Hindu cosmology, its rays and significance

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Abstract
In Hinduism, cosmology refers to the ideas Hindus have about the universe and how it works. Hindus trust that there is a difference between the spiritual and material worlds. Hindu beliefs about the universe are shown through an important text called the Rig Veda. Hindu mythology defines fourteen worlds: seven higher worlds (heavens) and seven lower ones (underworlds). The advanced worlds are the seven, namely Bhu, Bhuvas, Svar, Mahas, Janas, Tapas, and Satya; the lower ones (paatalas) are Atala, Vatala, Sutala, Rasaataala, Talatala, Mahaatala, and Paatala.

Usually, Brahma is the creator, from whom the universe and the four Vedas emerge. The conception of time as almost endlessly repeating itself in kalpas detracts, however, from the uniqueness of the first formation, and Brahma becomes little more than a demiurge.

Keyword: Cosmology, spiritual and material worlds, rigveda, shiva and family, hiranyagarbha sukta, Brahma, upanishad, puran

Introduction

Rig Vedic concept of the Creator and Creation
Rishi Madhucchanda tells us (Rig Veda I.ii.5) that –

वायववन्द्रश्च चेतथः सुतानां वाविनीवसूः
तावा यातमुप रवत्

the entire Solar system and all those forces supporting it which are themselves supported by the Creator render all created objects visible i.e. known, to all living beings who in their turn are drawn towards those very objects. This means that all objects whether living or not living, moving or not moving, act, interact and co-act in accordance with their respective qualities and tendencies, and become involved in works, which is so because the Creator having created all this entered into the created as the efficient and material cause of creation; the created is the whole universe of objects. And, Rishi Vishwakarma Bhovana informs (Rig Veda X.82.5) that –

परो विवो पर एवं कालवं भवे न देवभिभूषित
कं कथाण्डः प्रवृत्तिः द्वम आपो यत्र देशः समापनत विक्रिये

the Supreme Being (the formless object of devotion) is beyond the infinite space, far away from this earth, beyond all things and beings yet is to be found within the tiniest of tiny particles of matter known to all ordinary beings, learned beings and the Devatas (Gods), but it is a well established fact that origination belongs to all entities that have existence (Gaudapada in his Karika on the Mandukya Upanishad I.6). The Creator caused all things to be made from the eternal cause i.e. from the primordial undefined matter (Rig Veda I.30.9). Kapila, the founder of the atheistic Samkhya philosophy, does not refer to God as the Creator of this world of objects, and Samkhyaaparavachana Sutra states - देवभिभूषितः - also interpreted to mean - there is no proof for the existence of God. Kanada admitting the existence of God believes that from the knowledge of the Tatvas arises the non-apprehensiveness of the un-seeeable one who is other than the present body (Vaiseshika Sutra V.ii.18). The roots of the Samkhya Philosophy are found in Rig Veda Suktas 129 and
221, in Atharvaveda X.8 and X.43, in the Shatapatha Brahmana and the Samkhya Brahmana in which the Atman is called the twenty-fifth principle, and its origin in the Upanishads. Sankara identifies Kapila with the Vedic Kapila who burnt the sons of Sagara and the Buddhaist legends mention Kapila as a predecessor of Gautama Buddha. Kapila’s disciple Asuri and Pancashikha are mentioned in the Mahabharata (St.12.29).

**Samkhya concept**
The term, Samkhya, derived from the word, Sankhya (numbers), refers to the sense of thinking with regard to some basic principles of the knowledge of Purusha, and to counting with regard to the twenty-four principles of Prakrti, and therefore, to ‘Right Discrimination’. The reading of the texts indicate that Chandogya Upanishad, Katha Upanishad and Shvetashvatara Upanishad were written after the formulation of the Samkhya System of Thought. The sage of the Shvetashvatara Upanishad (VI.16) calls God – प्रधानक्षेत्रज्ञ (pradhana-kshetrajna), the Lord of Pradhana or Prakrti, of individual souls and of the Gunas; the word Kapilam of (Sh. U. St.V.2) is said to refer to the originator of the Samkhya philosophy. This system, close to Vedanta, is realistic and dualistic. Its concept of creation is based on the premises that a thing which has never existed can never be brought into existence, and that the effect which is ever existing before the operation of the cause is always related to the cause. The Samkhya system follows the logic of the then generally accepted conclusions that Inference (anumānam) results from perception (drśtim), both are means of cognition (pramanas) of existence (bhava); and non-existence (abhaava) is only a form of perception. Primordial Nature or matter (pradhana), Spirit (Purusha) and the rest (Mahat etc.) which exist cannot be perceived by the senses because of their extreme subtlety and not due to non-existence. The Manifested (vyaktam) possessing and dependent on a cause is not eternal, nor pervasive, active, inferable, having parts and subordinate; the Unmanifested (avyaktam) is reverse of this. Ishvara Krishna thereafter, explains (Samkhya Karika Sloka11):

| व्रतं तथा प्रपाणं द्वितीयतत्त्वं च वपुतुः ||
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that the Primordial Nature (pradhanaṃ) like the Manifested is also constituted by three Gunas, non-distinguishable (it cannot be distinguished from itself and so also Mahat and the rest from pradhana), objective, common, non-intelligent and prolific, but the Spirit (pumānam or Purusha) is the reverse of both of them yet similar in some respect. The three gunas though contradictory to each other co-operate and put into effect their single purpose of bringing about emancipation of the Purusha. The existence of indistinguishability etc.; in the Manifest and the Unmanifest is proved from their being constituted of the three gunas and from the absence of their reverse; the existence of the Unmanifest is proved from the effects possessing the attributes of their cause. Manifest is directly perceived because of pleasure, pain and delusion; in the case of Purusha these are non-existent.

**Madhvacharya’s interpretation**
The Brahma Sutras of Badarayana represents the first comprehensive treatment in a systematic manner of the vast corpus of Vedic Thought. The Vedic tradition viewed truth as ‘subsisting eternally as subtle sound’ heard and then conveyed to others via speech. However, Madhva, the founder of Tattvavada (Realism), interprets the word asabadam to refer to Brahman who is inexpressible because he is an object of knowledge Madhva contends that an object presented in illusory perception is an absolute unreality and no illusion can be explained without the acceptance of two necessary realms – adhisthāna (‘substratum’) and pradhāna (‘prototype’) of the superimposed object (aropya). The Dvaita school of Hindu philosophy, Ishvara, the cause of the universe is the svatantra tattva (‘independent reality’) and the created universe is the asvatantra tattva (‘dependent reality’) which is a transformation of Pradhana (‘matter’).

**Cosmology**
The Puranas present an elaborate mythical cosmography. The old tripartite universe persists, but it is modified. There are three levels—heaven, earth, and the netherworld—but the first and last are further subdivided into vertical layers. Earth consists of seven circular continents, the central one surrounded by the salty ocean and each of the other concentric continents by oceans of other liquids. In the centre of the central mainland stands the cosmic mountain Meru; the southernmost portion of this mainland is Bharatavarsa, the old name for India. Above earth there are seven layers in heaven, at the summit of which is the world of brahman (brahma-loka); there are also seven layers below earth, the location of hells inhabited by serpents and demons.

**Myths of time and eternity**
The oldest texts speak little of time and eternity. It is taken for granted that the gods, though born, are immortal; they are called “Sons of Immortality.” In the Atharvaveda, Time appears personified as creator and ruler of everything. In the Brahmanas and later Vedic texts there are repeated esoteric speculations concerning the year, which is the unit of creation and is thus identified with the creative and regenerative sacrifice and with Prajapati (“Lord of Creatures”), the god of the sacrifice. Time is an endless repetition of the year and thus of creation; this is the starting point of later notions of repeated creations.

Puranic myths developed around the notion of yuga (world age), of which there are four. These four yugas, Krita, Treta, Dvapara, and Kali—they are named after the four throws, from best to worst, in a dice game—constitute a mahayuga (large yuga) and, like the comparable ages of the world depicted by the Greek poet Hesiod, are periods of increasing deterioration. Time itself also deteriorates, for the ages are successively shorter. Each yuga is preceded by an intermediate “dawn” and “dusk.” The Krita Yuga lasts 4,000 years, with a dawn and dusk of 400 years each, for a total of 4,800 years; Treta a total of 3,600 years; Dvapara 2,400 years; and Kali (the current one), 1,200 years. A mahayuga thus lasts 12,000 years and observes the usual coefficient of 12, derived from the 12-month year, the unit of creation. These years are “years of the gods,” each lasting 360 human years, 360 being the days in a year. One thousand mahayugas form one kalpa (eon), which is itself but one day in the life of Brahma, whose life lasts 100 years; the present is the midpoint of his life. Each kalpa is followed by an equally long period of abeyance (pralaya), in which the universe is asleep. Seemingly, the universe will come to an end at the end of Brahma’s life, but Brahmans too are innumerable, and a new universe is reborn with each new Brahma.

Another myth emphasizes the destructive aspect of time. Everything dies in time: “Time ripens the creatures, Time rots

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them” (Mahabharata 1.1.188). “Time” (kala) is thus another name for Yama, the god of death. The name is associated with Shiva in his destructive aspect as Mahakala and is extended to his consort, the goddess Kali, or Mahakali. The speculations on time reflect the doctrine of the eternal return in the philosophy of transmigration. The universe returns, just as a soul returns after death to be born again. In the oldest description of the process (Chandogya Upanishad 5.3.1. – 5.3.10), the account is still mythic but displays naturalistic tendencies.

**Stories of the gods**

According to the epic Mahabharata (1.1.39), there are 33,333 Hindu deities. In other sources that number is multiplied a thousand fold. Usually, however, the gods are referred to as “the Thirty-Three.”

Important myths about the gods are tied to the two principal moments in the life of the cosmos: creation and destruction. Traditionally, Brahma is the creator, from whom the universe and the four Vedas emerge. The conception of time as almost endlessly repeating itself in kalpas detracts, however, from the uniqueness of the first creation, and Brahma becomes little more than a demiurge. Far more attention is given to the destruction of the universe.

Shiva, partly established as the agent of destruction, is in some respects a remote god; from the viewpoint of his devotees, however, he is very accessible. He represents untamed wildness; he is the lone hunter and dancer, the yogi (the accomplished practitioner of Yoga) withdrawn from society, and the ash-covered ascetic. The distinction represented by the gods is not that between good and evil but rather that between the two ways in which the divine manifests itself in this world—as both benevolent and fearful, both harmonious and disharmonious, and both transcendent and immanent.

The Bhagavata-purana contains a doctrine of the avatars of Vishnu and teaches a Vaishnava theology: God is transcendent and beyond human understanding; through his incomprehensible creative ability (maya) or specific power (atmashakti) he expands himself into the universe, which he pervades and which is his outward appearance (his immanence). The Lord creates the world merely because he wills to do so. Creation, or rather the process of differentiation and integration, is his sport (lila).

**Vaishnavism and Shaivism- Vaishnavism**

In the Vedas and Brahmanas, Vishnu is the god of far-extending motion and pervasiveness who, for humans in distress, penetrates and traverses the entire cosmos to make their existence possible. All beings are said to inhabit in his three strides or footsteps (trivikrama): his highest step, or abode, is beyond mortal ken in the realm of heaven. Vishnu is also the god of the pillar of the universe and is identified with the sacrifice. He imparts his all-pervading power to the sacrifice who imitates his strides and identifies himself with the god, thus conquering the universe and attaining “the goal, the safe foundation, the highest light” (Shatapatha Brahmana).

Like Vishnu, Shiva is held by devotees to be the entire universe, yet he is worshipped in various manifestations and in hundreds of local temples. Although it is not always clear whether Shiva is invoked as a great god of frightful aspect, capable of conquering demonic power, or as the boon-giving lord and protector, Hindus continue to invoke him in magical rites.

Shiva reconciles in his person semantically opposite though complementary aspects: he is both terrifying and mild, destroyer and restorer, eternal rest and ceaseless activity. These seeming contradictions make him a paradoxical figure, transcending humanity and assuming a mysterious sublimity of his own. From the standpoint of his devotees, his character is so complicated and his interests are so widely divergent as to seem incomprehensible. Yet, although Brahman philosophers like to emphasize his ascetic aspects and the ritualists of the Tantric tradition his sexuality, the seemingly opposite strands of his nature are generally accepted as two sides of one character.

Shiva is the master of both tandava, the fierce, violent dance that gives rise to energy, and lasya, the gentle, lyric dance representing tenderness and grace. Holding a drum upon which he beats the rhythm of creation, he dances within a circle of flames that depicts the arc of dissolution. He holds up the palm of one hand in a gesture of protection; with another he points to his foot to indicate the refuge of his followers. The image of the dancing Shiva is said by Shaivites to portray five cosmic activities: creation, maintenance, destruction, concealing his true form from adversaries, and, finally, the grace through which he saves his devotees. The outer form of the dance, however, is only one aspect of the divine flow of energy; followers of Shiva say that the dance is in the heart of every devotee.

Yet while the dancing Shiva is an important and popular representation, the abstract form of Shiva is perhaps the most commonly seen portrayal throughout India. Shiva is depicted as a conical shaft (lingam) of fire within a womb (yoni), illustrating the creative powers of Shiva and Parvati. In temples the lingam, which literally means “distinguishing symbol,” is an upright structure that is often made of stone. It is placed in a stone yoni that represents both the womb and the abode of all creation. The union between the lingam and the yoni serves as a reminder that male and female forces are united in generating the universe.

All matter is based on three inert gunas (qualities or tendencies):

- **sattva** (goodness)
- **rajas** (passion)
- **tamas** (darkness)

There are three states of the gunas that make up all matter in the universe:

- **Pradhana** (root matter): gunas in an unmanifested and unmanifested state (equilibrium).
- **Prakriti** (primal matter): gunas in a mixed and unmanifested state (agitated).
- **Mahat-tattva** (matter or universal womb): gunas in a mixed and manifested state.

**Pradhana,** which has no consciousness or will to act on its own, is initially agitated by a primal desire to create. The different schools of thought differ in understanding about the ultimate source of that desire and what the gunas are mixed with (eternal elements, time, jiva-atmas).

The manifest material elements (matter) range from the most subtle to the most physical (gross). These material elements cover the individual, spiritual jiva-atmas (embodied souls), allowing them to interact with the material sense objects, such as their temporary material bodies, other conscious bodies, and unconscious objects.

Manifested subtle elements:

- **ahamkara** (ego)
• buddhi (intelligence)
• citti/pancas (mind)

Manifested physical (gross) elements (a.k.a. pancha bhuṭa, the five elements) and their associated senses and sense organs that manifest:
• space/ether > sound > ear
• air > touch > skin
• fire > sight/form > eye
• water > taste > tongue
• earth > smell > nose

Time
Time is infinite with a cyclic universe, where the current universe was preceded and will be followed by an infinite number of universes. The different states of matter are guided by eternal kali (time), which repeats general events ranging from a moment to the lifespan of the universe, which is cyclically created and destroyed.

The earliest mentions of cosmic cycles in Sanskrit literature are found in the Yuga Purana (c. 1st century BCE), the Mahabharata (c. 3rd century BCE – 4th century CE), and the Manasmitri (c. 2nd – 3rd centuries CE). In the Mahabharata, there are inconsistent names applied to the cycle of creation and destruction, a concept that is better formulated where yuga (generally, an age of time) and kalpa (a day of Brahma) are used, or a day of Brahma, the creator god, or simply referred to as the process of creation and destruction, with kalpa and day of Brahma becoming more prominent in later writings.

Prakriti (primal matter) remains mixed for a maha-kalpa (life of Brahma) of 311.04 trillion years, and is followed by a maha-pralaya (great dissolution) of equal length. The universe (matter) remains manifested for a kalpa (day of Brahma) of 4.32 billion years, where the universe is created at the start and destroyed at the end, only to be recreated at the start of the next kalpa. A kalpa is followed by a pralaya (partial dissolution, a.k.a. night of Brahma) of equal length, when Brahma and the universe are in an unmanifested state. Each kalpa has 15 manvantara-sandhyas (junctures of great flooding) and 14 manvantaras (age of Manu, progenitor of mankind), with each manvantara lasting for 306.72 million years. Each kalpa has 1,000 and each manvantara has 71 chatur-yugas (epoch, a.k.a. maha-yuga), with each chatur-yuga lasting for 4.32 million years and divided into four yugas (dharmaic ages): Satya Yuga (1,728,000 years), Treta Yuga (1,296,000 years), Dvapara Yuga (864,000 years), and Kali Yuga (432,000 years), of which we are currently in Kali Yuga.

Rigveda
According to Henry White Wallis, the Rigveda and other Vedic texts are full of alternative cosmological theories and curiosity questions. To its numerous open-ended questions, the Vedic texts present a diversity of thought, in verses imbued with symbols and allegory, where in some cases, forces and agencies are clothed with a distinct personality, while in other cases as nature with or without anthropomorphic activity such as forms of mythical sacrifices.

Hiranyagarbha suktam (golden egg)
Rigveda 10.121 mentions the Hiranyagarbha ("hiranya = golden or radiant" and "garbha = filled / womb") that existed before the creation, as the source of the creation of the universe, similar to the world egg motif found in the creation myths of many other civilizations.

This metaphor has been interpreted differently by the various later texts. The Samkhya texts state that Purusha and the Prajapati made the embryo, from which the world emerged. In another tradition, the creator god Brahma emerged from the egg and created the world, while in yet another tradition the Brahma himself is the Hiranyagarbha. The nature of the Purusha, the creation of the gods and other details of the embryo creation myth have been described variously by the later Hindu texts.

Purusha Suktam
The Purusha Suktam (RV 10.90) describes a myth of proto-Indo-European origin, in which the creation arises out of the dismemberment of the Purusha, a primordial cosmic being who is sacrificed by the gods. Purusha is described as all that has ever existed and will ever exist. This being's body was the origin of four different kinds of people: the Brahmī, the Rajayāna, the Vaiśhyā, and the Śudra. Viraj, variously interpreted as the mundane egg (see Hiranyagarbha) or the twofold male-female energy, was born from Purusha, and the Purusha was born again from Viraj. The gods then performed a yajna with the Purusha, leading to the creation of the other things in the manifest world from its various body parts and his mind. These things included the animals, the Veddas, the Varnas, the celestial bodies, the air, the sky, the heavens, the earth, the directions, and the Gods Indra and Agni.

The later texts such as the Puranas identify the Purusha with God. In many Puranic notes, Brahma is the creator god. However, some Puranas also identify Vishnu, Shiva or Devi as the creator.

Nasadiya Suktam
The Nasadiya Suktam (RV 10.129) takes a near-agnostic stand on the creation of the primordial beings (such as the gods who performed the sacrifice of the Purusha), stating that the gods came into being after the world's creation, and nobody knows when the world first came into being. It asks who created the universe, does anyone really know, and whether it can ever be known. The Nasadiya Suktam states:

- Darkness there was at first, by darkness hidden;
- Without distinctive marks, this all was water;
- That which, becoming, by the void was covered;
- That One by force of heat came into being;
- Perhaps it formed itself, or perhaps it did not;
- Only He who is its overseer in highest heaven knows, Only He knows, or perhaps He does not know.

—Rigveda 10.129–6

Brahmanas
The Shatapatha Brahmana mentions a story of creation, in which the Prajapati performs tapas to reproduce himself. He releases the waters and enters them in the form of an egg that evolves into the cosmos. The Prajapati emerged from the golden egg, and created the earth, the middle regions and the sky. With further tapas, he created the devas. He also created the asuras, and the darkness came into the being. It also contains a story similar to the other great flood stories. After

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the great flood, Manu the only surviving human, offers a sacrifice from which Ida is born. From her, the existing human race comes into the being. The Shatapatha Brahmana states that the current human generation descends from Manu, the only man who survived a great deluge after being warned by the God. This legend is comparable to the other flood legends, such as the story of the Noah's Ark mentioned in the Bible and the Quran.

**Upanishads**
The Aitareya Upanishad (3.4.1) mentions that only the "Atman" (the Self) existed in the beginning. The Self created the heaven (Ambhas), the sky (Markis), the earth (Mara) and the underworld (Ap). He then formed the Purusha from the water. He also created the speech, the fire, the prana (breath of life), the air and the various senses, the directions, the trees, the mind, the moon and other things.

The Brihadaranyaka Upanishad (1.4) mentions that in the beginning, only the Atman existed as the Purusha. Feeling lonely, the Purusha divided itself into two parts: male ("pati") and female ("patni"). The men were born when the male embraced the female. The female thought "how can he embrace me, after having produced me from himself? I shall hide myself." She then became a cow to hide herself, but the male became a bull and embraced her. Thus the cows were born. Similarly, everything that exists in pairs, was created. Next, the Purusha created the fire, the soma and the immortal gods (the devas) from his better part. He also created the various powers of the gods, the different classes, the dharma (law or duty) and so on. The Taittiriya Upanishad states that the being (sat) was created from the non-being. The Being later became the Atman (2.7.1), and then created the worlds (1.1.1). The Chhandogya states that the Brahma creates, sustains and destroys the world. A similar perspective is also portrayed in the Mundak Upanishad verse 2.1.10, which states "purusa eyedaṁ viśvaṁ karma tapo brahma parāmatran", meaning "out of this Purush, everything is born, and by knowing him, everything becomes known".

**Brahmanda (cosmic egg)**
According to Richard L. Thompson, the Bhagavata Purana presents a geocentric model of our Brahmanda (cosmic egg or universe), where our Bhu-mandala disk, equal in diameter to our Brahma, has a diameter of 500 million yojanas (trad. 8 miles each), which equals around 4 billion miles or more, a size far too small for the universe of stars and galaxies, but in the right range for the Solar System. In addition, the Bhagavata Purana and other Puranas speak of a multiplicity of universes, or Brahmandas, each covered by seven-fold layers with an aggregate thickness of over ten million times its diameter \( (5 \times 10^{26} \text{ yojanas} \approx 6,804+ \text{ light-years in diameter}) \). The Jyotisha Shastras, Surya Siddhanta, and Siddhanta Shiromani give the Brahma an enlarged radius of about 5,000 light years.

**Cycles of creation and destruction**
Many Hindu texts mention the cycle of creation and destruction. According to the Upanishads, the universe and the Earth, along with humans and other creatures, undergo repeated cycles of creation and destruction (pralaya). A variety of myths exist regarding the specifics of the process, but in general the Hindu view of the cosmos is as eternal and cyclic. The later puranic view also asserts that the universe is created, destroyed, and re-created in an eternally repetitive series of cycles. In Hindu cosmology, age of earth is about 4,320,000,000 years (one day of Brahma that is 1000 times of sum of 4 yugas in years, the creator or kalpa) and is then destroyed by fire or water elements. At this point, Brahma rests for one night, just as long as the day. This process, called pralaya (cataclysm), repeats for 100 Brahma years (311 trillion, 40 billion human years) that represents Brahma's lifespan.

**Lokas**
Deborah Soifer describes the development of the concept of lokas as follows:
The concept of a loka or lokas develops in the Vedic literature. Influenced by the special connotations that a word for space might have for a nomadic people, loka in the Veda did not simply mean place or world, but had a positive valuation: it was a place or position of religious or psychological interest with a special value of function of its own. Hence, inherent in the "loka" concept in the earliest literature was a double aspect; that is, coexistent with spatiality was a religious or soteriological meaning, which could exist independent of a spatial notion, an "immaterial" significance. The most common cosmological conception of lokas in the Veda was that of the trilokya or triple world: three worlds consisting of earth, atmosphere or sky, and heaven, making up the universe.
Upper seven Lokas in Hindu Cosmology\Lower seven Lokas in Puranas
In the *Brahmanda Purana*, as well as *Bhagavata Purana* (2.5), fourteen *lokas* (planes) are described, consist of seven higher (*Vyahritis*) and seven lower (*Patalas*) *lokas*.

1. *Satya-loka* (*Brahma-loka*)
2. *(102,594),(139,606) -loka
3. *Jana-(105,606),(132,617)-loka*
4. *Mahar-loka*
5. *Svar-loka* (*Svarga-loka* or *Indra-loka*)
6. *Bhuvar-loka* (Sun/Moon plane)
7. *Bhu-loka* (Earth plane)
8. *Atala-loka*
9. *Vitala-loka*
10. *Sutala-loka*
11. *Talatala-loka*
12. *Mahatala-loka*
13. *Rasatala-loka*
14. *Patala-loka*

However, other Puranas give different version of this cosmology and associated myths.

**References**