

An Ethno-Ecological Introspection of the Bhagavad Gita: 7. Proliferation of the Biodiversity and Human Society

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ABSTRACT The tenth chapter of Gita presents seventy two divine manifestations. A systematic arrangement and analysis of these Godly glories, reveal the chronology of proliferation of the biodiversity and expansion of the human society. The time is the greatest factor of this universe that encapsulates everything-creation, maintenance and dissolution.

INTRODUCTION

Bhagavad Gita in addition to its enriched knowledge on *Samkhya*, *Yoga*, *Sanyaasa*, *Bhakti*, *Gyaana* and *Karma* philosophy; speaks many basic themes on environmental science. Introspection into this epic, to search out ecological concepts is not a new adventure, it is a humble rediscovery only (Padhy 2013 a, b, c, 2014 a, b, 2015b). Srikrishna's revelations on the cosmic ecology, principles and components of the ecosystem, conservation and ramification of biodiversity, ecological responsibility of human beings and variation of *Guna* (quality) responsible for diversity of biological world are reflected in this epic.

The tenth chapter of Gita presents the divine manifestations (*Bibhuti*). Out of the endless divinity (Nature), seventy two manifestations are marked in this chapter as important glory of God. The chapter ends with Srikrishna's comment "*whatever being there is glorious, prosperous and powerful is only a spark of the divine splendor*" (10/41, 42). In the previous communication (Padhy 2015b) selected eight manifestation related with the abiotic environment and fifteen from biological community out of these seventy two manifestations, are analyzed from the present distorted ecological point of view; which were once declared 5119 years back as pure, prosperous and powerful. The present communication is a complete analysis of all manifestations from a different angle, which reveals the evolution of biodiversity and prosperity of human community in it.

METHODS OF STUDY

The methods of study are as reported earlier (Padhy 2013 a). The seventy two divine manifestations are presented vide *sslokas* 20 to 39 of the tenth chapter of Gita. The style of presentation of these glories is heterogeneous and presented in mythical Sanskrit language and terms. Related facts and examples are placed in different *sslokas* instead of putting them together. This causes an ambiguity to follow the trend of presentation. When correlated manifestations are grouped together and their mythical status is analyzed, they appeared to be in systematic order, with nine divisions such as:-

1. The basic theme of life (five manifestations);
2. Sustenance of life (two);
3. The ecological factors (nine);
4. Expansion and destruction of biodiversity (thirteen);
5. Important human characters (eleven);
6. Source of knowledge for human society (nine);
7. The capitalized source of knowledge (eight);
8. Specialized powers of nature around human beings (ten) and
9. The great time factor of the universe (five).

The manifestations are marked in roman in the text. In every instance of presentation, Srikrishna has referred that to Himself (I am that). This speaks that, all manifestation are the property of nature.

RESULTS AND DISCUSSION

1. The Basic Theme of Life

The credit to project the primary view on origin of life on this earth goes to *Manusmruti* (Mohapatra et al. 2001a). Srikrishna has projected five manifestations in this regard as follows.

- I. I am the universal self seated in the heart of all beings (*Ahamaatmaa gudaakesa sarvabhutaasayasthitah*; 10/20).
- II. I am the consciousness (life energy) in living beings (*Bhuutaanaamasmi cetanaa*; 10/22).
- III. I am even that which is the seed of all life (*Yaccaapi sarvabhutaanaam bijam*; 10/39).
- IV. I am the origin of all that shall be born (*Bhavisyatam*; 10/34).
- V. I alone am the beginning and middle and also end of all beings (*Ahamaadisca madham ca bhuutaamanta eva ca*; 10/20).

In the first two manifestations (I, II) Srikrishna focuses on one point that is *Aatman*; the principal factor of life in any being (refer chapter two of Gita for more conception). Existence of *Aatman* may be a metaphysical aspect, but no science has denied its existence and no scientist has practically proved its non-existence. Moreover, no scientific laboratory on this earth can prove the existence of *Aatman* with any kind of experiment. *Aatman* is not a factor of perception, but of self realization. In any living being, with the absence of some unknown single factor (*Aatman*) it is declared as dead; may be with the normal functioning of metabolic system and internal body organs are in full order before death. The consciousness factor (II) comes as the next important signature of a living system. Seed (III) refers to the inherent capacity to sprout out as the embryo; or in a finer analysis from biochemical point of view, it is the DNA molecule, that is the cause and effect of any living system. Every event of life, either inter cellular or intra cellular, originates (IV) from DNA and there is no ambiguity in it. DNA may be the prime manifestation of *Aatman*, to work as the key molecule of the biological world from beginning to end (V) of any life process.

2. Sustenance of Life

Either a plant, animal or a bacterium needs two important life supporting systems that are

presented in Gita- Life breath and food as source of energy.

- I. I am the prime importance *Marichi* among *Marutas* (wind Gods) (*Mariicirmarutaa-masmi*, 10/21).
- II. I am the sustainer of all, having my face (mouth) on all sides (*Dhaataaham visvatomukhah*; 10/33).

There are forty-nine wind Gods (*Marutas*) as per Hindu concept. The prime among them in *Marichi*. Life breath is of prime importance amongst the various forms of air, which should be focused on *Marichi* (I). The word *Visvatomukhah* (face / mouth on all sides; 10/33) points towards the countless beings of biodiversity need the food for survival (II). Gita has focused on the existence of gastric fire (*Vaisvaanara agni*) in every being, that digests the food by the unification of *Praana* (Oxygen) and *Apaana* (Hydrogen) (15/14). The oxidation-reduction reactions of the cellular metabolic system (Padhy 2013b), that finally digests the end products of metabolism and releases the ATP, the biological energy currency for sustenance of life. Thus, oxygen is the life saving *Marichi* that enters into the body through respiration to digest the food for sustenance (I, II).

3. The Ecological Factors

The biodiversity has originated and evolved, based on the abiotic ecological factors known as *Panchamahaabhoota* (Padhy 2013b). In modern science the ecological factors such as climatic, edaphic and physiographic are modified presentation of the *Mahaabhootas*. Srikrishna has presented nine divine manifestations in symbolic form as representative of the *Mahaabhootas*: *Aakaasa* (Ether), *Vaayu* (Air), *Tejas* (Fire), *Aapa* (Water) and *Kshiti* (Earth).

- I. Of the *Adityas* I am *Vishnu* (*Aaditya-anaamaham Vishnur*; 10/21)

The word *Aaditya* comes from the name *Aditi*, the mother of *Devataas*. In Sanskrit the word *Vishnu* means-He, who is all pervading that refers to the *Aakaasa* (Ether), the first ecological factor among the *Mahaabhootas*.

- II. Among purifiers, I am the wind (*Pavanah Pavataamasmi*, 10/31)

The wind God *Marichi* was mentioned earlier as life breath (10/21). The wind is again presented for second time as an ecological factor

Vaayu, respected as a purifying agent of the nature.

- III. Among luminaries, I am the radiant Sun (*Raviramsumaan*; 10/21).
- IV. Among stars, I am the Moon (*Nakstraanaamaham Sasii*; 10/21).
- V. Among (the eight) *Vasus*, I am the God of fire (*Agni*) (*Vasuunaam Paavakascaasmi*; 10/23).

The third *Mahaabhoota* factor is *Tejas* (Fire) – the source of energy. Three sources of energy for the earth is presented; out of which two are celestial – Sun (III) and Moon (IV) and the third one is the existing energy- Fire (V).

The ocean greatest salt water body of the world, covers three fourth of the global surface and holds 97 percent of total water content on the earth (1389×10^6 square Km). The rest three percent is sweet water locked in the hydrological cycle (used for our daily use, Agriculture, stored in the ground and exist in cloud form or in streams and various water bodies). *Saagarah* (Ocean, VI) and *Ganga* (Sweet water source VII) two representatives of water resources are presented as the ecological factor *Aapa*, presented as follows:-

- VI. Among the waters, I am the Ocean (*Sarasaamasmi Saagarah*, 10/24).
- VII. Among streams, I am the Ganga (*Srotasaamasmi Jaahnavii*, 10/31).

The fifth ecological factor among *Mahaabhootas* is *Kshiti* (earth). The polar region (*Meru*) is the top most point of the globe and *Himalaya* (Mount Everest) is the highest peak on the earth. Two important points, one vertical and the other horizontal (*Meru* and *Himalaya*) are presented as the representative of the earth factor (VIII, IX).

- VIII. I am the *Meru* among the top most places (of the globe) (*Meruh sikharinaamaham*, 10/23).
- IX. Among the immovables, the Himalaya (*Sthaavaraanaam Himalayah*; 10/25).

More of the add here, each one of the above *Mahaabhoota* factor is now under pollution stress due to distorted environment of the earth (Padhy 2015b).

4. Expansion and Destruction of Biodiversity

Before entering into detailed discussion about expansion of biodiversity, it is essential to know the basic characters of living beings as

elaborated by Srikrishna vide *Sslokas* 10/4, 5 as follows:

“(1) *Buddhi* (intellect) (2) *Jnaanam* (wisdom), (3) *Asammohah* (non-illusion), (4) *Kshamaa* (forgiveness) (5) *Satyam* (truth) (6) *Damah* (self-restraint) (7) *Samah* (calmness) (8) *Sukham* (happiness) (9) *Dukham* (pain), (10) *Bhavah* (birth) (11) *Abhavah* (non-existence, death) (12) *Bhayam* (fear), (13) *Abhayam* (fearlessness) (14) *Ahimsa* (non-injury) (15) *Samataa* (equanimity) (16) *Tustin* (contentment) (17) *Tapah* (Austerity) (18) *Daanam* (Charity) (19) *Yasah* (fame) and (20) *Ayasah* (Obolquy)- these different qualities of beings (*Bhuta*) arise from me alone (10/4,5).”

The Sanskrit word *Bhuta* used in *Ssloka* 10/ 5, refers to living beings either plant or animal. The above referred twenty living characters, which are natural (divine originated) are not of the animals / human beings only, rather the plant world express such behaviour. *Manusmruti* (1/ 49) is the primary epic of the world, which has declared thousands of years ago that plants possess internal consciousness and experience pleasure and pain (Dash and Padhy 1997). Modern science has successfully researched over the mental behaviour of plants (Tompkins and Bird 1973). Even the minute possible organism, the bacterium is not free from aspects like intelligence, egoism, power of cognition and capacity for perception of subtle elements. The character variation among the beings is responsible for diversity in the biological world.

The characters presented by Srikrishna exists in different forms with different intensities in different organisms of the biodiversity; may be completely suppressed in one case or extraordinarily expressed in another organism, with diversified manifestations and evolution. The specialized and unique sense power in different animals such as: sound perception of Bats (*pterus sp*), special vision of Owl (*Athena brama*, *Bubo sp*) in night, distinct vision of Hawk (*Falco pergrinator*), testing capability of Ants (Termites-a specialized group of insects) and smell recognition of Dogs (*Canis familiaris*) are the few examples. The totality of the twenty characters in balanced form is only / or may be seen in man, the supreme being of creation. The human system too is not free from the variegation of sense perception and diversity of characters.

Similarly the plant system enriched with characters like non-violence, equanimity, charity, etc.; on the contrary a group of plants are identified

as carnivores. The touch sensitivity of Laju Lata (*Mimosa Pudica*) is special to focus here. A plant extends its shade, fruits and flowers to a person who injures it with equal equanimity to others, who protects it. The tolerance power of plants is highest compared to any other being (Padhy 1999), which should not be considered as non-sensitivity.

Two characters *Bhavah* (birth) and *Abhavah* (Death) are respectively associated with the beginning and terminal end of the life of any being, either plant or animal. The creation of the above twenty characters are finally attributed to the divinity, may be further evolution and diversity is biological following the principles of the nature.

In this context modern science has identified only six important characters such as (1) cellular organization (2) metabolism (3) growth, (4) movement (5) irritability and (6) reproduction to distinguish living from non-living in class room teaching. These characters are more physical and physiological. This shows the deep vision of ancient sages and seers compared to modern science. An important point to focus here that, mental characters are epicentric in any living system, based on which the physical and physiological characters are evolved and expressed.

In ecology, the growth and evolution of the biological world is considered as a product of interaction between the organism and the environmental factors. Life was created millions of years ago on this earth as the ancient epics suggest (Mohapatra et al 2001a) and passed through the process of evolution till the present existence. The ancient Indians have divided the biodiversity into two groups: *Achara* (Plant world) and *Chara* (Animal world). The *Achara* group (whole plant world) is represented by a single plant *Asvattha* (*Ficus religiosa*).

I. Among all trees, I am the *Ashattha* (*Asvatthah sarvavrksaanaam*, 10/26).

In fact the *Asvattha* plant is worshiped throughout India as a representative of *Bhagawan Vishnu*.

The biodiversity has equally flourished on the land and aquatic medium. To represent the aquatic biodiversity, Srikrishna has told:

II. I am *Varuna*, the Lord of aquatic creatures (*Varuno Yaadasaamaham*, 10/29).

Varuna stands as the mythological authority of water who provides protection and foster-

ing for the innumerable biodiversity of aquatic medium, either salt water or sweet water.

The animal diversity- *Chara* group, flourished on land is elaborated by expressing eleven animal representatives. In this context, before any discussion on Gita the vedic age animal classification forwarded in *Manusmruti* needs to be discussed (Dash and Padhy 1997). The ancient Indians have divided the animal world into three groups – *Swedaja*, *Andaja* and *Yarayuja*. *Swedaja* stands for the lower creatures which are born out of hot moist and filthy substratum mostly developed due to eutrophication. The non-chordates and microbial world of modern science are included in this group on whom Gita has discussed briefly in chapter thirteen (13/15) (Padhy 2014a). The *Andaja* group includes the fishes, reptiles and birds born out of eggs. About the fishes Gita says.

III. Among the fishes, I am the shark (*Jhasaanaam makarascaasmi*, 10/30).

The reptile group is represented by a non-poisonous snake (*Vaasuki*) and a poisonous snake King Cobra (IV, V).

IV. Among serpents I am *Vaasuki* (*Sarpaanaamasmi Vaasuki*, 10/28).

V. Among *Naagas* (King Cobra), I am the serpent-God *Ananta* (*Anantasaasmi naagaanaam*, 10/29).

The Eagle (*Garuda*) rightly represents the whole group of Aves (VI).

VI. Among birds, I am *Garuda* (*Vainateyasca Paksinaam*, 10/30).

As per *Manu's* classification the *Yaaryuja* group, born directly from womb are again divided into three-Herbivore animals, Carnivore animals and Human beings. The herbivores are further divided into domesticated and free living group based on ethnic utility. Gita has presented the cow and horse as domesticated animals, the former a source of nutritional milk and the later for carriage facility respectively (VII, VIII).

VII. I am the celestial cow *Kaamadhenu* (*Dhenuunaamasmi Kaamadhuk*, 10/28).

VIII. Know me to be the celestial horse *Uccaihsrava* (*Uccaih-svama-masvaanaam*, 10/28).

Among the free living herbivores, Srikrishna has choosed the Elephant and Lion among carnivores (IX, X).

IX. Among mighty elephants, I am *Airaavata* (Indra's chariot animal) (*Airaavatam gajendraanaam*, 10/27).

- X. Among quadrupeds (*Mrgaanaam*), I am the lion (*Mrgaanaam Ca Mrgendroham*, 10/30).

Human beings are biologically *Yarryuja*-born from womb. The King, leader of any human society is expected to be a powerful and noble man to provide protection to all concern-plants and animals (Dash and Padhy 1997). Gita says.

- XI. Among men, I am the king (*Naraanam ca Naraadhipam*, 10/27).

To focus the importance of the king, the leaders of different countries of the present world came forward to render protection for the biodiversity and save the ecological factors. This was the greatest ecological movement throughout the globe is systematically discussed by Padhy (2015b) in the previous paper of this series. Interestingly the various animal representatives presented by Srikrishna perfectly match the Vedic age animal classification forwarded in *Manusmruti* (Dash and Padhy 1997); thus an established recognition of the ancient science in Gita (Table 1).

For the proliferation of the biodiversity reproduction is essential. To progress the process of reproduction normally mating of male and female partners is a must. Sexual attraction between the male and female is responsible for copulation. Animals and plants adopt different measures to attract their sex partners. The inherent power of the biological world, to attract

the sex partner is known as *Kandarpa* in Sanskrit (XII).

- XII. I am the sexual desire which leads to procreation (*Prajanascaasmi Kandarpah*, 10/28).

Destruction is ever associated with creation (Death is certain for the born, 2/27). Earlier (Padhy 2013b) the birth and death are presented as an ecological cycle (9/19). In the thirteenth chapter it is advised to ponder over again and again on the pain and evils inherent in birth, death, old age and disease (13/8). All the way, any development has an end and that is natural. Birth and death are inherent biological character as discussed previously as *Bhavah* and *Abhavah* (10/4). In the tenth chapter Srikrishna bluntly speaks (XIII).

- XIII. I am the all-destroying death that snatches everything (*Mrtyuh Sarvaharacaaham*, 10/34).

5. Important Human Characters

Man is considered as the top most being of the biological world, because of the existence of *Mana*-the mind power to think good and bad. Other animals also express mental characters; but they are mostly behavioural than mental. Gita focuses:

- I. Among the organs of perception, I am the mind (*Indriyaanaam Manascaasmi*, 10/22).

Table 1: Classification of Animal Kingdom by Manu (Dash and Padhy 1997) with examples (Ex) of Gita

Animal Kingdom				
Yaraayuja (Born from womb)			Andaja (Born from egg-Terrestrial/Aquatic)	Swedaja (Born out of hot moisture and filthy substratum)
Herbivore (without fangs)	Carnivore (with fangs)	Human-beings (<i>Manushya</i>)	1. Fishes (<i>Matschya</i>) Ex. Shark (<i>Makara</i>)	Refer-Padhy 2014a
1. Domesticated (<i>Pasaba</i>) Ex. Cow, Horse, (<i>Kaamadhenu</i> , <i>Uccaihsrava</i>)	Ex. Lion (<i>Mrgandro</i>)	Ex. King (<i>Naraadhipam</i>)	2. Reptiles (<i>Sarpa</i>) Ex. Non-poisonous snake (<i>Vaasuki</i>) Poisonous snake (<i>Naga</i>)	
2. Free living (<i>Mriga</i>) Ex-Elephant (<i>Airaavata</i>)			3. Aves-birds Ex. Eagle (<i>Garuda</i>)	

In the seventh chapter of Gita mind is considered as of lower (material) nature (*Aparaa Prakruti*, 7/5). Joining of *Paraa* (life-principle, spiritual power) with mind makes it active and competent (Padhy 2013b). In addition to mind (I), the previously elaborated (10/4,5) twenty biological characters are also equally applicable to human beings. Further Srikrishna has forwarded ten more significant characters that are achieved by human beings to prove their importance in the ecosystem. Systematically they are:

- II. I am the glory of the glorious (*Tejastejasvinaamaham*, 10/36).
- III. I am the victory of the victorious (*Jayah asmi*, 10/36).
- IV. I am the resolve of the resolute (*Yyavasaayah asmi*, 10/36).
- V. I am the goodness of good (*Sattavam Sattavataamaham*, 10/36).
- VI. I am the subduing power in rulers (*Dando damayaataamasmi*, 10/38).
- VII. I am the righteousness in those who seek to conquer (*Nitirasmi Jigiisataam*, 10/38).
- VIII. Of things to be kept secret, I am the custodian in the shape of reticence (*Maunam caviaasmi guhyaanam*, 10/38).
- IX. I am the wisdom of the wise (*Jnaanam Jnaanavataamaham*, 10/38).

In addition to the above characters, Srikrishna has elaborated a group of seven specialized female characters such as.

- X. Among women, I am- Fame, Fortune, Speech, Memory, Intelligence, Constancy and Forbearance (*Kiirtih, Sriivaakca naariinaam smrtiredhaa dhrtih ksamaa*, 10/34).

This shows that the female sex is more prosperous than the male, needs an anthropological investigation. All the above presented human characters are neither natural nor biological; that are achieved by man with integrity. One has to show his efforts to conquer over these characters. Finally a negative character is also expressed that.

- XI. I am gambling among deceitful practices (*Dyuutam Chalayataamasmi*, 10/36).

Robbery, forgery, fixing undue price on things, passing imitation articles as genuine- are different kind of acts called fraudulent. Gambling also comes under this category. Gambling with dice was approved as legal during the *Ma-*

haabhaarata period (5000 years back). In an open assembly Pandavas and Kauravas gambled with dice in which they staked their empire and everything else including Droupadi (wife of Pandavas). The meaning of gambling is not only restricted within dice playing, card playing or putting money in horse race; rather it is an activity of unhealthy risk to acquire the property and power of others in a short time. The present day participation in elections is no less than gambling. *Vedas* have belittled gambling activity (Padhy 2015a) while Gita's view is different. In a greater consideration, the good and bad activities are achieved by human beings as per their choice. However the spirit behind every activity is the divine power.

6. Source of Knowledge for Human Society

Man has intelligence (*Budhi*), which is a part of lower nature *Aparaa* (Padhy 2013b). Joining of the intelligence with consciousness-*Para* factor tends towards perception of knowledge. The basis of knowledge is stepwise learning which directs towards the platform of wisdom. Srikrishna has explained that, he is the wisdom of the wise which is (10/38) discussed earlier. To enter into learning process it is necessary to learn first systematically the alphabetical series (I. I am 'A', the first letter of the alphabetical series-*Aksaraanaamakaaro'smi*, 10/33). Right combination of letters is responsible for the formation of words with meaning (II. I am the sacred syllable *Om-Giraamasyekamaksaram*, 10/25). *Om* in sanskrit is a word, which is pronounced with the combination of letters A+U+M, which represents the cosmic vibration. In grammar, formation of compound words due to abridgement is known as *Samaasa* (III. Of the different kinds of compounds in grammar, I am the copulative compound-*Dvandvah saamaasikasya ca*, 10/33). With the right focusing of compound words, *vedic* hymns are composed. In four *Vedas*-20379 hymns (*mantra*) are presented, out of which *Gaayatrii* hymn is considered as the top most (IV. I am the hymn known as *Gaayatrii-Gaayatrii chandasaamaham*, 10/35). Among the *Vedas*- *Saamaveda* is the principal source of metaphysical knowledge (V. Among the *Vedas*, I am the *Saamaveda- Vedaanaam Saamavedo'smi*, 10/22). *Saamaveda* is recited with devotion, specific rhythm and concentration with musical measure (VI. Among the *Vedas* that can be sung, I am the variety known as

Brhatsaama-*Brhatsaama tathaa saamnaam*, 10/35). Thought of God comes to all who chant or hear the hymns of *Saamaveda*. These are verily the glory of God. Further, for independent attainment of true metaphysical knowledge, discussion of different scriptures and *saamaveda* is essential which is known as *vaadah* (VII. I am the right type of reasoning-*vaadah prava-dataamaham*, 10/32). Along with spiritual knowledge, reasoning is most useful for enquiry into the real and non-real. Muttering (*Jape*) of the divine glory through vedic hymns like *Gaayatrii*, *Mahaamrutunjaya* or monosyllable 'Om' enhances the mental concentration that elevates the spiritual consciousness. Srikrishna says – (VIII) I am the offering of *Japa* (*Giraamasmyekamaksaram*, 10/25). Offering or sacrifice is known as *Yajnya* (Padhy 2013d) and *Japa* is projected here as the highest one. Any sacrifice

without attachment makes one free from worldly fastenings and directs towards the realization of the self. The science of the self or soul is known as metaphysics (IX. Of the sciences, I am the science of the self – *Adhyaatma vidya vidyaanaam*, 10/32).

The knowledge of the world is okay for the performance of worldly duties. But to attain salvation, spiritual knowledge is the only hope and dependent source. The learning of man should be pointed towards divinity amongst the worldly duties (Fig. 1).

7. The Capitalized Source of Knowledge

Knowledge is open for all. But, few only acquire it and make its practical implementation. Among the later group further very few realize the importance of knowledge and utilize it self-

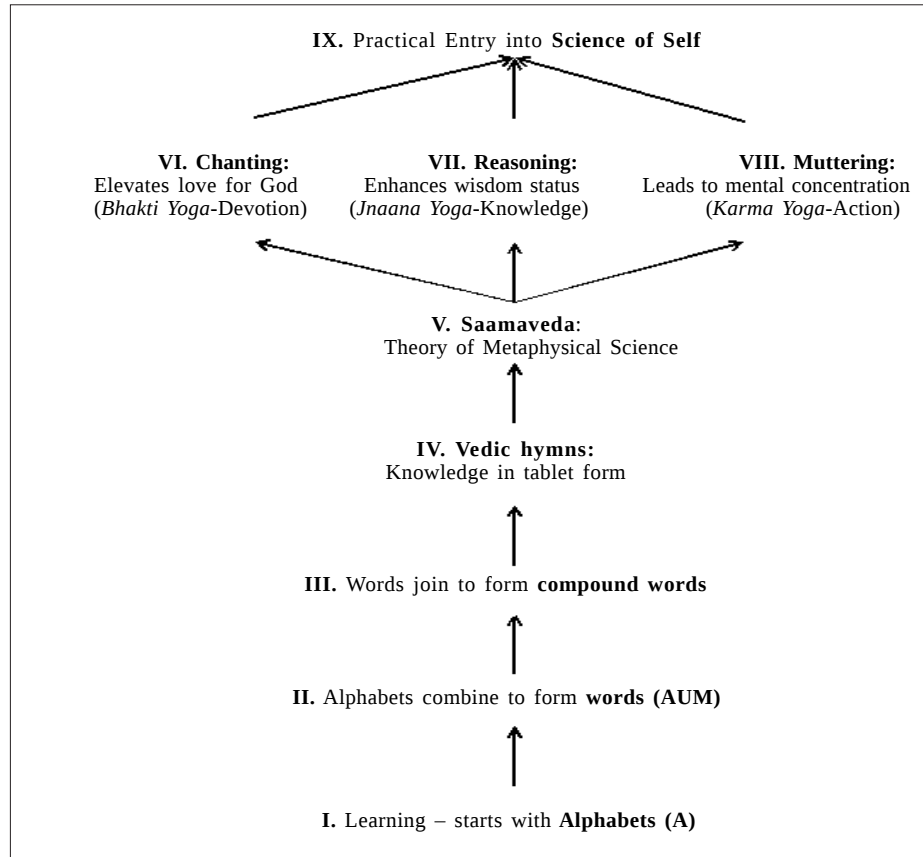


Fig. 1. The ascending source of wisdom in Gita through interdependence of knowledge, devotion and action

lessly for the benefit of humanity. In the seventh chapter of Gita Srikrishna said that (Padhy 2013b).

“Among thousands of men scarcely one strives for perfection, and of those who strive and succeed, scarcely one knows Me (divinity) in reality (7/3)”.

This indicates that persons with capitalized source of knowledge are rare. Gita has focused eight such personalities those who have acquired knowledge and devoted their wisdom for the human society (Table 2). They are exemplary characters as follows:

I. Among the great seers, I am Bhrgu- *Maharsiinaam bhrguraham*, 10/25.

Bhrgu was a great saint who was ever in the highest super conscious plane. He is taken as a symbol of renunciation.

II. Among the *Siddhas*, I am the sage Kapila- *Siddhaanam Kapilo munih*, 10/26.

They are called *Siddhas* who are endowed from birth onwards with righteousness, wisdom, dispassion and over lordship. Sage Kapilo is one endowed with these virtues. He is the author of *Samkhya* system of philosophy which is the theory part of Yaga (Padhy 2006). Srikrishna has elaborated the *Samkhya* philosophy in the second chapter of Gita. The importance of Yoga in the life of a common man is well realized in India, since the time immemorial.

III. Among the *Daityas*, I am the great devotee Prahlaada-*Prahlaadascaasmi daityaanaam*, 10/30

The *Daityas* (demon, monster) were the sworn enemies of the *Devataas*. Prahalaada was the son of demon king Hiranyakasipu; the later was strongly against *Bhagawaan* Vishnu. From childhood onwards Prahlaada showed extreme devotion for Lord Vishnu. This activity was a counter act of his father. Prahalaada was punished severely by his father for his devotion.

His tolerance made him a model of the *Bhaktas* (devoted), who proved self as a great one born in a low cultured *Daitya* family.

IV. I am the sage Sukraacaarya among the wise- *Kaviinaamusanaa Kavih*, 10/37.

Usana is the other name of Sukraacaarya who was a great poet (*Kavi*). He had the power to bring the dead to life with the implementation of *Mrutasanjivani* mantra, which was his self composed (Padhy 2008).

V. Of the wielders of weapon, I am Rama- *Raamah sastrabhraamaham*, 10/31.

Weapon is a power generally used against bad. Sometimes weapon is also applied against good. Rama's weapon was the deadliest in those days; but he never abused it. Whenever he put his weapon to action, good only came out of it. Rama has a lesson to teach to rulers of the world to make the good use of weapons, but not for attacking others. Rama was an incarnation of God and Krishna identifies himself with the former.

VI. Of the sages I am Vyasa- *Muniinaamapyaham Vyaasah*, 10/37.

Vyasa is the composer of epic *Mahaabharata* in which Gita is included. He was a great sage (*Muni*) who had realized the divinity and is respected as the teacher of the world (*Jagatguru*). His birthday is celebrated as *Gurupurnima* (universal teacher's day) comes in the month of 'Aasadha', the full moon day. Vyasa was also composer of other eighteen *Puraanas*.

VII. Of the Pandavas I am Dhananjaya-*Paandavaanaam dhananjayah*, 10/37.

The other name of Arjuna is Dhananjayah. The later name is focused on him as the hoarded up treasurers of several kings and utilized that for the betterment of common man. Arjuna is otherwise known as *Dwitikrishna*- the second Krishna. This proves that knowledge of Gita is delivered by Krishna and also received by Krish-

Table 2: The gist of capitalized source of knowledge in Gita

Personality of capitalized knowledge	Exemplary characters to follow
I. Bhrgu	1. Austerity, renunciation
II. Kapila	2. Deep penetration into philosophy
III. Prahalaada	3. Devotion up to Supreme State
IV. Sukraachaarya	4. Poet, Composer
V. Rama	5. Right use of weapon against injustice
VI. Vyaasa	6. Enriched source of knowledge
VII. Dhananjaya	7. Earning richness for self and community
VIII. Krishna	8. Respect for self clan and heritage

na. This teaches the philosophy that there is no separate individuality of any one apart from the Lord, a theme of human ecological significance.

VIII. Of the *Vrishnis* I am *Vasudeva-Vrsni-naam Vasudevo's*, 10/37.

Srikrishna has presented himself in a very simple form, that he is the son of Vasudeva of clan *Vrishni*. So he is called *Vasudeva*. This shows his greatness of presenting himself as a common man with due respect for his parents. Being the master of the universe and revealer of Gita knowledge for the common man his simplicity is greatness.

8. Specialized Powers of the Environment

The different ecological factors of the environment are worshiped as *Devataa* since the vedic period. Gita says that the *Devataas* of nature and its inhabitants should live together with reciprocity (Padhy 2013c). Other than the ecological factors some more number of factors are presented in the tenth chapter of Gita as divine manifestations. These factors are essential for the smooth running of the environment and life of the beings. They are as follows:-

I. I am *Vasava* among the *Devataas-Devaan-aamasmi vasavah*, 10/22.

Vasava is the other name of *Indra* - the God of rains. The hydrological cycle of the nature involves evaporation, transpiration, cloud formation and precipitation, which involves the co-ordination of different ecological factors. This coordination power is *Indra* who is regarded as the king of the *Devataas*.

II. Of weapons I am the *Vajra-Aayudhaan-aamaham Vajram*, 10/28.

Vajra or the thunder bolt is the weapon of *Indra*. This is the energy of the nature generated due to collision between the masses of cloud that finally causes the rain. So *Indra* and his weapon *Vajra*, both are essential for the maintenance of Biodiversity through water cycle on the earth. Hydrological cycle is a continuous process in nature but raining as per necessity is ever considered as a blessing of divinity.

III. Of the *Yakshas* and *Rakshasas* I am *Kubera-Vitteso Yaksaraksasaam*, 10/23.

Kubera is regarded as the king of *Yakshas* and *Rakshasas* belong to the celestials. The former of these two groups are very fond of acquiring wealth and latter of hoarding it. So *Kubera* is the lord of fabulous wealth. Among human beings who saves huge money becomes a *Kubera* in his own way. *Kubera* represents the

conservation philosophy of nature. In *Puranic* epics *Kubera* is honoured as the store keeper of the celestial world (*Swarga*). Without conservation sustenance is not possible. Conservation for self and future generation is regarded as divine power.

IV. Among the manes, I am *Aryamaa-Pitr-rnaamaryamaa caasmi*, 10/29.

Aryamaa is the head of the *Pitrus* live in the *Pitruloka* (manes habitation). As per Hindu philosophy, after the death of a being his *Aatman* enters into *Pitruloka* till the next birth. So *Pitruloka* is regarded as the habitation of our ancestors. Offering of sacrifice for ancestors is known as *Pitru Yajnya*. The aim of *Pitru Yajnya* is to express our obligation to our ancestors those who have brought up us upto the existing standard, genetically and socially. Normally the human society should follow the standards set up by their elders, ancestors and great men who are regarded as *Pitru* (Padhy 2013d). So the standards set up by ancestors is a guidance strength of the society.

According to Hindu concept the *Pitru Loka* nourishes the world by controlling food production and proliferation of biodiversity. In a broader sense scientifically the *Soorya mandala* (Solar system), which controls the above activities in the world, is considered as *Pitru loka*. Moreover, unique comparison with the flow of solar energy from sun is unidirectional and as well we can not return back our inherited genetic traits to our parents justify the solar system as *Pitruloka* (Padhy 2008b).

V. Among the priests, know me to be their chief, *Brhaspati-Purodhasaam ca mukhyam maam viddhi paartha brhaspatim*, 10/24.

Brhaspati is regarded as the priest and *Guru* of the *Devataas*. He is a source of wisdom blessing and guidance. The *Guru* is given the highest status in Hindu philosophy, equalized with three divine powers *Brahma*, *Vishnu* and *Mahaswara*. No learning is properly possible without the guidance of *Guru*. Respect for the *Guru*, who has opened the eyes of wisdom comes under the *Rrushi Yajnya*, among the five sacrifices with the scientific philosophy of ecological responsibility (Padhy 2013d). *Guru* is the power of learning, education and proper guidance of the society.

VI. Of controllers I am *Yama-Yamah samya-mataamaham*, 10/29.

The practice of self-control is called *Yama* in the science of yoga (Padhy 2011). No work can be done by any being without self control. The

lord of death is also called *yama*, who never deviate an iota in his deal of justice. He is regarded as the best among the controllers as per Gita (10/29). In Sanskrit, the word *Sanyam* is derived from *yama* which means control over passions, a super positive character of any being. *Sauyama* is an essential factor for best performance of any work either physical, mental or spiritual.

VII. Of the Rudras I am Sankara- *Rudraanaam sankarascaasmi*, 10/23.

The name Rudra or Sankara is implemented to *Bhagawaan* Siva. He is the symbol of austerity. Without concentration of mind and austerity no work of the nature can be accomplished. From bacteria to whale in animal world and every member of plant diversity perform austerity to complete their duty in the nature. The nations with austerity in their duty are at the top in the world scenario. Yoga enhances the power of austerity through the concentration of mind. Austerity is a great environmental factor that only helps for creative performance in any field (Padhy 2006).

VIII. Of the celestial stages I am Narada-*Devarsiinaam Ca naaradah*, 10/26.

Narada is presented as the master of communication in *Puranic* epics. He usually carries message from one person to other. Most of the times in *Puranic* epics, Narada's communication resulted quarrels, but everything ended with blessings in disguise. Narada is to be regarded as the communication skill of the biodiversity

either plants, animals or human beings. Communication is a great ecological factor to establish mutual understanding and community activity.

IX. Of Generals I am Skanda- *Sanaaniinaa-maham Skandah*, 10/24.

Skanda is the other name of Kartikaya who has a mythological personality with sex heads and twelve hands. This indicates his higher mental power and working efficiency. His vehiculum pickcock is the symbol of spread action. Being the son of Siva and Paarvati, he is the warrior chief of gods. Different activities of the nature (*Devataas*) are accomplished with a war foot approach. Skanda is the coordination power for proper utilization of the natural factors in time. Human leadership is regarded as essential factor to save the ecology (Padhy 2015a).

X. Of the *Gandharvas* I am Chitraratha- *Gandharvaanaam Citrarathah*, 10/26.

The *Gandharvas* are celestials with good and useful traits. They are expert physicians and musicians. Music, drama and art are honoured as *Gandharva Kala*. In the busy life style of human being, some amount of entertainment is essential that works as an additional ecological factor. Music and dance has therapeutic value. Modern science has proved the response of plants and animals to music (Tompkins and Bird 1973). Chitraratha is the supreme among the *Gandharvas*. Srikrishna's playing of flute, play up with *gopis* and dancing with them in the *Rasaleela* proves his great fascination for *Gandharva Kala* (Fig. 2).

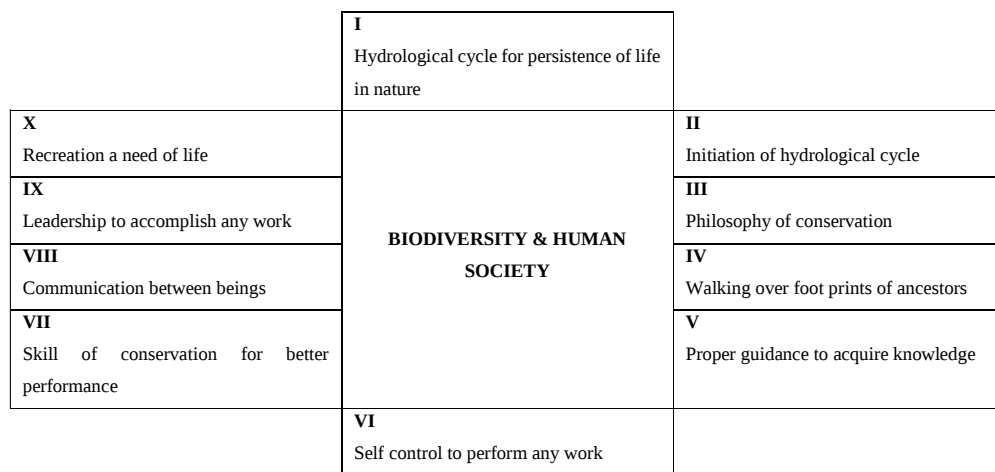


Fig. 2. Additional factors essential for the betterment of life

9. The Great Time Factor

The time is the greatest factor of this universe that encapsulates everything-creation, maintenance and dissolution. Srikrishna's version in tenth chapter: I. I am verily the inexhaustible time-*Ahamevaaksayah Kaalo*, 10/33 is thought provoking. In the eleventh chapter of Gita it is narrated that, after witnessing the supreme, effulgent, primal and infinite cosmic body of Srikrishna, Arjuna asked him (11/31)- "Tell me who you are with a form so terrible?" The answer was-*Kaalo'smi*: I am inflamed *Kaala*, the eternal time-spirit, is a conformation of the doctrine. No one knows when the time started and when it will end. Time is not limited between beginning and end, it is a continuous flow being beginning less and endless (*Mahakaala*). Time is ever with the creation (II. I am the beginning and the middle and end of all creations (Oh Arjuna)-

Sargaanaadirantasca madhyam caivaahamarjuna, 10/32). To understand and measure the time, man has introduced the counting of second, minute, hour, day, week, month and year. Ancient Indians were conscious upto 31104×10^{10} years- a full span of one creation period and the shortest time known to them was a *Nimisha* (0.178 second, Mohapatra et al 2001b). Srikrishna says (III) Among reckoners, I am time- *Kaalah Kalayataamaham*, 10/30. In Gita two pleasant periods of the year are mentioned as representative of time rekons, that is one month and other season. (IV. of months I am Margasirsha and V. of seasons I am the flowering spring-*Maasaanaam maargasirrso*, *hamrtuunaam*, *kusumaakarah* (10/35). With the flow of time the environment changes in every moment. There is a local saying: *Chayana chayana cu Pruthivi aana*- The world changes in every moment. Change is the

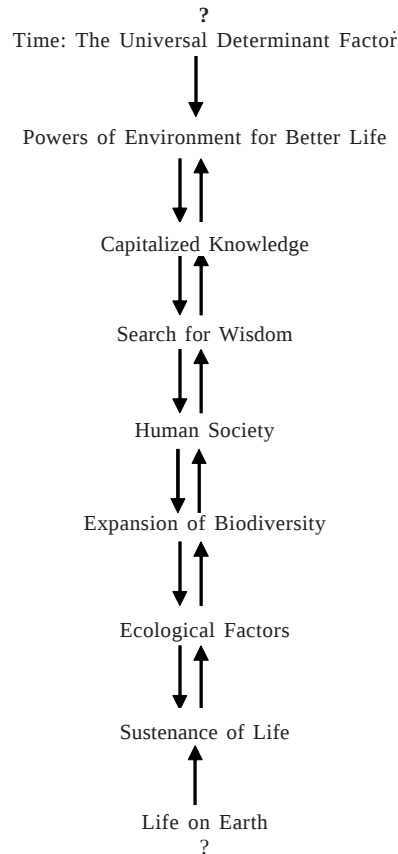


Fig. 3. Ascending interacting sequence of proliferation of the biodiversity and human society

basic theme of the creation and it must be accepted by every being that lives in the nature.

As per the above discussions, in the tenth chapter of Gita very scientifically Srikrishna has presented the chronological expansion of the creation, starting from the beginning of life till the proliferation of human society (Figure-3). The manifestations represent mythically different factors, which needs proper analysis. Systematically every activity of the nature changes scientifically according to the tune of time, following the rules and regulations of the divinity (natural laws). No deviation of the nature is acceptable, what ever it may be, and however strong it may be and created (man made) by who ever he may be.

The forthcoming communication in this series will appear with the theme- 'Diversity of Human Characters as revealed by Srikrishna (Pattnaik and Padhy 2016).

REFERENCES

- Dash SK, Padhy SN 1997. Ethnobiological studies from *Manusmruti*-III. The pioneer attempt for biological classification. *J Hum Ecol*, 8(4): 269-274.
- Mohapatra RP, Dash SK, Padhy SN 2001a. Ethnobiological studies from *Manusmruti*-XI. The concept of creation (*Srushti*). *J Hum Ecol*, 12(6): 429-432.
- Mohapatra RP, Dash SK, Padhy SN 2001b. Ethnobiological studies from *Manusmruti*-XIII. Environmental factors and views on origin of life as perceived then and now. *J Hum Ecol*, 12(6): 441-448.
- Padhy SN 1999. *Ahimsa*-should equally be extended to plants. *Gandhi Marg*, 21(3): 368-371.
- Padhy SN 2006. Ethnobiological analysis from myth to science, V: Thought vibration-A human environmental factor. *J Hum Ecol*, 20(2): 139-145.
- Padhy SN 2008a. *Baidika Tathyara Baigyanika Bisle-san*. Bhubaneswar: The Odisha State Bureau of Text Book Preparation and Production.
- Padhy SN 2008b. Ethnobiological analysis from myth to science, IX: *Pancha Yajnya* (Five Sacrifices), the composite principle for applied human ecological environment. *J Hum Ecol*, 23(2): 151-158.
- Padhy SN 2011. Ethno-biological analysis from myth and science, XIII: *Pancha Yajnya* (Five Sacrifices), Rationalization through Yoga. *J Hum Ecol*, 36(3): 167-172.
- Padhy SN 2013a. Ethno-ecological introspection into *Bhagawatgeeta*.1. The Cosmic Ecology. *J Hum Ecol*, 42(3): 223-231.
- Padhy SN 2013b. Ethno-ecological introspection into *Bhagawatgeeta*.2. Principles and components of the ecosystem. *J Hum Ecol*, 42(3): 203-209.
- Padhy SN 2013c. Ethno-ecological introspection into *Bhagawatgeeta*. 4: Ecological responsibility of human beings. *J Biodiversity*, 4(2): 79-82.
- Padhy SN 2013d. *Pancha Yajnya* (Five Sacrifices): The scientific philosophy of human ecological responsibility since the Vedic Age: A review. *J Biodiversity*, 4(1): 25-44.
- Padhy SN 2014a. Ethno-ecological introspection into *Bhagawatgeeta*. 3: Conservation and ramification of biodiversity. *J Hum Ecol*, 45(1): 41-48.
- Padhy SN 2014b. Ethno-ecological introspection into *Bhagawatgeeta*. 5. *Guna* (Quality): The metaphysical factor of nature, responsible for diversity. *J Hum Ecol*, 45(3): 177-182.
- Padhy SN 2015a. *Baidika Tathyara Baigyanika Bisle-san* -IV. Bhubaneswar: The Odisha State Bureau of Text Book Preparation and Production.
- Padhy SN 2015b. An ethno-ecological introspection of the Bhagavad Gita: 6. The present distorted environment compared to five thousand years ago. *J Hum Ecol*, 51(3): 227-240.
- Pattnaik SK, Padhy SN 2016. An ethno-ecological introspection of the Bhagavad Gita: 8. Diversity of human characters as revealed by Srikrishna. *J Biodiversity* (Communicated).
- Tompkins P, Bird C 1973. *The Secret Life of Plants*. Delhi: Harar Collins Publishers India.

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