

Ethnobiological Analysis from Myth to Science VII: Human Endeavour for Conservation of Biodiversity at the Juncture of Dissolution, as Reflected in Religious Epics of East and West

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ABSTRACT Mythical facts narrated in Indian epic *Srimad Bhagawata* and Bible convey a co-ordinated message, that at some time the earth faced dissolution with heavy rain and flood, and men was alerted by the divinity (nature) to protect the biosphere as a prime moral obligation. The myth(s) opens a vista to realise that, it should be ever a human responsibility to take care of the biodiversity, ancient days or modern time, east or west. Human commitment in this regard is above any religion; but later the facts have pervaded into religious scriptures. In modern science, religion is poorly realised of any significance for protection of environment; but a time has arrived to lay emphasis on this later issue with deep introspection.

INTRODUCTION

During the last hundred years, interest in mythology has grown to a substantial extent and has raised the realisations that myths are not childish stories or pre-scientific explanations rather they have serious insights into reality and are prevalent in all societies of the present and past of east and west (Cavendish, 1980). In the last decade attempts have been made to establish scientifically certain mythical facts from Hindu culture reflected in the Sanskrit compendium *Manusmruti* (Buhler, 1886) and other *Puranic* literature (Dash, 1998; Mohapatra, 2003; Padhy et al., 1999, 2001a; Panigrahy et al., 2002a, 2002a). The present paper explores the parallel mythical facts pertained to earlier attempts made by men to conserve the biodiversity during the time of dissolution as reflected in Indian epic *Srimad Bhagawata* (Goswami, 1971) and in Bible (Anonymous, 1973). Such great men who were committed to protect the creation, known as Manu *Vaivassvata* in the east and Noah in the west, an introduction to these two great personalities is inevitable.

MANU, THE SAGE SCIENTIST OF ANCIENT INDIA

In Indian scenario, the Vedic knowledge is the ancient indigenous institute, which has guided the society in right prospective from every angle through *Smruties*, the ethical law books

formulated by sages and seers from time to time. *Manusmruti* is considered as the prime and biggest one among the more than fifty *Smruties* written in Sanskrit. It is considered as a monumental work of encyclopaedic status, reflected as the highest doctrine for formulation of human ethics. The author (reveller) of the compendium *Maharshi* Manu a king, a man of wisdom and great elite of Vedas is often equalised with mythological personalities, as gods. The synchronised relationship between the words Manu – *Manushya* (Sanskrit), *Menus* (Greek) and Man (English) shows that the personified Manu of India represents the human race of the world.

Manusmruti is an open volume of human life, deals with aspects from birth to transmigration. In addition to its glory as an epic of social science and jurisprudence; analysed from ethno-biological point of view is resourced with many scientific concepts on creation, dissolution, geological time scale, ecological factors, origin of life and eugenics which are equalised at par with facts of modern science. *Manusmruti* is the pioneer to introduce the Binomial nomenclature system based on phylogenetic principles with social and ecological implications. Moreover, Manu's division of plant Kingdom as flowerless and flowering similar to modern Botany and classification of the animals on a specific basis i.e. birth (*Janmani*) elevates the seer's status as the father of Biological classification. Similarly, the various ecological facts retrieved from the

epic such as identification of an ecological indicator to ascertain a conducive environment, concept of food-chain and ecological niche, raising voice against pollution and contamination with various maxims on solubrity and ethics for conservation of biodiversity with a many fold approach from ethical, social, sympathetic, administrative, dietic and religious point of view, with the basic theme non-violence to subhuman beings and vegetation, confers the seer scientist as an apostle of ecological knowledge (Padhy, 1998, 1999, 2000, 2001; Padhy and Dash 2000; Padhy *et al.*, 1997, 1997a, 1998, 1999, 2001; Dash, 1998, Dash and Padhy, 1997, 1997a, 1998, 1998a, 1998b, 1998c, 1998d; Mohapatra (2003), Mohapatra *et al.*, 2001, 2001a, 2001b, 2001c, 2001d).

As per *Manusmruti* the present creation have started 1972949103 years back. Uptil now seven Manu(s) have reigned this world namely 1. *Svayambhu*, 2. *Svarachisa*, 3. *Auttama*, 4. *Taamasa*, 5. *Raivata*, 6. *Chaakshusha* and 7. the present ruler *Vaivassvata*. The ruling period of each Manu is named as *Manvantara*, a time period of 30672×10^4 earthly years. This period is too long compared to the short life span of a human being, may not be attributed to the title Manu, as a person, a sage, a ruler or any mythological personality. Rather, an introspective analysis of the names of the seven Manu(s) chronologically put forth the cosmic, geological and biological evolution, that occurred in the respective creation period (Mohapatra *et al.*, 2001c,d). Moreover, the latest Manu *Vaivassvata*, the present ruler of the creation, was formerly named as Satyabrata, a king in his earlier life is depicted as the rescuer of the biodiversity during dissolution, in the epic *Bhagawata*. The mythological event and the circumstances under which Satyabrata worked to sustain the biological creation is as follows.

Bhagawata: Satyabrata (Manu) Rescued the Biodiversity

India has spectrum of ancient compendium and epics scribed in Sanskrit language, can be broadly classified into two categories such as: Vedas and other Vedic age literatures. Vedas are universal, applicable to all people, all places, in all times and available above the discrimination of religion and sex. The other Vedic age literature has six sections Viz. *Upaveda*, *Vedaanga*,

Upaanga, *Smruti*, *Tantra* and *Puraana*, out of which the later one depicts the ethical and spiritual truths in popular descriptions, may be in mythical form, story or biography; mostly aimed to spread the religious thoughts among the common men.

As the story goes, Satyabrata (means Truth Seeker) was a royal sage, who ruled over the Dravidian territory (of South India) was true to his name in character, practising austerities subsisting on water alone. One day the sage king while performing *Tarpan* (Offering water to *manes*) on the bank of river Krtamala (in South India), a small fish appeared in the water held his hollow of the palms. The sage proceeded to drop the fish along with the water, at that moment the fish most pitifully uttered to the highly compassionate monarch not to throw it, as it was helpless and afraid of other aquatic creatures to be being killed, sought protection. The merciful sage king put it in the water of his *Kamandalu* (a water pot with a beak, made of wood, shell of coconut or brass) and took it to his hermitage. In the course of a single night the fish grew to a bigger size, being discomfort inside the *Kamandalu*, requested to provide it sufficient space.

The fish was transferred to a pitcher, even where it grew to the size of three cubits in less than one hour and again requested for extensive accommodation. Being removed from the water container it was abode into a bigger pond where instantly it grew to be a monstrous fish and covered the whole water body, felt discomfort (to move). The king transferred the fish by turns to a number of lakes of in-exhaustible water, each succeeding one being larger than the previous one; but could not accommodate the giant fish and finally it was left in the ocean. The fish cried (even) "O valiant monarch ! please do not leave me hear, the aquatic creatures in this ocean may eat me".

Such a big fish, yet fearful of predators! The king presumed the supernatural power of the fish who has grown to the form of a gigantic size like a whale, realised it as immortal *Bhagawan Narayana* Himself, the cosmic factor controlling the creation, maintenance and destruction; prayed Him to reveal out the purpose for which the form of a great fish has been assumed by Thee.

In reply to the King's prayer, the glorious Lord revealed Thyself and said: "*On the Seventh following this day the three regions of the world*

viz. (1) *Bhuloka* (the terrestrial region) (2) *Bhuvaloka* (the aerial region), and (3) *Swaloka* (Heaven: the metaphysical / cosmic region) will be submerged in the rising ocean as a means of dissolution (of the universe). Meanwhile, you collect all the herbs, annual plants as well as the seeds of all types along with all varieties of animals. At the time of submergence of the world(s) in the deluge water, a mysterious and specious ship, sent by me, will approach you. Taking with you all the plant seeds, herbs and animal propagates in indiscernible form (*Sattva*: Spirit, entity, vital breath, life, foetus, rudiment of a life, a substantive - Williams, 1963) along with the seven *Prajapiaties* (procreators: saints responsible to propagate the biodiversity) you board into that commodious vessel and sail about undaunted in that undivided expense of water devoid of light" (*Bhagawata*, 8th Part, XXIV discourse, 32-38 Verse).

After the instructions God disappeared and Satyabrata got ready as advised and waited for

the time to come.

In the right time due to heavy and continuous rain the ocean raised high overflowing its limits and inundating the earth on all sides. A golden coloured vessel arrived as per previous instructions, to which the king boarded taking the plant and animal propagates along with the seven Sages. Being advised by the sages, the King meditated on Lord *Vishnu*, who again appeared in the form of that effulgent whale possessed of a horn. The divine sent vessel was fastened to the horn of the whale by the serpent named *Vaasuki*, which acted as the rope (Fig. 1).

The vessel safely sailed during the time of the great calamity with the company of the divine fish. Satyabrata during this time interacted with Lord *Vishnu* (the fish) and got endued with spiritual knowledge and wisdom of self realization graced by the lord. He was figured by God as *Manu Vaivassvata* the ruler of the next creation (Period), re-established by the great seven sages, referred earlier.



Fig. 1. Satyabrata with the seven sages boarded on the vessel fastened to the horn of the fish (Picture by Gita Press, Gorakhpur, India)

Bible: The Noah's Ark

In the old testament of Bible it is narrated that when men began to increase in number (over populated) and wickedness entered into their character, all the people on earth had corrupted their ways, earth was filled with violence due to human activity, God (Nature) wanted to wipe-out mankind along with animals and other creatures. During that time there was a righteous man, blameless among the people, named Noah, who was in co-ordination with the eternal spirit. Noah was the 10th generation of Adam, the later the first human being appeared on the earth as the Bible claims. The succession of off springs from Adam to Noah were: Adam (life span 930 years) → Seth (912) → Enosh (905) → Kenan (910) → Mahalalel (895) → Jared (962) → Enoch (365) → Methuselah (969) → Lamech (595) → Noah (950).

Once God appeared before Noah and told that, after seven days there will be heavy rain for forty days and nights, which would bring the flood water that would destroy all living beings (Biodiversity). He advised to build up an ark of cypress wood, of the size 450 feet long, 75 feet wide and 45 feet high with openings for light (and aeration) along with lower, middle and upper decks and covered with roof. Further He expected Noah to collect a pair of each living creatures, male and female and conserve them inside the ark with facilities for their food during flood time.

Noah was running six hundredth year of his age when the flood waters came on the earth. He, his sons Shem, Ham and Japheth, his wife and daughter in-laws with the conserved biodiversity consisting of wild animals, livestock, birds and pairs of all creatures that had breath in them (may be the whole animal diversity ?) entered the ark before the rains commenced. As has been foretold, there was continuous rain for forty long days which submerged the earth's surface and covered the high mountains to a depth of more than twenty feet; but, the ark floated safely on the surface of water. Meanwhile, all the creatures on the earth along with mankind were wiped out, except Noah and those with him in the Ark.

The waters inundated the earth for a hundred and fifty days and slowly receded. The ark came to rest on the mountains of Ararat. The water continued to recede for more two months and slowly the tops of the mountains became visible. More after forty days Noah opened the window

of the ark and sent out a raven. It kept flying back and forth until the water had dried up from the earth. Then he sent out a dove to test the water level on the surface of the ground. The dove could not find place to set its feet and returned to the ark. After seven days again he sent out the dove which returned in the evening with freshly picked olive leaves in its beak. Noah conformed that water had receded from the earth. Again after seven days he sent out the dove for the third time, but this time it did not return to him. Finally, after more than one year from the day of first occurrence of the rain, the earth was completely dry and Noah came out of the ark along with his family and other animals by the order of God.

God said: *"Bring out every kind of living creature that is with you – the birds, the animals, all the creatures that move along the ground – so they can multiply on the earth and be beautiful and increase in number upon it."* (Holy Bible - Genesis, 8:17)

DISCUSSION

The whole rescue process of the biodiversity during the time of dissolution (*Pralaya*) was according to divine wish as narrated in both the epics, *Bhagawata* and Bible. For Satyabrata, God appeared as a giant fish with the unusual growing capacity, which proves His extraordinary nature. Rather, the supernatural growth of the fish and non-accommodation in any water body symbolises the over growth and over population of biodiversity, lost its homoeostasis and unable to adjust with the habitat. Under such circumstances the nature develops its self destruction technique, a negatively positive norm of creation. The king recognised the divine power with the fish, the later also saved the dwindling ship from the waves of the flood. For Noah as Bible says, "he walked with God", a sense of direct communication. Noah and his family might have struggled hard to protect the animals and save the ship from the flood waters for a long time of one year. In both the instances, if the metaphysical factor 'God' is looked in obscurity, the intension of Satyabrata and Noah was a clear expression of their attitude for the conservation of biodiversity at the time of dissolution. This shows that, it is ever a human responsibility to take care of the nature, either in ancient days or

modern time. A pursuit from Vedic ecological thought says: “*The whole universe together with its creatures belong to the Lord (Nature). No creature is superior to any other and the human being should not have absolute power over nature. Let no species encroach upon the rights and privileges of other species. However one can enjoy the bounties of nature by giving up greed.*” (*Ishaupanished*, Verse-1).

Obviously, all narrations in every religion recognise the metaphysical involvement of supernatural powers in different events to protect the mankind. Scientifically both the personals might have had some extraordinary intuition to forecast the future occurrence of the great flood, or had some meteorological knowledge to visualise the forthcoming climatic change.

Manu (Satyabrata) can be considered as an ageless personality, with his ruling period on the earth for one *Manvantara* i.e. 30672×10^4 years, a humanly impossible time period to survive. The name Manu is referred in Veda, *Upaanished* and different *Puraanas* and moreover Manu is highlighted in western world as the revealers of the world's Prime ethical law book *Manusmruti*. In the opinion of great Indologist Sir William Jones, may be the Adam of Jews, Christians and Muslims is no other than the Manu of India. Noah is the tenth generation of Adam, took his birth after 1056 years the later appeared on this earth. Noah had his first son when he was 500 years old, lost his father Lamech when he was 595 years old and lost his grand father Methuselah on the same year of his age i.e. 600 years, when flood waters came on earth. All the forefathers of Noah lived long, most of them more than 900 years. But, before the dissolution appeared God said: “*My spirit will not contend with man for ever, for he is mortal; his days will be a hundred and twenty years*” (Holy Bible - Genesis, 6:3).

In conformity to the above statement according to Indian astrology human life span is considered to be 120 years, the total period during which the nine planets pass through one's life experience (Padhy, *et al.*, 2005). But however, the sudden cut short of human life span (by God – Nature) from 900 years to 120, creates a big scientific gap; and certainly a long jump for human race to cover up this space from Anthropological point of view. On the contrary, the Vedic age calculation of human age have descended systematically through the *Yugas* (a

time period of Hindu calculation) of *Kreta* (total 1728, 000 years), *Treta* (1296,000), *Dwapara* (864000) and *Kali* (432000) is as follows: “*(Men are) free from disease, accomplish all their aims, and live four hundred years in the Kreta Yuga (age), but in the Treta and (in each of) the succeeding ages their life is lessened by one quarters.*” (*Manusmruti*, 1/83).

The total period of the four *Yugas* is 3420,000 years, and reduction of human life span from 400 to 100 (Present *Kali Yuga*) is more systematic and scientific. This diminishing of life span, is expected to be due to depletion of human ethical character as depicted view of *Manusmruti* in conformity with Bible too.

“*In the Kreta age Dharma (Principle) and Satya (Truth) was four fold (among human beings) and entire; and in the other three ages Dharma depleted successively of one fold each and through the prevalence of theft, falsehood and fraud the merit gained by men is diminished by one fourth in each.*” (*Manusmruti*, 1/81,82).

Noah faced the continuous heavy rain for forty days and came out of the Ark after about one year when the water completely deseeded and the lands turned dry.

After the event God said: “*Never again will I curse the ground because of man, even though every inclination of his heart is evil from childhood. And never again will I destroy all living creatures, as I have done.*” (Holy Bible - Genesis, 8:21).

“*I establish my covenant with you never again will all the life be cut off by the waters of a flood; never again will there be a flood to destroy the earth.*” (Holy Bible - Genesis, 9:11).

The above declaration of God indicates that the dissolution has occurred once for all the time to come as per Bible and may not occur again as the covenant signifies. But, the eastern concept about dissolution and creation as depicted in *Manusmruti* (1/80) says:

“*The Manvantaras, the creations and destructions (of the world, are) number less; sporting, as it were, Brahma (the creator) repeats this again and again.*”

It is evident from the above *Ssloka* that dissolution is of frequent occurrence in nature as realised by ancient Indians. Thus the occurrence of dissolution is a very systematic phenomenon repeated in regular intervals at the end of a *Yuga* (time period depicted earlier), *Mahayuga* (3420,000 Years), *Manvantara*

(30672×10^4 years) or in a complete squeezing form in every alternate *Kalpa* (432×10^7 years)¹⁰. It may so happen that at the end of the life span of *Brahma* (31104×10^{10} years), the creator of the universe as per Hindu philosophy; there may be universal dissolution; entire universe, every galaxy, nebula star – each and everything may perish. The Hindu mythological concept of *Pralaya* is supported by modern geological and Archaeological evidences. As described in *Mahaabhaarata* five thousand years ago at the end of *Dvaapara* Yuga, the western part of India which was the kingdom of Lord Krishna named *Dwaarikaa*, submerged as a means of *Yuga Pralaya*; is recently explored under the sea water of western coast. There are also evidences that such partial dissolution had occurred in Babylonian, Turkey and other parts of the globe during that time. Moreover, the geological identification of great ice ages during the Cambrian period of Azoic era around 700 million years back; another during the late Palaeozoic times about 260 million years back and the latest occurred in the Pliocene period more than half a million years ago, are the concrete evidence to support the Hindu *Pralaya* view and existence of the creation since millions of years back. On the contrary, the Bible view of the occurrence of dissolution flood just after 1656 years of the mythological appearance of man (Adam) on this earth, is too early compared to the vast time of creation of the earth and evolution of life on it.

One important fact can be noted in Bible, that Noah had sent out a raven and a dove to ascertain the flood water condition on the surface of earth. This is a record that early civilization was conscious of using animals as ecological indicators. Such a record of the knowledge of ecological indicator of ancient Indians can be traced out in *Manusmruti*: where significantly the animal *Antilop cervicapra* (*Krushnasara Mriga*) was used to ascertain a conducive environment for human habitation (Padhy et al., 1997).

Certain facts such as: continuous rain and flood as a means of dissolution; early declaration of God that the event would occur after seven days; use of a ship to rescue the biodiversity and involvement of eight human beings in each case (Manu with seven saints and Noah with his family) are similar coordinated facts in both the myths. Satyabrata (Manu) enjoyed a divinely sent golden coloured ship and the ship was tied to the horn of the fish God to stabilize it during the

flood time, the whole scenario seems to be more mythical; while Noah built his ship of its own size, shape, height and covering, using a specific wood and colour as directed by God, the fact is much more nearer to reality. Moreover, it can not be ignored that Noah and his family might had enough food reserve and struggled hard to feed the animals for a long period of one year. Regarding conservation of biodiversity, Noah had a pair of animals male and female from every kind, but nothing has been mentioned about the plant diversity. Rather, the dove when returned for the second time it carried fresh young leaves of olive plant in its beak, an indication of the around plant diversity survived during submerged condition. On the other hand, Satyabrata was advised by God to collect the seeds of crops, medicinal and other plants and animal's in indiscernible form (*Sattva*). The later concept regarding animal conservation seems ambiguous and from metaphysical point of view it is acceptable; but from scientific point of view it indicates towards conservation of the animal diversity in indiscernible form may be like germ plasm conservation in modern biotechnology. Moreover, Satyabrata was associated with seven great sages who are also *Prajapatis* or procreators responsible to spread the creation. It is difficult to claim that germ plasm conservation was known to Vedic age people, and Satyabrata could do it with the help of seven seers; a conclusion to this effect is left over the scientific community, interested to understand the myth from scientific point of view. In fact there was every possibility that biotechnology was known to earlier civilisation of India as evident from the generation of hundred cloned sons (*Kouravas*) from a mass of tissue, depicted in the epic *Mahaabhaarata* (First Part / Chapter 114).

Due to certain similarity between the two myths, even both the events are far from each other in time and space; has provoked elite to interpret that the narration of *Bhagawata* might have influenced the other religious text Bible. Of course, the *Bhagawata* story is also found in *Matshya Puraana* and can be traced back in *Satapatha Brahmana* of Veda. But the reflection of eastern myth on western world and a conclusion to this effect is questionable; and an upper hand can not be taken in view of the fact that Vedas are the oldest epic of the world. Human

evolution both biological and cultural has taken place simultaneously and independently through out the world and it can not be denied that parallel conservation attempts are followed in both the ends, east and west. Above all, both the mythical facts spread the message that responsibility for the conservation of biodiversity is of mankind, being the supreme being of creation and guardian of the nature. This human responsibility is certainly above any religion, since neither Hinduism developed during the period of Manu *Vaivassvata* nor Christianity was dreamt when Noah built the ark; but the facts have pervaded into religious texts.

During the last few decades human consciousness about the surrounding biota, environment, pollution and conservation of biodiversity along with study of common man's knowledge in understanding the nature under the subject ethnoecology and ethnobiology has grownup substantially. But, mere discussion of the facts in seminars and workshops with high assumptions and formulation of rules is not the solution to the problem; rather there should be practical approach like Manu and Noah, who carried the orders of God with a war foot approach within seven days. Both the ancient subjects are reviewed from different angle in two distinct parts of the world; Manu is blamed as the propagator of racial discrimination and defamer of women in India (Kumar, 1995), while the Western scientists are attempting to search out Noah's Ark to prove the reality of the description in Bible (Marr, 1998).

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