृथिवी वायुराकाश आपो ज्योतींषीत्येतािन , इमानि च क्षुद्रमिश्राणीव वीजािन , इतराणि चेतराणि च — अन्डजािन च अरुजािन च स्वेदजािन चोद्भिज्जािन च — अश्वगावः पुरुषा हस्तिनः, यत् किञ्चेदं प्राणि जङ्गमं च पतित्र च यच्च स्थावरम् , - सर्वं तत् प्रजािनेत्रं प्रज्ञाने प्रतिष्ठितं प्रज्ञानेत्रो लोकः प्रज्ञा प्रतिष्ठा , प्रज्ञानं व्रह्म ॥ (Aitareya Upanishad, 3.1.3)

He is Brahman, He is Indra, He is Prajapati; He is all these gods; He is the five great elements—earth, air, akasa, water, light; He is all these small creatures and the others which are mixed; He is the origin—those born of an egg, of a womb, of sweat and of a sprout; He is horses, cows, human beings, elephants—whatever breathes here, whether moving on legs or flying in the air or unmoving. All this is guided by Consciousness, is supported by Consciousness. The basis is Consciousness. Consciousness is Brahman.

When all living beings are born, how all beings are growing and sustaining their life? the simple answer is - they all are linked with hunger and thrust. By the means of two physiological processes all beings takes food items from outside. These food items are simple five gross elements or the modification of the gross elements. In this way they continuously are exchanging the elements with outside world.

ता एता देवताः सृष्टा अस्मिन् महत्यर्णवे प्रापतन् ।

तमशनायापिपासाभ्यामन्ववार्जत् । ता एनमव्रवन्नायतनं नः

प्रजानीहि, यस्मिन् प्रतिष्ठिता अन्नमदामेति ॥ (Aitareya Upanishad, 1.2.1)

These deities, thus created, fell into this great ocean. He subjected the Person to hunger and thirst. They said to Him: "Find out for us an abode wherein being established we may eat food."

From food item (*anna*) all living beings are produced. All living beings different food items are also preserved. All beings are connected through *anna*. In this way *anna* establishes the relation among the all living beings and maintains an ecological balance.

सोडपोडभ्यतपत्, ताभ्योडभितसाभ्यो मूर्तिरजायत । या वै सा मूर्तिरजायतान्नं वै तत् ॥ (Aitareya Upanishad, 1.3.2)

He brooded over the waters. From the waters, thus brooded over, there emerged a condensed form. The form that so emerged is indeed food.

The Vedic seers understand through their varied experience that earth, water, fire, air and ether are the essential material cause of the world. Consciousness and matter are apparently different but the manifested consciousness is working through the matter and its modifications.

Kaushitaki Upanashad has several passages which has some ecological relevance. In the second chapter of this Upanishad manifested world (Uma) is described assomaraja. Soma has five faces of prajapati. The five faces are – Brahamana, Kshtriya, Vashya, Shyena, Agni. Kshatriya is under Brahaman. Vashya is under Kshatriya. Shyena or hunter bird is the bird which consumes all birds as the food. Agni or fire is present as it consumed all things on the earth. Brahaman is serving the society through knowledge and intellect. Kshatriya is serving through valor and administrative power protects the country from outsiders. Through the labour in all

sphere of life *Sudra* is serving the society. *Shyena* like animal control the whole living world and maintain the ecological cycle on the earth. Moreover fire also control the all elements and living beings through maintaining the standard. If we consider the whole world as fire. The power of the people is the guiding force for establishment and demolishment of the big governments or kingdom. Here the four categories people are present in any society and their combined force is the stability of a kingdom or state. So these people is the balancing the administration of a country by consuming the unfit and incapable person as king or promote the capable one to run the affairs properly. The hunter animals in the ecosystem consume the other animal maintain the balance and stability of the earth system. Fire above all is the force which converts the modified forms into the basic elements for further modification and transformation in the matter-energy-body cycle of the earth.

अथ पौर्णमास्यां पुरस्ताच्चन्द्रमसं दृश्यमानमुपतिष्ठेतैतयैवावृता सोमो राजाऽसि विचक्षणः पञ्चमुखोऽसि प्रजापतिर्व्राह्मणस्त एकं मुखं तेन मुखेन राजो हऽसि । तेन मुखेन मामन्नादं कुरु । श्येनस्त एकं मुखं तेन मुखेन पिक्षणोऽत्सि । तेन मुखेन मामन्नादं कुरु । अग्निष्ट एकं मुखं तेन मुखेन इमं लोकम् अत्सि । तेन मुखेन मामन्नादं कुरु । त्विय पञ्चमं मुखं तेन मुखेन सर्वाणि भुतान्यत्सि । तेन मुखेन मामन्नादं कुरु । मा अस्माकं प्राणेन प्रजया पशुभिरवक्षेष्ठा । योऽस्मान् द्वेष्टि यञ्च वयम् द्विष्मस्तस्य प्राणेन प्रजया पशुभिरविष्ठोत । देवीमावृतमावर्त आदित्यस्यावृतमन्वावर्त इति दिक्षणं वाह्मन्वावर्तते ।

(Kaushitaki Upanashad 2.6.)

The gross elements are present in the living body which is the expression of *prana*. Without *prana* the assimilation of gross elements could not survive and it will disintegrate into the different elements. So *parna* like element is special in living body which gives some perceptible difference in the world.

The normal evolution process is nothing but the flow of energy space, time and causation. In the course of the flow the energy is each time obstructed by the different parameter for its expression. Energy flow is generally following the path where it suffers least resistance for its flow. So depending upon the existing obstacles present

the flow will take the shape in own direction gives the complicated energy-matter flow dynamics. This is the relation of life process and the gross matter.

Thus we see that the energy conserved in one form naturally passes into another by manifesting consequent changes or transformations designated by the name of evolution. As this natural flow of energy is obstructed in various ways, by the resistance offered by space, time, form and causality it has naturally to take the course in which there are no impediments and obstacles; at each stage new impediments may come in and interfere with the evolving process and compel the flow to change the direction of its course, so it is that we find that the evolutionary process has naturally to take curvilinear line rather than the straight one³.

The Nature of interaction is peculiar. In order that there may be evolution with transformation of Energy, there must be a disturbance of equilibrium, a preponderance of either Energy or mass resistance or essence over the other moments......

For example, in any material system at rest the mass is patent, the Energy latent and the conscious manifestations sublatent. In a moving body, the Rajas, Energy is predominant (Kinetic), while the mass or rather the resistance it offers, is overcome. In the volitional consciousness accompanied with movement, the transformation of Energy (or work done by Rajas) goes hand in hand with the predominance of the conscious manifestation, while the matter-stuff or mass though latent, is to be inferred from the resistance overcome⁴.

How the gross elements and *prana* are related is clearly explained in this Upanishads through the example of chariot wheel.

ता वा एता दशैव भूतमात्रा अधिप्रज्ञं दश प्रज्ञामात्रा अधिभूतं यद्धि भूतमात्रा न स्युर्न प्रज्ञामात्राः न स्युर्यद्वा प्रज्ञामात्रा न स्युर्नभूतमात्राः स्युः । न ह्यन्यतरतो रूपं किञ्चन् सिध्येत् । नो एतन्नाना , तद्यथा रथस्यारेषु नेमिरिपतो नाभावरा अर्पिता एवमेवैता भूतमात्राः प्रज्ञामात्रास्वर्पिताः प्रज्ञामात्रा प्रणेऽर्पिता स एष प्राण एव

प्रज्ञात्मानन्दोऽजरोऽमृतः ॥ (Kaushitaki Upanashad 2.6.)

These ten objects have reference to *pragna* (self-consciousness), the ten subjects (speech, the senses, mind) have reference to objects. If there were no objects, there would be no subjects; and if there were no subjects, there would be no objects. For on either side alone nothing could be achieved. But that (the self of *pragna*, consciousness, and *prana*, life) is not many, (but one.)

For as in a car the circumference of a wheel is placed on the spokes, and the spokes on the nave, thus are these objects (circumference) placed on the subjects (spokes), and the subjects on the *prana*. And that *prana* (breath, the living and breathing power) indeed is the self of *pragna* (the self-conscious self), blessed, imperishable, immortal. He does not increase by a good action, nor decrease by a bad action.

Ecological Awareness is reflected in several passages of Chandogya Upanishad. Earth is the mother of living beings. Water is the life of all living beings present on the earth. All living being sustain their life through plant, creeper, water and earth. Vedic seers understand that the equilibrium between all these elements is the cause of stability in living world.

एषां भूतानां पृथिवी रसः, पृथिव्या आपो रसः, अपामोषधयो रसः, ओषधीनां पुरुषो रसः, पुरुषस्य वाक् रसः, वाच ऋक् रसः, ऋचः साम रसः, साम्न उद्गीथो रसः ॥

(Chandogya Upanishad, 1.1.2)

The essence of all these beings is the earth; the essence of the earth is water; the essence of water is plants; the essence of plants is a person; essence of a person is speech; the essence of speech is the Rigveda; essence of the Rigveda is the Samaveda; the essence of the Samaveda is the Udgitha which is Om.

The domain of the living world is composed of earth, air, fire, water and ether.

चौरेवोत् अन्तरिक्षं गीः पृथिवी थम् । आदतत्य एवोत् वायुगीः, अग्निस्थम् ।

(Chandogya Upanishad, 1.3.7)

Living being depends upon food. Food or *anna*. This *anna* is produced by earth, water, air, ether and sunlight.

अस्य लोकस्य का गतिः ? आकाश इति होवाच सर्वाणि ह वा इमानि भूतान्याकाशादेव समुत्पद्यन्ते, आकाशं प्रत्यस्तं यन्ति,.....

(Chandogya Upanishad, 1.9.1)

"What is the support of this world?" asked *Silaka*. "The *akasa*," said *Pravahana*. "For all these beings are created from the *akasa* and return to the *akasa*. The *akasa* is greater than these; therefore the *akasa* is the supreme support."

प्राणस्य का गतिः ? इति, अन्नमिति होवाच। अन्नस्य का गतिः ? इति आपः इति होवाच ।

(Chandogya Upanishad, 1.8.4)

"What is the support of the *prana*?" "Food," he replied. "What is the support of food?" "Water," he replied.

ओम् अदाम ओम पिवाम ओम् देवो वरुणः प्रजापतिः

सविताऽन्नमिहाऽरदन्नपतेऽन्नमिहाऽहराहरोमिति ॥

(Chandogya Upanishad, 1.12.5)

Om. Let us eat! Om. Let us drink! Om. Let the sun, who is the luminous deity (deva), the giver of rain (*Varuna*), the lord of creatures (*Prajapati*), bring food here! Now a prayer to the sun: O lord of food, bring food here, bring it here. Om.

In the above mantra *anna* is produced from the rain which is again produced from cloud. The cloud is formed through the direct sunlight.

In some mantras earth, air etc. are described as the essential items for living beings. The cloud formed from the direction of the east is the cause for the rain on the earth. The rivers those are flowing towards the east direction ultimately meet to the sea on the east direction. Those are flowing towards west meet with ocean in the west direction.

वृष्टौ पञ्चिवधं समोपासीत । पुरोवातो हिङ्कारः , मेघो जायते स प्रस्तावः , वर्षति स उद्गीथः, विद्योतते स्तनयति स प्रतिहारः, उद्गृह्मति तन्निधनम् ॥

(Chandogya Upanishad, 2.3.1)

One should meditate on the fivefold *Saman* as rain. The syllable Him is the wind that blows from the east, the *Prastava* is the cloud that forms, the *Udgitha* is what rains, the Pratihara is the lightning and the thunder.

सर्वास्वप्सु पञ्चिविधं समोपासीत । मेघो यत् संप्लवते स हिङ्कारः यद् वर्षिति स प्रस्तावः, याः प्राच्यः स्यन्दन्ते स उद्गीथः, याः प्रतीच्यः स प्रतिहारः, समुद्रो निधनम् ॥ (Chandogya Upanishad,2.4.1)

One should meditate on the fivefold *Saman* in all the waters. When the clouds gather, that is the syllable Him; when it rains, that the *Prastava*; the rivers which flow to the east, these are the *Udgitha*; the rivers which flow to the west, these are the *Pratihara*; the ocean is *Nidhana*.

In this Upanishad the food is digested in the stomach and converted into three parts. The gross portion of food goes out from the body as excretory item. The medium portion is converted through different stages and ultimately formed the flesh. The subtle potion goes to the speech like organs and ultimately strengthens the mind staff. Similarly the gross portion of water goes out from body as urine. The medium potion goes the blood and the subtle portion goes to the *prana*. The gross portion of oil like substances (teja) goes to bone. The medium potion goes to the bone marrow. The subtle portion goes to strengthen the speech organ. So it is told that mind is made up of anna(food), prana is made up water and the speech organ is made up teja. The water has a role to digest the food items. The water converts the solid items into liquid state which is helpful for digestion and absorption into body. So the one name of water is asanaya. The water cycle is described here. The rain water is immensely helpful for the living world. At first cloud attracts water from the ocean and water goes back to the earth as rain. The rain water fills the river, cannel, tank, pools etc. This surface water is immensely helpful for the existence and maintenance of the life on the earth.

In the Upanishad the glory of rain water is explained here. The crops are grown due to sufficient rain. The sufficient crops helps to manage the livelihood of human being. So it indirectly influence the social status, economic parameter and ultimately the stability of the state or country.

आपो वाव अन्नात् भुयस्यः , तस्मात् यदा सुवृष्टिर्न भवति , व्याधीयन्ते प्राणाः , अन्नं कनीयो भविष्यतीति । अथ यदा सुवृष्टिर्भवति , आनन्दिनः प्राणाः भवन्ति , अन्नं वहु भविष्यतीति । आप एवेमा मूर्ताः , येयं पृथिवी. यदन्तिरक्षं , यद द्यौः , यत पर्वताः ,

यद्देवमनुष्याः, यत् पशवश्च , वयांसि च , तृण-वनस्पतयः श्वापदानि , आकीट-पतङ्ग-पिपीलकम्, आप एवेमा मूर्ताः, अप उपाष्वेति ॥ (Chandogya Upanishad,7.10.1)

Water is, verily, greater than food. Therefore if there is not sufficient rain, then living creatures are afflicted with the thought that there will be less food. But if there is sufficient rain, then living creatures rejoice in the thought that there will be much food. It is water that assumes the form of this earth, this mid—region, this heaven, these mountains, these gods and men, cattle and birds, herbs and trees and animals, together with worms, flies and ants. Water indeed is all these forms. Meditate on water.

There are several passages where the ecological balance is described in different sphere of the world. These are helpful to understand the feeling and perception of the human beings towards nature. Moreover the preventive measures to check the ecological disturbance and to maintain the ecological cycle smooth are also categorically depicted. The following are the passages for consideration:

सर्वमायुरेति ज्योग्जीवति महान्प्रजया पशौभिर्भवति महान्कीर्त्या न प्रत्यङ् अग्निमाचामेत् न निष्ठीवेत् तत् व्रतम ॥ (Chandogya Upanishad,2.12.2)

He reaches the full length of life, lives brightly, becomes great in children and cattle, great in fame. For him the injunction is: "Do not sip water or spit before the fire."

पशुषु पञ्चविधगं सामोपासीताजा हिङ्कारोऽवयः प्रस्तावो गाव उद्गीथोऽश्वाः प्रतिहारः पुरुषो निधनम् ॥ भवन्ति हास्य पशवः पशुमान्भवति य एतदेवं विद्वान्पशुषु पञ्चविधगं सामोपास्ते ॥ (Chandogya Upanishad,2.6.1-2)

One should meditate on the fivefold Saman in animals. The syllable Him is goats, the *Prastava* sheep, the *Udgitha* cows, the *Pratihara* horses, the *Nidhana* man.

Animals belong to him as objects of enjoyment and he becomes rich in animals who, knowing this, meditates on the fivefold *Saman* in animals.

In the above mantra indicates that through proper keeping and multiplication the number of the animals can be increased. These animals are highly beneficial for cultivation of the land, supplying the sufficient milk and doing different types of services to humanity. In this way the balance in ecosystem has maintained.

ऋतुषु पञ्चविधगं सामोपासीत वसन्तो हिङ्करो ग्रीष्मः प्रस्तावो वर्षा उद्गीथः शरतप्रतिहारो हेमन्तो निधनम् ॥ कल्पन्ते हास्मा ऋतव ऋतुमान्भवति य एतदेवं विद्वानृतुषु पञ्चविधगं सामोपास्ते ॥ (Chandogya Upanishad,2.5.1)

One should meditate on the fivefold *Saman* as the seasons. The syllable Him is the spring, the *Prastava* the summer, the *Udgitha* the rainy season, the *Pratihara* the autumn, the *Nidhana* the winter.

The seasons belong to him and he becomes rich in seasons who, knowing this, meditates on the fivefold *Saman* as the seasons.

These *mantrs* indicate that we have to justify the season properly. So that we can get maximum dividend from the nature.

सर्वास्वप्सु पञ्चिवधगं सामोपासीत मेघो यत्संप्लवते स हिङ्कारो यद्वर्षित स प्रस्तावो याः प्राच्यः स्यन्दन्ते स उद्गीथो याः प्रतीच्यः स प्रतिहारः समुद्रो निधनम् ॥ न हाप्सु प्रैत्यप्सुमान्भवित य एतदेवं बिद्वान्सर्वास्वप्सु पञ्चिवधगं सामोपास्ते ॥ (Chandogya Upanishad,2.4.1-2)

One should meditate on the fivefold *Saman* in all the waters. When the clouds gather, that is the syllable Him; when it rains, that the *Prastava*; the rivers which flow to the east, these are the *Udgitha*; the rivers which flow to the west, these are the *Pratihara*; the ocean is *Nidhana*.

He does not die in water and he becomes rich in water who, knowing this, meditates on the fivefold Saman in all the waters.

The above verses describes the importance of the conservation of water. Water serves the basic needs of the humanity like bathing, drinking process and irrigation etc. The growth and propagation of a civilization depends upon the use and conservation of water.

आत्मिन सर्वेन्द्रियाणि संप्रतिष्ठाप्याहिगंसन्सर्वभूतान्यन्यत्र तीर्थेभ्यः स खल्वेवं वर्तयन्यावदायुषं व्रह्मलोकमिसम्पद्यते न च पुनरावर्तते न च पुनरावर्तते ॥ (Chandogya Upanishad,8.15.1)

He who has withdrawn all the sense-organs into the Self; he who has not given pain to any creature except as approved by the scriptures—he who conducts himself thus, all through his life, reaches the World of Brahman after death and does not return, yea, does not return.

The above verse indicates that to meet up the immediate necessity of human beings animal sacrifice is essential. But do not cause harm or hunt the animals unnecessarily. This gives a positive attitude towards other animals which ultimately acts as a balancing factor in animal worlds.

भगवोऽस्मिन् शरीरे साध्वलङ्कृते साध्वलङ्कृतो भवति सुवसने सुवसनः परिष्कृते परिष्कृतः एवमेवायमस्मिन्नन्धेऽन्धो भवति स्नामे स्नामः परिवृक्णे परिबृक्णोऽस्थैव शरीरस्य ना शमन्वेष नश्यति॥ (Chandogya Upanishad,8.9.2)

Venerable Sir, as this reflection in the water is well adorned when the body is well adorned, well dressed when the body is well dressed, clean when the body is clean, so this reflection in the water will be blind if the body is blind, one-eyed if the body is one—eyed, crippled if the body is crippled and will perish if the body perishes.

The cleanliness of body is essential for health and hygiene purpose. The clean dress is helpful for the healthy body. Moreover the external environment plays an important role for the physical and mental fitness.

Ecological Awareness is clearly mentioned in Brihadarnyaka Upanishad. The name of this Upanishad is unique and it is related to the *aranya* or forest. Some commentators say that this Upanishad is meant for studying in the forest by the forest dweller hermits. M. Winternitz has told --- "When ripe old approaches however, he may leave his house and as forest dweller (*Vanaparparastha*) he may now perform sacrificial service only in a limited manner, but to that extent meditate on the mystic and symbolic significance of sacrifice. But only when he feels his end approach shall be give up even his sacrifice and meditations, renounce all action-based piety and as a recluse ascetic (sanyasin) meditate only on Brahman, the highest World principle and strive for union with the same.

With this doctrine of the Brahminic ideal in life are also connected the chapters of the Brahmanas which as *Aranyakas* or "forest book" i.e. texts to be studied by hermits (*Vanaprasthas*) in the forest........."⁵

According to H.Oldenberg this discourse of upanishad was held in the forest instead of society or home. So the name of this Upanishad is like this. Similar opinion is expressed by Prof. A.B. Keith --- The name (aranyaka) must clearly as held by Oldenberg, have been derived from the fact that the discussions contained in these works were studied in the forest, the alternative view that the Aranyakas were specially intended for study by the Vanaprasthas, men who after serving their apprenticeship as Brahman students and having performed as householders their duties, retire to the forests to study is clearly a more advanced conception than that obtained in the early Upanishads⁶.

In the first chapter is known as *madhu kanda* where the description of the sacrificial horse is present. In vedic time sacrifice or *Yajna* is an integral duty of any householder. *Aswamedha* is the great sacrifice where horse is an essential item. In this description two things are found – firstly the meticulous description of the different organs of the horse and secondly the comparison of different natural phenomena with the different organs of the horse. The whole life is nothing but the sacrifice to nature. This is the significance of *yajna*. The symbolic horse is nothing but the nature where all the organs of the horse are described as the different component of the nature. Through this horse sacrifice people actually are showing importance and honour towards the each and every parts of the nature.

उषा वा अश्वस्य मेध्यस्य शिरः सूर्यश्वक्षुर्वातः प्राणो व्यातमग्निर्वेश्वातरः संवत्सर
आत्माऽश्वस्य मेध्यस्य द्यौः पृष्ठमन्तिरक्षमुदरं पृथिवी पाजस्यं दिशः पार्श्व अवान्तरिदशः
पर्शव ऋतवोऽङ्गानि मासाश्चार्धमासाश्च पर्वाण्यहोरात्राणि प्रतिष्ठा नक्षत्राण्यस्थीनि नभो
मागंसान्यूवध्यगं सिकताः सिन्धवो गुदा यकृच्च क्लोमानश्च पर्वता ओषधयश्च
वनस्पतयश्च लोमान्युद्यन्पूर्वार्थो निम्लोचञ्जघनार्थो यद्विजृम्भते तद् विद्योतते यद्
विधूणुते तत्स्तनयति यन्मेहति तद्वर्षति वागेवास्य वाक् ॥ (Brihadarnyaka Upanishad, 1.1.1.)

Om, verily, the head of the sacrificial horse is the dawn, its eye the sun, its vital breath the wind, its open mouth the Vaisvanara fire and the trunk of the sacrificial horse is the year. The back is heaven, the belly the intermediate region, the hoof the earth, the sides the four quarters, the ribs the intermediate quarters, the limbs the seasons, the joints the months and half-months, the feet the days and nights, the bones the stars, the flesh the clouds. Its half-digested food is the sand, the blood-vessels the rivers, the liver and lungs the mountains, the hair the herbs and trees. The fore part of the horse is the rising sun and the hinder part the setting sun. Its yawn is lightning, its shaking of the body is thunder, its water is rain and its neighing is indeed voice.

Through the creation line of progeny is maintained. This creation process is described here. Through this creation all living beings including human beings maintain a perpetual line of progeny.

......अथ यत् किञ्चेदमार्द्रं तद्रेतसोऽसृजत तदु सोम एतावद्वा इदं सर्वमन्नं चैवान्नादश्व ॥ (Brihadarnyaka Upanishad, 1.4.6.)

Now, whatever is liquid, He produced from semen; and that is soma. This universe is indeed this much: food and the eater of food. Soma is food; and fire, the eater of food. One portion in the Upanishad is the Yajnavalkya-Brahmana discourse where the human body is compared with the tree. The tree has a life cycle like the man. This description and identification with the tree is a good example where vedic sages understand the doctrine of interrelatedness. They are fully aware of the presence of life in the plants and trees. Moreover the utility of plants is emphatically described through this comparison.

यथा वृक्षो वनस्पतिस्तथैव पुरुषोऽमृषा । तस्य लोमानि पर्णानि त्वगस्योत्पटिका बहिः

त्वच एवास्य रुधिरं प्रस्यिन्द त्वच उत्पटः । तस्मात्तदातृण्णात्प्रैति रसो वृक्षादिवाऽऽहतात् ॥२

मागंसान्यस्य शकराणि किनाटगं स्नाव तित्स्थरम् । अस्थीन्यन्तरतो दारूणि मज्जा मज्जोपमा कृता ॥३

यदृक्षो वृक्णो रोहति मूलान्नवतरः पुनः। मर्त्यः स्विन्मृत्युना वृक्णः कस्मान्मूलात्प्ररोहति ॥४ रेतस एति मा वोचत जीवतस्तत्प्रजायते । धानारुह इव वै वृक्षोऽञ्जसा प्रेत्य संभवः ॥५

यत्समूलमावृहेयुर्वृक्षं न पुनराभवेत् । मर्त्यः स्विन्मृत्युना वृक्णः कस्मान्मूलात्प्ररोहति ॥६

जात एव न जायते को न्वेनं जनयेत्पुनः । इज्ञान मानन्दं ब्रह्म रातिर्दातुः परायणं तिष्ठमानस्य तद् विद इति ॥७ (Brihadarnyaka Upanishad, 3.9.28.)

- 1. As is a mighty tree, so indeed is a man: this is true. His hairs are the leaves and his skin is the outer bark.
- 2. From his skin blood flows and from the bark, sap. Therefore when a man is Wounded blood flows, as sap from a tree that is injured.
- 3. His flesh is its inner bark and his nerves are its innermost layer of bark, which is tough. His bones lie within, as does the wood of the tree. His marrow resembles the pith.
- 4. A tree, when it is felled, springs again from its root in a new form; from what root, tell me, does a man spring forth after he is cut off by death?
- 5. Do not say: From the semen, for that is produced from the living man. A tree springs from the seed as well; after it is dead it certainly springs again.
- 6. If a tree is pulled up with its root, it will not spring again. From what root, tell me, does a mortal spring forth after he is cut off by death?
- 7. If you think he is indeed born, I say: No, he is born again. Now who should again bring him forth?

In several places the word plant is used. Different uses of plant are described there. The following verse indicates various names of plants.

चतुरौदुम्वरो भवत्यौदुम्वरः सुव औदुम्वरश्वमस औदुम्वर इध्म औदुम्वर्या उपमन्थन्यौ दश ग्राम्याणि धान्यानि भवन्ति व्रीहियवास्तिलमाषा अणुप्रियंगवो गोधूमा श्व मसूराश्व खल्वाश्व खलकुलाश्व तान्पिष्टान्दधनि मधुनि घृत उपसिञ्चत्याज्यस्य जुहति ॥

Four articles are made of fig wood: the sacrificial ladle, the bowl, the fuel and the two mixing—rods. The cultivated grains are ten in number: Rice, barley, sesamum, beans,

(Brihadarnyaka Upanishad, 6.3.13.)

millet (anu), panic seeds (priyangu), wheat, lentils, pulse and vetch. They should be crushed and soaked in curds, honey and clarified butter and offered as an oblation.

The following verse describe the relationship between the different beings. Right from the gross elements to the human beings all are integrated closely. So any break in the close chain like relation leads to the utter destruction in the living world.

एषां वै भूतानां पृथिवी रसः पृथिव्या आपोऽपामोषधय औषधीनां पुष्पाणि पुष्पाणां

फलानि फलानां पुरुषः पुरुषस्य रेतः ॥ (Brihadarnyaka Upanishad, 6.4.1.)

The earth is verily the essence of all these beings, water is the essence of the earth, herbs of water, flowers of herbs, fruits of flowers, man of fruits and semen is the essence of man.

The seers of this Upanishad is very much aware regarding the environment and its nature. Environment is made of locality, village, mountain, river, forest etc. In nature various types of animals are living. Some are two- leg and some are four-leg. Their characterization is mentioned below.

पुरश्वक्रे द्विपदः पुरश्वक्रे चतुष्पदः ।

पुरः स पक्षी भूत्वा पुरः पुरुष आविशत् ॥ (Brihadarnyaka Upanishad, 2.5.18.)

He (the Lord) made bodies with two feet; He made bodies with four feet. Having first become a bird (the subtle body), He, the Supreme Person, entered the bodies.

In this Upanishads all types of animals are included. Some are beneficial and some are harmful. Insects like mosquito and others also are included here. In this way this Upanishad is a good collection of floral and faunal diversity present in the upanishadic time. The seers repeatedly have mentioned the different natural phenomenon and ecological parameter throughout the discussion. They feel all beings present in the environment as an integrated fashion.

मधुवाता ऋतायते मधु क्षरिन्त सिन्धवः । मार्ध्वर्नः सन्तोषधीः ॥ मधु नक्तमुतोषसो मधुमत् पार्थिवं रजः । मधु चौरस्तु नः पिता ॥ मधुमान्नो वनस्पतिर्मधुमाँ अस्तु सूर्तः । माध्वीर्गावो भवन्त् नः ॥ (Brihadarnyaka Upanishad, 6.3.6.)

The winds blow sweetly (madhu),

the rivers pour forth sweetness (madhu);

may the herbs be sweet (madhu) unto us!'

May the nights and days be sweet (madhu),

may the dust of the earth be sweet (madhu), may heaven, our father, be sweet (madhu)!

'May the soma creeper be sweet (madhu) unto us, may the sun be sweet (madhu), may the quarters be filled with sweetness (madhu) for us!

Ecological Awareness is not the chief concern of Isa Upanishad. But the matter and theme of the Upanishad help to maintain the perpetual ecological awareness of people. It is the smallest Upanishad and total number of verses are eighteen (18). Here the human values are clearly described. The uncontrolled greed of man ultimately leads to malice and hatred to each other. This affects our natural and social environment. The degradation of ethical and moral part of human beings is the real danger to the ecological balance of our whole environment creating environment pollution and crisis. So the first mantra of Isa Upanishad tells us that God manifests in all beings on the earth. One has to share the wealth with other. Here it is instructed to enjoy the earth through renunciation and sacrifice.

ईशा वास्यमिदं सर्वं यत् किञ्च जगत्यां जगत् ।

तेन त्यक्तेन भूञ्जीथा मा गृधः कस्य स्विद्धनम् ॥ (Isa Upanishad, 1.)

All this—whatever exists in this changing universe—should be covered by the Lord. Protect the Self by renunciation. Lust not after any man's wealth.

The wealth and money cannot solve the problem of life but it can tempt man to initiate the evil deeds. Albert Einstein has expressed this view and it is mentioned in the book – *The Discovery of India* by Jawahar Lal Nehru.

Einstein, most eminent among scientists tells us – the way to a joyful and happy state is through renunciation and self limitation everywhere. He takes us back suddenly from this proud age of science to the old philosophers, from the lust for power and the profit motive to the spirit of renunciation with which India has been so familiar

...... he (Albert Einstein) says "I am absolutely convinced that no wealth in the world can help humanity forward, even in the hands of the most devoted worker in the cause. The example of great and pure characters is the only thing that can produce fine ideas of noble deeds. Money only appeals to selfishness and always tempts its owners irresistibly to abuse it⁷.

In this Upanishad equal right is given to enjoy the external wealth. This Upanishad does not want to acquire extra materials depriving the legitimate quota for the other. So do not fight to acquire more but to distribute the acquired things to others for maintain an eco-friendly relationship on this earth.

Health is wealth. All human beings want to enjoy the healthy and happy life. If anyone is physically fit and mentally alert, the inspiration for doing work and quest for acquiring knowledge come automatically. So the combination of doing work and maintain good health leads to a fulfillment of human life. This gives the healthy social atmosphere where all human beings are happy.

असूर्या नाम ते लोका अन्धेन तमसाssवृताः ।

ताग्ंस्ते प्रेत्याभिगच्छन्ति ये के चात्महनो जनाः ॥ (Isa Upanishad, 2.)

If a man wishes to live a hundred years on this earth, he should live performing action. For you, who cherish such a desire and regard yourself as a man, there is no other way by which you can keep work from clinging to you.

The Isa Upanishad briefly describes the holistic process of mental advancement of human beings. The mind dictates the way of life we live. Through mind we can balance between the need and greed judicially. Our interaction with biotic and abiotic is controlled by the mind itself. So this Upanishad enumerates the lifestyle in the form of spiritual growth by the dual process of knowledge and practice. This text gives us the method of purification of the one's belief and practice so that the person concerned can attain a modest lifestyle. All these are describe in the *Vision of the Sri Isopanisad - The "Sastra-Caksus" Series*8 clearly:

All revealed scriptures stress the purification of our beliefs and actions by giving us spiritual knowledge and practices to follow. By studying and realizing this knowledge and following these practices we can make genuine spiritual advancement.

Knowledge + Practices = Spiritual Advancement

(Belief) (Action) (Lifestyle)

This simple formula for our spiritual purification may be called the "vision" of the text. In the Sri Isopanisad this vision is revealed in its invocation and mantras 1-8. In order to begin the process of receiving this vision mantras 1-3 offer prescribed **practices** for the living entities, namely ourselves. The invocation and mantras 4-5 enlighten us with **knowledge** of the Supreme Personality of Godhead. Both the knowledge and practice of Their relationship are fully revealed in mantras 6-8 as the vision of a pure devotee.

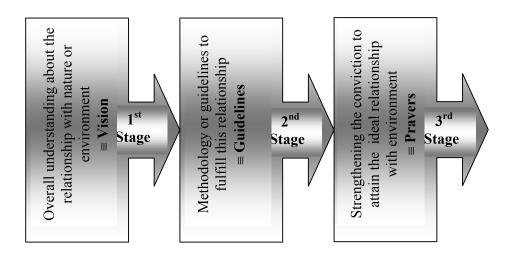
The second section of the Sri Isopanisad, mantras 9-14, gives further **guidelines** on the nature of **knowledge** and **practices.** Mantras 9-11 give guidelines for which knowledge is to be sought. Mantras 12-14 give guidelines for which practices are to be followed.

The third, and final, section, mantras 15-18, are **prayers** offered by the devotee to the Lord to obtain this vision of the Sri Isopanisad. Mantras 15-16 are prayers for realization of the **knowledge** given. Mantras 17-18 are prayers for acceptance of our **practices.**



Diagram-6: Vision, Guidelines and Prayers of Isopanishad

Human being is the one part of the nature or environment. To lead a life indentified with environment people have certain mental set up. This mental set up comes through three stages. First one is the overall understanding about the relationship with nature or environment. Second one is the methodology or guidelines to fulfill this relationship. Third one is the prayer or strengthening the conviction to attain the ideal relationship with environment. This discussion of Isopanishad gives threefold practical method for successful eco-friendly living.



Ecological Awareness in several forms are found in Taittiriya Upanishad. First Invocation mantra deals with the salutation to different deities. These are nothing but the different powers of the nature which control the all physical process of the nature. All physical forces are the expression of the great nature. The expression and existence of the life are due to these different manifestation of natural forces. Through prayer the people want to control all natural forces and switch over these into the wellbeing of the human being.

शं नो मित्रः शं वरूणः। शं नो भवत्वर्यमा । शं नम इन्द्रो बृहस्पितः। शं नो विष्णुरुरुक्रमः । नमो ब्रह्मणे । नमस्ते वायो त्वमेव प्रत्यक्षं ब्रह्मासि । त्वामेव प्रत्यक्षं ब्रह्मासि । त्वामेव प्रत्यक्षं ब्रह्मा विष्यामि । ऋतं विदिष्यामि । सत्यं विदिष्यामि । तन्मामवतु । तद्वक्तारमवतु । अवतु माम् । अवतु वक्तारम् । ॐ शान्तिः शान्तिः शान्तिः ॥

May Mitra be propitious unto us! May Varuna be propitious unto us! May Aryaman be propitious unto us! May Indra and Brihaspati be propitious unto us! May Vishnu, of wide strides, be propitious unto us! Salutation to Brahman! Salutation to Thee, O Vayu! Thou indeed art the visible Brahman. Thee indeed I shall proclaim as the visible Brahman. Thee indeed, O Vayu, I shall proclaim as the right. Thee indeed I shall proclaim as the true. May It protect me! May It protect the teacher! May It protect me! May It protect the teacher! Om. Peace! Peace!

In the Siksha Valli it is emphatically described that education can help one to understand the surrounding nature. Through education all fame, wealth and necessary

working knowledge of the world are obtained. Education teaches to behave proper way with all beings. The proper knowledge for procurement of food, cloth, wealth, cattle and progeny depends upon the education.

यश्छन्दसामृषभो विश्वरूपः । छन्दोभ्योऽध्यमृतात्संवभूब । स मेन्द्रो मेधया स्पृणोतु । अमृतस्य देव धारणो भूयासम् । शरीरं मे विचर्षणम् । जिह्ना मे मधुमत्तमा । कर्णाभ्यां भूरि बिश्र्वम्। ब्रह्मणः कोशोऽसि मेधया पिहितः । श्रुतं मे गोपाय ।

May He who is the bull of the Vedic hymns, who assumes all forms, who has sprung from the immortal hymns of the Vedas—may that that Indra cheer me with wisdom. O God, may I be the possessor of immortality! May my body be competent; may my tongue be exceedingly sweet; may I hear abundantly with my ears. Thou art the sheath of Brahman, concealed by intelligence. Guard for me what I have learnt 10.

Here mantras describe the relationship between the teacher and taught, their duties towards society. The behavior of a student is also described. What are the guiding principles of a student during his study period in the home of a teacher and after completion of his study. All these are helpful for formation of healthy human being with alertness and agility.

वेदमन्च्याचार्योऽन्तेवासिनमनुशास्ति । सत्यं वद । धर्मं चर । स्वाध्यायान्मा प्रमदः । आचार्याय प्रियं धनमाहृत्य प्रजातन्तुं मा व्यवच्छेत्सीः । सत्यान्न प्रमदितव्यम् । धर्मान्न प्रमदितव्यम् । कुशलान्न प्रमदितव्यम् । भूत्ये न प्रमदितव्यम् । स्वाध्यायप्रवचनाभ्यां न प्रमदितव्यम् ।

Having taught the Vedas, the teacher thus instructs the pupil: Speak the truth. Practise dharma. Do not neglect the study of the Vedas. Having brought to the teacher the gift desired by him, enter the householder's life and see that the line of progeny is not cut off. Do not swerve from the truth. Do not swerve from dharma. Do not neglect personal welfare. Do not neglect prosperity. Do not neglect the study and teaching of the Vedas¹¹.

Food is essential element for the propagation of life. Life process is depend upon water, air and food. For food production soil, water, heat and light are essential.

अन्नं ब्रह्मेति ब्यजानात् । अन्नाद्धयेव खल्बिमानि भूतानि जायन्ते । अन्नेन जातानि जीवन्ति । अन्नं प्रयन्त्यभिसंविशन्तीति ।

He realised that food is Brahman; for from food, verily, are these beings born; by food, when born, do they live; into food do they enter, do they merge¹².

प्राणो वा अन्नम् । शरीरमन्नादम् । प्राणे शरीरं प्रतिष्ठितम् । शरीरे प्राणः प्रतिष्ठितः । तदेतदन्नमन्ने प्रतिष्ठितम् । (Taittiriya Upanishad 3.7.1)

The prana is, verily, food; the body is the eater of food. The body rests on the prana; the prana rest on the body. Thus food(the body and vital force are both foods) rests on food.

आपो वा अन्न् । ज्योतिरन्नादम् । अप्सु ज्योतिः प्रतिष्ठितम् । ज्योतिष्यापः प्रतिष्ठिताः । तदेतदन्नमन्ने प्रतिष्ठितम् । (Taittiriya Upanishad 3.8.1)

Water is, verily, food; fire is the eater. Fire rests on water and water rests on fire. Thus food (the fire and water are both foods) rests on food.

पृथिवी वा अन्नम् । आकाशोऽन्नादः । पृथिव्यामाकाशः प्रतिष्ठितः । अकाशे पृथिवी प्रतिष्ठिता । तदेतदन्नमन्ने प्रतिष्ठितम् । (Taittiriya Upanishad 3.9.1)

The earth is, verily, food; the akasa is the eater. The akasa rests on the earth and the earth rests on the *akasa*. Thus food (the earth and *akasa* are both foods) rests on food. In the above mantras different elements in the universe depend each other through this food chain relation. One is food and another is eater. So this relationship always indicates an integrated vision and helps us to think all the so called varied elements in the universe are nothing but the closely related system. We cannot differentiate one from another. All are the part and parcel of the life process and the universe is full of life in different expression.

Ecological Awareness is not the chief concern of the Katha Upanishad but several passages give some high moral and ethical values which indirectly help in this respect. This Upanishad is the story of a small boy Naciketa, his mental alertness, his attitude towards the external environments and his serious effort for getting the truth. His father has arranged a sacrifice where many Brahmins, pious persons and guests are present. Presenting gifts to the invited guests are the then culture of India. So the

father of Naciketa has arranged many gifts for this purpose. But Naciketa observes that the weak and old cows are the gift items. The gift items should be fresh and good as these is beneficial to the person who accepts these. But these cows are in the fag end of the life. So Naciketa is so compassionate that he could not accept to give away these cows as presentation. He directly tells his father to give him as a gift item.

पीतोदका जग्धतृणा दुग्धदोहा निरिन्द्रियाः ।

अनन्द नाम ते लोकास्तान् स गच्छति ता ददत् ॥

He goes to the worlds that are known as joyless, who gives away the cows that have drunk water and eaten grass forever, whose milk has been milked, and which have lost their all sense organs.

The whole world and its root are described by the peepul tree. To give importance to the plant world, the analogy of the tree is mentioned here. Tree is beneficial item for the living world. The animal kingdom cannot live without the existence of the plant world. So we become careful to preserve the plant. To make essential these plant world this Upanishad draws analogy from the plant world.

ऊर्ध्वमुलोऽवाक्शाख एषोऽश्वत्थः सनातनः ।

तदेव शुक्रं तद्ब्रह्म तदेवामृतमुच्यते ।

This is that eternal *Asvattha* Tree with its root above and branches below. That root, indeed, is called the Bright; That is Brahman and That alone is the Immortal¹³.

The air is important element which is essential for life. This air enters into the body and does different functions. This very air is beneficial when it is quite and is harmful when it is vigorous. The very air is called prana or vital force. For sustain the life pure air is essential. So the environment should be pollution free. All these are described here.

ऊर्ध्वं प्राणम्ननयत्यपानं प्रत्यगस्यति ।

मध्ये वामनमासीनं विश्वे देवा उपासते ॥

He it is who sends prana upward and who leads apana downward. All the devas worship that adorable One seated in the middle 14.

ण प्राणेन नापानेन मर्त्यो जीवति कश्चन ।

No mortal ever lives by prana, which goes up, nor by apana, which goes down 15.

The mortal fire and sun are the source of power of living world. The manifestation and expression of the life depend upon these powers. The energy present in fire and sun is converted in different forms. These modified forms are beneficial to life system. This Upanishad has described the fire and sun in the following way:

अग्निर्यथैको भुवनं प्रविष्टो

रूपं रुपं प्रतिरुपो बभूव ।

As the same non—dual fire, after it has entered the world, becomes different according to whatever it burns 16.

सूर्यो यथा सर्वलोकस्य चक्षुर्न लिप्यते चाक्षुषैर्बाह्यदोषैः ।

As the sun, which helps all eyes to see, is not affected by the blemishes of the eyes or of the external things revealed by it 17.

Ecological Awareness is reflected through several forms in Svetasvatara Upanishad. All living being are related each other. There is a certain thing present in the heart of the living being which is related to each other. So all live cordially giving up meanest desire or selfishness or hatred. So here a prayer is invoked to the Protector of the body—

शिवां गिरित्र तां कुरु मा हिंसीः पुरूषं जगत् ।

O Protector of the body! Do not injure man or the world! 18

The united bond among all beings depends upon the presence of the clear and pure intellect. This purity in intellect gives the spontaneous association of the different entities. We always pray for this type of the pure intellect.

स नो वुद्ध्या शुभया संयुनकु ।

He may endow us with clear intellect¹⁹.

In ancient time people know the importance of the fire, water, medicinal plant and tree. These elements have played an important role for the human society. So people consider a divine force behind all these elements.

यो देवो अग्नौ यो अप्सु । यो विश्वं भुवनमाविवेश । य ओषधीषु यो वनस्पतिषु तस्मै देवाय नमो नमः ॥ The self-luminous Lord, who is in fire, who is in water, who has entered into the whole world, who is in plants, who is in trees – to that Lord let there be adoration! 20

थदेवाग्निस्तदादित्यस्तद्वायुस्तद् चन्द्रमाः ।

तदेव शुक्रं तद् ब्रह्म तदापस्तत् प्रजापतिः ॥

That Supreme Self is Agni (Fire); It is Aditya (Sun); It is Vayu (Wind); It is Chandrama (Moon). That Self is the luminous stars; It is Hiranyagarbha; It is water; It is Virat²¹.

त्वं स्त्री त्वं पुमानसि त्वं कुमार उत वा कुमारी

त्वं जीर्णो दण्डेन वञ्चिस त्वं जातो भवसि विश्वतोमुखः ॥

Thou art woman, Thou art man; Thou art youth and maiden too. Thou as an old man totterest along on a staff; it is Thou alone who, when born, assumest diverse forms²².

नीलः पतङ्गो हरितो लोहिताक्ष -

स्तडिद्गर्भ ऋतवः समुद्राः ।

अनादिमत्वं विभुत्वेन वर्तसे

यतो जातानि भवनानि विश्वा ॥

Thou art the dark—blue bee; Thou art the green parrot with red eyes; Thou art the thunder—cloud, the seasons and the seas. Thou art beginningless and all—pervading. From Thee all the worlds are born²³.

In the above mantras supreme reality is present in all beings right from the gross elements present in the universe, different from of human beings according to the age, different form of insects, birds, and all beings in the world. So all are the manifestation of the Supreme Being. We always be careful for all beings.

The necessity of water for river and ocean is well known to men. Water is also present in the underground of the earth. This phenomenon is indicated in the Upanishad:

पञ्चस्रोतोऽम्वुं पञ्चयोन्युग्रवक्रां

पञ्चप्राणोर्मिं पञ्चवुद्ध्यादिमूलाम् ।

पञ्चावर्ता पञ्चद्ःखौघवेगां

पञ्चाशद्भेदां पञ्चपर्वामधीमः ॥

We meditate on the River whose five currents are the five organs of perception, which is made impetuous and winding by the five elements, whose waves are the five organs of actions and whose fountain—head is the mind, the source of the five forms of perception. This River has five whirlpools and its rapids are the fivefold misery; and lastly, it has fifty branches and five pain—bearing obstructions²⁴.

तिलेषु तैलं दिधनीवं सर्पि -

रापः स्रोतःस्वरणीषु चाग्निः ।

एवमात्मात्मनि गृह्यतेऽसौ

सत्येनैनं तपसा योऽन्पश्यति ॥

As oil exists in sesame seeds, butter in milk, water in river beds and fire in wood, so the Self is realized as existing within the self, when a man looks for It by means of truthfulness and austerity—when he looks for the Self²⁵.

The tree and herbs are the integral part of ecosystem of the earth. Tree gives shelter for many animals and birds. Without plant kingdom existence of animal world is simply impossible. Here is depicted in the following verse:

द्वा सुपर्णा सयुजा सखाया समानं वृक्षं परिषस्वजाते ।

तयोरन्यः पिप्पलं स्वाद्वत्यन्श्वन्नन्यो अभिचाकशीति ॥

Two birds, united always and known by the same name, closely cling to the same tree. One of them eats the sweet fruit; the other looks on without eating.

समाने वृक्षे पुरुषो निमग्नोऽनीशया शोचति मुह्यमानः ।

जुष्टं यदा पश्यत्यन्यमीशमस्य महिमानमिति वीतशोकः ॥

Seated on the same tree, the jiva moans, bewildered by its impotence. But when it beholds the other, the Lord worshipped by all and His glory, it becomes free from grief²⁶.

Prasna Upanishad gives some indication in the field of Ecological Awareness. In this Upanishad sun is the source of all energy. This sun controls the time period which ultimately forms the whole year. From sun all living worlds, all types of creatures and

the food required for sustaining the living world are produced. All days and nights are responsible for the existence of the sun. Every type of variety is responsible for the direct presence of the sun. So in one sense sun is eater as well as eating items.

पञ्चपादं पितरं द्वादशाकृतिं दिव आहुः परे अर्द्धे पुरीषिणाम् ।

अथेमे अन्य उपरे विचक्षणं सप्तचक्रे षड़र आहुरर्पितम् इति ॥

Some call Him the father with five feet and with twelve forms, the giver of rain and the dweller in the region above the sky. Others, again, say that the world is fixed in the omniscient Sun, endowed with seven wheels and six spokes²⁷.

स एष वैश्वानरो विश्वरूपः प्राणोऽग्निरुदयते । तदेतद ऋचाभ्युक्तम् ॥

विश्वरूपं हरिणं जातवेदसं परायणं ज्योतिरेकं तपन्तम् ।

सहस्ररिभः शतधा वर्तमानः प्राणः प्रजानामुदयत्येष सूर्यः ॥

That sun rises every day—the sun, which is the soul of all creatures, the soul of all forms, which is life and fire. This has been described by the following rik: The wise know him who is in all forms, full of rays, all—knowing, non—dual, the support of all life, the eye of all beings, the giver of heat. There rises the sun, the thousand—rayed, existing in a hundred forms, the life of all creatures²⁸.

Behind all creation there is involvement of the energy. This energy is manifested in form of burning fire. It is present in the glowing sun. it again comes down to the earth in form of torrent shower and fills the ponds, tanks, river and other water bodies in the earth. It is nourishing the all living world. It is holding the all created beings in form of earth and nourishes all beings in the form of moon.

एषोऽग्निस्तपत्येष सूर्य एष पर्जन्यो मघवानेष वायुः ।

एष पृथिवी रयिदेवः सदसच्चामृतं च यत् ॥

It burns as fire, it is the sun, it is the rain; it is Indra, it is the wind, it is the earth, it is food. It is the luminous god. It is being and non—being; it is immortality²⁹.

The primordial energy enters into the food grains, food items and all plant worlds. The expression of the energy in the plant is in different forms. All human beings, animals, insects etc. are dependent upon the plant world. The energy flows from one direction to another.

आदित्यो ह वै प्राणो रियरेव चन्द्रमा रियर्वा एतत् सर्वं यन्मूर्तं चामूर्तं च तस्मान्मूर्तिरेव रियः ॥

The sun is, indeed, prana, life; the moon is rayi, food. Food is, indeed, all this—what has form and what is formless. Therefore everything having form is, indeed, food³⁰.

In nature the source of energy for living and non-living world is sun. This sun takes different forms in this animate and inanimate world. This different forms are like earth, water, fire, air, sky, five sense organs, mind, etc.

एषोऽग्निस्तपत्येष सूर्य एष पर्जन्यो मघवानेष वायुः ।

एष पृथिवी रयिर्देवः सदसच्चामृतं च यत् ॥

It burns as fire, it is the sun, it is the rain; it is Indra, it is the wind, it is the earth, it is food. It is the luminous god. It is being and non—being; it is immortality³¹.

An emperor distributes the duties of different officials to maintain the uniform rules in different states of the kingdom. Emperor acts as governing principle and coordinating force between different kings and officials for their proper functioning so that a disciplined kingdom exists.

यथा सम्राडेवाधिकृतान् विनियुङ्के एतान् ग्रामानेतान् ग्रामानधितिष्ठस्वेत्येवमेवैष प्राण इतरान् प्राणान् पृथक् पृथगेव सन्निधत्ते ॥

As an emperor commands his officials, saying; "Rule these villages or those," so this prana employs the other pranas, each in its separate place³².

The balancing factor between living world and universe is environment. It is always protecting and nourishing the whole world. But people do not understand this shuttle relation and wants to enjoy the nature by their indomitable greed and sharp intelligence. The result is the permanent destruction of the balance which announces the threat call to the living kingdom including the human kingdom itself. So to rouse the inner potency of the human being the seers prays for whole humanity with a great prayer.

मातेव पुत्रान् रक्स्व ॥

Protect us as a mother her sons³³.

Ecological Awareness in different forms are mentioned in Mundaka Upanishad. The whole world is manifested from the supreme principle known as Brahman. The whole world is manifested in two forms. One is called subject which enjoys external world and other is called object which is being enjoyed. In the living world human being is the highest manifestation of Supreme Being. All these are mentioned in the Mundaka Upanishad. In this ecological setup living beings take birth, grows and also dies.

यथोर्नाभिः सृजते गृह्नते च यथा पृथिव्यामोषधयः सम्भवन्ति ।

यथा सतः पुरुषात्केशलोमानि तथाऽक्षरात् सम्भवतीह विश्वम् ॥

As the spider sends forth and draws in its thread, as plants grow on the earth, as hair grows on the head and the body of a living man—so does everything in the universe arise from the Imperishable³⁴.

The main source of all energy is sun. Due to the presence of sun the cloud is formed. Rain appears from cloud and this rain is helpful for growth of plants and herbs which are food items of all the animal world.

तस्मादग्निः समिधो यस्य सूर्यः सोमात् पर्जन्य ओषधयः पृथिव्याम् ।

पुमान् रेतः सिञ्चति योषितायां वह्नीः प्रजाः पुरुषात् सम्प्रसूताः ॥

From Him comes the Fire whose fuel is the sun; from the moon comes rain; from rain, the herbs that grow on the earth; from the herbs, the seminal fluid which a man pours into a woman. Thus many living beings are born of the Purusha³⁵.

अतः समुद्रा गिरयश्व सर्वेऽस्मात् स्यन्दन्ते सिन्धवः सर्वरूपाः ।

अतश्व सर्वा ओषधयो रसश्व येनैष भूतैस्तिष्ठते ह्यन्तरात्मा ॥

From Him come all the oceans and the mountains; from Him flow rivers of every kind; from Him have come, as well, all plants and flavours, by which the inner self subsists surrounded by the elements³⁶.

In Mundaka Upanishad it is proclaimed again and again the material prosperity along with the wisdom and efficient practice. Material prosperity can be attained properly if it is accomplished with knowledge and skill. Then an eco-friendly system is evolved where all living and nonliving beings can exist peacefully.

सत्येन लभ्यस्तपसा ह्येष आत्मा सम्यग् ज्ञानेन व्रहमचर्येण नेत्यम्

अन्तःशरीरे ज्योतिर्मयोहि शुभ्र यं पश्यन्तियतयः क्षणदोःषाः ॥

This Atman, resplendent and pure, whom the sinless sannyasins behold residing within the body, is attained by unceasing practice of truthfulness, austerity, right knowledge and continence³⁷.

Cosmogony and Cosmology are described through several passages in the Upanishads. Cosmogony deals with the beginning of the universe and the theory related to the subject. Whereas Cosmology deals with the study of the total universe and its different aspects. It is mentioned in the GENESIS- Search for Origins published by NASA the definition of the two terms as - - Cosmology is the study of the structure and changes in the present universe, while the scientific field of cosmogony is concerned with the origin of the universe. Observations about our present universe may not only allow predictions to be made about the future, but they also provide clues to events that happened long ago when the chemical evolution of the cosmos began. So--the work of cosmologists and cosmogonists overlaps. So these two terms describe the origin of the universe. The universe is broadly made up Earth, Stars, Planets, sun etc. The relation and interrelation between different all these elements give the correct picture of the whole universe. Through these interpretations the ecological ideas will be more clear and tangible.

In Upanishadic time people are aware of the world made up seven land masses together with nearby ocean and seas. The people travel on land and voyaged on seas extensively which are mentioned in the Upanishads. The people also know the other side of the Earth as mentioned in the Chandyogya Upanishad ---

कल्पन्ते हास्मै लोका ऊर्ध्वाश्वावृताश्व य एतदेवं विद्वाँल्लोकेषु पञ्चविधं सामपास्ते ॥

The worlds in the ascending and descending orders belong to him who, knowing this, meditates on the fivefold Saman as the worlds. (Chandyogya Upanishad 2.2.3)

The beginning of the universe is described in the Upanishads from the atoms or primary matter (*rayi*).

स य एषोऽणिमैतदात्म्यमिदं सर्वं तत्सत्यं स आत्मा तत्त्वमिस श्वेतकेतो इति भूय एव मा भगवान्विज्ञापयत्विति तथा सोम्येति होवाच ॥

"Now, that which is the subtle essence—in it all that exists has its self. That is the True. That is the Self. That thou art, Svetaketu." (Chandyogya Upanishad 6.8.7)

The above mentioned atom-like is all pervading and is soul of the body. It is present everywhere. It is mentioned in Upanishads that universe is comprised of space, sun, moon, stars with their clusters and earth with its atmospheric envelop. In the Hume's translation of Upanishads one notices the world-form consisting of the Earth, atmosphere and the sky³⁸.

Commonly the space surrounding the Earth has been described as Sky. There are references to Solar-Lunar realms, Surya-Chandra Mandala or Ravindra Mandala as the integral and indivisible part of the empty space. The sky has been described into the categories i.e. supreme or divine sky (paramakasa), infinite sky (mahakasa) and solar sky (suryakasa) illumined by millions of suns (Hamsopanishad,7). The sky has been call the essence of all creatures (Brihadarnyakopanishad, 2.5.9). The Earth has its support in the Sky (Chandyogya Upanishad 1.9.1). It is tantamount to indicate that the atmosphere lies in the sky or the space (Chandyogya Upanishad 1.9.6).

There are several speculations regarding the formation or beginning of the Earth. Only two are given below for discussing the origin of universe.

The Divine theory: In this theory chronological sequence of the evolution of the universe. Origin is described as the Divine Principle or Reality. From this principle all modifications come out which is described in the Taittiriya Upanishad.

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तस्माद्वा एतस्मादात्मनः आकाशः सम्भूतः । आकाशाद्वायुः । वायोरग्निः।
अग्नेरापः। अद्भ्यः पृथिवी । पृथिव्या ओषधयः । ओषधीभ्योऽन्नम् । अन्नात्
प्रुषः ।
```

From the Atman was born akasa; from akasa, air; from air, fire; from fire, water; from water, earth; from earth, herbs; from herbs, food; from food, man³⁹.

The Theory of Cosmic Egg: In this theory the whole universe is formless non-being in the very beginning. It takes form of a Comic Egg. After splitting it gives the Earth, Sky and different modifications of the universe. The matter is indestructible according to the law of conservation of mass. Matter can change itself into energy and vice versa. In the same way the upanishadic evolution theory describes the evolution from non-being to the existence of being and merges to the non-being after dissolution.

आदित्यो ब्रह्मेत्यादेशस्तस्योपब्याख्यानमसदेवेदमग्र आसीत् ।

तत्सदासीत्तत्समभवत्तदाण्डं निरवर्तत तत्संवत्सरस्य मात्रामशयत तन्निरभिद्यत

ते आण्डकपाले रजतं च सुवरणं चाभवताम् ॥

तद्यद्रजतं सेयं पृथिवी यत्सूवर्णं सा द्यौर्यज्जरायु ते पर्वता यदुल्वं समेधो नीहारो

या धमनयस्ता नद्यो यद्वास्तेयमुदकं स समुद्रः ॥

In the beginning this universe was non—existent. It became existent. It grew. It turned into an egg. The egg lay for the period of a year. Then it broke open. Of the two halves of the egg—shell, one half was of silver, the other of gold. That which was of silver became the earth; that which was of gold, heaven. What was the thick membrane of the white became the mountains; the thin membrane of the yolk, the must and the clouds. The veins became the rivers; the fluid in the bladder, the ocean ⁴⁰.

The sun is the prominent luminous body in the sky. The sun has various names in the Upanishad texts. The sun with its various appellations occurs in the Upanishads (Aditya, more than 35 times, Savitra / Savitri, at least 10 times, Surya not less than 9 times, Maricin, at least 3 times, Ravi, Bhaskar, Bhanu, and Pusana at least once)⁴¹. Only a single solar system is known to exist in the Upanishadic time. It is regarded as the Supreme Being and it is also life-giving to all creatures.

य एवासाबादित्ये पुरुष

That being (purusha) who is in the sun. (Brihadarnyakopanishad, 2.1.2)

आयमादतत्यः सर्वेषां भूतानां मध्वस्याऽऽदित्यस्य सर्वाणि भूतानि मधु

This sun is the honey (effect) of all beings and all beings are the honey (effect) of this sun. (Brihadarnyakopanishad, 2.5.5)

So all living beings are interrelated to Sun and sun is also related to all beings. This is an important proposition in the Upanishad.

The *suryacakra* denotes the circular shape of the sun. The term *diva* or day and *ahoratra* or day and night are mentioned in Prasna Upanishad. The occurrence of day and night is due to the change of earth surface with respect to sun. this information is known to vedic as well as upanishadic time. In Aitareya Brahamana it is mentioned

clearly. The sun never sets nor rises. At the end of day it does not set itself but it reverses its path. So one side of the earth is day and other side is night.

The sun is related to the time division and it is described in the Maitreyi Upanishad. Its movement is periodic with respect to the earth. However there are many parts of time, through all of them runs yonder sun (Maitreyi Upanishad, 6.14). The sun is equated with time (ibid., 6.15). The different types of role of the sun are described in Surya Upanishad. These are -a) The sun is the cause of creation of water, b) The sun heats up the universe, c) The sun if the essence of all active and inactive elements which ultimately give birth all creatures on the earth, d) The sun is imbibed with pleasure, knowledge and science.

The luminous body on the earth is moon. Though it appears luminous but it derives light from the sun which is mention in Kausitakibrahmana Upanishad. The moon is waning and it is mentioned in Upanishad. The increasing and decreasing of the moon take place in a particular time period. The half-moon is mentioned in Ganapatya Upanishad as *Ardhendu*. There are statement like Bright Half or *Sukla Paksha* and Dark half or *Krishna Paksha* present in Prasna Upanishad, 1.12. The Full Moon Day or *Purnima* or *Purnendu* are present in upanishadic texts.

The counting of days in a month depends upon the different phases of the moon.

स एष संवत्सरः प्रजापितः षोइशकलस्तस्य रात्रयः एव पञ्चद शकला ध्रुवैवास्य षोइशी कला स रात्रिभिरेवाऽऽच पूर्यतेऽप च क्षीयते सोऽमावास्यागं रात्रिमेतया षोइश्या कलया सर्वरिदं प्राणभृदनुप्रविशु ततः प्रातर्जायते

That *Prajapati*, represented by the year, consists of sixteen parts. The nights and days are fifteen of his parts and the constant point is the sixteenth. He as the moon is increased and decreased by the nights and days. Through the sixteenth part he permeates all living beings as the new—moon night and rises the following morning. (Brihadaranyakopanishad 1.5.14).

The term lunar eclipse is present in the upanishadic text.

The Earth is the important entity in the while universe. The origin of Earth is guided by two hypothesis:

a) The Cosmic Egg Hypothesis, b) Water-Genesis Hypothesis

In several passages of the Upanishads the earth is evolve gradually from water.

आकाशाद् वायुः वायोग्निःअग्नेरापः अद्भ्यः पृथिवीः। (Air from sky, fire from air, water from fire, and earth from water. Subala Upanishad)

अद्भिभिः। (.... the earth is born from water. Gayatri Upanishad)

आपो वा अर्कस्तद्यदपागं शर आसीतत्समहन्यत सा पृथिव्यभवतस्यामश्राम्यतस्य

श्रान्तस्य तसस्य तेजो रसो निरवर्तताग्निः । (The water is essence. On it cream or froth is accumulated. From froth earth originates. Brihadaranyaka Upanishad)

पृथिव्या आपो रसः । (The earth is the essence of water. Chandogya Upanishad)

The above ideas give the origin of Earth. From the sky the gaseous form of the matter which is known as *vayu* or air formed. The nature of the air is speed or motion. The speed ultimately generates heat. The process which generates heat produces water. So water is formed. The solid particles present in water ultimately after being precipitated and coagulated give birth the Earth. So it is mention in the Upanishad that the Earth is the essence of water.

The people of the upanishadic time are able to measure the ratio of the water-body and land-mass. The ratio between water-body and land-mass is 2:1. This is mentioned in the Brihadaranyaka Upanishad.

समन्तं पृथिवी द्विस्तावत्पर्येति तागं समन्तं पृथिवी द्विस्तावत्समुद्रः......

Around it, covering twice the area, is the world (prithivi); around the world, covering twice the area, is the ocean⁴². The modern time people estimate the water and land ratio which is 79:21 or the water-body is more than three times as much as land surface. It is quite a revelation to note that the ancient Aryans were familiar with the use of instruments for accurate measurement and survey of land, perhaps, as well as oceans and seas⁴³.

The size of the Earth is spherical which is evident from different texts of the Upanishads.

स एष ये चैतस्मादर्वाञ्चो लोकाः

He is the lord of the worlds which spread beneath that. (Chandogya Upanishad, 1.7.6) লोकाः ऊर्ध्वाश्चावृत्ताश्च

The worlds placed in the upward and downward order. (Chandogya Upanishad, 2.2.3)

The above two portion of the Upanishad indicates that the Earth is spherical in nature and it has front face and the backward face. When one part of Earth is illumined by sun rays, the other part is suffering from it. So one part is called day and other part is called night.

In Modern atmospheric science the atmosphere above the Earth surface is grossly divided into five parts. There is a boundary between two phases meeting each other.

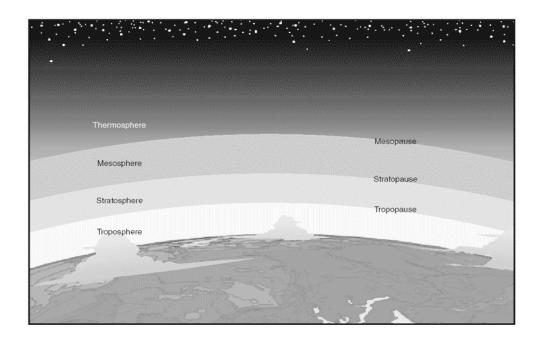


Diagram-7: Atmosphere above the Earth surface of Earth

- a) Troposphere: It is the immediate range of the atmosphere and it is extended upto 12 km. and it is denser layer. The lower portion of the layer is warmer than the upper portion.
- b) Stratosphere: It is extended upto 50 km. The temperature increases with the increase of the altitude. Ozone is present in this layer which absorbs harmful Ultra-Violet rays. So the temperature of this layer increases.
- c) Mesosphere: It is extended upto 80 km. The temperature decreases in this layer and the minimum temperature is -90° C.

- d) Thermosphere: It is extended upto 500 km. Here the temperature increases with rise in altitude due to the absorption of X-ray or other high energetic wave. For this absorption molecules or atoms are converted to ions. So this layer is known as *Ionosphere*.
- e) Exosphere: Beyond 500 km the gas molecules are so feeble that gas molecules can easily escape from this layer to the space. So this layer is the last molecular existence of the atmosphere.

In Mandalabrahmana Upanishad, 2.1 it is defined that three types of atmosphere are present on the earth. First one is Fire Sphere, middle one is Lunar sphere and the last one is Solar sphere⁴⁴.

- 1. Fire Sphere: It is known as *Agni Mandala* and it is the immediate nearby layer on the Earth. Its name indicates that it is hot. So this layer may indicate the Troposphere and Stratosphere.
- 2. Lunar Sphere: It is known as *Chandra Mandala* and it is the middle layer between upper and lower layers. As moon light is cool in nature, the temperature in this layer is low. So this layer may indicate the Mesosphere.
- 3. Solar Sphere: This layer is also called *Surya Mandala* and it is the upper layer. The name indicates that the sunlight directly enters into this layer and some portion is also absorbed. Due to the absorption of sunlight it remains hot. So this layer may indicate Thermosphere or Ionosphere.

The Directions or *Disam* plays an important in the upanishadic time. People are very conscious regarding the direction for doing any work.

दिशः सर्वेषाम् भूतानि मधुः ।

These quarters are the essence of all beings. (Brihadaranyaka Upanishad, 2.5.6) Moreover wind has been called the offspring of directions (Chandogya Upanishad, 3.15.2). It is very important statement because wind always flows from directions. Moreover people are aware of directions after perceiving the wind flow. So the winds are named after directions from which it flows.

तस्य प्राची दिक्प्राञ्चः प्राणा दक्षिणा दिग्दक्षिणे प्राणाः प्रतीची दिक्प्रत्यञ्चः प्राणा उदीची दिगुदञ्चः प्राणा ऊर्ध्वा दिगूर्ध्वाः प्राणा अवाची दिगवाञ्चः प्राणा सर्वा दिशः सर्वे प्राणाः.....।

the east is the eastern vital breath (prana), the south is the southern vital breath, the west is the western vital breath, the north is the northern vital breath, the upper direction is the upper vital breath, the direction below is the nether vital breath and all the directions are all the vital breaths⁴⁵.

There are ten types of directions are mentioned in the Upanishads. The concept of ten directions are represented as a bird model mentioned in Brihadaranyaka Upanishad.

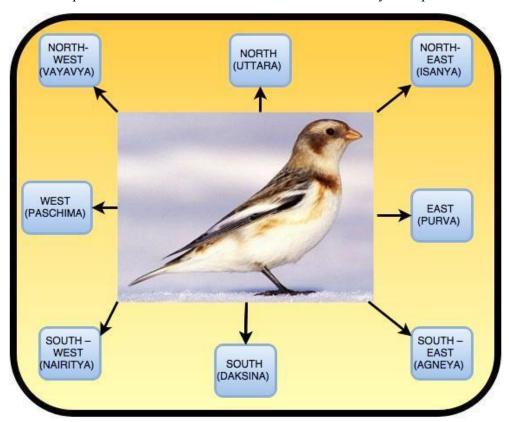


Diagram-8: Ten directions are represented as a bird model

तस्य प्राची दिक्शिरीऽसौ चासौ चेमार्वथास्य प्रतीची दिक्पुच्छमसौ चासौ च सक्थ्यौ दक्षिणा चोदीची च पार्श्व। His head is the east and His arms are that (the north—east) and that (the south—east). His hinder part is the west and His two hip—bones are that (the north—west) and that (the south—west). His sides are the south and the north,.....(Brihadarnyaka Upanishad, 1.2.3.).

From this above discussion it is clear that the analogy of bird is appropriate for describing the different directions. The bird spreads its wings and moves one direction to another where it wants to move. So bird can move ten directions if it desires to move at all. Moreover, the example of bird indicates that people in the upanishadic period are very much eco-friendly which is vividly reflected in their thoughts and philosophy.

Biodiversity is an important aspect of different development of life form present in the earth. It helps to understand the structural and morphological evolution of different species with different climate and regions and in the same time it throws light on the impact of environmental condition on the different species present on the earth.

मनुष्यागंश्व पशुगंश्व वयागंसि च तृणवनस्पतीञ्छ्वापदान्याकीटपतङ्गपिपीलिकं

Man, animals, birds, herbs, vegetation, wild animals, worms, gnats, ants (Chandyogya Upanishad, 7.2.1)

There are mainly two broad categories of life form, one is plant and other is animal. There are varieties of species are present in the each group of life-form. All these are widely mentioned in different Upanishads with varied nomenclature.

Plant Species are also mentioned in several Upanishads. *Vanaspati* is a term used in Brihadaranyaka Upanishad, 3.9.28. The vegetation world are of different nature like, trees, plants (*padapa*), creepers (*lata*), herbs, grass (*trina*) etc. Vegetations are classified into two categories i.e. natural and artificial. Two common Sanskrit words for forest are *vana* and *aranya*. One upanishad is named after *aranya*, i.e. Brihadaranyaka Upanishad. Naimisaranya and Vrindavana are two famous forest in ancient India.

There are different types of vegetation world are found in Upanishads.

- 1. *Trina:* The numerous references have the word *trina* which indicates the grass. The grass covered land is called *trinavarta*. There are also reference like *harita trina* or green and fresh grass (Kausitakibrahamano Upanishad, 27.8). Usira (Andropogon Muricatus), a species of aromatic grass of *Kasmira* deserves a special mention (Brihadaranyaka Upanishad, 3.27). The Munja grass (Saccharum Sara) is mentioned in various Upanishad like Mahopanishad and Arunyapashid. Darva has been considered important item during the worship and any religious and social ceremony. It is called *durva* in Mahanarayan Upanishad, 3.1 and other Upanishadic texts. *Kusa* is one type of grass required for different types of day to day activities and religious ceremony.
- 2. *Padapa* (plant) is one type of plant mentioned in Brihadaranyakopanishad, 6.1.1 and other Upanishads. It is one type of plant which is intermediate between tall trees and surface grass.
- 3. *Vriksha* (tree) is referred in many Upanishads like Mahopanishad, 5.140, Chandyogya Upanishad, 6.9.1, 8.10.1, 6.11.1, Mhanarayan Upanishad 10.4. It is referred for big type of plant.
- 4. *Valli* (creeper): It is the plants which are growing using the strong support of anything or big trees. It is mentioned in Rudrahrida Upanishad, 22
- 5. *Gulma* (Shrub): The bushes are found in numerous parts of the land. Two bushes i.e. Vrindavana and Naimisaranya are mentioned in Upanishads.
- 6. *Kanda* (bulb): There appears this type of words in the Kundika Upanishad.
- 7. *Kantaka* (Thorn): It is mentioned in the Rudrakshajavala Upanishad, 13 that *rudraksha* is said the superior quality if it is having no thorn.
- 8. *Kamala* (lotus): The aquatic plant *kamala* is mentioned in Yogachudamani Upanishad, 12.08. It is also mentioned that the leaves of the lotus do not absorb water in any situation as these leaves are not wetted by water.

There are different types of tall trees are mentioned in the different Upanishads. Among all these are Nimba – Azadirachta Indica, Pippala (Ficus Religiosa), Adumbara (Ficus Glomerata), Vata (Ficus Bengalensis), Sala (vatica Robusta), Devadara (Pinus Indicus), Tala (Phoenix Dactylitera), Bilva (Agle Marmelos), Palasa (Butea Frondosa), Candana (Sirium Myrtifolium), Amra (Mangifera Indica), etc.

Three types of synonyms for flower are mentioned: *Puspa* is mentioned in Chandyagyopanishad, 3.12). the word *gandhapuspa* i.e. flower with fragrance is mentioned in Upanishads. *Sumana* and *Kusuma* are two synonyms of flower are present in many Upanishads like Akshamalika Upanishad, Yogatattva Upanishad, etc. Different colours of flowers are mentioned in Upanishads.

Woods of every-day use is procured from forest in upanishadic period. *Indhana* is used for domestic fuel purpose (Maitrayani Upanishad, 4.1). *Arani* is also used for those wood which is treated as fuel in sacrificial fire or fire used for domestic purpose. *Samidha* is used as sacrificial wood (Chandyogya Upanishad, 4.4.5). *Daru* is the wood which is used for domestic purposes (Chandyogya Upanishad, 4.17.7). *Kastha* is used for the wood in general sense. *Kastha danda* is rod of wood used for walking purpose and other purposes. The fodder is used for domestication of some animals (Brihadaranyaka Upanishad, 1.4.16). Seats of mats is made out of grass, *darbhasana*. Besides wood root(*mula*), leaves (*parna*) and roots (*mulaka*) are used for many purpose of day to day life which are discussed many Upanishads.

There are many references for the medicinal plants *Ausadhi*. There are various terminologies are mentioned in Upanishads to indicate the medicinal use of the various plant. *Ausadhirasa* is used for essence of medicine for chemico-therapy purpose. *Vanausadhi* (forest medicine) is mentioned in Sitopanishada, 15.

Agricultural crops are mentioned in Upanishads. *Dhanya* is the grain food used in human consumption (Sandilya Upanishad, 1.2). The following are the portion where the cultivated crops are mentioned:

व्रीहेर्वा यवाद्वा सर्षपाद्वा श्यामाकाद्वा श्यामाकतण्डलाद्वा

Brihi (rice), barley, mustard, syamakatandula rice etc. (Chandyogya Upanishad, 3.14.3)

व्रीहियवा ओषधिवनस्पतयस्तिलमाषा

Rice, barley, medical herbs, sesamum, etc. (Chandyogya Upanishad, 5.10.6)

The following table describes different types of the crops are mentioned in the common Upanishads.

Item	No. of Varieties	Varieties Name	Name of Upanishads
Grains	5	Godharna: Wheat, Triticum Vulgare Brihi: Rice, Oryza Sativa	Brihadaranyaka Upanishad, 6.4.13 Chandyogya Upanishad, 5.10.6; 3.14.3; Brihadaranyaka Upanishad,6.4.13
		Syamalaka Tandula: Wild rice/self grown rice, Oryza Fatua Tandula: Rice—	Chandyogya Upanishad, 3.14.3 Skanda upanishad, 6;
		after threshing and winnowing—Oryza Sativa	Mahopanishad, 5.185
		Yava: Barley, Mordeuni Vulgore	Chandyogya Upanishad, 5. :0.6; 6.4.13
Pulses	5	Masa: A bean, Phaseolus Radiatus	Chandyogya Upanishad, 1.10.2; 5.10.6; Brihadaranyaka Upanishad, 6.4.13
		Masura: Ervum Hirustum	Brihadaranyaka Upanishad, 6.4.13
		Canaka: Chana, Cicer Abientimum— known as chick-pea or Bengal Gram	Rudrakshajavala Upanishad, 9.
		<i>Mudga</i> : Munga, Phaseolus Mungo	Yogakundaly Upanishad, 49.
		Kula: A kind of pulse	Brihadaranyaka Upanishad, 6.3.13.
Oil-seeds	4	Tila: Sesamum, Sesamum Indicum	(Chandyogya Upanishad, 5.10.6; Brihadaranyaka Upanishad, 6.4.13; Mahanarayana Upanishad., 18.1; Svetasvatara Upanishad, 1.15
		Sarsapa: Sarson, mustard-seed, Brassica Campesteris	Chandyogya Upanishad, 3.10.3
		Atasi: Alasi, linseed-oil Linum Usitatissimum	Gayatrirahasya Upanishad, Sa., 429

		Eranda: Andi, Castor, Ricinus	(Sandilya upanishad, 2.7.5
		Communis or Palma Christi	
Minor grains or crops	4	Prakangu: Millets	Brihadaranyaka Upanishad, 6.4.13
		Khalva:	Brihadaranyaka Upanishad, 6.4.13.
		Khala:	Brihadaranyaka Upanishad, 6.4.13.
		Kula	Brihadaranyaka Upanishad, 6.4.13.
Flavouring substances	2	Lasuna: Garlic	Rudrakshajavala Upanishad, 43
		Slesmataka: Ginger, Zingiber Officinale	Rudrakshajavala Upanishad, 43
Vegetables	3	Palandu: Onions, Allam Cepa	Rudrakshajavala Upanishad, 43
		Sigru: Drumsticks	Rudrakshajavala Upanishad, 43
		Arvalaba: Gourd	Satyayaniya Upanishad, 21
Fibres	3	Tantu (fibre)	It has been explicitly mentioned
		Tula: Cotton, Gossypium	Yogakundalya Upanishad, 3.30
		Atasi: Alasi	Dhyanabindu Upanishad, 30.

Based on the data available in the above table following is the bar diagram for better understanding of the availability of different types of crops in the Upanishadic texts.

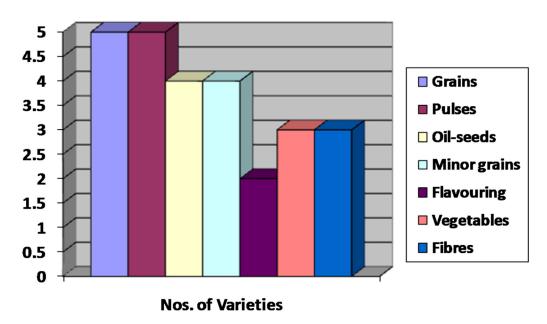


Diagram-9: Bar diagram of different types of crops and their availability

This diagram indicates that food grains and pulses are the major ingredients in upanishadic time. So people are very much conversant about the number of different varieties of the ingredients compare to oil-seeds and other minor grains. For sustenance of livelihood people mainly rely upon these principle food grains and they are very much aware about their varieties and qualities.

Animal Species are mentioned in several passages in Upanishads. Animals are discussed in Upanishads having different nomenclature. All animals feed either the vegetables or animal bodies for their livelihood. The word *bhuta* (creature) (Chandogya Upanishad, 2.9.2) and *bhutani* (Brihadaranyaka Upanishad, 3.7.1, Chandogya Upanishad, 8.11.1) are mentioned in upanishadic texts. Moreover *praja, Jantu* and *Jivajantavah* are also mentioned in different Upanishads to indicates the animals are familiar in several names to the people.

However fourfold origin of life-forms are obtained in different upanishadic texts which are mentioned as Seeds, Eggs, Uterus and Sweat (Aitereyo Upanishad, 3.1.3). There are other types of words regarding the origin of life-form like, *Udbhija*

: Sprung up from seeds, *Andaja* : born from eggs, *Svedaja* : born from sweat and *Jarayuja* : born from uterus.

Taxonomy is the branch of the science which classifies a particular group with appropriate distinction. In animal world this classification comprises the description, identification and nomenclature. Based on Upanishadic data classification of animal world are as follows⁴⁶:

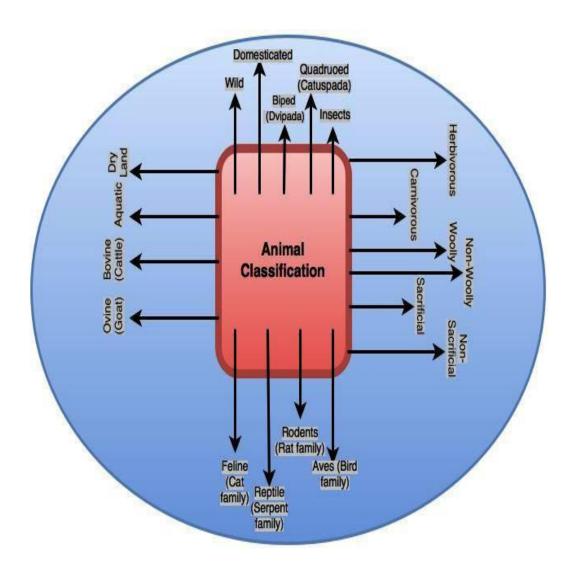


Diagram-10: Identification and nomenclature of animals based on Upanishadic texts

Cattle are used as domesticated animals in the Upanishadic time. They are useful in many cases like supplying the milk, cow-dung, urine, etc. Bulls are used for tilting the fields for paddy cultivation. Many other animals which are domesticated for several purpose to meet-up the day-to-day needs of the householders. Moreover many animals are mentioned in the texts as the wild animals are present in the forest. Some are Carnivorous i.e. animal as food stuff and some are herbivorous i.e. plant or vegetable as food items.

Animal	Nos. of	Different Name in	Upanishadic Reference
	Names	Upanishadic Texts	
Cattle	13	Gau	Brihadaranyaka Upanishad,
			1.4.4.
			Chandagyopanishad, 2.6.1
		Dhenu	Brihadaranyaka Upanishad,
			5.8.1
		Revati	Chandagyopanishad, 2.18, 1.2
		Vrisha	Brihadaranyaka Upanishad,
			1.4.4, 4.1.2
		Vrisabha	Chandagyopanishad, 4.5.1,
			Mahanarayana Upanishad,
			3.11
		Govatsa	Brihadaranyaka Upanishad,
			5.8.1,
		Kapila (tawny),	Brihadaranyaka Upanishad,
		Dhavala (White),	3.1,
		Alame (gray)	
		Mahadhenu	Maitreyi Upanishad
		Mahavrisa	Chandagyopanishad, 4.2.5
		Vatsa	Brihadaranyaka Upanishad,
			5.8.1
		Mahisa	Brihadaranyaka Upanishad,
			1.4.4, 3.4.2,
			Chandagyopanishad, 2.6.1
Quadrupeds	35	Asva (Horse)	Chandagyopanishad, 7.24.1
Quadrupeus		Dustasva	Svetasvataropanishad, 2.9

	Rathayoga	Brihadaranyaka Upanishad,
		4.3.10
	Saindhavah from the	Brihadaranyaka Upanishad,
	basin of Sindhu	6.1.13
	(Horse)	
	Vadva (Mare)	Brihadaranyaka Upanishad,
		1.4.4
	Gardabha (Male	Brihadaranyaka Upanishad,
	Donkey), Gardabhi (1.4.4.
	Female Donkey)	
	Asvatara(Male Mule)	Chandagyopanishad, 4.2.3
	Asvatari (Female	Chandagyopanishad, 4.2.3,
	Mule)	5.13.2
	Aja (He-goat) and	Chandagyopanishad, 2.6.1
	Ajaa (She-goat)	
	Mesa(Lamb),	Chandagyopanishad, 2.4.1
	Mesi(Eve)	
	Kukura, Svana,	Brahamabindu Uponishad,
	Kukula, Sva, kauhyaka	Mahopanishad
	etc. all are the name of	
	dog.	
	Musaka (rat)	Gopalapurvatapinyupanishad
	Varaha(Pig/Boar)	Chandagyopanishad, 6.9.3
	Sukara(Pig)	Chandagyopanishad, 5.10.7
	Harina(Deer),	Chandagyopanishad, 7.24.2
	Mriga(Deer)	
	Ustra(Camel)	Naradaparivrajakopanishad
	Matanga, Gaja,	Chandagyopanishad, and
	Hastini, Sarabha and	Brihadaranyaka Upanishad
	Naga indicate elephant	
	Sinha and Kesari	Chandagyopanishad,
	indicate lion	
	Vyaghra and Sardula	Adhyatmopanishad
	indicate tiger	
	Vrika and Jambuka	Chandagyopanishad,6.3.3
	indicate jackal	
Reptiles 7	Sarpa, Bhujanga,	Brahmabindu Upanishad,
	Naga, Fanindra,	Mudgala Upanishad,

Aquatic Creatures	4	Karkota, Nagaka and Ahi indicate the common serpent Matsya Kurma (Tortoise), Kurmi(Female Tortoise) Bheka(frog)	Brihadaranyakopanishad Chandagyopanishad, 1.4.2 Brihadaranyakopanishad, 3.4.27 Maitrayani Upanishad
Aves	17	Khaga, Khaganda, Vihaga, Vaya, Suparna, Sakuni indicates the bird Syena (Hawk),	Brihadaranyakopanishad, Chandagyopanishad
		Garuda(one bird), Gridhra (vulture), Kraunca (Sarasa), Kukkuuta (Hen), Kaka(Crow), Uluka(Owl), Skhandin (Peacock), Gulika(Sparrow), Kulaya(Cuckoo), Hansa(Swan),	Brihadaranyakopanishad, Chandagyopanishad, Maitrayani Upanishad, Niralambopanisad, Garudopanishad, Sandilya Upanishad, etc
Insects	13	Kita(Insect), Kitaka(Worm), Patanga(Tiny fly), Makshika (Fly), Kosakara(Silk Worm), Urnana(Spider), Khadyota (Fire Fly), Masaka(Mosquito), Madhukara(Honey Bee), Madhukriti (Honey Bee), Matkuna (Bed-bug), Pipilikam (Ant), Plavina (Gnat)	Brihadaranyakopanishad, Chandagyopanishad, Maitrayani Upanishad, Mahopanishad, Prasna Upanishad Yogatattva Upanishad

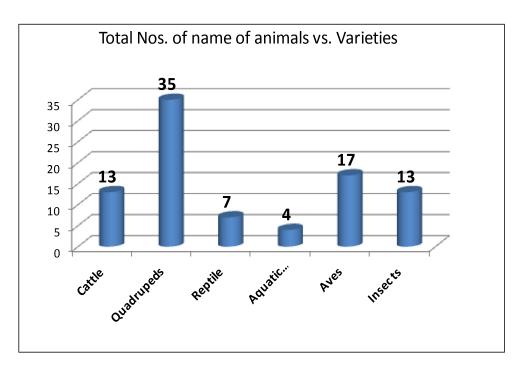


Diagram-11: Distribution of the varieties of animals known in the Upanishadic texts

The above Clustered Cylinder diagram indicates the different distribution of the varieties of animals known in the Upanishadic texts. Each variety has different names of species mentioned in the texts. Similarly same animal has different names mentioned in same and different Upanishadic texts. Moreover above diagram indicates that different names of the cattle are mentioned in the texts. This fact indicates that people at the Upanishadic times are deeply involved in agriculture which revealed from their profound knowledge in different food grains and food items related to plants. For agriculture purpose cattle is essential. Different quadrupeds are mentioned in the texts indicate that people at that time understand the necessity of the other animals for their day to day life. Different varieties horses, elephants and donkeys indicate that people use these animals in their domestic purposes.

Moreover the different species of cattle are mentioned in the Upanishads where the colour or size is the identification of all these cattle. Different name of cattle both in male female group indicate that cattle are important aspects in the society and civilization of the Upanishadic time. Many quadruped are mentioned in the texts. Some are herbivorous and some are carnivorous types. Moreover the mentioning of the term *Dustaswa* means the horse which is not faithful to the owner. *Rathyoga* is used to indicate that the horses are used in drawing the chariot. Different names of the elephants indicate the different usage of the elephant in the human beings. Different types of the aquatic animals are mentioned in the Upanishads. Some are the inhabitant in the river, ocean and lake. People in the Upanishadic time have good knowledge about the aerosphere inhabitants. People observed different characteristics of the birds which are evident from their different names. All types of the insect world are known to the people in those time ⁴⁷.

People are completely aware of the importance of the animal world. So in different philosophical discussion these animals are incorporated in many places which are discussed previously in the respect of discussion of individual Upanishadic text. Horse, honey bee, spider, etc. are mentioned in different Upanishads.

The Symbol *Om* present in all verses of upanishads has important ecological significance.

The Ecological Integrated vision is reflected in the all upanishadic texts. Ecological Integrated vision is reflected through the very common symbol in the Upanishads called om (3). Om is not only a symbol of the civilization in Vedic, Upanishadic, Puranic and more commonly Hinduism in India, but it is the common symbol of Jainism and Buddhism. In India this symbol om has got tremendous importance both philosophical and practical aspect that all verses of the different Upanmishadic texts starts and ends with the same symbol, Where om indicates the starting of the verse and om indicates the ending of the verse. Many Upanishads describes this symbol in its fullest philosophical height. Whole Mandukya Upanishad has described the meditation procedure of the symbol om. It is the combination of the four stage of consciousness. Moreover this symbol is the combination of three letters (A+U+M=om). The four stages of consciousness and the three letters are described below:

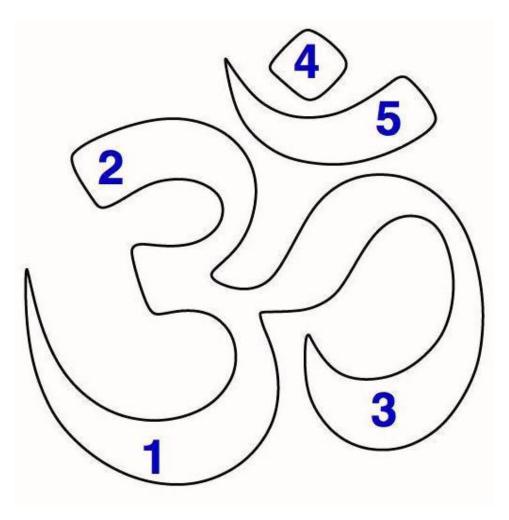


Diagram-12: Labeling the four stages of consciousness and Maya

First Stage (Vaishwanara): It is the waking state of the consciousness. In this stage mind is conscious about its activity. It is represented as the lower part of the symbol. It is the letter 'A'. It is mentioned in Mandukya Upanishad.

जागरितस्थानो भिष्प्रज्ञः सप्ताङ्ग एकोनविंशतिमुखः स्थूलभुग्वैश्वानरः प्रथमः पादः

The first quarter is *Vaishwanara* whose sphere is thewaking state, whose consciousness relates to things external, who is possed of seven limbs and nineteen mouths and who enjoys gross things⁴⁸.

Second Stage (Taijasa): It is the dream state of the mind where mind is not conscious and not fully unconscious. So the mind is active unconscious. It is

represented as the upper part of the symbol. It is the letter 'U'. It is mentioned in Mandukya Upanishad.

स्वप्नस्थानोऽन्तः प्रज्ञः सप्ताङ्ग एकोनविंशतिमुखः प्रविविक्तभुक्तैजसो द्वितीयझ पादः

Ш

Taijasa is second quarter, whose sphere of activity is the dream state, whose consciousness is internal, who is possessed of seven limbs and nineteen mouths, and who enjoys subtle objects⁴⁹.

Third Stage (Prajna): It is the third stage of mind where mind is total unconscious and its activity is stopped. It is called latent Unconscious. It is represented as the external curve of the symbol. It is the letter 'M'. It is mentioned in Mandukya Upanishad.

सुषुप्तस्थान एकीभूतः प्रज्ञानघन एवाण्दमयो ह्याण्दभुक् चेतोमुखः प्रज्ञस्तृतीयः पादः

Ш

The third quarter is *Prajna* who has deep sleep as his sphere in whom everything becomes undifferentiated, who is a mass of mere consciousness, who abounds in bliss, who is surely an enjoyer of bliss and who is the doorway to the experience ⁵⁰. Fourth Stage(Turiya): It is the pure consciousness which is encompassing the all other three stage of consciousness. It is represented in the symbol as a point dot of the symbol. It illuminates all other states of consciousness. It is represented as silence after the utterance of A, U and M.

निवृत्तेः सर्वदुःखानामीशानः प्रभुरवयः ।

अद्वैतः सर्वभावानं देवोस्तुर्यो विभुः स्मृतः ॥

The unchanging non-dual one is the ordainer – The Lord – in the matter of eradicating all sorrows. The effulgent Turiya is held to be the all-pervasive source of all objects⁵¹.

The semicircle represents maya (or the veil of illusion.) is nothing but the fifth portion of the curve. It separates the absolute from the other three curves⁵².

This symbol has a great ecological importance. Man relates the whole universe with the individual body. Macrocosm in the whole universe is actively related with the microcosm present inside the body. In this manner whole universe is interrelated with all individual bodies. The Universe is made of planets, space, sun and earth. Earth is made of three parts. The ultimate expression of the three parts are mentioned in different Upanishads as the plant world, Animal world and different directions which are discussed previously. The integrated ecological vision which is expressed through the symbol *om* can be comparable with above mentioned stages.

The point dot in the symbol *om* represents the all Extra-solar Body in the whole universe. It is comparable with the fourth stage of the consciousness. The curve separator which separates the dot from the main symbol is called space of the universe. It is comparable with the *maya* due to its nature of operation. Below the curved separator another curve which is slightly linked with main symbol represents the sun. It is comparable with the third stage of the consciousness. The upper part of the symbol represents the Earth portion except the directions, animal world and plant worlds. As earth is the cause of the expression of plant, animal and other living world. It is also the basis of the directions. It is comparable with second stage of the consciousness. The annular circular portion of the symbol represents the different directions. The lower portion of the symbol represents the Animal World and Plant World. These two are comparable with the first stage of the consciousness due their similar mode of operation.

The significance of the different aspects of the universe which are depicted through the symbol is important for consideration to understand the attitude of the people in upanishadic time towards the environment.

The all luminaries and Extra-Solar bodies are present above the Earth surface and it is depicted as dot present top most position of the symbol. It is present in the space and also separated by the space. As other luminaries are beyond the reach of the solar system, they are comparable with the fourth stage of the above description.

The lower curve below the dot represents the space where all Extra-solar bodies, sun and earth are present. So it more-or-less touches all section of the symbol which represents different parameter of the universe. It is comparable with veil of illusion of the above description due the fact that space of the whole universe is mostly unknown to man.

The another curve which represents the Sun links slightly to the part of the symbol. We know that Sun is the nearest to the Earth and Earth is nothing but the one member of the Solar family. It is comparable with Third Stage (*Prajna*) of the above

description. Ordinarily in sun life is not possible but it is the cause of manifestation of the life on earth.

The upper portion of the symbol is the earth devoid of the Plant world, Animal world and directions. This represents the water bodies and the solid mass having the rich source of the different minerals. In Upanishads there are ample reference of different types of the minerals. *Rakata* (Silver) is mentioned in Brihadaranyakopanishad and Chandagyopanishad. Gold is represented in different names i.e. *Kancana, Hiranya, Sauvarna, Hema, Kanaka, Svarna*, etc. in different Upanishads - Brihadaranyakopanishad, Chandagyopanishad, and other Upanishads. *Tamra* (Copper), *Sisa* (Lead), *Kansya* (Bronze), etc. are mentioned in Upanishads. It is comparable with Second Stage (*Taijasa*) of the above description. In this portion of earth expression of life is subtle and in form of microbial world. Moreover it is the cause and basis of the expression of the palnt world, animal world and direction.

The middle annular space represents the different directions. Directions give the idea of the three dimensional positioning of any body. We can relate the position of any object with the earth easily in the space through the proper knowledge of directions.

Lower half of the symbol denotes two world – Plant and Animal world. It is comparable with the First Stage (Vaishwanara) of the above description. In this portion of the earth the expression of the life is fully manifested in different forms through the plant and animal world. In waking stage mind is fully active and in this plant and animal world life is fully manifested through different species.

Through this symbol Upanishadic people want to establish an integrated ecological vision of the universe. So any disruption of link in the universe leads to utter ecological imbalance and crisis.

ओङ्कारं पादशो विद्यात्पादा मात्रा न संशयः । ओङ्कारं पादशो ज्ञात्वा न किंचिदपि चिन्तयेत्॥

One should know Om(3), quarter by quarter; there is no doubt that the quarters are the letters⁵³.

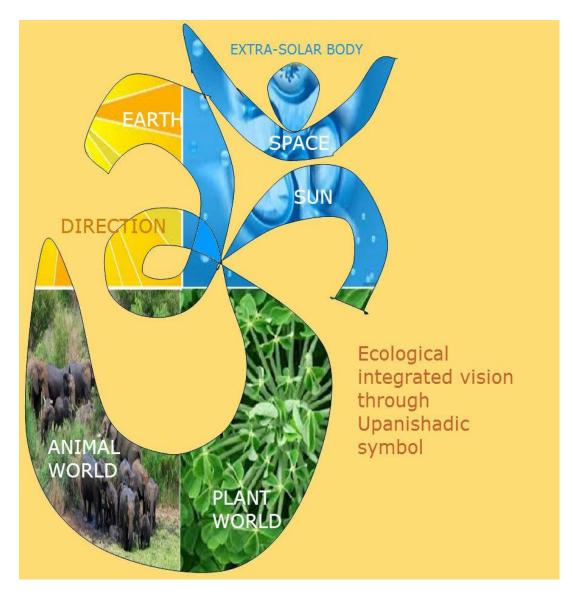


Diagram-13: Ecological Integrated vision through the symbol Om

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