
The Myth of Rama Setu & Truth of the Sethu Canal

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Abstract

The epic-story of Ramayana has been intricately woven in the Pan-Indian landscape and in the minds of millions of sentimental believers over many generations, albeit the true difference between hagiography and historiography of the Ramayana has seldom been pondered upon. Many versions of the same story have been written and propagated, not only in India, but also across southeast Asia. Even outside of the Hindu (Sanatana/Vedic) religion, the Ramayana has been narrated in anti-Vedic religions like Jainism & Buddhism. Passing references to the story have even been recorded in the earliest of the Tamil corpus – Sangam Literature. Such is the popularity of its theme, that there exists around 300 versions of the same story across the spectrum. With such immense reach, it has become very difficult to separate the myth portion from the historic portion.



When it comes to modern day scientific projects benefitting the humankind, such age-old myths are posing a great challenge, because of the interwoven sentiments and religious authorities thereof. During such times, an attempt can be made to revisit the myth and the story - in its original form, and research the inconsistencies and fallacies surrounding the myth. That would help to clear the air and aid in the differentiation of myth vs. history.

This paper enquires into the original narration of the Valmiki Ramayana - Yuddha Kanda (Sarga: 22, Slokas: 51-83) - that talks about the Bridge construction process of the so-called Rama Setu. It documents various inconsistencies of the Mythical Bridge from the slokas themselves. It also clears the air on whether Valmiki was a Tribal or a Brahmin? The paper brings out the difference between Itihasa (historical fiction) & Purana (absolute fiction), which will help the reader

to appreciate the difference between hagiography vs. historiography. It also puts the current day Rameswaram shrine in a historical perspective. In addition, this paper also outlines the details of the Sethusamudram Shipping Canal Project (SSCP) – its history, goals, recent developments, geopolitics, merits & demerits of the shipping canal - that has been currently stalled due to various complexities arising out of Rama Setu myth.

Keywords

Ramayana, Valmiki, Buddhist Ramayana, Jain Ramayana, Rama Setu, Ram Setu, Rama's Bridge, Adam's Bridge, Sanskrit, Ithihasa, Purana, Rameswaram, Shaivite, Vaishnavite, Hagiography, Historiography, Sanga Tamil, Greek Mythology, Tamil, Dravidian, Sethusamudram, SSCP, NASA, Shipping Canal, Alternate Route Alignment, Geopolitics, Indo China, Poetic Grandeur, Scientific Temperament.

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Background & the meaning of Ramayana:

The Sanskrit word: 'Rama/Rāma' (राम/राम) means '**pleasing and lovely**'[1]. In today's context of Religion in Indian Politics and violently-harsh sloganeering thereof, how far this pleasing meaning may be appreciated is a different topic, but the true meaning of the word in Linguistics cannot be refuted.

The great Scholar-Saint, Adi Sankara in his work: Sahasra Nāma Bhāshya (Commentary on the 1000 Names) records the meaning of the word 'rāma' as: 'Ramante iti rAmaH' (रमन्ते इतिरामः) – meaning: "that which is pleasing is Rama". So, the word - Rama has a pleasing connotation [2].

In fact, the word 'Rama/Raama' is a unisexual name - that can denote both

male & female. Because of that 'pleasing nature', women are also named Rama, Rama Devi, Ramya, Raami, Abi-raami etc.

Ramayana is considered the most influential epic-story in the Pan-Indian landscape. Again, the compound-word 'Rāmāyana' is the conjugation of two Sanskrit words: rāma + āyana (राम + आयन), meaning the 'Arrival of Rama' or 'Journey of Rama'. Verily it's an 'arrival' with multiple consequences in the subcontinent. Those cultural consequences are spread over many centuries, and exist even until today.

The epic-story of Rāmāyana has been intricately woven in the minds of millions of people and religious & sentimental believers over many generations. Priestly and Kingly authorities

have carried on this singular task of propagation of Ramayana via various forms of worship and art - including poetry, music, dance, drama, discourse, debate, puppet shows and every other imaginable form of fine art. The Renderings (translations) of Ramayana in many local languages amongst the various ethnic groups of the Indian subcontinent, were heavily subsidized and offered royal patronage over many centuries.

300 Ramayanas

Many versions of the same story of Ramayana have been written and propagated, not only in the various states of multiple ethno-lingual groups of India, but also across the regions of southeast Asia – Java & Sumatra (Indonesia), Kampuchea (Cambodia), Kra-dai (Laos), Maranao (Philippines), Siam (Thailand), Myanmar (Burma) and Kedah & Malaya (Malaysia).

Following is an abridged list of the versions of Ramayana, outside the Indian subcontinent. [3], [4]

1. Kakawin Ramayana – Java, Indonesia
2. Ramayana Swarna Dwipa – Sumatra, Indonesia
3. Rama Kavaca – Bali, Indonesia
4. Reamker (Rāmā Kerti) – Cambodia
5. Phra Lak Phra Ram (Dasaratha Jataka) – Laos
6. Maharadia Lawana (Maharaja Ravana) – Philippines

7. Rama Kien (Dasaratha Jataka) – Thailand
8. Yama Zatdaw (Yamayana/ Dasaratha Jataka) – Myanmar
9. Hikayat Seri Rama & Hikayat Maharaja Wana – Malaysia
10. Langka Sip Hor – Tibet (Yunnan)
11. Ramaensho – Japan
12. Truyen Da Xoa Vuong – Vietnam

It's quite understandable that the 'predominantly Hindu' story of Ramayana has spread across the Indian shores - via Kingly expeditions and Trade exchanges. But outside of the Hindu religion (a.k.a) Sanatana/ Brahminism/ Vedic Religion - the story of Ramayana has been well written and neatly compiled in anti-Vedic religions like Jainism & Buddhism too.

Following is a simple list of Jain & Buddhist Ramayanas. [5], [6]

1. Buddhist version – Dasaratha Jātaka (Pali Canon: Khuddaka Nikaya, Sutta Pitaka)
2. Jain version – Paumāchariyam (by Vimalasuri)
3. Jain version – Vasudēvahindi (by Samghadasa Gani)
4. Jain version – Uttara Purāna (by Gunabhadra)
5. Jain version – Katha Kōsha (by Harisena)
6. Jain version – Padma Purāna (by Ravisena)
7. Jain version – Mahā Purāna (by Pushpa Danta)

8. Jain version – Khavali (by Bhadreshvara)
9. Jain version – Chaupanna Mahā Purusa Chariyam (by Shilank-acharya)
10. Jain version – Trishashti Shalaka Purusha Charitra (by Hemachandra)
11. Jain version – Punya Chandrōdaya (by Krishna)
12. Jain version – Shatrunjaya Mahatman (by Dhaneshwara)
13. Jain version – Dhurtakhyana (by Haribhadra)
14. Jain version – Ramayana (by Jinadasa)

If you notice the abundance of Ramayanas in the Jain corpus, the very claim of Ramayana being a Hindu story may also be questioned. Perhaps, it's just a simple story of a King, which got extrapolated to the Hindu religious pedestal and various philosophies like Avatāram (Incarnation) got assimilated over time. **Surprisingly in the Jain versions, Rama had 8000 wives** [7] of whom Sita was the main consort. Rama ultimately becomes a Jain monk and attains Kēvala Jnana (moksha - liberation), whereas both Lakshmana and Ravana go to hell. Such is the variety of themes in the various versions of Ramayana.

Most of the above-listed Southeast Asian versions of the Ramayana were adapted from the Buddhist Version of Ramayana – Dasaratha Jātaka (Jataka Tales of the Buddha). The latter-day religion of Sikhism too, accords a

place to Ramayana in its religious corpus (Dasam Granth of Guru Gobind Singh). [8]

Such is the popularity of the Ramayana theme, that there exists around 300 versions of the same story [9] across multiple religions in the Indian & Southeast Asian spectrum. With such an immense reach and varying versions of the Ramayana, it has become very difficult to separate the myth portion from the historic portion of the epic.

Ramayana in Sanga Tamil

Even the ancient Tamil Literature (Caṅka Tamil/ சங்கத் தமிழ்) - which is usually devoid of strong religious tones and only dwelling on the Principles of Nature – makes a few passing references to the Plot of Ramayana and to also a few of its characters. However, they are only a passing reference or just a simile to compare a life situation, and definitely NOT a reference of Rama-worship amongst the ancient Tamils.

Following is a list of passing references to the Ramayana in Sanga Tamil.

1. **pura nānūru 378 (pāṭāṇ tiṇai) – Oon Pothi Pasungkudaiyaar [10] –**
(தென் பரதவர் மிடல்):

When the Chola King rewarded the Poet with rich ornaments, the over-joyed & poverty stricken family members of the poet didn't

know how & where to adorn the ornaments. They randomly adorned the jewelry on ears & fingers interchangeably. This looked like the ‘situation’ of the monkeys in the Ramayana story - that when Ravana kidnapped Rama’s wife Sita, she threw her jewelry on the land one by one, so that someone may find the kidnap route later; but when the monkeys found those jewels, they didn’t know the worth of the jewelry and randomly put the jewels on their bodies. (Clearly a simile reference & not Tamil Worship).

கடுந் தெறல் இராமனுடன் புணர் சீதையை
வலித்தகை அரக்கன் வெளவிய ஞான்றை
நிலம் சேர் மதர் அணி கண்ட குரங்கின்
செம்முகப்பெருங்கிளை இழைப்பொலிந்தா “அங்கு”,
அறாஅ அரு நகை இனிது பெற்றிகுமே.

2. aka nānūru 70 (neytal tiṇai) – Kaduvan MaLLanaar [11] – (கொடுந் திமிற் பரதவர்):

Earlier, the love between the heroine (Thalaivi) & the hero (Thalaivan) of the fishing village, was subjected to gossip & loose-talks by many folks. But now, since the wedding has been arranged, all the noise has died down. This is similar to that story in the Ramayana – that when Rama sat under a Banyan tree and started discussing War Secrets, birds on the tree stopped their chirping and the noise died down. (Clearly a simile reference & not Tamil Worship).

முழங்கு இரும் பௌவம் இரங்கும் முன் துறை,
வெல்போர் இராமன் அரு மறைக்கு அவித்த
பல் வீழ் ஆலம் “போல”,
ஒலி அவிந்தன்று இவ் அமுங்கல் ஊரே.

The story of Ramayana (either the Buddhist/Jain version or the Hindu Version) had spread in the ancient Tamil region - likewise other regions of the subcontinent. **Hence, these 2 poets out of the 700+ poets in Sanga Tamil, just use that story as a simile, to compare a life situation like conjugal love. Clearly, they do NOT record or advocate the holy worship of Rama - as God, by the ancient Tamil People.** The object of Worship by the ancient Tamils were the Personifications of Nature & Ancestry (Maayon, Cheyon & KotRavai) of the Tamil land. [12], [13] Surely, Rama was NOT worshipped in Sanga Tamil.

The adoration & worship of Rama and his elevated status as God, are only of the latter times. Of course, one of the Master Poets of Tamil Literature – Kambar (12th CE), wrote an eloquent epic (Irāmāvatāram (a.k.a) Kamba Rāmāyanam) - rendering the Ramayana story aesthetically in chaste Tamil and objectified Rama as a worshipful deity. But, that was only after the 12th century Common Era, which is many centuries after the ancient Sanga Tamil era. By that time, the Hindu (Sanatana/Vedic) religion had been deeply established in the Tamil land by the Priestly & Kingly class, and Anti-Vedic Religions like Buddhism & Jainism have been severely eroded. [14]

Who was Valmiki? (Author of the Original Ramayana)

The original & the oldest textual version of the Ramayana - is widely recognized as the Sanskrit version of the 'Valmiki Ramayana', traditionally attributed to the authorship of Vālmīki (वाल्मीकी). [15]

Though the narration (Moola Ramayana) is mythically attributed to sage Narada, who passed on the theme and egged Valmiki to write it down, that itself is a story with no verifiable facts. The verifiable version of the epic starts with the text of Valmiki, who is acclaimed as Aadi Kavi (meaning: The First Poet).

Some people today falsely attribute the Author of Ramayana – Valmiki, to an oppressed caste person (hunting tribe) - who was placed in the lowest tier of the Hindu Caste hierarchy i.e. Varnashrama System. They wrongly claim that the Caste System was inherently a good design, which honored even a person of the lowest tier, and elevated him to a saintly status. But, this is NOT true, as the **Author of the Ramayana - Valmiki was a Brahmin by birth**. [16] The voluminous Skanda Purana (Book 6: Nāgara Khanda) clearly records this detail in the section: Tīrtha Māhātmya, Chapter 124: Creation of Mukhāra Tīrtha. [17]

Valmiki is a pseudonym, and the original name of the Author of Ramayana

is Agni Sarma. [18] Sarma is a Brahmin abhivādayē surname. Varma & Gupta are surnames for Kshatriya & Vaisya varnas respectively. Vālmīka (वाल्मीक) in Sanskrit means: Ant-hill, and is given as a pseudonym to the author Agni Sarma (a.k.a) Vālmīki (वाल्मीकी). He is also addressed by the name: **Lohajangha** in Skanda Purana.

Agni Sarma was born to a Brahmin Sage named Pracheta in the Bhrigu Gotra. [19] According to the Purana, though being born a Brahmin, he turned into a thief in order to feed his family. The heavenly sage Narada, wishing to rescue the Brahmin from lowly caste occupation, taught him the Scripture of his high-born caste & also narrated the Ramayana story. The sage advised him to perform a purification penance – at which time, ant-hills (Vālmīka) grew around his meditating body and hence the pseudonym (Valmiki).

Furthermore, Valmiki himself records that he is a Brahmin - in his own Ramayana. In the starting chapters, when he narrates that Lord Brahma arrived at the scene, to provide a textual correction to the starting Slōka (which we will see in the next section), Brahma addresses Valmiki as “Hey Brahmin”. [20]

- मच्छन्दादेव ते ब्रह्मन् प्रवृत्तेयं सरस्वती ।
रामस्य चरतिं सर्वं कुरु त्वमृषसित्तम ॥
(1-2-31) [20]

- mat cchandāt ēva, tē brahman,
pravṛttē ayam sarasvatī |
rāmasya caritam sarvaṁ kuru,
tvam ṛṣisattama ||
- *By my wish alone, “Hey Brahmin”,
came your utterance.
Rama’s Story, fully you narrate,
oh the great sage.*

Thus Valmiki Ramayana itself records that Valmiki was NOT from a Tribal caste, but a Brahmin.

Today, there also exists a Scheduled Tribe/Caste by the name: Valmiki/Balmiki, belonging to the list of oppressed castes in the areas of North Western & Eastern India [21], whose traditional occupation is Forest Hunting. They also carry the same name (Valmiki), owing to ant-hills (Valmika) in their forest area. That should not be confused with the Author of Ramayana- who is clearly recorded as a Brahmin. A reading of the ancient scriptures in Sanskrit will offset such false conclusions that are made today.

The Structure of Valmiki Ramayana

Though the English term ‘Epic’ is generally used to denote classic works like Valmiki Ramayana, Sanskrit Epics have a greater sophistication and are divided into 2 categories – Itihāsa and Purāna.

1. Itihāsa (इतिहास) – Stories that have happened, and seen/heard by the Author. It stems from the root: iti + ha + āsa, meaning ‘as it happened’. [22]

To qualify as an Itihasa, the author of the story should himself have experienced it at least partly, or should himself be a part of the story. Though poetic liberties and imaginary narrations are allowed, there should be some basic element that should have had happened. (Historical Fiction).

2. Purāna (पुराण) – Stories that need not have happened, but could be written mixing both old & new imagination. It stems from the root: pura + nava, meaning old + new. [23]

To qualify as a Purana, the author need not have experienced it firsthand. It can entirely be a mix of old & new imagination. This category is totally unrestricted in narration. (Absolute Fiction).

Generally, Itihasas are very few in Sanskrit (Ramayana & Mahabharata), as they need a minimum firsthand narration; whereas Puranas are abundant (18 Maha Puranas, 18 Upa Puranas & innumerable Sthala Puranas) as they don’t need a firsthand experience and can be completely imaginary).

Puranas are considered a bit inferior to Itihasas, and are offered only a Smriti (secondary) status, instead of a Sruti (Primary) status. Maha Puranas (Shiva Purana, Linga Purana, Bhavishya Purana, Matsya Purana, Brahmanda Purana, Markandeya Purana etc.) and Upa Puranas (Nandi Purana, Bhargava Purana, Hamsa Purana etc.) together form the voluminous Hindu Purana Canon.

Per the above definition, Valmiki Ramayana is considered as an Itihasa, as it has some element of happening, and the Author himself had lived (contemporary) and experienced the story. In the opening chapters of the 1st section of the Epic, the author Valmiki assigns the Sons of Rama – Lava & Kusha, to sing the epic in front of various audience in the City of Ayodhya. Hence, an Itihasa. The book is organized into:

- 6 Kāṇḍa (sections)
- 500+ Sarga (chapters)
- 24000+ Ślōka (verses)

Some people count 7 Kāṇḍa instead of 6, as they also include Uttara Kanda – a latter day addendum. The text of the epic also has several recensions (altered text from the original) & interpolations (idai cherugal/ text not written by the author). The earliest date of the text is approximately considered from 4th century BCE and later stages of the text are dated to 3rd century CE by modern scholars. [24], [25] Most of the verses in the Valmiki Ramayana are set to a metrical form (Anustubh meter) – a quatrain of 4 lines, and 8 syllables in each line, amounting to 32 syllables per verse.

Unlike many Tamil Epics – which start on a positive note, or a dedicated reference to the whole World and its wellbeing, Valmiki Ramayana starts on a negative note (“No Peace to you”) with a curse. [26]

- “मा नषाद प्रतषिठां” त्वमगमः शाश्वतीः समाः ।
यत् क्रौर्यञ्चमथिनादेकमवधीः काममोहतिम् ॥
(1-2-15)
- “mā niṣāda pratiṣṭhā” tvamagamah śāśvatīḥ samāḥ ।
yat krauñca mithunā dekam avadhīḥ kāmamohitam ॥
- “No peace”, you (hunter) will find, for years to come
For, you killed a couple-bird, that was relishing in love.

In the latter days, when scholars found this opening verse - as too negative for such an acclaimed epic, they re-adjusted the words a bit, from: ‘mā niṣāda pratiṣṭhā’ (No peace to you, Hunter) to: ‘Maa Nishaada Pratishthaam’ (Mother Lakshmi, Sanctity of Vishnu) to invoke a sign of prosperity & positivity.

With so much interpolations & extrapolations in the Valmiki Ramayana, it is very difficult to separate the myth from the historical portion of the Epic. So far, we tried to have a basic background of the Ramayana and its Author. In the next section of this paper, let us examine our core theme of this essay: The Rama Setu, and try to find the underlying facts in the source text.

Rama Setu & Global Setu(s)

The word ‘sētu’ (सेतु) in Sanskrit means: Bridge. It can also denote Dam, Dike, Causeway, Embankment, Barrier, or

any other raised piece of land (mound).
[27] It can be either natural or manmade.

Though it's a Sanskrit word, because of the reach of the Ramayana across the subcontinent, it has entered into the vocabulary of many local languages - including Tamil, as a sort of proper noun. In fact, people append local words with this foreign word, and form conjugate words out of them. (Sethupathi, Sethu Kaavalan, Sethu Kizhavan, Sethu Kaalvaai, Sethu Mēdu, Sethu Karai, Sethu Paalam etc.).

Though the word 'Sethu-Paalam' is a repeat word, and is a repetition with the same meaning 'Bridge-Bridge', considering the word sētu as a proper noun, we will use the foreign word 'as-is' in this essay for the sake of common folk understanding. But the proper Tamil word for sētu is pālam (பாலம்) or aṇai (அணை). Old & Chaste Tamil words for Bridge are āli (ஆளி) & paṇampu (பணம்பு).

We all know the story of Ramayana and there's no need to recapitulate the same. But in the context of Rama Setu, let us summarize the whole story in few words, for the benefit of nonnative readers.

"Ramayana is the story of Rama, a legendary prince of Ayodhya, and who is the first of the four brothers (half-brothers) of the Kingdom. He gets married to Sita, a

legendary princess of Mithila. On the day of his coronation, he is sent on a 14-year exile to the forests by his stepmother, much against the wishes of his father. Followed by his wife & half-brother Lakshmana, he travels across. But due to turn of events, his wife is hijacked by Ravana, the king of Lanka - an island nation. Rama forges an alliance with the monkey (Vanara) kingdom, seeks the whereabouts of Sita, builds a bridge (Rama Setu) to the island, transports the troops, and wages war against Ravana. As in a typical good-over-evil story, Rama wins, Ravana loses. But misogynistically, Rama doubts his wife, as she has stayed in a foreign land for almost a year. He orders her to publicly prove her chastity, by entering a fire pit. She obeys, comes out unharmed, the exile ends, and they all return home. Rama is crowned as the new king".

This simple one paragraph-story in Sanskrit, has transformed the Pan-Indian landscape over many centuries, and brought in various sociopolitical and cultural consequences to the lives of many – including women and various ethnic groups in the Indian subcontinent.

Such (mythological) stories have prevailed not only in the Indian subcontinent, but across many cultures of the

world – Babylonian, Egyptian, Persian, Hebrew, Greek & Roman.

- Xerxes – an Achaemenid King of the Persian empire, ‘punished’ the sea for its disobedience - by whipping the sea, and threw handcuffs into water. He did this ‘crazy thing’ because, the bridge that he was trying to build from Asia to Europe - across the Hellespont (Dardanelles) Strait, got blown off by a sea storm, while he was marching against the Greeks. [28]
- Dionysus was the Son of the Greek God Zeus and his clandestine lover Semele. He was thrown into madness, by his stepmother Hera (sister and official wife of Zeus). When he arrived at the Euphrates River, he was struggling to build a bridge to cross it. But his father Zeus sent a mythical tiger - to carry him across the other river. Hence the name of the River – Tigris. [29]
- Thor – The Hero of Norse mythology, was trying to cross the mystical bridge ‘Bifrost’. It was a bridge made of rainbow (7-colored) that connected Asgard to Midgard - giving the gods, access to the realm of mortals. But the bridge got burnt during the war between the

gods and the giants. Yet, Thor was able to cross it, amongst its sacred waters & flames. [30]

- Zoroastrianism - The Chinvat Bridge (Milky Way) is a sifting bridge, which separates the world of the living, from the world of the dead. All souls must cross that bridge upon death. The bridge is guarded by 2 four-eyed dogs. If a person has been wicked, one dog will drag his soul over the bridge into Hell. If a person has been good, the other dog will drag his soul over the bridge into Heaven. [31]
- Homer – the Greek Poet who authored the great epic Odyssey (much like Valmiki), sings of 2 sea monsters: Scylla and Charybdis - guarding the Strait of Messina & a Bridge over it - between Sicily and Calabria, on the Italian mainland. They devour the sailors & their ships. [32]

Thus, not only Rama Setu, but many such Setus (Bridges) exist across the Epics of the World.

These stories add a great amount of interest & drama in their narration. But, no sane person today – living in those countries & cultures, defends such mythical bridges, or claim false superiority over Science. **No one in the Persian region, agitates against the construction**

of new bridges across Tigris River, just because there is a Tiger legend associated with it in their olden day epics.

However, the situation in India is a bit different. Here we have an active religion, with many people still practicing some blind faith in their lives, knowingly or unknowingly. The Greek & Roman religions do not have such a problem, because the people there have outgrown such blind faith, or have embraced a new faith altogether. That's not the case in the Indian sub-continent – where people still carry the old baggage - from the myths that have been propagated across centuries.

Not knowing how to separate the myth portion (hagiography) from the history portion (historiography), majority of the Indian populace still clings on to the old baggage for sentimental reasons. Even in the age of Science, they either circumvent Science to hold on to their Sentiment, or even go a step further and try to project Science onto Religion - ending up in Pseudoscience in the modern day.

The only way to outgrow such blind faith – is to educate, and make people read & re-read their own works of faith, by going to the roots. If they see inconsistencies & absurdities in their own books, they might realize the difference between myth & history, and probably end up laughing upon themselves for clinging onto this old

baggage blindly. After all, laughter is the best medicine – even in the eradication of superstition and the advancement of rationality.

Rama Setu – Bridge Construction Process

Let's see in this section, **how exactly was the Rama Setu built and, where exactly was it built? Or, was it built at all... in reality?**

Let's go to the roots of the Bridge – Valmiki Ramayana, as that version is the authentic, oldest & the original version of the story. What is the author's say on this matter? Let's examine the source text: Valmiki Ramayana, Yuddha Kanda, Sarga 22, Slokas 51 – 83 (Section 6, Chapter 22, Verses 51-83). [33]

a) Preamble to the Bridge

After a successful alliance with the monkey (Vanara) kingdom, and Sita's whereabouts in Lanka now known from the expedition of Hanuman, Rama was pondering on how to transport the troops across the sea, and wage war against Ravana – the abductor & king of Lanka.

Being an island across the Indian mainland, Lanka is NOT accessible by foot. The other modes of transport those days - Chariots, Horses, Elephants, Animal-drawn Carriages, Palanquins – nothing was viable. Ferry

was not an option, as the sheer size of the army outnumbered the available boats & ships. So, the Indian Prince Rama came to the same conclusion as the Persian King Xerxes – Call the Sea, Command it or Punish it.

Though the idea of ‘punishing the sea’ sounds weird, **let’s consciously start remembering - at least from this point onwards that: Ramayana is an Itihāsa (Historical Fiction)**. Though Rama might have been a King of the land, and many Religions of the land (not only Hinduism, But Jainism & Buddhism too) speak on his story, there is always an element of myth – hagiography within historiography.

Hence, let’s all set aside our religious sentiments – whatever be our religion, unlearn our vague beliefs for a moment, and start reading the Original Text as it is narrated.

अथोवाच रघुश्रेष्ठः सागरम् दारुणम् वचः ।

अद्वय त्वाम् शोषयिष्यामि सपातालम् महार्णव ॥
(6-22-01)

athōvāca raghuśrēṣṭha sāgarāṇ
dāruṇaṇ vacaḥ ।

adya tvāṇ śōṣayiṣyāmi sapātālaṇ
mahārṇava: ॥

Thereafter, Rama - the best of the Raghu Clan, to the sea, spoke terrific words ।

“Now, I will make you dry (by my arrow), till that deep ocean bed, hey Ocean” ॥ [34]

Now the Ocean gets terrified, and stands up from the middle of the Ocean. (*saagaraH svayam utthitah samudrasya madhyaat*). Let’s not make fun that how can an Ocean stand up, from the Ocean itself? This is an Epic, so let’s assume that the Ocean is personified and the Ocean King stood up.

The Ocean King designs a grand plan to construct a Bridge across the Ocean. He suggests to Rama to employ Nala – the monkey attendant, as the Chief Architect of the Bridge. He also promises to hold the bridge in position and assures safe passage to the army, without being hit by the crocodiles of the sea. Nala – the monkey attendant, accepts his new responsibility and commences construction.

Rama had already drawn his bow & arrow to punish the Ocean, and says he cannot let the arrow go in vain. So the Ocean King asks him to shoot the arrow towards a North Indian town named Drumatulya (**Marwar** in Rajasthan, **Marwari** People’s origin spoken as such in Ramayana). [35] That region turned into a desert (Maru meaning Desert, Wad meaning region) [36] by the extreme heat of Rama’s arrow.

Can an arrow, travel all the way from South India to North India? Let’s not immediately jump to say that: ancient Hindustan had hypersonic missile technology. That will land us in pseudoscience & false pride. However proudly claimed, we cannot use that Ramayana

missile technology in the Indian Army today. Let's also not immediately jump to condemn this as poetic rubbish. Let's continue to remember that: Ramayana is an Itihāsa (Historical Fiction) and fictitious events can be narrated in an epic-story.

b) Construction of the Bridge

Under Nala's supervision, the monkey soldiers started assembling wood & stones on the bridge. They uprooted the rocks & trees nearby, and dragged them towards the sea.

1. Wood from trees like: Sala, Asvakarna, Dhava, Bamboo, Kutaja, Arjuna, Tilaka, Tinisa, Saptaparna, Karnika, Vibhitaka, Karira, Bakula, Pomegranate, Asoka, Mango, Bilva, Coconut, Neem and Palmyra were used. [37]
2. Mountains were thrown into the sea. Water level rose due to the heavy weight of mountains.
3. Ropes were drawn on sides - to the entire length of the bridge, to keep the rocks in a straight line.
4. Plant Reeds & Wooden Logs were used to 'securely' fasten the moving parts of the bridge.
5. On the 1st day – 14 yojanas of bridge got constructed. [38]
6. On the 2nd day – 20 yojanas of bridge got constructed.

7. On the 3rd day – 21 yojanas of bridge got constructed.
8. On the 4th day – 22 yojanas of bridge got constructed.
9. On the 5th day – 23 yojanas of bridge got constructed & the Grand Bridge got completed.
10. **The Bridge was named: Nala Setu (NOT Rama Setu).** [39]
(nala sētum suduṣkaram: 2-22-74)
11. **The Bridge was: 100 yojanas in length & 10 yojanas in width.** [40]
(daśa (10) yojana vistīrṇam, śata (100) yojanam āyatam: 2-22-74)
12. **This is an Unimaginable, Impossible & Colossal Bridge.** [41]
(acintyam, asahyam, ca adbhutam, sāgarē sētu bandhanam: 6-22-76)
13. **The Bridge stood on a straight line in the sea.** [42]
(mahā sētuḥ, sīmanta iva sāgarē: 6-22-78)
14. **Thousand Crore Monkeys (10, 00, 00, 00, 000 – 10¹⁰) crossed the Bridge.** [43]
(koṭi sahasrāṇi vānarāṇām, sāgarē sētum jagmuḥ pāram: 6-22-77)
15. Some monkeys flew in the sky, some monkeys jumped in the water, some monkeys walked in the middle of the Bridge.
(anyē mārgam vaihāyasa gatāḥ, anyē salilē prapatanti, anyē madhyēna gaccanti: 6-22-83)

16. Rama, Lakshmana, Sugriva, Hanuman, Angada, Vibhishana & other leaders crossed too. They all landed in Lanka and setup camps there.

This is the **Actual Text of the Bridge Construction process** - as narrated by the **original author Valmiki**, in the **authentic, oldest & original version of the story** - Valmiki Ramayana. In the next section, let's examine the **inconsistencies that arise in the narration by Valmiki**. Was the Rama Setu (Nala Setu) really built in this manner? Or, was it a grand poetic imagination of the Author?

Inconsistencies of the Rama's Bridge

We all know that: not only Sri Lanka is an island, but in India - Rameswaram is an island as well.

Today, Pamban Island (Rameswaram Island) is connected to mainland India by the Pamban Bridge. Rameswaram sits on Pamban Island - separated from the mainland by Pamban Channel. After this stretch, comes the Palk Strait & Gulf of Mannar - with many small islets strewn along – all the way from Arichal Munai (Virkodi renamed to Dhanushkodi) [45] on the Indian side, to Talaimannar on the Sri Lankan side.

- **Inconsistency #1: If Rama Setu was built between Rameswaram/ Dhanushkodi and Lanka, how did Rama & his army cross the Ocean from Indian mainland to Pamban/Rameswaram, first?**

The stretch between mainland & Pamban is roughly 2.2 km of Sea.



Fig. 1: Mainland India to Rameswaram Island to Mannar Island [44]

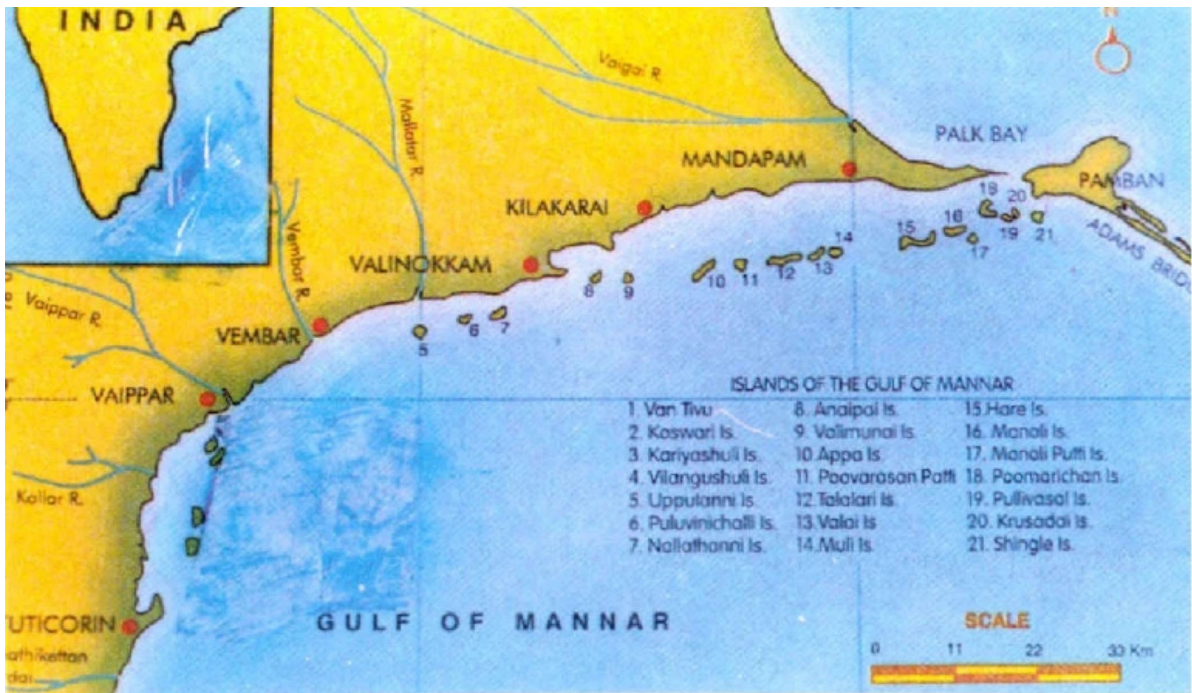


Fig. 2: Mainland India (Sethukkarai) and Islands in the Gulf of Mannar [46]

How could have Rama's Army crossed this stretch 1st, and next started building a bridge from Dhanushkodi to Sri Lanka? Without crossing the Pamban Channel, one cannot cross the next channel of Palk Strait. This is a LOGIC FAILURE in Valmiki.

Now, let's give a benefit of doubt to Rama & Valmiki. Let's assume there was no need to go to Rameswaram – the interim island. Supposedly, If Rama had built a bridge - straightaway from the Indian mainland (from Sethukkarai - Thirupullani) to Lanka, then there are so many islands in the Gulf of Mannar in between. (Refer Fig. 2). So now, where are the remains of that 'alternate Rama Setu' in that region? No trace,

whatsoever. If latter day construction activity could have wiped off that alternate bridge, then what happened to the sanctity & holiness of that 'alternate Rama Setu'? The same logic applies to the 'existing Rama Setu' as well. Mythical Bridges always fail the test of logic.

Actually, we do not even need Geography or Modern Science to break the Myth/Hype of Rama Setu. Valmiki's Original Text of the Ramayana itself breaks the current day hype. Let's examine one by one.

- **Inconsistency #2: Valmiki records the length of the Rama Setu Bridge as: 100 yojanas.**

दशयोजनविस्तीर्णम् शतयोजन मायतम् ॥ २-२२-७४

ददृशुर्देवगन्धर्वा नलसेतुम् सुदुष्करम् ।

74. devagandharvaaH = the celestials and the heavenly musicians; dadR^ishuh = saw; nala setum = Nala's bridge; dashayojana vistirNam = having a width of ten yojanas; shatayojanam aayatam = and a length of hundred yojanas; sudushhkaram = and which was very difficult to be built.

The celestials and Gandharvas, the heavenly musicians saw Nala's bridge, having a width of ten yojanas and a length of hundred yojanas and which was very difficult to be built.

Fig. 3: Valmiki Ramayana, Yuddha Kanda, Sarga 22, Sloka 74 – Length of the Bridge

(śata yojanam āyatam: 2-22-74).
[40] That translates to 1300 km
(1 yojana = 13 km, śata (100)
yojana = 13 x 100 km). But,
really Lanka is just 24 km away
from India. Distance Mismatch
& Logic Failure.

Actually Hindu Texts have clearly defined the measurement of Yojana. Swami Prabhupada of ISKCON, in his compilation of Shrimad Bhagavatam (Bhāgavata Purāṇa by Veda Vyasa): Canto 10 - Chapter 57 - Verse 18, records that today's equivalent length of a yojana is approx. 13 km (8 mi). [47] The Valmiki Ramayana ITRANS edition of Valmikramayan.net by Avinash Chopde & the corresponding text of Sanskrit Scholar KMK Murthy, also records that: the extent of a Yojana is (eight miles). [48]

The 14th century Indian Mathematician – Paramesvara, [49] also analyzes

the equivalence of Yojana and revises the Surya Siddhanta astronomical measurement - that translates to about 13 km (8 mi). Even without the revision of Paramesvara, the Surya Siddhanta measurement stands at 8 km (5 mi).

The renowned archaeologist & Archaeological Survey of India's (ASI) first director-general, Alexander Cunningham of IVC fame (Indus Valley Civilization), also analyzes the equivalent of Yojana measurement. In his Book: The Ancient Geography of India, in a separate chapter: Measures of Distance, he also records that: 1 yojana = 6.7 mi (10.8 km) ~ 8.2 mi (13.2 km). [50]

With all of the above measurement data, we can confirm that: 1 yojana = 13 km.

Hence, the length of the Rama Setu, as recorded by Valmiki as 100 yojana (100 x 13 = 1300 km) is completely

absurd (or) just a grand myth – whereas Lanka is just 24 km away from India.

We all know that Lanka is definitely not 1300 km away - even during 8th to 4th century BCE – which is the Ramayana's approx. date – as dated by modern scholars like JL Brockington & RP Goldman. [24], [25] Sri Lanka is just a 'stone's throw away' even by the texts of Rama Setu. Geographical Surveys record the minimum distance between India's tip & Sri Lanka as just approx. 24 km (15 mi). **If you have to travel a whopping 1300 km from Rameswaram, you might reach Thailand by a Bridge, but NOT Sri Lanka.**

Also Valmiki records – not only the length of the Bridge, but also the breadth of the Bridge. (daśa yojana vistīrṇam: 2-22-74). Daśa is 10, śata is 100 in Sanskrit. So, the breadth (vistīrṇam) of the Rama Setu runs to 10 yojana. (10*13=130 km, 80 mi) – as recorded by the Original Author Valmiki.

Nowhere in the history of the human-kind, such a Mega Bridge has been built. Even with ultramodern technology, the World's Widest Bridge ('Long Live Egypt' Bridge at Cairo, Egypt) [51] according to the Guinness Book of World Records is a meagre 0.067 km (65 m, 220 ft.) - compared to the Rama Setu Bridge of a whopping 130 km width. By today's standards, you can have approx. 20,000 lanes on Rama Setu.

As said earlier, whatever be our Religions, let's set aside our sentiments & vague beliefs for a moment, and start examining the Original Text. Valmiki himself says that: such a Bridge is Unimaginable & Impossible. [41] (acintyam, asahyam, sāgarē sētu bandhanam: 6-22-76). Let us learn to separate the poetic grandeur from the factual portion of the Epics. Only then, common sense & logic will prevail.

- **Inconsistency #3: Valmiki records that: Rama Setu stood on a Straight Line in the Sea. (mahā sētuḥ, sīmanta iva sāgarē: 6-22-78). [42] Then why satellite pictures of Setu appear 'curved' in the middle?**

Valmiki clearly says that the Rama Setu Bridge stood on a straight line (sīmanta) in the sea. [42]

But, if you notice the current day satellite pictures of the Rama Setu (a.k.a) Adam's Bridge, it appears 'curved & bent' in the middle. This is clearly an inconsistency & contradiction of facts in the Original Text.

There was a huge online hype sometime back in 2002 - based on false claims & extrapolations made by some NRI websites and Hindu news services - about the 'space images taken by NASA' of the Rama Setu, and 'carbon dated as being 1.7 million years old'.



Fig 4: Valmiki Ramayana, Yuddha Kanda, Sarga 22, Sloka 74 – Length of the Bridge

The US space agency NASA had to intervene and issue a clarification. NASA spokesman - Michael Braukus issued a note: “Some people have pictures taken by our astronauts to make their claim. No position can be taken on the basis of these photographs in any way. I am not aware of any carbon dating either.” [53]

Another NASA official Mark Hess (Chief, Office of Communications, Goddard Space Flight Center) noted: “Remote sensing images or photographs from orbit cannot provide direct information about the origin or age of a chain of islands, and certainly cannot determine whether humans were involved in producing any of the patterns seen. The

mysterious bridge was nothing more than a 30 km long, naturally-occurring chain of sandbanks called Adam's bridge. NASA had been taking pictures of these shoals for years. Its images had never resulted in any scientific discovery in the area. The images reproduced on the websites may well be ours, but their interpretation is certainly not ours.” [53]

Satellite Photos are NO proof of Ram Setu. If at all someone wishes to project them as proof, then he/she may have to contradict & deny Sage Valmiki himself, who clearly records that Rama Setu Bridge stood on a straight line (sīmanta) in the sea, [42] whereas satellite images show a ‘bend & curvature’ in the middle.

- **Inconsistency #4: The Number of ‘large-size’ Monkeys (Vanara) involved in the construction of Rama Setu - as given by Valmiki is a whopping 1000 Crore - 10 billion (10,00,00,00,000 – 10^{10}). (koṭi sahasrāṇi vānarāṇām, sāgarē sētum jagmuḥ pāram: 6-22-77). But, the Total Population of such large Monkey Primates of the whole world is just 15 lakhs (1.5 million). Zoological Statistics deny Valmiki.**

World Atlas [54] & Zoological Population Review by IUCN [55] (International Union for Conservation of Nature) give an estimated Population Count of ‘large-size’ Monkeys (like apes & catarrhine monkeys) in the world - approx. 2 million - quite a small

number compared to today's Human Population of 8 billion. Humans are the most populous primates on earth. Next to that, Monkey Primates figure 2nd on the list. The large-size monkeys (old world monkeys (a.k.a) Catarrhines) have a lesser population than the small-size monkeys (new world monkeys (a.k.a) Platyrrhines). In Sri Lanka alone, authorities have pegged the monkey population in the country to just 2-3 million, out of which the large-size apes are just in the few 1000s. Because monkeys can be elusive in the wild, they are hard to count. Even if we don't take a hard decision on this data, the Number of Monkeys as given by Valmiki - koṭi sahasrāṇi vānarāṇām (In Sanskrit, sahasram is 1000), 1 crore x 1000 = 10 billion Monkeys is really bewildering & false. Ramayana talks about human-like large-size monkeys (vAnara) compared to small-size monkeys (markaTa). Such large-size monkeys (vAnara) are just in the millions and not billions. But according to Valmiki, it looks as if, the entire monkey population of the whole World has camped in the small island of Lanka – 10 billion vAnaras – surpassing even the global human population of 8 billion.

From all of the above, we can clearly see Major Inconsistencies of Rama Setu - in the text of Valmiki, which is the Original content of All Ramayanas of the World.

As said earlier, let us learn to separate the myth portion from the history portion of the Epics. Not only Rama Setu, but many such Setus (Bridges) exist

Rank	Primate Name	Population (Est.)
1	Human	750,000,000
2	Muller's Bornean Gibbon	375,000
3	Gelada	200,000
4	Common Chimpanzee	299,700
5	Western Gorilla	200,000
6	Bornean Orangutan	69,000
7	Mentawai Langur	36,000
8	Bonobo	50,000
9	Kloss's Gibbon	50,000
10	Red-eared Guenon	20,000
11	Nilgiri Langur	20,000
12	Siberut macaque	30,000
13	Northern red colobus	15,400
14	Barbary macaque	15,000
15	Roosmalens' Dwarf Marmoset	10,000
16	Natuna Island Surili	10,000
17	Madame Berthe's Mouse Lemur	8,000
18	Sumatran Orangutan	7,300
19	Gray-headed Lemur	7,265
20	Pig-tailed lemur	17,300
21	Golden-headed Lion Tamarin	15,000
22	Golden-crowned sifaka	10,000
23	Cottontop Tamarin	6,000
24	Golden bamboo lemur	5,916
25	Eastern gorilla	5,880
		1,482,761

Fig. 5: Total Population of Monkeys in the World [54], [55]

across the Epics of the World. We just need to marvel & appreciate the ‘poetic grandeur of drama’ in those Epics, but NOT carry that baggage in real life and obstruct the good efforts of humanity.

Myth of the Rameswaram shrine

As we are reading the Original Text of Valmiki, let us also briefly touch on the history of Rameswaram. Does Valmiki

mention the legend of Rameswaram, as many people believe today? No.

It's also interesting to note that many Vaishnavites (people who follow the Vaishnava sect of Hindu Religion) dislike to visit & worship at Rameswaram. Rather they go to a different & nearby place called Sethukkarai (Thirupullani) and perform their ablutions & rituals there. Why is this disagreement and a different custom, if everyone belongs to the same Hindu religion?

The answer lies in the Original Text of Valmiki, and how the Rameswaram Shrine got established in latter days (only after the 11th century CE). The shrine for Lord Shiva was instituted by the Shaivite Brahmin Priests with patronage from the local chieftains - Sethupathi Kings in South India & Jaffna Kings in North Lanka (Arya Cakravarti). Today's legend of Rameswaram goes as follows: [56]

Rama, along with his wife Sita and stepbrother Lakshmana, wanted to worship the Lingam of Lord Shiva, in order to get freed from the sin of killing Ravana – the abductor of Sita & the King of Lanka. In India's Caste System, it's an age-old custom & old legal code, that one should never kill a person of the Brahmin caste/varna. Else, the sin of Brahmahati (Brahmahatya) will afflict the person - even if he is God.

Incidentally, Ravana was NOT a Brahmin, but a Nishada. Ravana was born to a Brahmin father

(Sage Vishrava) & a Shudra Demon mother (Kaikashi) – in Anuloma union of marriage. Even if the father is a Brahmin, because of the inter-caste marriage (Varna Sankara), that union is discouraged (Anuloma), and the resulting offspring is placed in the lower tier - as a Nishada, and NOT a Brahmin by Birth.

But Rama thinks that, he has killed a Brahmin in Ravana and wishes to absolve his sin. So, he asks his monkey-attendant Hanuman, to fetch a Shiva Lingam (phallic symbol of Shiva) from the Himalayan mountains for worship. As Hanuman was late, Sita creates a make-shift sand lingam with her own hands, and they all complete the worship on the shores of Rameswaram.

Hanuman arrives late, and is disappointed to see a make-shift lingam that has already been established. So, he tries to remove that sand lingam and replace it with the hard-earned lingam that he has fetched from the mountains. But, the sand lingam has settled so rigidly in the ground, that even his powerful monkey tail could not uproot it. Rama consoles Hanuman and places the 2nd lingam next to the 1st lingam and promises equal worship to both. Thus, a new town - Rameswaram is formed and established as a Jyotirlinga & also a Char-Dam shrine for Shaivite religious worship. (Shaivite sect of Hindu Religion).

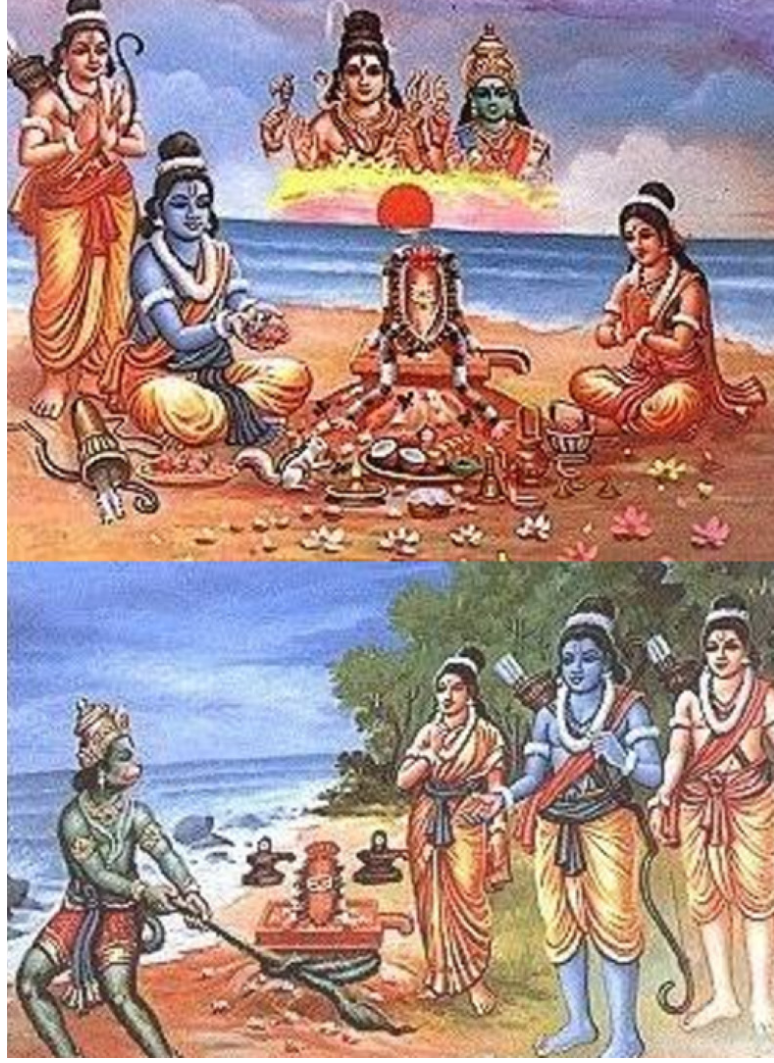


Fig. 6: Legend of the Rameswaram Shrine

Does this legend have validity in the Original Epic of Valmiki Ramayana? A big NO.

According to the Original Text of Valmiki, Rama & his party does NOT even stop at Rameswaram on their way back from Lanka to Ayodhya (Rama's home city in North India).

एष सेतुर्मया बद्धः सागरे सललितारणवे ।

तवहेतोर्वशिलाक्षि नलसेतुः सुदुष्करः ॥
(6-123-16)

eSha sēturmayā baddhaH, sāgarē salilārNavē ।

tavahētor vishālākShi, nalasētuH suduShkaraH ॥

“Here, the Bridge was built, on the salty waters of this Ocean

For your sake, oh large-eyed Sita, the difficult Nala Setu (built)” ॥ [57]

After winning the war, Rama & his entourage boarded the Pushpaka

Vimana (Flying Chariot) that belonged to the deceased Ravana, and started their journey back home. On the way, Rama was showing to Sita, the places she had missed - while she was locked up in Lanka.

He showed her the Lanka, Mainaka Mountain, Rama Setu (Nala Setu), Kishkindha (the Monkey Kingdom) and so many other spots. **But, Rameswaram is NOT at all mentioned in that list by the Original Author – Valmiki.** However, Rama makes a mention of Lord Shiva, and says that he blessed him at a spot (probably Ketheswaram) where the monkey-troops were camping in Lanka, by the Mainaka mountain. Incidentally, this is the mountain on which Hanuman jumped & rested after landing in Lanka.

In any case, in the Original Text of Sage Valmiki, Rama & Sita does NOT at all descend from the Pushpaka Vimana - to do the Linga Worship at Rameswaram. This is a latter day Shaivite legend, fabricated by Shaivites, and hence Vaishnavites avoid the Rameswaram shrine. Instead, they go to a nearby place Sethukkarai (Thirupullani) – where Rama commanded the Ocean, and perform ablutions & rituals there. The point to note here is, how people of the same religion are divided amongst themselves over a Myth and create Newer Myths from the Original Myth. Ultimately, all Myths lead to Illogic.

Rameswaram region got engulfed in these legends only after 11th CE - when

the Priestly clan started heavily propagating the Shaivite myth for their own sociopolitical advantage. With Royal patronage, even the names of towns were forcibly changed from local language (Tamil) to priestly language (Sanskrit). The fishing hamlet **Sangumal (Kayal)** became **Rameswaram**, the irrigation name of **Mugavai** became **Ramanathapuram** and **Virkodi** became **Dhanushkodi** (Refer Sethu Puranam compiled by Arumuga Navalar of Sri Lanka). [45] Incidentally, River Vaigai flows into the Bay of Bengal in the Mugavai (Ramanathapuram) area - with a fragile delta irrigation system and hence the name Mugavai.

Instead of appreciating & relishing the 'poetic grandeur of drama in the Epics', People tend to carry a 'sentimental baggage from the myths'. A thorough reading of the Original Texts may help dispel such Myths, and help the people to outgrow their fallacies which they are holding unknowingly.

Rama's Bridge or Adam's Bridge?

Not only the Hindu faith, but other faiths too succumb to myth & lack of logic. How come a chain of natural limestone shoals in the Palk Strait, got the peculiar name – Adam's Bridge?

According to the Creation Myth, Adam was the 1st Human being as per the Bible (both the Hebrew Bible: TaNaKh & the Christian Bible: Old Testament) and also the Holy Quran.

When Adam fell down - from the Garden of Eden to the Earth, he supposedly landed in Sri Lanka (Adam's Peak or Sri Pada mountain) and then moved to India, via the so-called bridge. Hence the name – Adam's Bridge. [58]

Why not Eve's Bridge or Adam-Eve's Bridge? Didn't she also fall along with Adam in the story? Even the myths are misogynistic and legends too discriminate the women folk.

But, does this legend have a reference in the Original Text? Both the Bibles & Quran? No. It's just a locally propagated myth and kept alive in the minds of the faithful & innocent local population. Only in the 11th century CE, such a myth arose in the local regions. This is well documented by the Iranian Indology Scholar – al Biruni of the Islamic Golden Age in his work Tārīkh al-Hind. [59]

Can the Original Text – the Holy Quran or the Hadiths confirm such a legend? There is a whole section in the Quran [60], Surah: Al-A'raf (verse 7.1 to 7.206) - that talks about the Fall of Adam & Eve. But, there is absolutely NO mention of the Bridge between India & Sri Lanka in the Quran or TaNaKh or the Old Testament. Again, people create Newer Myths from the Original Myth. Ultimately, all Myths lead to Illogic.

Suez & Sethu - Shipping Canal Projects

Be it Adam's Bridge or Rama's Bridge - or whatever new name from a new myth, that one might call it in the future - this stretch is just a chain of natural limestone shoals. This lies in the Palk Strait between the Pamban Island (India) & the Mannar Island (Sri Lanka). It is a series of parallel ledges of sandstone over patch reefs of sandy banks. Not much elaborate studies have been made so far, on its geological formation - and hence the myth propagation continues unabatedly.

Suez Canal – that connects the Red Sea in Asia/Africa to the Mediterranean Sea in Europe, also had many myths associated with it. The Biblical incident of Moses commanding & crossing the Red Sea (or the Reed Sea) is well known. [61] The sea-walk of Moses with the Israelites, who were escaping from Egypt is a shared myth, narrated by all 3 religions in the Book of Exodus - of the Hebrew Bible, Christian Bible & the Quran. Be it the Gulf of Suez or Gulf of Aqaba – wherever Moses is said to have crossed the Sea is immaterial - still a myth is a myth. But, **no one claimed that the Canal was the site of their holy forefather Moses - to whom even the Ocean obeyed & parted way – and asked to stop the Suez Project.** There was no emotional baggage from these religious myths, asking to stop the canal construction. Thankfully, the



Fig. 7: Schema of the Suez Canal & Sethu Canal

Suez Canal Project was NOT shelved because of silly sentiments.

The same analogy of Suez Canal, can also be applied to the Sethu Canal. (albeit the distance & time saving advantages in the Suez Canal project are much more because of the inherent Geography).

Sethusamudram Shipping Canal Project (SSCP) is a proposed canal construction project - to create a shipping route in the Palk Strait, that would avoid a lengthy navigation around the Sri Lankan island, and instead use a shorter route for ocean traffic.

1. Reduce approx. 470-780 km (254-424 nautical miles) and 21-36 hours of sailing time. [62]

2. Connect the West & East much faster, and improve traffic efficiency of maritime trade network in the Indian Ocean.
3. Place India on a strategical geopolitical advantage in Global Trade, much like Egypt which holds the Suez Canal.

But, though the idea may look simple & logical, there are many logistical challenges to the SSCP.

1. Waters in the Strait are shallow. The Canal has to be dredged for the passage of vessels.
2. Even after dredging, the Usability of the Canal for heavy tankers needs to be confirmed.

3. Construction might impact the Ecological Balance in the area, as the Strait is known for its small patch reefs & corals.

A brief history of the Sethusamudram Project:

The Sethu Canal idea was mooted by quite a number of people in History. Actually, for many centuries it had been used as a shipping passage – but only for small boats. British geographer James Rennell surveyed the passage in the late 1700s. [63] It was re-conceived in 1860 CE, by AD Taylor of the British Marine Survey. [64]

Even the great Engineer of British India, Sir Arthur Cotton – whom many Indian People adore for his contribution to Indian Irrigation – worked on this proposal and suggested dredging the canal. [65] Many proposals followed – by Townshend, Dennison, Stoddart, Robertson, Sir John Coode, and Robert Bristo – all officers in the British Era. After Indian Independence, a feasibility committee was setup in 1956 under Sir. Arcot Ramasamy (Mudaliar) [66] – which found the project viable with alternate route suggestions. After which, the Secretary of Shipping Dr. Nagendra Singh headed a committee and gave a report. The Ports Development Advisor too affirmed the proposal under a committee headed by HR Lakshmi Narayan.

The Indian Government in 1963, under the leadership of Hon. Prime

Minister Jawaharlal Nehru, tried to include the Sethu Canal Project in its 4th Five Year Plan [67] and enlisted support with the Hon. Chief Minister K. Kamaraj, in the local state of Madras (Tamil Nadu) - where the canal was to be constructed.

After the rationalist Dravidian Movement came to power in Tamil Nadu, the Hon. Chief Minister C. N. Annadurai (fondly called as Arignar Anna), in 1967 met up with the Union Minister of Shipping, Dr. V.K.R.V Rao – and emphasized on the need of the Sethu Canal, to uplift the socio-economic situation of people in the southern districts of his state. [68] Arignar Anna even included his opponents in the Sethu Team (former Chief Minister Hon. M. Bhaktavatsalam & former Industries Minister Hon. R. Venkatraman) to impress upon the Indian Govt. to commence the Sethu Project soon.

Arignar Anna's successor and the subsequent Chief Minister of Tamil Nadu, Hon. Kalaingar M. Karunanidhi took up the cause of the Sethu Canal as his favorite socio-economic goal. [69] In 1972, He impressed upon the Prime Minister of India, Hon. Indira Gandhi - when she dedicated the statue of Indian Freedom Fighter VO Chidambaram (VOC) at the Tuticorin Port - that the Sethu Canal is very crucial to the future development of the Tuticorin Port Authority as a Global Port. His successor & subsequent Chief Minister of Tamil Nadu, Hon. M.G.

Ramachandran supported the Sethu Canal project as well. [70]

With such a long history of deliberations & negotiations, only in 2005 - the Government of India (of which Kalaigarnar Karunanidhi's party was a coalition partner) [71] finally approved and inaugurated the SSCP (Sethusamudram Shipping Canal Project). From then on, in parallel with the developmental efforts of the project, myth propagation of Rama Setu also got aggressive by the fundamentalists. Ram Setu was appropriated for politico-religious purposes, hampering the hopes on the canal.

Even after expert opinions from - **Geologists like Dr C.P. Rajendran, Archaeological Survey of India (ASI), Indian Council of Historical Research (ICHR), clarifications from NASA** – the sentiment war on Setu continued. Religion wedded to Politics is always a deadly combination adding fuel to wild fire.

In the local state of Tamil Nadu, the **Dravidian Movement** – with committed causes for Social Justice, Women Empowerment, Caste Annihilation and Eradication of Superstitions, jumped into the fray and **started educating People on the positive points of the Sethu Canal**. The DK & DMK – progressive parties of the Dravidian Movement have been consistently engaging in this regard, against the religious appropriation of the canal by the conservative & fundamentalist parties.

Even the great poet of Modern Tamil Literature & Independence Activist – Bharathiyar, has sung on the Setu and recommends to dredge/raise it. [72] (cētuvaī mēṭurutti vīti camaippōm; சேதுவை மேடுறுத்தி வீதி சமைப்போம் Without dredging and cleaning it up, one can't raise upon an existing structure. It's just that, instead of a Canal, Bharathiyar advocates a New Bridge over Rama Setu. Is Bharathiyar, hurting the sentiments of Ram Bhaktas - by asking to 'alter' the Rama Setu? Is Bharathiyar, an anti-Hindu? Definitely not. In fact, he was an ardent Hindu who sang on Mother Parasakthi. Will the fundamentalists listen?

The point to note here is: If religious fundamentalists are concerned about environmental impact or welfare of fishermen & laborers impacted by the canal, then they can be appreciated. But that's the least of their concern. They are simply holding on to a Myth and resisting to protect that Myth - because of their blind affiliation to a religious text. But the irony is, they have never read their own religious text.

If the religious fundamentalists are truly religious, then they should go back to their own religious texts, and read the Original Verses of Sage Valmiki.

Their own sage – the Original Author of Ramayana has recorded that: **Rama Setu is Unimaginable & Impossible** [41] (acintyam, asahyam, sāgarē

sētu bandhanam: 6-22-76). We have already seen that there are numerous inconsistencies in the Rama Setu, esp. on its length of **100 yojanas**. (śata yojanam āyatam: 2-22-74). [40] **Valmiki's depiction of a 1300 km bridge is a distance mismatch, as Sri Lanka is just 24 km away from India.** If people realize that the true intention of Valmiki was: A Poetic Grandeur of Drama in his Devotional Epic, then they would throw off this silly sentimental baggage. They will realize that, opposing the Sethu Canal on religious grounds is a fallacy.

Recent Developments on the Rama Setu Issue

Very recently, there arose some light at the end of the tunnel. On behalf of the Govt. of India, Hon. Minister of State for the Ministry of Science & Technology, Ministry of Earth Science, and Minister of State for the Prime Minister's Office (PMO) – Dr. Jitendra Singh, answered a critical question on Ram Setu in the august house of the Indian Parliament – Council of States (Rajya Sabha) on Dec 22, 2022.

On a specific question on: Scientific evidence to India's History (Question No. 174, Session 258) - by the Hon. Member Mr. Anil Desai, and on a supplemental question by the Hon. Member Mr. Kartikeya Sharma, the Hon. Minister on behalf of the Indian Government stated: [73]

“Concerning the Ram Setu, we have certain limitations in discovering that, to some extent, through space technology we have been able to discover pieces and islands, some kind of limestone shoals, which of course, can't be accurately said to be remnants or parts of a bridge. “It is difficult to actually pinpoint the exact structure that existed there”.

Though the Govt.'s answer was a bit tricky in that - it did NOT deny the Rama Setu, but admitted there are LIMITATIONS in discovering the Rama Setu. Limestone shoals CAN-NOT accurately be said to be remnants of Rama Setu. There are difficulties in pinpointing the exact structure of Rama Setu in the Canal.

This is a very significant admission - because the party in the Government (BJP) is itself a champion of Rama Setu, Ram Temple, Ram iconography & other Hindutva causes. Yet, when it comes to Science & Technology, there seems to be NO evidence to support the Hindutva claim of Rama Setu.

In fact, only the BJP Govt. under the former Prime Minister, Hon. Atal Bihari Vajpayee (himself a great poet & orator) gave the initial green light for the project in 1998. After which, the Congress Govt. under the former Prime Minister Dr. Manmohan Singh – a great economist, launched the ₹2,400 crore Sethu project

RAJYA SABHA SUPPLEMENTRY QUESTION 258 SESSION

Q.No.174

SHRI KARTIKEYA SHARMA: Mr. Chairman, Sir, I would like to ask the hon. Minister whether the present Government is making any efforts for conducting scientific assessment of our glorious past, history and historical facts of India from the Vedic period to the present day and introducing it into the curriculum. We know that the previous Governments have ignored this.

MR. CHAIRMAN: Just the question. Now, hon. Minister.

DR. JITENDRA SINGH: Sir, I must compliment the hon. Member for raising a question that is seldom asked in this House, about using modern technology to explore information from the ancient past. I am glad to share with him that the Department of Space is actually engaged in this. We have discovered some of the information and remains from the Harappan Civilization also. As far as the question that was asked by him here concerning the *Ram Setu*, we have certain limitations in discovering that because the history dates back to more than 18,000 years and if you go by history, that bridge was about 56 kilometres long. Yes, to some extent, through space technology we have been able to discover pieces and islands, some kind of limestone shoals, which of course, can't be accurately said to be remnants or parts of a bridge. But they do have a certain amount of continuity in location through which some surmises can be drawn. So, what I am trying to say in short is that it is difficult to actually pinpoint the exact structure that existed there, but there is some kind of an indication, direct or indirect, that those structures have existed. We have also tried to conduct similar kinds of exercise with respect to the ancient Dwarka city and other places. I am glad that the hon. Members have also taken interest in this.

Fig. 8: Government of India's Reply on Rama Setu in the Indian Parliament [73]

in 2005. [71] Only after this, religious fundamentalism came to the forefront and myth propagation of Rama Setu got very aggressive by the fundamentalists.

Thankfully, the Hon. Supreme Court of India intervened in 2007-2008, and asked the Govt. to consider alternative routes & alignments for the canal,

without affecting existing structures - be it naturally formed shoals or the so-called Rama Setu.

But, even after an Alternative Route Alignment has been identified – which WILL NOT affect the so-called Rama Setu structure, the project is still at a standstill.

TRICKY TERRAIN

Six alternative alignments have been suggested by committees for the Sethu Samudram Canal Project over the years



Fig. 9 – Alternate Route Alignments of the Sethu Canal Project)[74]

Work stands suspended since 2007 - consequent to an interim stay by the Hon. Supreme Court of India for carrying out dredging operations in the Sethu Canal area. Pending a final decision of the Court on alternative alignment, all the dredgers were withdrawn since 2009. The Supreme Court's final hearing on the matter has been withheld indefinitely. The financial SPV (special purpose vehicle) set up to build the project is all set to be wound up.

It is in this backdrop of the Govt. of India & its recent admission of scientific facts in the Indian Parliament, the interest in the Sethu Canal Project has been rekindled.

In Jan 2023, the Chief Minister of Tamil Nadu, Hon. M.K. Stalin moved a resolution [75] in the State Legislature, that the Sethusamudram Shipping Canal Project (SSCP) should be restarted. All parties (incl. BJP) voted for the resolution urging the

Union Govt. to restart the shelved Sethusamudram project.

Religious Fundamentalist Groups still aspire to declare Ram Setu as at least a non-existing symbol of heritage. If that's all they need - a simple heritage declaration on paper - to a mythical structure in an Epic would not cost anything. Humanists, Progressive Groups, Environmentalists & Scientific Scholars – all aspire to restart the Sethu Canal Project to usher in socio-economic improvements for the People and to position the Indian Nation as a strategic geopolitical entity in the IOR (Indian Ocean Region). The project personnel have plans on the 'Alternative Route Alignment' without affecting the existing structure.

So, there is no reason anymore - to delay the SSCP. Let the Sethu Canal work be restarted, and aspirations of the People be fulfilled.

Pros & Cons of the Sethu Canal:

Merits of the Canal: [76]

1. When Sethusamudram is in place, ships sailing from the west coast to the east coast of India - will no more need to circumnavigate around Sri Lanka. (including the Indian Navy Ships).
2. The channel will cut short sailing - of an additional distance of

254-424 nautical miles and 21-36 hours of sailing time.

3. Indian Coast Guard and Naval ships will NOT have to circumnavigate around Sri Lanka. The channel will become an invaluable asset from a National Defense & Security point of view - enabling the Indian Navy easier & quicker access between the coasts.
4. A shorter navigation route between the Ports of Kanyakumari & Tuticorin. Also between other East Coast ports of Chennai, Vishakhapatnam, Paradip, Kolkata & Ports in neighboring countries such as Bangladesh, Myanmar, Thailand and to Ports in the choke point of Malacca Strait trade route.
5. Substantial savings can be had in shipping time & bunkering costs. This will directly benefit the shipping industry & EXIM trade.
6. Substantial savings for the shipping companies, exporters and importers, manufacturers. Trade will benefit from reduction in maritime transportation cost.
7. Indian fishing boats may transit freely through north of Adam's Bridge. (This is not possible today).
8. Fishermen will directly benefit - due to the potential for development of fishing harbors (between Nagapattinam and Tuticorin) - with proper landing and storage facilities.

9. Development of existing major & minor ports, and new ports will accelerate industrial development of the hinterlands - resulting in employment opportunities in manufacturing units and service sectors.
10. The project will facilitate coast movement of domestic cargo - leading to greater employment generation in the Ports and Industries in the vicinity.
11. Maritime trade in Tamil Nadu - both coastal and international, will flourish with rapid development of existing minor port in Ramanathapuram.
12. The project will contribute to the national economy, develop the coastal districts of Tamil Nadu, and improve the International competitiveness of India's exports.
13. India's exports will become globally more competitive. Domestic consumers will also be benefited with industries producing cheaper goods for domestic market - due to cost of raw material imports.
14. Transshipment of Indian Cargo on foreign shores will decrease and after some time stop altogether.
15. The Project will lead to considerable earnings of foreign exchange. EXIM trade need not incur the additional expenditure in foreign exchange, for transshipment of Indian cargo outside the country.

Demerits that need to be addressed:

1. **Usability of the Sethu Canal – not only for light & medium vessels, but for heavy carriers needs to be technically confirmed (vis-à-vis speed reduction for vessels on entry, as in any canal of the world).**
When Sethusamudram project was conceived, today's modern crude carriers weren't even available. But as ocean transport & technology grew, heavy tankers are employed nowadays which can even handle 150k-180k tons of Cargo. These carriers will need excess draft, and that suitability needs to be confirmed.
2. **Impact of Ecological Balance & Marine Life in the area.**
As the channel is at least 20 km away from Gulf of Mannar - Marine National Park, impact on marine breeding grounds, coral reefs or mangroves may not be adverse. But that needs to be confirmed.
3. **Impact on the Livelihood of Fishing Communities nearby.**
Again, since the channel is at least 20 km away from the Marine Biosphere, Fishing may not be impacted adversely. But, that needs to be confirmed. Fears of loss of livelihood must be allayed, incomes guaranteed, and confidence of the local population must be earned.
4. **Dumping of Dredged Material.**

The alternative route alignment has been selected so as to ensure that, there is no dredging in the Gulf of Mannar Marine Biosphere Reserve. Hence, dumping of dredged material may be a non-issue, but that needs to be professionally confirmed during operational logistics.

5. **Tsunami & Other Cyclone related impact.**

The 1964 Rameswaram Cyclone and the subsequent storm impact at Dhanushkodi is a lesson for any upcoming plans in the area. The Meteorological impact should also be technically confirmed.

6. **Cost/Benefit Ratio & Long term Sustainability of the project.**

Internal Rate of Return (IRR) & Return on Investment (ROI) are based on the Tariff revenue from usage of the Canal – which needs to be constantly monitored with respect to fluctuating world markets, esp. Europe & Africa. Sustainability of the project in the longer run of changing global scenario is a key risk.

Immediate Strategic Benefits:

1. Lower shipping costs for the coal carrying bulk carriers for the Tuticorin thermal power plant.

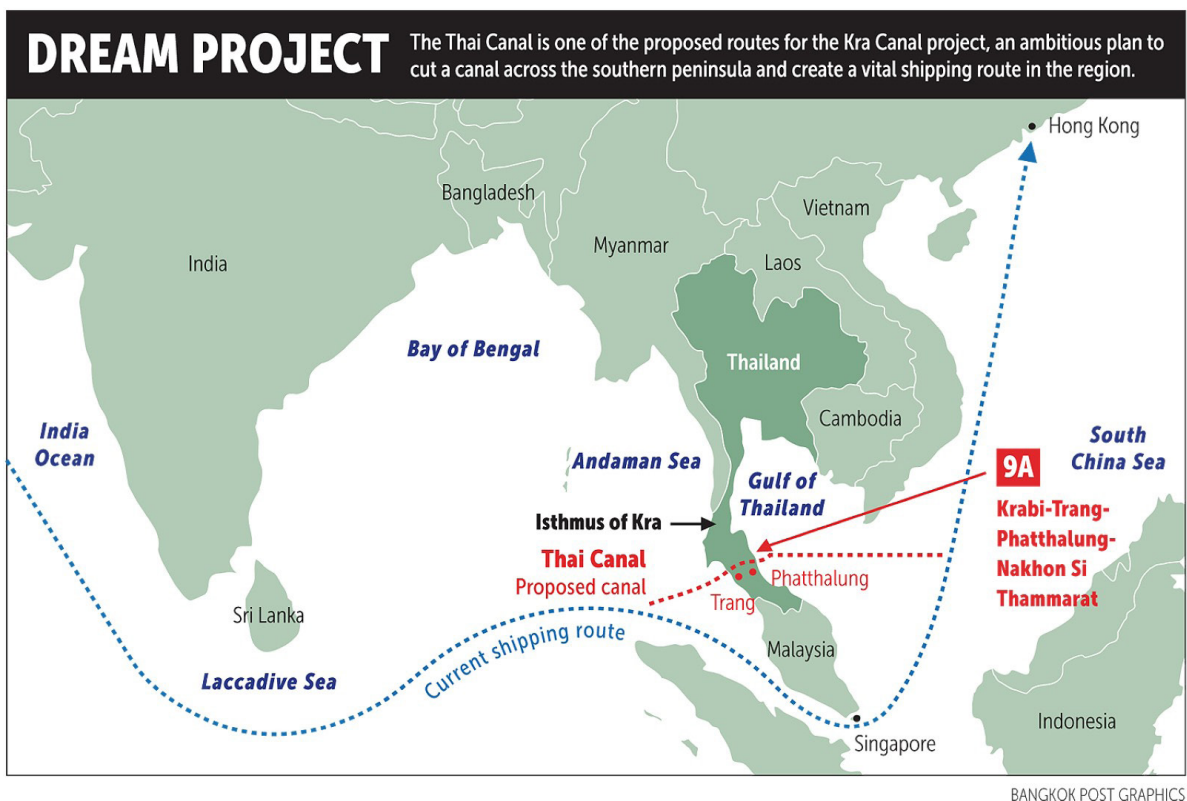


Fig. 10: Proposed Kra (Thai) Canal to offset Malacca Strait choke point [78]

2. Indian Coast Guard and Indian Naval ships will NOT have to circumnavigate around Sri Lanka.
 3. Checkmating China's 'String of Pearls' geopolitical strategy, amidst growing maritime expansion.
 4. Strengthening India's 'Necklace of Diamonds' geopolitical strategy in the Indian Ocean Region (IOR).
 5. China plans to leverage the proposed Kra Canal in Thailand (Canal that reduces circumnavigation around Malaysian peninsula by cutting a direct route across Thailand and giving quick access to the trade routes in the South China Sea). This will not only offset the choke point in the Malacca Strait trade route, but also will enhance China's global authority in the IOR. India needs to take cognizance of this futuristic development and have the Sethu Canal as a risk offset to the Kra Canal (Thai Canal).
- Bottom Width of Channel = 300 m
 - Depth of Channel = -12 CD
 - Permissible Draft of Vessel = 10m
 - Permissible Speed of Vessel in the Channel = 8 Knots
 - Overall length of Channel = 167 Km
 - Dredged Channel at north of Adam's Bridge = 35Km
 - Dredged Channel at Palk Strait = 54 Km
 - Vessel Traffic Management System (VTMS) & Navigational Aid for Safe Navigation

Inference & Conclusion

In this paper, we extensively dwelt on the various facets of Rama Setu (a.k.a) Adam's Bridge, vis-à-vis the Sethusamudram Shipping Canal Project (SSCP).

The background of Ramayana – not only from the context of Hindu religion, but also from the context of non-Vedic religions like Buddhism & Jainism was studied. In the Pan-Indian landscape, the epic-story of Ramayana has been intricately woven in the minds of millions of religious believers over many generations. A glance was made at the various versions of the same story of Ramayana - not only in India, but also across southeast Asia.

We even studied the passing references of Ramayana in Sanga Tamil, and concluded that they were just similes employed by poets and not an

Sethusamudram – Project Details at a glance: [77]

- Distance saving: 254-424 nautical miles
- Time saving: 21-36 hours of sailing time.
- Two-way channel
- Navigation day and night
- No Locks in the Channel

affirmation of Rama Worship in the ancient Tamil Era.

Valmiki Ramayana is considered as the Original, Oldest & Authentic version of the Ramayana. Knowledge about the Author many a time helps in decoding an influential work. We ascertained that Valmiki was a pseudonym and the author was not a Tribal, but Brahmin by birth – with textual evidence from the Skanda Purana. Valmiki Ramayana itself attests that Valmiki was not a Tribal, but a Brahmin.

Then, we studied the Structure of Valmiki Ramayana and appreciated the differences between an Ithihasa & a Purana. Ithihasa is Historical Fiction, but Purana is Absolute Fiction. From there we jumped on the Rama Setu Bridge and compared it with other Bridge Legends of the World – esp. Persian & Greek.

Going to the Roots and studying the Original Text, dispels our sentimental assumptions many a time. Hence, we directly went to the texts of Valmiki Ramayana and studied the slokas in Yuddha Kanda (Section 6), Sarga 22, Slokas 51 – 83, which talk about the Bridge Construction process of Rama Setu. From this study of the direct slokas, 4 major Inconsistencies were identified.

1. If Rama Setu was built between Rameswaram/Dhanushkodi and Lanka, how could have Rama's army crossed the Ocean - first

from the Indian mainland to Pamban/Rameswaram?

2. Valmiki records the length of the Rama Setu as: 100 yojanas. (śata yojanam āyatam). That translates to 1300 km. But, Lanka is just 24 km from India. Distance Mismatch & Logic Failure.
3. Valmiki records that: Rama Setu stood on a Straight Line in the Sea. (mahā sētuḥ, sīmanta iva sāgarē). Then why satellite pictures of the Setu, appear curved & bent in the middle?
4. Valmiki records the Number of Monkeys in the construction of Rama Setu as a whopping 1000 Crore (10 billion) (koṭi sahasrāṇi vānarāṇām). But Zoological Statistics do not agree.

Thus, we came to a conclusion that Rama Setu was a Grandeur of Drama in the Historical Fiction, and we just need to marvel & appreciate the grandeur of the Epic, but NOT carry that baggage in real life and obstruct the good efforts of humanity.

Later, we also touched on the Myth of the Rameswaram Shrine and figured out that the original author Valmiki does not even talk about Rama & Sita's worship at Rameswaram, contrary to what many people believe today. New Myths offshoot from Original Myth. This is not only the case with the Hindu religion but other religions as well, and the Adam's Bridge myth is also one such fallacy.

Finally, we touched upon the Sethusamudram Shipping Canal Project (SSCP), its brief history, recent developments, merits & demerits, strategic benefits in modern day geopolitics and the alternate routes for the Canal, without affecting existing structures.

Whatever be our Religions, let's set aside our sentiments and vague beliefs for a moment, and start examining the Original Text. Valmiki himself says that such a Bridge is Unimaginable & Impossible. (acintyam, asahyam, sāgarē sētu bandhanam). Learning to separate the myth portion from the history portion of the Epics, and appreciating the Poetic Grandeur in Epics is a virtue. Let's not carry the mythical baggage in real life and obstruct the projects for the people. Let the Sethu Canal work be restarted after environmental & professional clearances, and the socio-economic aspirations of the People of India be fulfilled. Also, let the strategic objectives of India as a Nation be achieved.

Bibliography

1. ^ Monier-Williams Sanskrit Dictionary, IITS Cologne Digital Sanskrit Lexicon - Universität zu Köln, 2014
2. ^ Adi Sankara & Rama Sastri, Vishnu Sahasra Nama Stotram Vol. 2: Namavali Sankara Bhasyartham Sangraha - University of Mysore, 1960

3. ^ KR Srinivasa (Iyengar), Asian Variations in Ramayana - Sahitya Akademi, 2005
4. ^ Paula Richman, Many Rāmāyaṇas: The Diversity of a Narrative Tradition in South Asia - University of California Press, 1991
5. ^ Bhadracharya Suri, Jain Ramayana (Parts 1 & 2) - Vishvakalyan Prakashan Trust
6. ^ Pannalal Jain & Hiralal Jain, Ravishenacharya's Padmapurana - Bhartiya Jnanpith, 2000
7. ^ Jacobi Herman, Vimalsuri's Paumachariyam - Prakrit Text Society, 2005
8. ^ Guru Gobind Singh, The Dasam Granth - Munshiram Manoharlal Publishers, 2005
9. ^ A. K. Ramanujan, Three hundred Rāmāyaṇas: Five Examples and Three Thoughts on Translation (in The Collected Essays of A. K. Ramanujan) - Oxford University Press, 2004
10. ^ U. Ve. Swaminatha (Iyer), Puraṇaanooru: moolamum uraiyum 3rd edition - Chennai Law Journal Press, 1935
11. ^ R. Ragava (Iyengar) & V. Rajagopal (Iyengar), Aganaanooru: moolamum uraiyum - Tata Printing Press, 1923
12. ^ Devaneya Paavaanar, Thamilzhar Matham - Nesamani Pathipagam, 1972

13. ^ Kannabiran Ravishankar, Ariyapadaatha Tamizhmozhi - Thadagam Publications, 2018
14. ^ Mayilai Seenii Venkatasamy, Samanamum Thamizhum - South India Saiva Siddhanta Publishing Society, 1954
15. ^ M. Srinivasachariar, History of Classical Sanskrit Literature - Motilal Banarsidass Publishers, 1989
16. ^ Skanda Purana: Ancient Indian Tradition & Mythology Series (Vol. LXV) - Motilal Banarsidass Publishers, 1950.
17. ^ Skanda Purana: Book 6 Sec.1 Ch.124 – also available online: <https://www.wisdomlib.org/hinduism/book/the-skanda-purana/d/doc502103.html>
18. ^ Vishwanath Naravane, Sages, Nymphs, and Deities: Excursions in Indian Mythology p. 86 - V.S. Naravane, 2009
19. ^ JP Mittal, History of Ancient India: A New Version: From 7300 BC to 4250 BC – Atlantic Books, 2006
20. ^ Valmiki, Shrimad Valmiki Ramayana – Vol. 1 & 2 (Book 1 Ch. 2 Verse 14) - Gita Press Gorakhpur, 1998
21. ^ Registrar General & Census Commissioner of India (<https://www.censusindia.gov.in>), Individual Scheduled Caste Primary Census Abstract Data and Appendix - Uttar Pradesh, 2011.
22. ^ Romila Thapar, Puranic Lineages & Archaeological Cultures in Ancient Indian Social History: Some Interpretations - Orient Longman, 1978.
23. ^ Chandrasekharendra Saraswathi & R Gopalakrishnan, Hindu Dharma - Kanchi Kamakoti Peetham, 1995
24. ^ Robert P. Goldman, Ramayana of Valmiki: An Epic of Ancient India. Vol. 1 p. 20 - Princeton University, 1990.
25. ^ John L. Brockington, The Sanskrit Epics. p. 379 – Brill Publishers, 1998.
26. ^ Valmiki, Shrimad Valmiki Ramayana – Vol. 1 & 2 (Book 1 Ch. 2 Verse 14) - Gita Press Gorakhpur, 1998
27. ^ Monier-Williams Sanskrit Dictionary, IITS Cologne Digital Sanskrit Lexicon - Universität zu Köln, 2014
28. ^ William Smith (Ed.), A Dictionary of Greek and Roman biography and mythology - London. John Murray, 1873
29. ^ Ibid.
30. ^ Andy Orchard, Dictionary of Norse Myth and Legend – Cassell Publishing House, 1997

31. ^ Dawson MM, The Ethical Religion of Zoroaster - Kessinger Publishing, 2005
32. ^ William Smith (Ed.), A Dictionary of Greek and Roman biography and mythology - London. John Murray, 1873
33. ^ Valmiki, Shrimad Valmiki Ramayana – Vol. 1 & 2 (Book 6 Ch. 22) - Gita Press Gorakhpur, 1998
34. ^ Ibid.
35. ^ D K Taknet, Marwari Samaj aur Brij Mohan Birla p. 20 - Indian Institute of Marwari Entrepreneurship, 1993
36. ^ Kumar Pavitra, Bhujia Barons: Untold Story of How Haldiram Built a Rs.5000-crore Empire - Penguin UK, 2016
37. ^ Valmiki, Shrimad Valmiki Ramayana – Vol. 1 & 2 (Book 6 Ch. 22) - Gita Press Gorakhpur, 1998
38. ^ Ibid.
39. ^ Ibid.
40. ^ Ibid.
41. ^ Ibid.
42. ^ Ibid.
43. ^ Ibid.
44. ^ Image Credit: Diversiflora International, Montpellier, France & Data SIO – NOAA, US Navy, 2012
45. ^ Niramba Azhagiya Desikar (Ed. Arumuga Navalar), Sethu Puranam: Kanthamaathana Chirappu verse. 79 p. 25(32) – Vidy-anupalana Yantira Salai
46. ^ Image Credit: CSMCRI (Central Salt and Marine Chemicals Research Institute) – Common Map of the Gulf of Mannar, 21 Islands in the Gulf of Mannar
47. ^ Veda Vyasa & AC Bhakti Vedanta, Srimad Bhagavatam (Bhāgavata Purāṇa): Canto10 Ch.57 V.18 – Bhaktivedanta Book Trust, 1965. Also available online: <https://vedabase.io/en/library/sb/10/57/18/> (Śatadhanvā placed the precious jewel in Akrūra's care and fled on a horse that could travel one hundred yojanas [eight hundred miles]).
48. ^ Avinash Chopde & Desiraju Hanumanta (Rao) & KMK Murthy, ValmikiRamayan.net – 1998. Also available online: http://valmikiramayan.net/utf8/yuddha/sarga22/yuddha_22_frame.htm
49. ^ R Thompson, “Planetary Diameters in Surya Siddhanta” - Journal of Scientific Exploration, 11 (2): 193–200, 1997
50. ^ Alexander Cunningham, The Ancient Geography of India: I. I. The Buddhist Period (Measures of Distance: Yojana, Li, Krosa) pp. 571-574 - Trubner and Co., 1871
51. ^ Guinness Book of World Records, 2019: Egypt claims new record for widest cable-stayed bridge <https://www.guinnessworldrecords.com/>

- news/2019/6/egypts-new-bridge-becomes-the-widest-cable-stayed-bridge-580736
52. ^ Image Credit: NASA Johnson Space Center (JSC), Adam's Bridge as seen from Space Shuttle Endeavour STS-59, 1994. <https://eol.jsc.nasa.gov/SearchPhotos/photo.pl?mission=STS059&roll=229&-frame=25>
 53. ^ NASA's Clarification on the Adam's Bridge (Rama Setu) Issue as reported by the News Agency – Hindustan Times. <https://tech.hindustantimes.com/tech/news/photos-no-proof-of-ram-setu-nasa-story-iSqcGrPS96TCb25hq-jxF3M.html>
 54. ^ IUCN (International Union for Conservation of Nature) – Monkey (Primates) Population <https://a-z-animals.com/blog/how-many-monkeys-are-in-the-world/>
 55. ^ World Atlas: List of Primates By Population <https://www.worldatlas.com/articles/list-of-primates-by-population.html>
 56. ^ JL Shastry, Linga Purana - Motilal Banarsidass Publishers, 1951
 57. ^ Valmiki, Shrimad Valmiki Ramayana – Vol. 1 & 2 (Book 6 Ch. 123) - Gita Press Gorakhpur, 1998
 58. ^ R Ricci, Banishment & Belonging: Exile & Diaspora in Serandip, Lanka & Ceylon - Cambridge Univ. Press, 2019
 59. ^ HJ Suckling, Ceylon: A General Description of the Island, Historical, Physical, Statistical - Chapman & Hall, 1876
 60. ^ Mustafa Khattab, Quran: Surah Al-A'raf (verse 7.1 to 7.206) <https://quran.com/7>
 61. ^ King James Version, The Holy Bible (Old Testament): Book of Exodus, Chapter 14, Verse 21 - Robert Barker, the King's Printer, 1611 <https://www.kingjamesbibleonline.org/Exodus-Chapter-14/>
 62. ^ Sethusamudram Shipping Canal Project: Archived Website: <https://web.archive.org/web/20071016075257/http://sethusamudram.gov.in/>
 63. ^ Rodd, Rennell. "Major James Rennell. Born 3 December 1742. Died 20 March 1830." The Geographical Journal 75, no. 4 (1930): 289–99. <https://doi.org/10.2307/1784813>.
 64. ^ Stanley Brunn, Engineering Earth: The Impacts of Mega Engineering Projects p.299 - Springer Science & Business Media, 2011
 65. ^ William Digby, General Sir Arthur Cotton: His Life and Work p.15 - Hodder & Stoughton, 1900
 66. ^ National Library Board Singapore, Sethusamudram Project Investigation (Article + Illustration) - Indian Daily Mail, 4 April 1956

67. ^ LN Dash, World Bank and Economic Development of India - APH Publishing, 2000
68. ^ Medha Kudaisya. "Developmental Planning in 'Retreat': Ideas, Instruments, and Contestations of Planning in India, 1967- 1971." Modern Asian Studies 49, no. 3 (2015): 711-52.
69. ^ Tamil Nadu Legislative Assembly Review: 4th Assembly, 6th Session (Sep 1969). https://www.assembly.tn.gov.in/archive/4th_1967/04_06.pdf
70. ^ Tamil Nadu Legislative Assembly Review: 8th Assembly (1985-88). https://www.assembly.tn.gov.in/archive/8th_1985/8threview_85-88.pdf
71. ^ The Hindu Images, July 02, 2005 Photo: S.R. Raghunathan <https://thehinduimages.com/details-page.php?id=5189782> (The Prime Minister, Dr. Manmohan Singh is inaugurating the Sethusamudram Project at a function organized in Vandiyur, Madurai on July 02, 2005. Looking on are (from left): Union Minister of Shipping, T.R. Baalu, DMK president, M. Karunanidhi, Congress president, Sonia Gandhi and the Tamil Nadu Governor, Surjit Singh Barnala)
72. ^ Subramaniya Bharathiyar, Bharathiyar Kavithaigal: Thesiya Geethangal - Kavitha Publication, 1992
73. ^ Jitendra Singh, Question# 174: Scientific evidence to India's history - Parliament of India: Rajya Sabha, 2022 <https://rajyasabha.nic.in/Questions/QuestionNumberWiseSearch#>
74. ^ Image Credit: RS Vasan, The Times of India, 2018 (<https://timesofindia.indiatimes.com/city/chennai/time-to-drop-sethusamudram-idea-and-rebuild-ram-sethu/articleshow/63602480.cms>) & First Post, 2014 (Pamban sea could be alternative route for Sethusamudram project) <https://www.firstpost.com/india/pamban-sea-alternative-route-sethusamudram-project-1788675.html>
75. ^ The Hindu - Jan 12 2023 (T.N. Assembly unanimously adopts resolution urging Centre to implement Sethusamudram project) <https://www.thehindu.com/news/national/tamil-nadu/tn-assembly-unanimously-adopts-resolution-urging-centre-to-implement-sethusamudram-project/article66368681.ece>
76. ^ Sethusamudram Shipping Canal Project: Benefits - Archived Website: <https://web.archive.org/web/20071016075257/http://sethusamudram.gov.in/WhatisSethu.asp>
77. ^ Sethusamudram Shipping Canal Project: Technical Details, Maps & Charts - Archived

Website: <https://web.archive.org/web/20071012232512/http://sethusamudram.gov.in/EngMaps.asp>

78. ^ The Kra Canal: New Gateway to Maritime Silk Road <https://web.archive.org/web/20150521005314/http://www.kracanalmaritimesilkroad.com/#!history/c1n8o>

References & Further Reading:

1. Valmiki, Shrimad Valmiki Ramayana – Vol. 1 & 2 (Book 1 Ch. 2 Verse 14) - Gita Press Gorakhpur, 1998
2. Shantilal Nagar, Jain Ramayana: Paumacaryu (Rendering into English from Apabhramsa) - BR Publishing, 2004
3. N. Vanamamalai (Pillai), The Legend of Ram Setu and Rameshwaram - V. Narayanan and Bror., 1929

4. Paula Richman, Many Ramayanas: The Diversity of a Narrative Tradition in South Asia - University of California Press, 1991
5. Gregory M Clines, Jain Ramayana Narratives: Moral Vision and Literary Innovation – Routledge, 2022
6. Hasmukhlal Dhirajlal Sankalia, Ramayana: Myth or Reality? - People's Publishing House, 1973
7. Zachary Karabell, Parting the Desert: The Creation of the Suez Canal – Vintage Books, 2004
8. EKG Nambiar & V Suryanarayan, Sethu Samudram Project: Divergent Perspectives – (Centre for Indian Ocean Studies) University of Calicut, 2005
9. CV Venkateswaran, Sethusamudram Ship Canal Project (Part 1: Report & Estimate) – Ministry of Transport & Shipping, Government of India, 1968

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