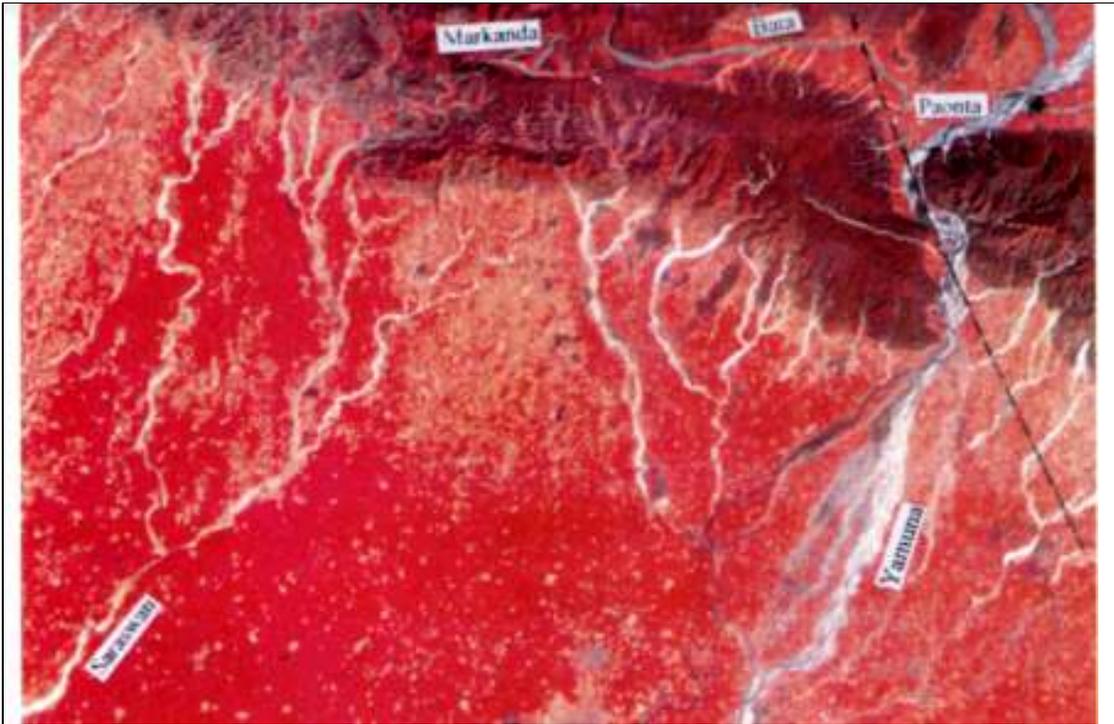


# Sarasvati River: Bharatiya civilization



Siwalik hills were left-laterally displaced. NNW-SSE-trending tear fault is still active. The earlier west-flowing rivers were swung southwards, following the path of the fault. The Bata stream which joins Yamuna from the west has a very wide valley. [NRSA, ISRO, Hyderabad]

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Bangalore 2004

**SARASVATI RIVER: BHARATIYA CIVILIZATION** by S. Kalyanaraman

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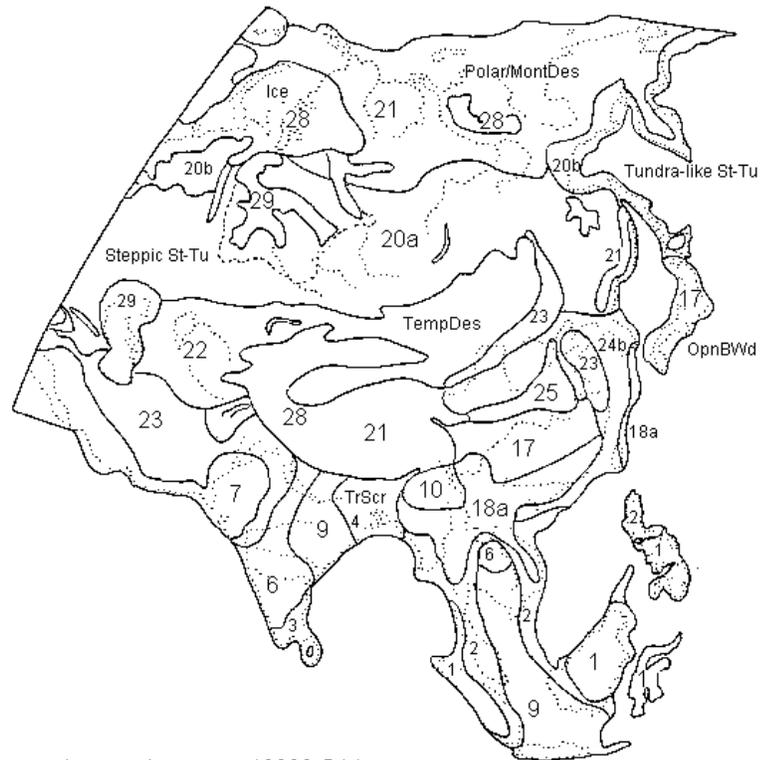
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# Sarasvati River: Bharatiya Civilization

**Bharata Bhuracana**



Reconstructed vegetation cover, 18000 C14 years ago.

This is a map of Vegetation Cover, 18000 C14 years ago prepared on the basis of hundreds of studies related to the glacial age between 18,000 to 10,000 years before present (BP). During the last ice age (when glaciers covered more land area than today) the sea level was about 400 feet lower than it is today. At that time, glaciers covered almost one-third of the land.

The legends of the map:

1. Tropical rainforest (evergreen or semi-evergreen forest of humid tropics, usually tall)
9. Savanna (dense grassland with a scattering of trees and/or bushes)
10. Temperate evergreen forest
29. Lakes and open water.

The map shows that continuous civilization and settlements of people in the regions covered by the present-day Bharat and countries to the east and west of Bharat, south of the Himalayan ranges.

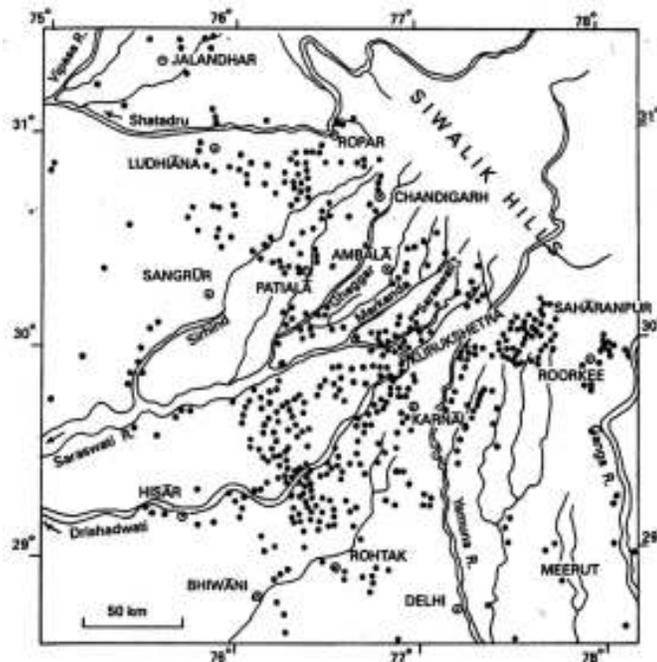
Indigenous evolution of civilization in Bharat is summarized based on the following chronological cultural sequences attested by archaeology:

Culture	Stages	Years Before Present (BP)
<b>Post-Sarasvati (post-Harappan)</b>	<b>Northern Black Polished Ware</b>	2600-2100
	Painted Grey Ware	2800-2400
	Ochre-Coloured Pottery (Lustrous Red Ware)	3500-3300
<b>Sarasvati (Harappan)</b>	<b>Late Sarasvati (Late Harappan)</b>	
	Sarasvati (Mature)	3900-3300
	Early Sarasvati	4600-3900
	Pre-Sarasvati	5000-4600
<b>Stone Age</b>	<b>Neolithic/Chalcolithic</b>	8500-7500
	Mesolithic	12000-8500
	Upper Palaeolithic	32000-12000
	Middle Palaeolithic	102000-32000
	Lower Palaeolithic	+70000-100000

### The scientific, historical reality of River Sarasvati

**Archaeological settlements in Sarasvati River Basin:** Kalibangan, Bana\_wali, Ra\_khigarhi. [After Joshi and Bisht, 1994].

Out of 2,600 archaeological sites in North-west Bharat, 2,000 sites have been discovered on the banks of River Sarasvati making it the Sarasvati Civilization of circa 3300 to 1500 BCE (Before Common Era). Major sites are: Rupanagar, Rakhigarhi, Banawali, Lakhmirwala (Bhatinda, Punjab), Kalibangan, Dholavira, Dwaraka, Lothal, Somnath. Satellite images and geomorphological studies have established the entire course of Vedic Sarasvati River over a distance of 1,600 kms. from Manasarovar glacier (Himalayas) to Somnath (Prabhas Patan, Gujarat). BARC scientists have proved through tritium analysis the channels) carrying glacial waters dated to over 8,400 years Before Present. Plate tectonics



caused by the clash of Indian Plate and Eurasian plate resulted in the tilting of the terrain of north-west Bharat This led to migration of Yamuna river towards Ganga to constitute the Triveni Sangamam and of Sutlej river towards Sindhu. Sarasvati River was thus deprived of glacial, Himalayan waters. It flows even today as a small stream, dependent on monsoon waters of the Siwalik ranges near Adi Badri (near Yamunanagar, Kurukshetra). People called Parvatis in Har-ki-dun valley (the origin point of River Sarasvati near Yamunotri) even today celebrate an annual festival honouring Duryodhana – an emphatic affirmation of the historicity of *Mahabharata*. The *Mahabharata* war was fought on the banks of River Sarasvati. Veda Vyasa was observing the celestial events from the banks of River Sarasvati

and he has recorded 150 astronomical events in the Great Epic. These events have been proved using modern Planetarium Computer Software to have occurred in 3000 BCE. *Mahabharata* and Sarasvati thus become the sheet anchors of modern and ancient history of Bharat.

**Cultural metaphors and cultural continuity of Bharatiya civilization**

That Manasarovar glacier was recognized in ancient texts is archaeologically attested by the finds of s'iva linga at Harappa and Kalibangan; the shape of the linga is a metaphor of the shape of the summit of Mt. Kailas at the foothills of which is the Manasarovar glacier recognized as the cultural capital of Bharat in the bharatiya tradition.



Plate X [c] Lingam in situ in Trench Ai (MS Vats, 1940, *Excavations at Harappa*, Vol. II, Calcutta): 'In the adjoining Trench Ai, 5 ft. 6 in. below the surface, was found a stone lingam [Since then I have found two stone lingams of a larger size from Trenches III and IV in this mound. Both of them are smoothed all over]. It measures 11 in. high and 7 3/8 in. diameter at the base and is rough all over.' (Vol. I, pp. 51-52)



Shape of Mt. Kailas summit compared with the shape of s'iva linga which is exemplified by 12 jytorlinga sthana on river banks.

The following key dates are found to be consistent with the sky inscriptions observed by Veda Vyasa:

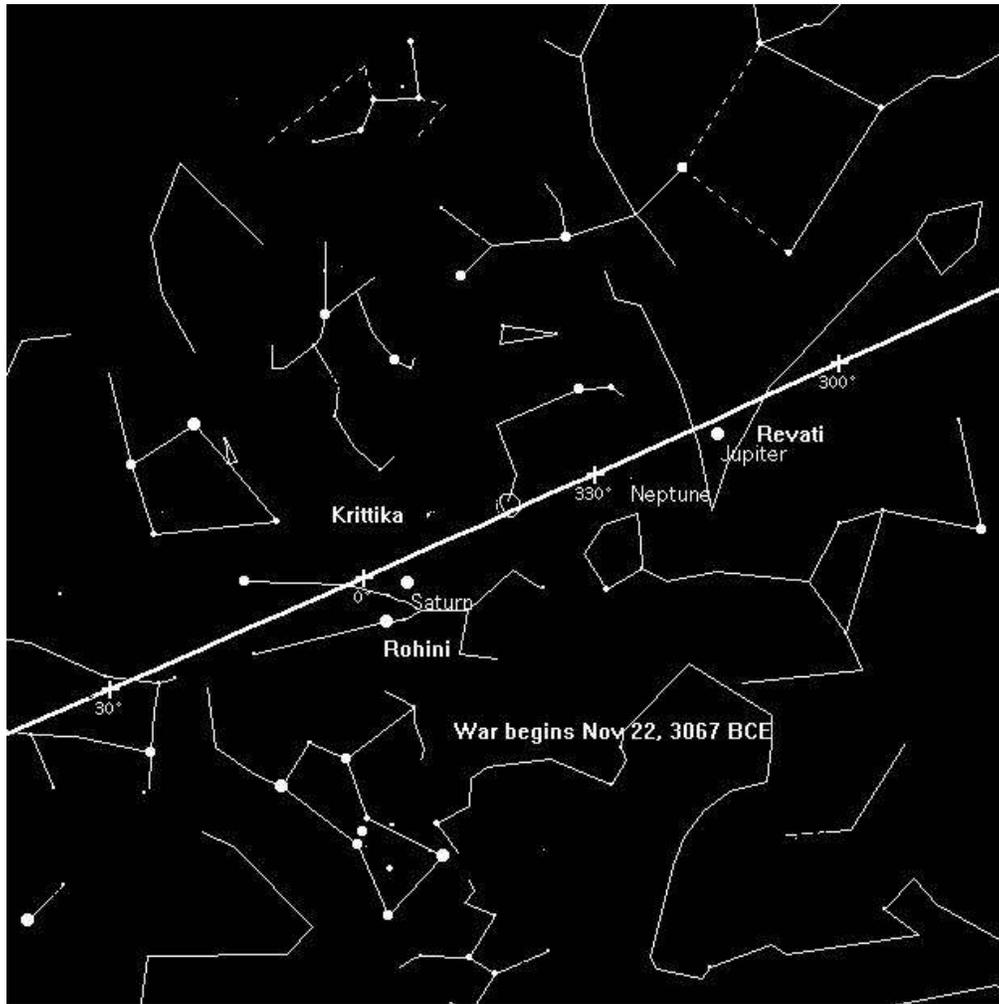
- Krishna's departure on Revati Sept. 26, 3067

BCE

- Krishna's arrival in Hastinapura on Bharani Sept. 28, 3067 BCE
- Solar eclipse on Jyeshtha amavasya Oct. 14, 3067 BCE
- Krittika full moon (lunar eclipse) September 29, 3067 BCE
- War starts on November 22, 3067 BCE (Saturn in Rohini, Jupiter in Revati)
- Winter solstice, January 13, 3066 BCE
- Bhishma's expiry, January 17, 3066 BCE Magha shukla ashtami
- A fierce comet at Pushya October 3067 BCE
- Balarama sets off on pilgrimage on Sarasvati on Pushya day Nov. 1, 3067 BCE
- Balarama returns from pilgrimage on Sravana day Dec. 12, 3067 BCE

- On the day Ghatotkaca was killed moon rose at 2 a.m., Dec. 8, 3067 BCE

These dates, in particular the occurrence of Winter solstice which is a critical celestial event, gets corroborated by the chronology of *Kaus'i\_taki Brahmana* which should not be far-removed from the date of *S'atapatha Brahman.a* (2927 BCE) which has been established by Dr. BN Narahari Achar based on the Brahmana observations that the Kritthika (Pleiades group) rose exactly at the east point (eta\_ ha vai pra\_ cyai dis'e na cyavante: S'Br. II Kanda, Ch. 1, Br. 2,3). <http://www1.shore.net/~india/ejvs/ejvs0502/ejvs0502.txt>  
<http://www1.shore.net/~india/ejvs/issues.html>



**War starts on Nov. 22, 3067 BCE as observed by Ved Vyasa**

A historical project in search of River Sarasvati to discover our roots, has become a magnificent opportunity for national resurgence and to make Bharat a developed nation.

This is presented in three sections: observations, conclusions and areas for further research.

### **Observations**

Many sparks have emerged from the anvils of scholars and researches of a variety of disciplines – all focused on the roots of civilization of Bharat.

Collated together, these sparks have become a floodlight which throws new light on the civilization of Bharat.

It is a new light on the civilization because of the following reasons:

- A mighty river, a river mightier than Brahmaputra had drained in North-west Bharat for thousands of years prior to 1500 BCE (Before Common Era).
- The collective memory of a billion people, carried through traditions built up, generation after generation, recalls a river called Sarasvati; this memory is enshrined in the celebration of a Mahakumbha Mela celebrated every 12 years at a place called Prayag where the River Ganga joins with River Yamuna. River Sarasvati is also shown as a small monsoon-fed stream in the topo-maps of Survey of India and in village revenue records in Punjab and Haryana.

Yet, the tradition holds that there is a *triveni san:gamma* (confluence of three rivers). The third river is River Sarasvati. This tradition has now been established as a scientific fact – ground truth -- thanks to the researches carried out using satellite imageries, geo-morphological studies, glaciological and seismic studies and even the use of tritium analysis (of traces of tritium present in the bodies of water found in the middle of the Marusthali desert) by atomic scientists. The desiccation of the river was caused by plate tectonics and river migrations, between 2500 and 1500 BCE.

These studies have established beyond any doubt that River Sarasvati was a mighty river because it was a confluence of rivers emanating from Himalayan glaciers; the River Sutlej and River Yamna were anchorage, tributary rivers of River Sarasvati. The river had drained over a distance of over 1,600 kms. from Manasarovar glacier (W. Tibet) to Somnath (Gujarat) with an average width of 6-8 kms. At Shatrana (south of Patiala), satellite image shows a 20 km. wide palaeo-channel (ancient course), at the confluence of five streams – Sutlej, Yamuna, Markanda, Aruna, Somb – referred to as *Pan~ca Pra ci\_ Sarasvati* in Bharatiya tradition. This becomes *Saptatha Dha\_ ra Sarasvati* when two other streams – *Dr.sadvati* and *Ghaggar* – join the River Sarasvati at Sirsa

- A civilization was nurtured on the banks of this River Sarasvati as recognized through the work of archaeologists and the geographical/historical facts contained in ancient texts of Bharat, such as the *Mahabharata* and *Pura\_n.a*. This civilization was an indigenous evolution from earlier than 10000 BCE and can be said to be one of the oldest civilizations in the world, heralding the Vedic heritage.

Over 2,000 archaeological sites have been discovered in the Sarasvati River Basin. There is a description, in 200 s'lokas, in the S'alya Parva of Mahabharata of a pilgrimage undertaken by Balarama, elder brother of Kr.s.n.a, along the River Sarasvati from Dwaraka to Yamunotri.

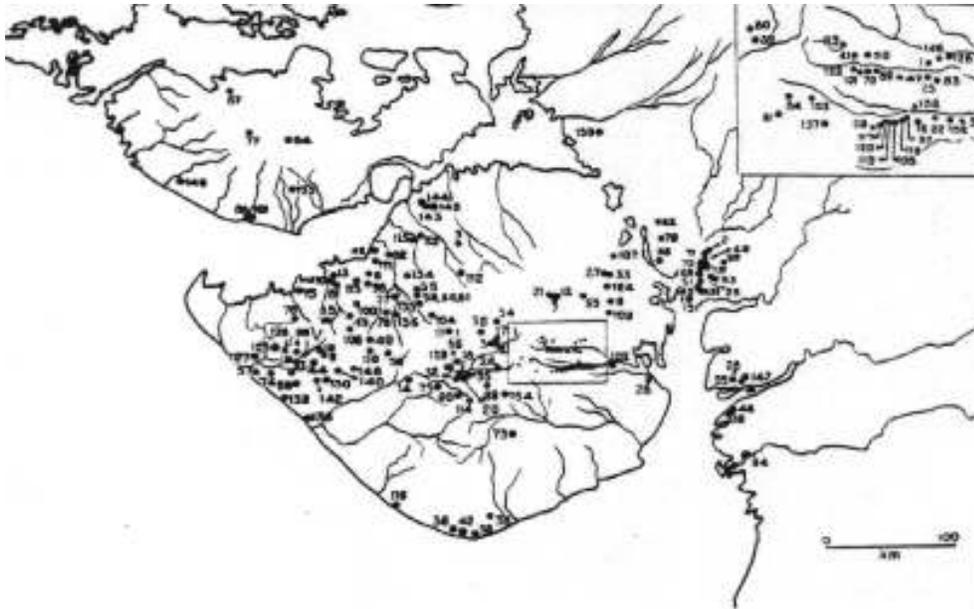
- The oldest extant human document is the R.gveda which is a compilation of 11,000 r.ca-s perceived by hundreds of seers. An understanding of this document is fundamental to an understanding of the cultural ethos of Bharat.
- R.gveda presents a world-view in allegorical and metaphorical terms perceiving an essential unity in cosmic phenomena and r.ta (a rhythm which modulates the terrestrial and celestial events alike). While the document presents the early philosophical thought related to *dharma*, it also describes the lives and activities

of people – the Bharatiya. R.gveda thus presents a variegated picture covering a variety of facets of a maritime-riverine civilization, such as transport systems, agriculture, use of fire, minerals and metals to produce household utensils, ornaments, tools and weapons. Archaeologists have unearthed many examples of technology used in the days of the Sarasvati Civilization (from circa 3500 BCE to 1500 BCE). These provide evidence for the evolution of s’ankha industry in 6500 BCE, preparation of alloys such as pan~caloha, bronze, brass, pewter and bell-metal. Maritime nature of the civilization is exemplified by the clusters of sites along the coastline in and around Gujarat and a steatite seal depicting a boat:

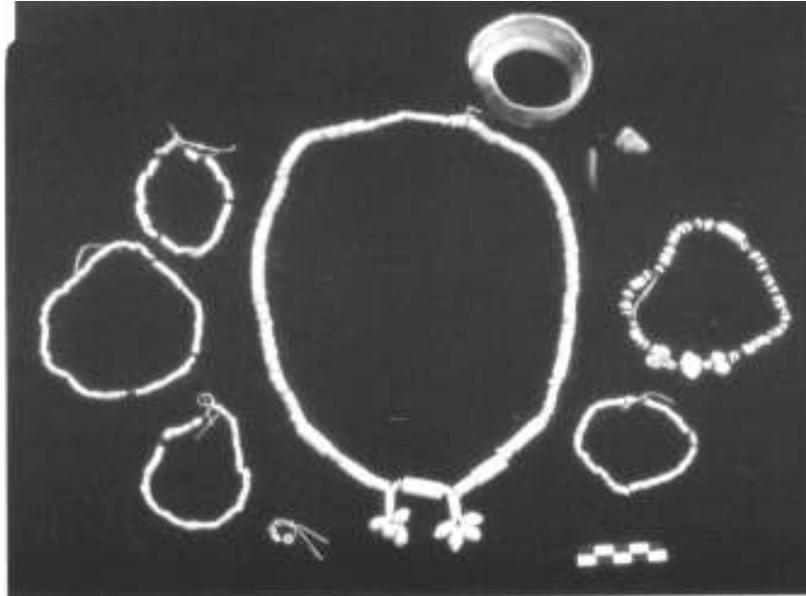


**Material:** terra cotta  
**Dimensions:** 4.6 cm length, 1.2 x 1.5 cm width Mohenjo-daro, MD 602 **Islamabad**

Museum, NMP 1384 Dales 1965a: 147, 1968: 39



This is confirmed further by the find of a burial of a woman at Nausharo shown wearing s’ankha ornaments including a s’ankha wide bangle. The stratigraphic date of this burial is 6500 BCE attesting to an 8500 year-old continuous s’ankha industry in Bharat.



**TURBINELLA PYRUM, S'AN:KHA KR.S'ANA (CONCH PEARL)**

Burial ornaments made of shell and stone disc beads, and *turbinella pyrum* (sacred conch, s'an:kha) bangle, Tomb MR3T.21, Mehrgarh, Period 1A, ca. **6500 BCE**. The nearest source for this shell is Makran coast near Karachi, 500 km. South. [After Fig. 2.10 in Kenoyer, 1998].

**Bronze foot and bronze anklet:** Mohenjo-daro [After fig. 5.11 in: DP Agrawal, 2000]

The method of cutting a s'ankha to prepare s'ankha bangles is demonstrated by the photo of an artisan working in Kolkata. This s'ankha bowman is referred to as s'ankha kr.s'a\_na in R.gveda and Atharvaveda. RV 1.112.21 With those aids by which you defended Kr.s'a\_nu in



battle, with which you succoured the horse of the young Purukutsa in speed, and by which you deliver the pleasant honey to the bees; with them, As'vins, come willingly hither. [Kr.s'a\_nu are somapa\_las, vendors or providers of Soma; hasta-suhasta-kr.s'a\_navah, te vah somakrayan.ah (*Taittiri\_ya Sam.hita\_1.2.7*); kr.s'a\_nu = agni; purukutsa was the son of Mandha\_ta\_ and husband of Narmada\_, the river; the text has only 'of the young', Purukutsa is added]. S'AN:KHAH KR.S'ANAH = PEARL SHELL WON FROM THE OCEAN AND WORN AS AN AMULET (AV 4.10.1)



A dialectical continuum has existed in Bharat from the days of R.gveda and Sarasvati Civilization. The civilization constituted a linguistic area, as it is even today in Bharat. Mleccha was a language spoken by Vidura and Yudhis.t.hira as

evidenced by *Mahabharata*. Mleccha were *vra\_tya*-s who worked with minerals and metals. The semantic structures (words and meanings) of all languages of Bharat – Munda, Dravidian or Indo-Aryan categories – present an essential unity among the speakers of various dialects of Bharat. The seven volume work on Sarasvati substantially draws upon the *Indian Lexicon*, which is a comparative dictionary of over 25 ancient languages of Bharat.



It is possible to decode the epigraphs of Sarasvati civilization as hieroglyphs, that is, use of glyphs to connote similar sounding words which denote metal-workers' artifacts such as metals, minerals and types of furnaces. The language is mleccha, the same language spoken by Vidura and Yudhishtira.

**Feline figurine terracotta. A woman's face and headdress are shown. The base has a hole to display it on a stick. (After JM Kenoyer/Courtesy Dept. of Archaeology and Museums, Govt. of Pakistan).**

The phonemes and the associated glyph evoke a meaning: **kol** 'metal' (Ta.) kola = blacksmith (Ma.); kol, kollan- (Ta.); kolime, **kulime**, kolume = a fire-pit or furnace (Ka.); kolime id., a pit (Te.); kolume kanda\_ya = a tax on blacksmiths (Ka.) kolimi titti = bellows used for a furnace (Te.)

There is a lexeme which connotes *pan~caloha*, an alloy containing five metals:: **kol** This word is represented *rebus* (lit. sounds like) by a tiger, **kolhu-o** (G.)

**kol** = *pan~calo\_kam* (five metals); **kol** metal (Ta.lex.) **pan~caloha** = a metallic alloy containing five metals: copper, brass, tin, lead and iron (Skt.); an alternative list of five metals: gold, silver, copper, tin (lead), and iron (dha\_tu; Na\_na\_rtharatna\_kara. 82; Man:gara\_ja's Nighan.t.u. 498)(Ka.) *kol, kolhe*, 'the koles, an aboriginal tribe if iron smelters speaking a language akin to that of Santals' (Santali) **kol** = kollan-, kamma\_l.an- (blacksmith or smith in general)(Ta.lex.) kollan = those who guard the treasure (Ta.lex.) cf. golla (Telugu) **khol, kholi** = a metal covering; a loose covering of metal or cloth (G.) [The semant. expansions to kolla\_puri or kolha\_pur and also to '**kolla\_ppan.t.i**' a type of cart have to be investigated further].

**kol** 'working in iron, blacksmith (Ta.); *kollan-* blacksmith (Ta.); *kollan* blacksmith, artificer (Ma.)(DEDR 2133)

**kolime, kolume, kulame, kulime, kulume, kulme** fire-pit, furnace (Ka.); kolimi furnace (Te.); pit (Te.); **kolame** a very deep pit (Tu.); kolume kanda\_ya a tax on blacksmiths (Ka.); **kol, kolla** a furnace (Ta.) *kole.l* smithy, temple in Kota village (Ko.); *kwala.l* Kota smithy (To.); *konimi* blacksmith; *kola* id. (Ka.); *kolle* blacksmith (Kod.); *kollusa\_na\_* to mend implements; *kolsta\_na, kulsa\_na\_* to forge; *ko\_lsta\_na\_* to repair (of plough-shares); *kolmi* smithy (Go.); *kolhali* to forge (Go.)(DEDR 2133).] **kolimi-titti** = bellows used for a furnace (Te.lex.) **kollu-** to neutralize metallic properties by oxidation (Ta.lex.) **kol** brass or iron bar nailed across a door or gate; kollu-t-tat.i-y-a\_n.i large nail for studding doors or gates to add to their strength (Ta.lex.) **kollan--kamma\_lai** < + karmas'a\_la\_, kollan--pat.t.arai, kollan-ulai-k-ku\_t.am blacksmith's workshop, smithy (Ta.lex.) cf. ulai smith's forge or furnace (Na\_lat.i, 298); ulai-k-kal.am smith's forge; ulai-k-kur-at.u smith's tongs; ulai-t-turutti smith's bellows; ulai-y-a\_n.i-k-ko\_l smith's poker, beak-iron (Ta.lex.) [**kollulaive\_r-kan.alla\_r:nait.ata. na\_t.t.up.**]; **mitiyulaikkollan- mur-iot.ir.r.an-n-a: perumpa\_**(Ta.lex.) Temple; smithy: kol-l-ulai blacksmith's forge (kollulaik ku\_t.attin-a\_l : Kumara. Pira. Ni\_tiner-i. 14)(Ta.lex.) cf. kolhua\_r sugarcane milkl and boiling house (Bi.); kolha\_r oil factory (P.)(CDIAL 3537). *kulhu* 'a hindu caste, mostly oilmen' (Santali) kolha\_r = sugarcane mill

and boiling house (Bi.)(CDIAL 3538).

kola\_ burning charcoal (L.P.); ko\_ila\_ burning charcoal (L.P.N.); id. (Or.H.Mth.), kolla burning charcoal (Pkt.); koilo dead coal (S.); kwelo charcoal (Ku.); kayala\_ charcoal (B.); koela\_ id. (Bi.); koilo (Marw.); koyalo (G.)(CDIAL 3484). < Proto-Munda. ko(y)ila = kuila black (Santali): all NIA forms may rest on ko\_illa.] koela, kuila charcoal; khaura to become charcoal; ker.e to prepare charcoal (Santali.lex.)



m1181A 𑒧𑒛𑒛𑒛𑒛 𑒧𑒛𑒛𑒛𑒛 2222 Pict-80: Three-faced, horned person (with a three-leaved pipal branch on the crown), wearing bangles and armlets and seated, in a yogic posture, on a hoofed platform Meaning conveyed: penance !

Grapheme: **ko\_lemu** = the backbone (Te.)

**kolma** = a paddy plant (Santali) Rebus: **kolime**= furnace (Ka.)

The meaning conveyed by penance itself can be composed as a glyph: a person seated in a yogic posture. **kamad.ha**, **kamat.ha** = a type of penance (Pkt.). This word can also be imaged like a ficus leaf; **kamat.ha** (Skt.) or a bat, **kabat.a** (Ka.)

This sound of this word evokes meanings related to tools of trade of a professional artisan : **kamat.a** = a portable furnace for melting precious metals (Te.) **kamat.ha\_yo** = a learned carpenter or mason, working on scientific principles (G.) **kammat.i\_d.u** = a goldsmith, a silversmith (Te.) **kampat.t.am** = mint (Ta.)



**Sign 28** Ligature on sign 28: dhanus 'bow' (Skt.) dhan.i\_ = the owner, the possessor (G.)

**kamat.amu**, **kammat.amu** = a portable furnace for melting precious metals; **kammat.i\_d.u** = a goldsmith, a silversmith (Te.lex.) **ka~pr.aut.**, **kapr.aut.** jeweller's crucible made of rags and clay (Bi.); **kapr.aut.i\_** wrapping in cloth with wet clay for firing chemicals or drugs, mud cement (H.)[cf. modern compounds: **kapar.mit.t.i\_** wrapping in cloth and clay (H.); **kapad.lep id.** (H.)](CDIAL 2874). **kapar-mat.t.i** clay and cowdung smeared on a crucible (N.)(CDIAL 2871).

**kampat.t.tam** coinage, coin (Ta.); **kammat.t.am**, **kammit.t.am** coinage, mint (Ma.); **kammat.i** a coiner (Ka.)(DEDR 1236) **kammat.a** = coinage, mint (Ka.M.) **kampat.t.a-k-ku\_t.am** mint; **kampat.t.a-k-ka\_ran-** coiner; **kampat.t.a- mul.ai** die, coining stamp (Ta.lex.)

Attesting to bronze-working coterminus with iron-working are sites on Sarasvati river and Ganga river basins of 3<sup>rd</sup> and 2<sup>nd</sup> millennia BCE.



Large updraft kiln, Harappa (ca. 2400 BCE), found in Mound E, 1984. (After Fig. 8.8, Kenoyer, 1998). A full-scale reconstruction of the ancient Harappan kiln. Harappa Archaeological Research Facility used to fire large storage jar, pottery and figurine replicas. (After Fig. 8.9, Kenoyer, 1998)

These copper and pottery kilns are comparable to the iron smelters discovered on Ganga river basin dated to 2<sup>nd</sup> millennium BCE at sites: Raja-Nal-ki-tila, Malhar and Lohardewa.

[After Figure 6. Damaged circular clay furnace, comprising iron slag and tuyeres and other waste materials stuck with its body, exposed at lohsanwa mound, Period II, Malhar, Dist. Chandauli, p. 542.]



- Using this lexical repertoire of the linguistic area called Bharat, it has been possible to crack the code of the epigraphs of the civilization inscribed on over 4,000 objects including seals, tablets, weapons and copper plates. The epigraphs are

composed of hieroglyphs (referred to as Mlecchita Vikalpa – picture writing --, one of the 64 arts listed by Va\_tsy\_a\_yana).

The code of hieroglyphs is based on rebus (use of similar sounding words and depicted through pictures) and represent the property possessions of braziers – possessions such as furnaces, minerals, metals, tools and weapons. These were also traded over an extensive area upto Tigris-Euphrates river valley in Mesopotamia and the Caspian Sea in Europe.

- The tradition of epigraphy evidenced in punch-marked coins and copper plate inscriptions in the context of Sarasvati Epigraphs points to millions of manuscripts and documents remaining unexplored all over Bharat.
- Ongoing projects for the rebirth of River Sarasvati has opened a new vista in water management in Bharat, which has an ancient tradition of water management exemplified by the rock-cut reservoir in Dholavira, the grand anicut on Kaveri, the step wells and pus.karin.is in all parts of Bharat.
  - Sarasvati\_, best of mothers, best of rivers, best of goddesses, we are, as it were, ordinary children; grant us, mother, distinction
  - (ambitame, nadi\_tame, devitame are superlatives of ambika\_, mother; nadi\_, river and devi\_, goddess) (Rigveda man.d.ala 2.su\_kta 41.r.ca\_16: r.s.i. Gr.tsamada; chanda: anus.t.up; devata\_; sarasvati\_)
- Desiccation of River Sarasvati is a warning to us about the unpredictability of the impact of tectonics on hydrological systems sourced from the Himalayas, for e.g. the Rivers Ganga and Brahmaputra.

## Conclusions

1. River Sarasvati is neither a legend, nor a myth, but ground-truth, a river which was flowing for thousands of years prior to Vedic times.
2. Bharatiya Civilization is an indigenous evolution and cultural continuity is established from the Vedic times to the present day.

**Nausharo: female figurine. Period 1B, 2800 – 2600 BCE. 11.6 x 30.9 cm.[After Fig. 2.19, Kenoyer, 1998].**



Hair is painted black and parted in the middle of the forehead, with traces of red pigment in the part. This form of ornamentation may be the origin of the later Hindu tradition where a married woman wears a streak of vermilion or powdered cinnabar (sindur) in the part of her hair. Choker and pendant necklace are also painted with red pigment, possibly to represent carnelian beads.

3. For thousands of years before the days of Mahabharata War (ca. 3000 BCE), the Bharatiya had contacts with neighbouring civilizations.
4. The historicity of *Mahabharata* has been established making it a sheet anchor of Bharatiya Itihasa.
5. After the desiccation of River Sarasvati (finally by about 3000 years ago), Bharatiya-s moved to other parts of the world.
6. The metaphor of Samudra manthanam (celebrated in the *Bhavata Purnava*) is a depiction of the reality of a cooperating society which had united all the people of Bharat into life-activities including the environmentally sustainable use of natural resource offered by Mother Earth (Bhudevi).
7. Sarasvati is adored in Bharatiya tradition as a river, as a mother and as a divinity – *ambitame, nadi\_tame, devitame sarasvati*. This is an abiding spiritual foundation which resides in the heart of every Bharatiya.
8. The epigraphs evidence one of the early writing systems of the world.

9. The search and discovery of River Sarasvati has revealed a thread of essential unity – a bond among the people of Bharat. This has emerged from Vedic times and continues even today. This is the unity of an integral society, a resurgent nation and a unified culture which can be found in all parts of Bharat, from the Himalayas to the Indian Ocean.

10. Research Institutions have to be established in different disciplines of historical studies to study the manuscripts and documents in the archival collections in all parts of the country.

11. The initiation of a project for interlinking of rivers is a laudable, first step in creating a National Water Grid which has the potential to ensure equitable distribution of water resources to all parts of the country and to make Bharat a developed nation in 15 years' time.

The establishment of the Water Grid is a national imperative and should be an unmotivated action (*l'acte gratuite*) devoid of political overtones.

- The establishment of an inter-disciplinary Sarasvati Research Centre in Kurukshetra will help in progressing further researches on water resources management, and study of our history, heritage and culture.

#### Areas for further researches

- Glaciological researches are needed in relation to the glacial source of River Sarasvati which is referred to as *Plaks.a Pras'ravan.a* in the ancient texts.



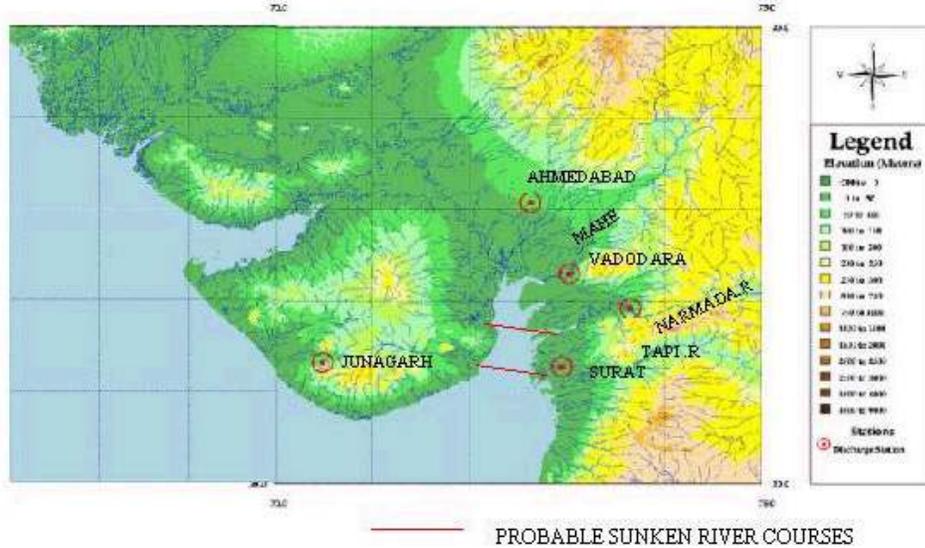
This image of dynamic Himalaya exemplifies the nature of Bharata bhuracana. The entire Indian plate is moving at the rate of 6 cms. Per year northwards clashing with the Eurasian plate and there is a resultant rise of the Himalaya by 1 cm. every year. This dynamism is the result of active plate tectonics. The earthquake which occurred in Bhuj on 26 January 2001 and the quake in Teheran in the year 2004 are related to the plate tectonic activity. The Bhuj quake measured 8.2 on the Richter scale (on a scale of 1 to 10) which is equivalent to the energy released by simultaneous explosion of 220 hydrogen bombs. This level of energy explains the tilting of the northwest Bharat terrain, River Sarasvati going underground (*antah salila*) in some stretches and the lateral shift of S'ivalik ranges creating the Yamuna tear near Paonta Saheb for Yamuna River to migrate westward and resulting in a 90 degree turn of River Sutlej

at Ropar. The glacial rivers from Manasarovar and Yamunotri abandoned River Sarasvati making the latter a monsoon-fed river during the period from 2500 and 1500 BCE.



- 6000km. Journey of Bha\_rata in 40-50 m. years
- Each of these are areas of geologically recent (less than 100 million years) mountain building associated with Plate Tectonics. In addition to providing cool, moist homes for glaciers, mountains also have affected the climate of the Earth. Mountains cause disturbances in airflow, altering global circulation patterns.

The formation of the Gulf of Khambat about 10000 years BP and the levels of solar energy impacting upto 30 degrees north and 30 degrees south of the equator explain the occurrence of monsoons in Bharat, the creation of glaciers on Himalayan heights from 7000 to 24000 ft. and the rise of sea levels submerging areas of land in Bharat in historical periods. This is attested by the discovery of National Institute of Ocean Technology of ancient channels of Rivers Narmada and Tapadi being submerged by the incursion of the sea circa 10000 years BP.



This submergence of land by incursion of the sea is consistent with the observation in Mausalarparvan of Mahabharata which refers to the submergence of Dwaraka.

**After Kr.s.n.a's soul departs the mortal body---**

**Vivrdhamu\_s.ika\_rathya\_vibhinnaman.ika\_statha\_ kes'a\_ nakha\_s'ca  
supta\_na\_madyante mu\_s.ikairnis'I (MBh., Mausala, 2.5)**

**Ci\_ci\_ku\_ci\_ti\_va\_s'anti\_sa\_rika\_vr.s.n.ives'masu\_nopas'a\_myati\_s'abdas'ca\_sa  
diva\_ra\_trameva\_hi (MBh., Mausala, 2.6)**

**Anvakurvannulu\_ka\_na\_m\_sa\_rasa\_virutam\_tatha\_aja\_h\_s'iva\_na\_m  
virutamanvakurvata\_bha\_rata (MBh., Mausala, 2.7)**

Streets swarmed with rats and mice, earthen pots showed cracks or were broken from no apparent cause, sarika\_s chirped ceaselessly day and night, sa\_ras hooted like owls, goats cried like jackals, pigeons departed from their homes, and asses brayed aloud in disconsonant and awful voices (Ganguly, 1998).

**Nirya\_te\_tu\_jane\_tasmin\_sa\_garo\_makara\_layah\_dra\_raka\_m  
ratnasampu\_rn.a\_m\_jalena\_pla\_vayat\_tada\_ (MBh., Mausala, 7.41)**

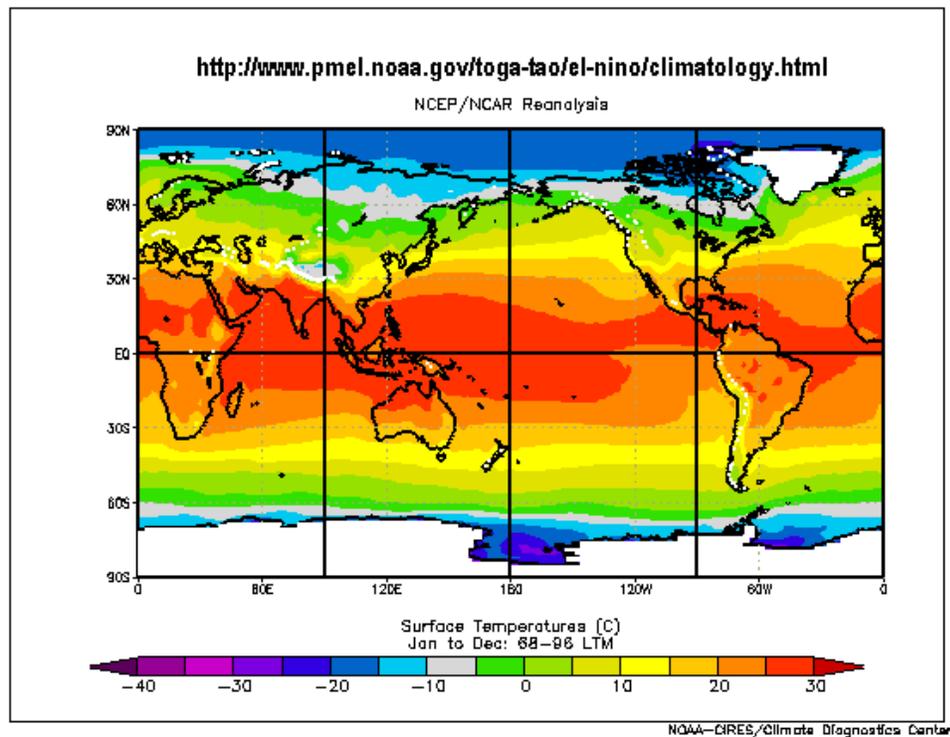
**Tadadbhutamabhipreks.ya\_dva\_raka\_va\_sino\_jana\_h\_tu\_rn.a\_t\_tu\_rn.ataram  
jagmuraho\_daivakiti\_bruvan (MBh., Mausala, 7.43)**

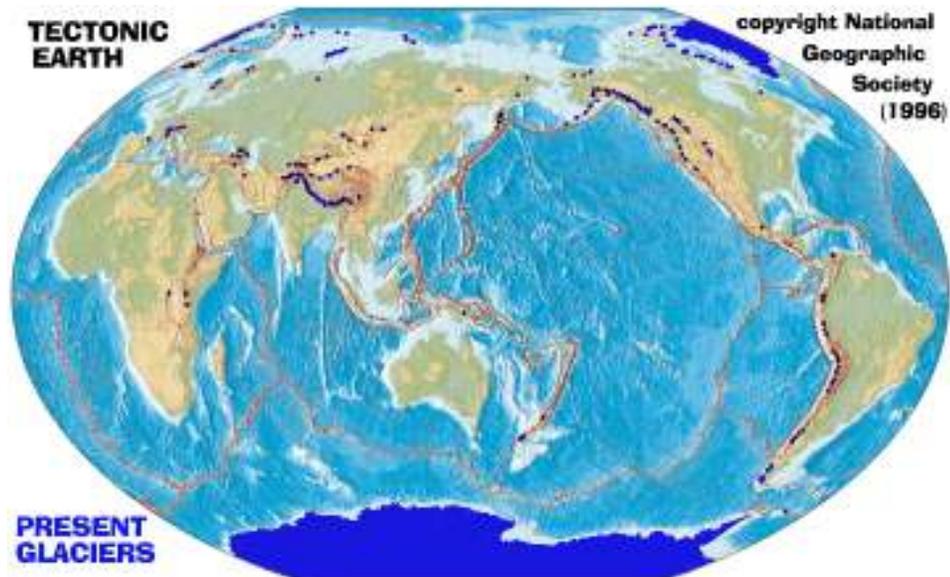
The sea, the abode of monsters, engulfed the gem-filled Dva\_raka with waves soon after the people departed the place. Seeing this astounding incident, the citizens of Dva\_raka ran away, exclaiming, 'O, our fate'. (Ganguly, 1998).

This jibes with the evidence of Sangam literature (Patirrupattu) where cera kings claim their descent 42 generations from Dwaraka (Tugarai).



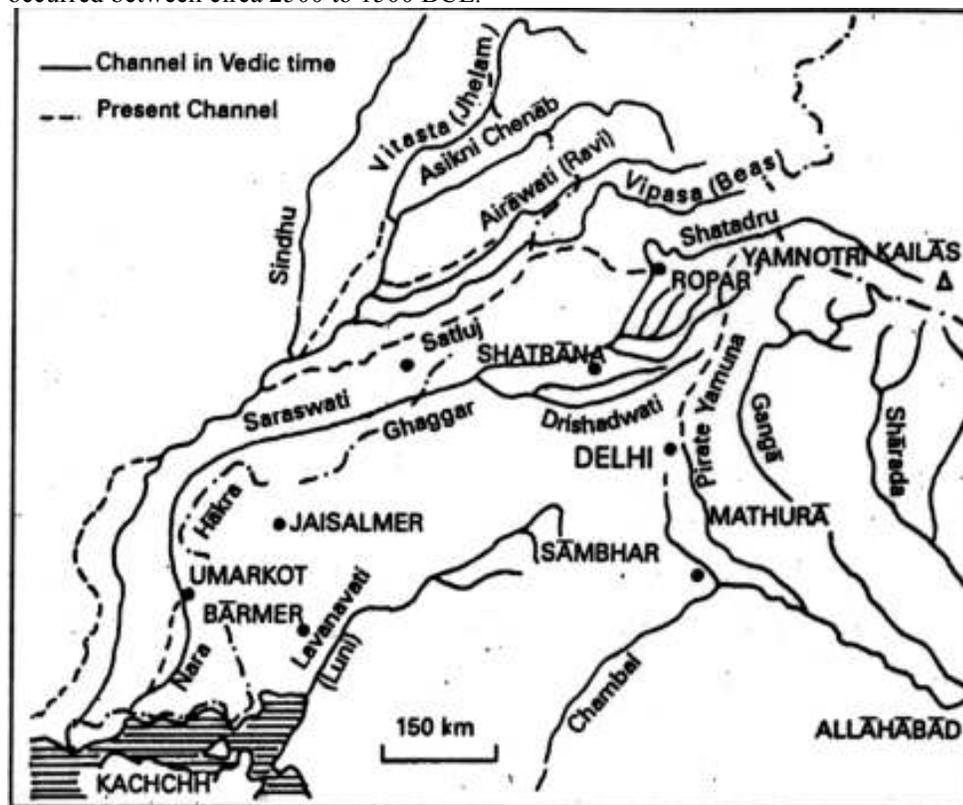
Nal Sarovar in Gujarat – a relic of the River Sarasvati. The palaeo-channels of Sarasvati beyond Jaisalmer upto Lothal and west of Lothal towards Prabhas Patan (Somnath) are to be identified. The Revival of River Sarasvati will help reach glacier, perennial waters to the Rann of Kutch and to Saurashtra.





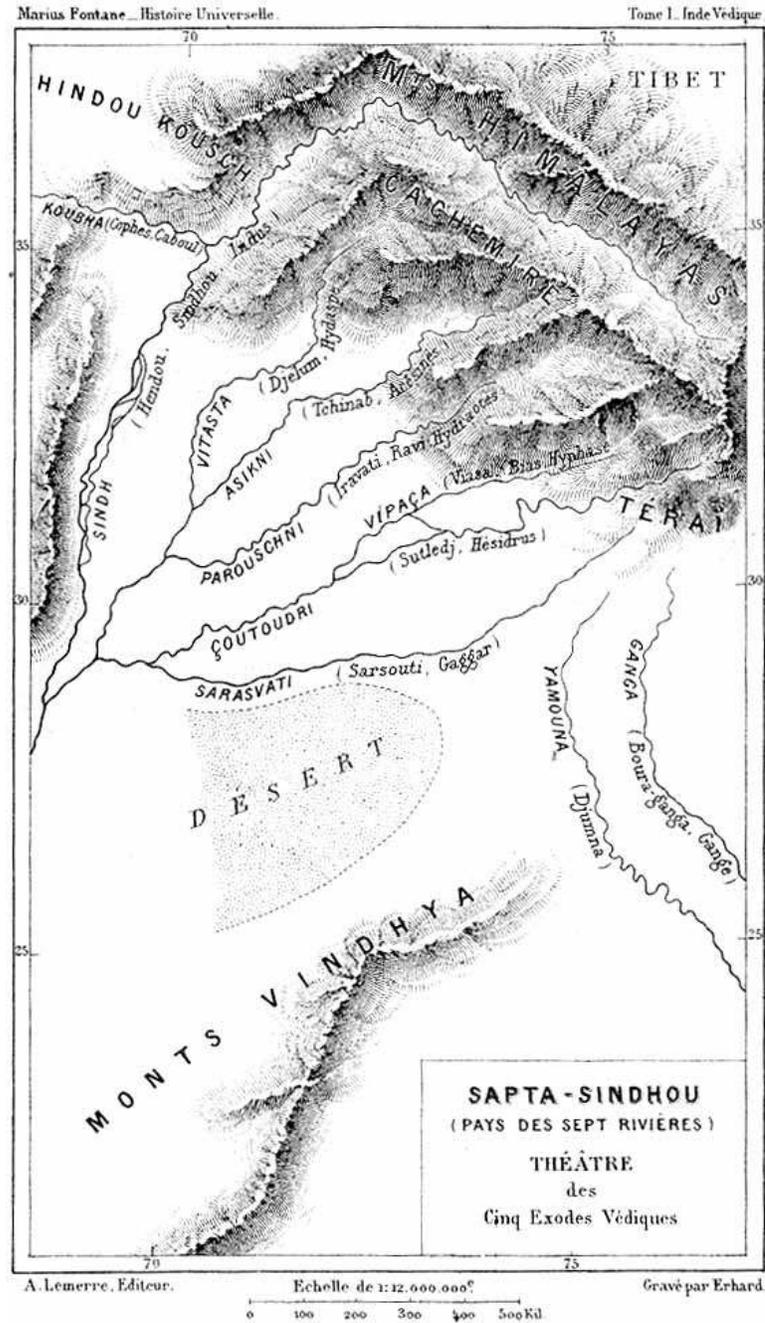
Glacial ice currently covers 10 percent (16 million km<sup>2</sup>) of the earth's surface. To grow a *glacier*, annual snow accumulation must be greater than the annual summer melt. Most glaciers outside polar regions occur in mountains resulting from collisions between tectonic plates. These geological facts explain the nature of changes in hydrology and river flows in Bharat.

A consequence of plate tectonics is the migration of rivers: Yamuna river migrated eastwards and Sutlej river migrated westwards, cutting off the glacial sources, transforming the Sarasvati river into a monsoon-fed river. These river migrations occurred between circa 2500 to 1500 BCE.

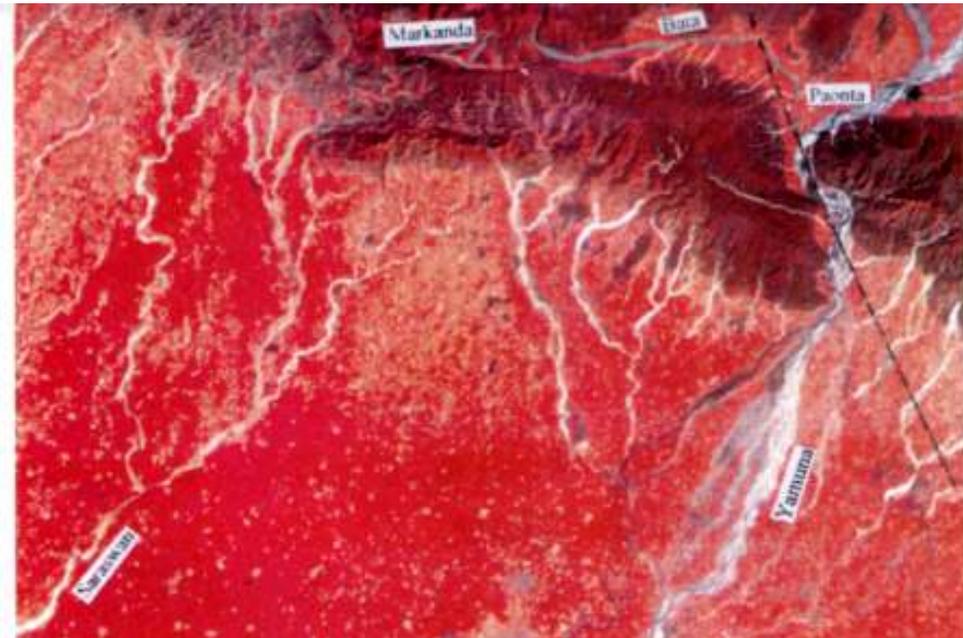


Vedic Sarasvati, Tamasa (with Yamuna) and Sutlej rivers, and Dr.sadvati (now represented by Chautang) were tributaries of River Sarasvati. [KS Valdiya, 1996].

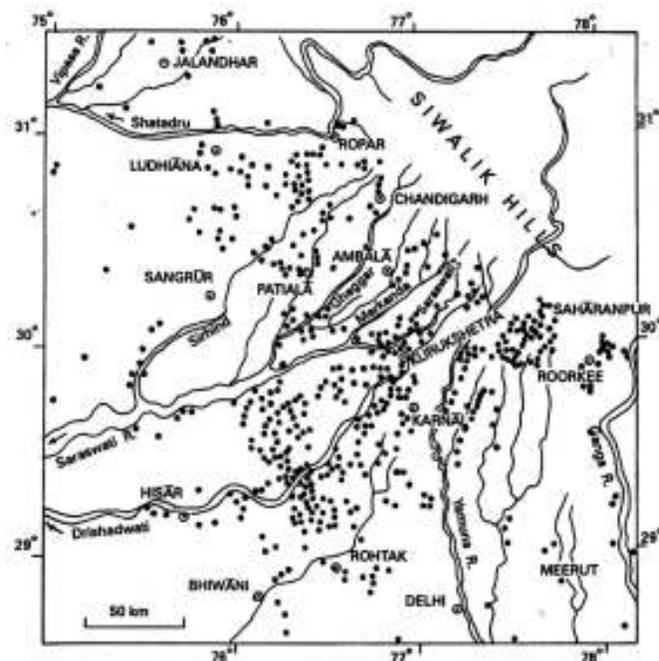
That this reconstruction of Vedic river Sarasvati is not a hindutva-motivated initiative is clear from the following map included in a French encyclopaedia published in 1881. The map shows River Sarasvati as the seventh river in sapta sindhu region attesting to the R.gvedic reference, sarasvati saptathi sindhumata (Sarasvati, seventh, mother of rivers):



The eastward migration of Yamuna river at Paonta Saheb is dramatically recorded by the following satellite image:



**Siwalik hills were left-laterally displaced.** NNW-SSE-trending tear fault is still active. The earlier west-flowing rivers were swung southwards, following the path of the fault. The Bata stream which joins Yamuna from the west has a very wide valley. [NRSA, ISRO, Hyderabad]



The Sutlej river migrated westwards at Ropar (an archaeological site), abandoning River Sarasvati: Density of settlements in Siwalik foothills, upper reaches of River Sarasvati. This denotes upstream migration. Note: absence of settlements west of Ropar on Sutlej. [After Joshi and Bisht, 1994].

- Seismological studies are needed to determine the chronology of events connected

with the submergence of Dwaraka, the Gulf of Khambat and other coastal regions of Bharat.

- Meteorological, glaciological and seismological studies have to be related to plate tectonics – the dynamic Indian plate and the evolving Himalayas – for a better understanding of the hydrological systems, sustainability and management of a National Water Grid for Bharat.
- Archaeological work on the 2,000 sites on Sarasvati River Basin have to be related to the events described in the ancient epics: *Ramayana* and *Mahabharata*  
Out of six sites which measured more than 100 ha., four sites are located on the banks of the River Sarasvati

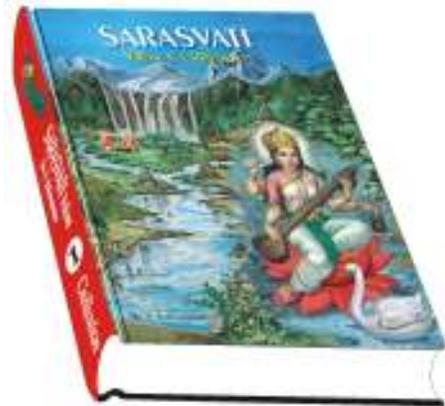
Lakhmirwala (Bhatinda) [225 ha.  
Rakhigari (Hissar) [224 ha.]  
Gurnikalan One (Bhatinda) [144 ha.]  
Harappa (Sahiwal) [100 ha.]  
Hasanpur (Bhatinda) [100 ha.]  
Mohenjo-daro (Larkana) [100 ha.]

River Sarasvati is adored in the *R.gveda* and in the *Mahabharata*. It is dotted with tirthasthana and ashramas of many rishis, the Vedas. There are rishi ashramas along the Sarasvati River Basin where annual melas are held and homage is paid to the rishis.

Place Name	R.s.i
Chandi	Cyavana
S'ri Kolayatji	Kapila
Pehoa (Prithu-daka)	Vasishta
Markanda River	Markandeya
Jageri, Bikaner	Yajñavalkya, S'aunaka
Beas River	Vis'vamitra

The day is not far off when Balarama's pilgrimage along the tirthasthana and rishi ashramas on the banks of River Sarasvati will be revived with Sarasvati's children from all parts of the globe paying a homage to naditame Sarasvati.

- The Vedic texts, epics and Puranas contain historical information which can be validated through archaeological, astronomical and geographical studies.
- Epigraphical and language studies in relation to the evolution and spread of languages and scripts of Bharat.
- Scholars have to be encouraged to study the unexplored manuscripts lying in museums, libraries and private collections.
- Researches for establishing the National Water Grid should be objective and provide a new vision to reach out the water and agricultural resources of the country, equitably, to all people and for the development of the nation.



#### Sources and inspiration:

An encyclopaedic work was published in 2003 in the following 7 books, authored by Dr. S. Kalyanaraman, Director, Sarasvati Nadi Shodh Prakalp, Akhila Bharatiya Itihasa Sankalana Samiti, as a tribute to Pujaniya Babasaheb (Umakanta Keshav) Apte, who yearned for study of Bharatiya itihasa based on Bharatiya ethos and traditions and Sanskrit sources:

***Sarasvati: Civilization; Sarasvati: R.gveda; Sarasvati: River; Sarasvati: Bharati; Sarasvati: Technology; Sarasvati: Language ; Sarasvati: Epigraphs***

This work is an abridgement of details provided in: website <http://www.hindunet.org/saraswati> with over 30,000 files, and the 7 books.

The enduring nature of the culture of the nation has been a source of awe and inspiration for many generations of scholars. It has now been conclusively and scientifically established that Vedic River Sarasvati was a reality in north-western Bharat and that the Bharatiya culture is an indigenously evolved continuum dating back to at least 8500 Before Common Era (BCE).

**Sarasvati River: Vedic and Reborn**

Sarasvati is Naditame who assumes the *ru\_pa* of Ambitame, Devitame



**Sarasvati\_.** The legend shown on Bhita sealing, together with a ghat.a. Indian Museum, Calcutta No. A. 11254-NS. 1958 The association of Sarasvati\_ with a ghat.a, water-pot is significant and relates to River Sarasvati\_.

Skanda Pura\_n.a describes the course of the Saravati\_ River. Sarasvati\_ issues from the water-pot of Brahma\_ (1.ii.56.13; 3.ii.25.1-7, 10-16, hence called Brahman.ahsuta\_ : 3.ii.25.7) and flows on a downward course from Plaks.a (7.1.33.40-41) on the Himalayas. At Keda\_ra, she turns west (pas'cima\_bhimukhi\_) and conceals herself underground. (7.i.35.25,26). Beyond Pa\_pabhu\_mi, she reaches Gandharvaku\_pa and flows further on a westward course. (7.i.26,27). Traversing through Bh\_u\_ti\_s'vara and Rudrakot.i before reachintg S'rikan.t.ha des'a (7.i.35,29-31; with its capital Stha\_nes'vara or Thanesar near Kuruks.etra), she reaches Kuruks.etra and flows on through Vira\_t.anagara, Gopi\_yanagari (near Vira\_t.anagara) and Deviks.etra, before reaching Pas'cima des'a (7.i.36.52). She then traverses the Kharjuri\_vana (where she is called Nanda\_), Ma\_rkan.d.a\_s'rama, Arbuda\_ran.ya, Vat.avana, Vam.s'astamba, Ka\_kati\_rtha, Dha\_res'vara, Pun.d.ari\_ka, Ma\_tr.ti\_rtha, Anaraka, San:games'vara, Kot.i\_s'vara and Siddhes'vara. She joins the Pas'cima Sa\_gara. (7.i.35.32-51). She is called Pra\_ci\_Sarasvati\_ (5.i.57.31), Sa\_vitri\_ and Vedama\_ta\_ (5.iii.3.10). As Vedama\_ta, she is the very personification of the Vedic culture. She is bra\_hmi\_mu\_rtih, the incarnation of Brahma\_ and hence, sacreed (5.iii.9.47). (loc.cit. A.B.L. Awasthi, 1965, *Studies in Skanda Pura\_n.a*, Pt. I, Lucknow, Kailash Prakashan, pp. 153-154).

**Va\_k is Sarasvati**

Gopatha Bra\_hman.a (2.20) states that worship of Sarasvati\_ pleases Va\_k, because Va\_k is Sarasvati\_: atha yat sarasvati\_m yajati, va\_g vai sarasvati\_ va\_cam eva tena pri\_n.a.ti. The very institution of the yajn~a itself which is identified with the gods is also identified with Va\_k (TB 1.3.4.5: atho praja\_pata\_v eva yajn~am pratis.t.ha\_payati praja\_patir hi va\_k; TB 16.5.16: va\_g vai sarasvati\_ va\_g vairu\_pam vairu\_pam eva smai taya\_yunakti; Sa\_yan.a's commentary: va\_k s'abda\_tmika\_hi sarasvati\_vairu\_pan~ ca va\_ksamatutam; Sarasvati\_ is speech in the form of sound (s'abda or dhvani); the word 'ru\_pam' suggests a number of forms of speech; vairu\_pam is the object denoted by speech). S'atapatha Bra\_hman.a states that Sarasvati\_ is speech and speech itself is sacrifice. (S'B 3.1.4.9,14). Sarasva\_n is identified with mind and Sarasvati\_ with Va\_k. (sa\_rasvatau tvo tsau pra\_vata\_m iti mano vai sarasva\_n va\_k sarasvaty etau: S'B 7.5.1.31; 11.2.4.9, 6.3). Sarasvati\_ is pa\_viravi\_ (RV 2.1.11; AB 3.37); this is interpreted as s'odhayitri\_ or as purifying; or, as sound created by a spear or lance (pavi\_ra) or Indra's thunderbolt. [pa\_viravi\_ = a\_yudhavati\_]. Sarasvati\_'s

connection with the mind and the cow (beneficial yield) led her giving full inspiration (dhi\_) to compose hymns, and, consequently, she became the goddess of wisdom. (J. Gonda, *Pu\_s.an and Sarasvati\_*, p. 10; Book Review, *JRAS*, 1986, no. 1, pp. 120-21). In the *Brahma\_n.d.a Pura\_n.a* (4.7.27), *Sarasvati\_* is described as one of the nine *Ma\_tr.kas* accompanying *Lalita\_* in her fight with *Bhan.d.a\_sura*.

*Sarasvati* assumes and is celebrated all over *Bharat*, in many *ru\_pa*, many forms. *Sarasvati* is a river, the best of rivers, *naditame*. During the Vedic times, she was mightier than River *Brahmaputra*, River *Sindhu*. She was a powerful torrential, glacial river, *a\_suri\_sarasvati* as *R.gveda* notes. Like any other glacial, Himalayan river, she had drained over 1600 kms. over virtually the region of North-west *Bharat* from *Uttaranchal* to *Gujarat*. She is called *saptathi\_*, seven-streamed. Many large river systems were tributaries of Vedic River *Sarasvati*, including River *S'utudri* and River *Yamuna*.

She is a mother who nurtured a civilization. She nurtured the people living on the banks of the river. She is a divinity. She had attained the status of a divinity even in the days of *R.gveda* as *R.s.i Gr.tsamada* extols: *ambitame, naditame, devitame Sarasvati* (best of mothers, best of rivers and best of divinities). She is a divinity celebrated in *Bharat* as *vidya\_devi* (divinity of learning), *kala\_devi* (divinity of arts, crafts and technology), *jna~a\_nadevi* (divinity of wisdom). She is the very embodiment of *Brahma*, the prayer; she is *Brahmi* which is the name of an ancient writing system of *Bharat*. She is mother beyond compare. Together with Mother Earth (*Bhu\_devi*), she is *Bharati*, the very embodiment of everything that every *Bharatiya* stands for. She is *Mahasarasvati*. She is an affectionate mother, she is a nourishing river, she is a divinity who bestows not merely the ability to work with material phenomena, she is the spiritual Mother Divine who carries the *Veda* and *Veena* in her arms. She is *s'rutidevi*.

She is also *smr.ti devī*. She is accompanied by the peacock, *ma\_raka*, which signifies the after-life and hence, people pay homage to her by offering *ma\_tr. tarpan.am* in *Brahmasarovar* and in *Pr.thudaka* (*Pehoa*), taking a dip in the sacred *a\_pah*, the sacred waters. She is richly endowed with many *tirthastha\_na-s* and many *r.s.i a\_s'rama-s*, a constant reminder of the heritage our ancestors, our *pitrs* and *ma\_tr.s* who have bequeathed for the present and future generations of all humankind.

As she comes alive again to drain most of Northwest *Bharat*, the *Dharma* of *R.gveda* will prevail again all over the world, governed by a spirit of rational enquiry and by lending a spiritual meaning to cosmic phenomena to recreate the One World where noble, free thoughts flow from all directions: *a\_no bhadra\_h kratavo yantu vis'vatah*. Yes, indeed, *kurvanto vis'vama\_ryam*, let us make the entire universe noble. Let us pray to *Mahasarasvati* to lead us unto this nobility in a rhythmic *r.tam*. We owe this *r.n.am*, this debt, in memory of our ancestors who lived on the banks of River *Sarasvati* and who have made us what we are.

The evolutionary history of River *Sarasvati* has been explained in succinct scientific detail by Prof. *KS Valdiya* in his book: *Sarasvati: The River that Disappeared* (2002, Hyderabad, Universities Press). This is a follow-up on the scientific symposium held in *Baroda* earlier. (See *BP Radhakrishna* and *SS Merh*, eds., *Vedic Sarasvati, Memoirs of Geological Society of India*, 2000, Bangalore).

### **Celebration of a heritage through Rebirth of *Sarasvati***

Without its snow-bound origins, the *Sarasvati* became a shadow of its former self. Its people migrated upstream and settled in today's *Haryana* and western *Uttar Pradesh*. There seems to be archaeological evidence to this movement: The total absence of late *Harappan* settlements in the area of the *Sarasvati* is in sharp contrast to the dramatic increase in habitations in the plains of *Haryana* and western *Uttar Pradesh*. There is also a remarkable scarcity of *Harappan*

sites around what are today's Yamuna and Sutlej. This is again in sharp contrast to the archaeological gold mines turning up in the dry channels of Punjab, Rajasthan and Sindh in Pakistan.

Finally, only flood waters flowed down the Sarasvati's once vast channel. It remained dry for several centuries, though some water again found its way in during the early centuries of the Christian era. The Sarasvati's decline and the loss of its civilisation are an indication of how tectonic shifts can combine with localised climate change to dramatically transform human settlement. As the shifting Aravallis chopped off the Sarasvati's waters, the climate too was changing. Over the years western Rajasthan, once a green, rich expanse with extensive rainfall, gradually turned into a parched, desert land. Where there was once a torrent of water, there remained nothing but tonnes of drying sand, a few lakes that survive to this day, and of course the veins of groundwater under the earth.

River Sarasvati's desiccation also demonstrates how central rivers have been to civilisation and culture. With the Sarasvati gone, its place in mythology was taken over by the Ganga. To this day, it is the Ganga that is predominant to India's Hindu consciousness. But the Sarasvati, as the drilling rigs at Ghantiyal Ji should reveal, has not disappeared altogether.

### **Sarasvati Sarovar/River at Adi Badri, Haryana**

#### **An eye-witness report from Adi Badri, Haryana (S. Kalyanaraman<sup>1</sup>)**

It was a thrilling experience when we visited Adi Badri, recently, a place where River Sarasvati emerges into the plains. We were overwhelmed to see in the Sarasvati River valley nestled in the foothills of Himalayan glaciers, a magnificent, engineering marvel converting the valley into a sarovar. The valley now bears the appearance of a **tapo-bhumi** since it has been transformed into a pilgrimage-heritage site. Devoted pilgrims will throng the site in thousands in the days to come to find spiritual solace and re-energize themselves for their life-mission. Students of history will find at the site, an experience of their life-time, related to our historical and cultural heritage and see their own images mirrored in the sarovar as a tribute to our ancestors who created the Sarasvati civilization. Apart from being a pilgrimage-heritage site, the site should now be added to the structures to be visited by all water management experts from all parts of the country, to witness a stellar example of water-harvesting and watershed management. We feel confident that the vision offered by the Sarasvati valley at Adi Badri, will be an inspiration to the youth of Bharat, who will be able to carry the torch of converting Bharat into a developed nation, realizing the India Vision 2020.

### **Sarasvati Sarovar at Adi Badri**

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<sup>1</sup> Dr. S. Kalyanaraman, Sarasvati Nadi Shodh Prakalp, Akhila Bharatiya Itihasa Sankalana Yojana, 3 Temple Avenue, Chennai 600015 Tel. 044 22350557 [kalvan97@gmail.com](mailto:kalvan97@gmail.com)  
<http://www.hindunet.org/saraswati> 2 November 2004



Sarasvati River valley at Adi Badri (May 2004)



Sarasvati River Sarovar, under construction, at Adi Badri (June 2004)



**Sarasvati Sarovar at Adi Badri (October 2004)**

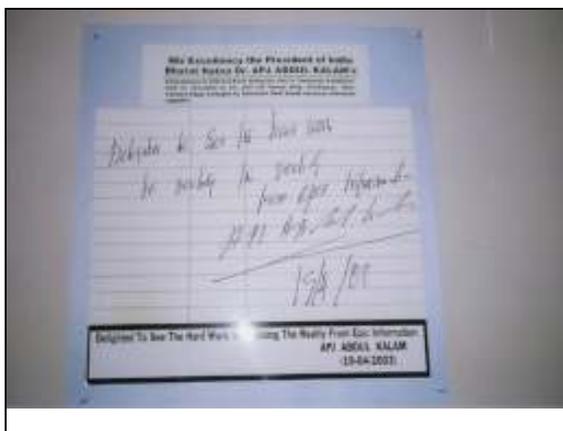
Sarasvati Sarovar has been constructed and is ready to be dedicated to the nation at the foothills of Siwalik mountains at Adi Badri, 40 kms. north of Jagadhri (Yamunanagar), Haryana. The Sarovar is located at the place where River Sarasvati emerges, at the present time, into the plains from Himalayan glaciers. The sarovar which has bathing ghats makes Adi Badri a pilgrimage and heritage site. Enroute from Jagadhri, the pilgrims can also visit Kapalamochan-Rinamochan where melas are held every year – Karthik Purnima day and Vasanta Panchami day (the day commemorating the birth of River Sarasvati) -- and visited by lakhs of pilgrims.



Manuscript written by Shri Guru Govind Singh, Gurudwara at Kapalamochan, Dist. Yamunanagar

At Kapalamochan is a gurudwara commemorating the visit of Guru Govind Singh. A copper plate inscription and a manuscript written by Guru Govind Singh himself is available at this site. Adi Badri is located at a distance of 40 kms. from Jagadhri which can be reached either from Kurukshetra or Ambala on a two-hour journey by road. Ambala is on the National Highway 1 and is on the Highway linking

Delhi-Panipat-Kurukshetra (Pipli)-Ambala. Jagadhri also has a Railway Station on the railway line linking Delhi and Jullundur.



When His Excellency the President of India, Bharat Ratna Dr. APJ Abdul Kalam visited the exhibition organized at Omchandra Devi Lal Herbal Park at Chuharpur, near Jagadhri, on 19 April 2004, he was impressed by the satellite images, revenue records and other evidence presented to establish River Sarasvati as ground-truth and he made an endorsement in the Visitors' Book, 'Delighted to see the hard work in realizing the reality of epic information'.

### Sarasvati Dars'an



Dr. S. Kalyanaraman, Director, Sarasvati Nadi Shodh Prakalp (Akhil Bharatiya Itihasa Sankalana Yojana) in conversation with H.E. the President of Bharat, Bharat Ratna, Dr. APJ Abdul Kalam during the President's visit to Sarasvati Darshan Exhibition organized at Yamunanagar on 20 April 2003. Seen in the photograph are (from left to right) are: Shri Lakshya, Jagadhri; Shri Darshan Lal Jain (President, Sarasvati Nadi Shodh Sansthan, Haryana, Jagadhri); Shri I.D. Dwivedi (Dy. Supt. Archaeologist, the discoverer of an ancient settlement on banks of River Sarasvati at Adi Badri - partly seen); Dr. Baldev Sahai (ex-Chief, Space Applications Division, ISRO, Ahmedabad and President, Sarasvati Nadi Shodh Sansthan, Gujarat, Ahmedabad); Dr. Vijay Mohan Kumar Puri (ex-Director, Geological Survey of India, Dharmashala, discoverer of glacial sources of Vedic River Sarasvati); Shri Sanjay K. Manjul, Archaeologist; President of Bharat; Shri Deepak Lal Jain, Industrialists, Jagadhri; Dr. S. Kalyanaraman; Shri Haribhau Vaze (National Organizing Secy., Akhil Bharateeya Itihasa Sankalana Yojana, Mumbai, partly seen). In the background may be seen the Sarasvati Darshan Exhibition displays including satellite images and artefacts discovered at Adi Badri archaeological site.

The delegation briefed the President on the investigations and scientific findings which have established that River Sarasvati is not a myth but ground-truth. Adi Badri is a sacred place about 30 kms. north of Jagadhri and is the place where the Sarasvati River emerges out of the Himalayan glaciers through the foothills of Siwalik ranges.

### **Impetus for National Water Grid and making Bharat a developed nation**

The Sarovar, measuring 80 m. X 82 m., with bathing ghats, is situated amidst the embrace of Himalayan ranges and in an idyllic setting in the valley overlooked by the mandirs of Adi Narayan, Kedarnath and S'akti Mantra Devi, in the surrounding hilltops. Enveloping the Sarovar is a Herbal garden with rare herbal plants of vedic heritage. The construction of the Sarovar is a stellar example of watershed management and afforestation utilizing 11 check-dams as water-harvesting structures. The waters of Sarasvati river like the waters of River Ganga are clean, clear, pure and without any contaminants.

The dedication of Sarasvati Sarovar to the nation, together with the rebirth of River Sarasvati will provide an impetus to create a National Water Grid using the waters of the country as a national resource to be optimally used in all parts of the country and shared with all people whose lives are dependent upon water resources. The creation of a National Water Grid as a Peoples' Project, utilizing the glacier waters, river run offs, tanks, swamps, groundwater aquifers and even desalinated sea water has the potential to make Bharat into a developed nation by 2020, providing employment opportunities for crores of people and doubling agricultural production to 400 m. tonnes per year to empower the villagers of Bharat.

### **Rebirth of River Sarasvati for greening north-west Bharat**

What started as a historical quest in search of Vedic river Sarasvati has now blossomed into a model for water management systems in the country. River Sarasvati is coming alive again to make the north-west Bharat fertile and convert the Marusthali (desert) into green pastures and plantations, thanks to the Rajasthan Nahar (canal) which utilizes the waters of Rivers Sutlej and Beas from the Harike Reservoir. The foundation tower at Mohangarh (55 kms. west of Jaisalmer) refers to the flow of the channel as Sarasvati Mahanadi Roopa Nahar. This is appropriate since River Sutlej was originally an anchorage tributary of River Sarasvati.

### **Historical importance of River Sarasvati**

The Sarasvati Sarovar is located close to three archaeological sites discovered and excavated on the banks of River Sarasvati. In one of the excavations undertaken by Archaeological Survey of India (ASI), high-grade metamorphic rocks belonging to the palaeo-glaciated regions of Central Himalayas, have been discovered. It implies that the Sarasvati River had entered Indo-Gangetic plains from Himalaya at Adi Badri where the present Sarovar has been constructed. This scientific discovery has been reported by Dr. V.M.K. Puri, the country's most eminent glaciologist. A s'ivalinga has also been discovered together with artifacts of potsherds, bangles relatable to Sarasvati civilization. At one of the sites, a Buddha vihara has been discovered together with the statue of a seated Buddha.

### **Sarasvati Civilization**

The roots of Bharatiya culture are to be found on the banks of River Sarasvati. Sarasvati River, adored in Indian Civilization from the days of the Rigveda, is not a myth but a reality, not a legend but ground-truth. The multi-disciplinary researches have conclusively established the ancient course of the river in the north-western part of Bharat. Scientific investigations, recorded in the Memoirs of Geological Society of India, have also established the reasons for the desiccation about 4000 years ago as due to plate tectonics and resultant migrations of the

tributary rivers, River Sutlej and River Yamuna. River Yamuna captured the waters of River Sarasvati at Paonta Saheb (Himachal Pradesh), flowed through the Yamuna tear in Siwalik ranges and migrated eastwards to join River Ganga at Prayag, constituting the Triveni Sangamam. River Sutlej (S'utudri in Rigveda) took a 90-degree turn at Ropar, 50 kms. North of Chandigarh and migrated westwards to join River Sindhu. On the banks of River Sarasvati was nurtured a civilization, attested by over 2,000 archaeological sites on the river basin, making it appropriate, as suggested by many archaeologists, to name it as Sarasvati Civilization, instead of Indus Valley or Harappan Civilization.

The visit to Adi Badri by Dr. S. Kalyanaraman, Sarasvati Nadi Shodh Prakalp (website <http://www.hindunet.org/saraswati> with over 30,000 files, author of 7-volume encyclopaedic work on Sarasvati, Bangalore, Babasaheb Apte Smarak Samiti, 2003), Shri Haribhau Vaze, National Organizing Secretary, Akhila Bharatiya Itihasa Sankalana Yojana was organized on 5 October, 2004 by Shri Darshan Lal Jain, President, Sarasvati Nadi Shodh Samstan, Jagadhri (Haryana), Shri Vaibhav Garg, Jt. Secretary of the Samsthan and other workers. The visit brings back the memories of the late Shri Moropant Pingle and the late Padmashri Dr. Haribhau Vakankar who led a team of 40 scientists and scholars in search of Vedic River Sarasvati after performing yajna at Adi Badri temple, close to the place where the Sarovar now stands dedicated to the nation as a living testimony to their vision.\

### Sarasvati River in Gujarat



#### Rebirth of River Sarasvati in north-west Bharat

Sarasvati Mahanadi Rupa Nahar, Mohangarh; 40 ft. wide, 12 ft. deep (Feb. 2002)

Rebirth of River Sarasvati is taking place. A Sarasvati Sarovar has been dedicated to the nation at Adi Badri (Yamunanagar, Haryana) at the foothills of Siwalik range of

mountains. The Rajasthan Nahar which is fed from the glacier waters of Rivers Sutlej and Beas from Harike reservoir is now bringing waters upto Danan in Barmer District using a 40 ft. wide and 12 ft. deep channel. This canal can be extended further upto Rann of Kutch and upto River Sabarmati by adding the waters of River S'arada through an aqueduct across River Yamuna. This is part of the perspective plan drawn up by National Water Development Agency, for creating a National Water Grid. It will be a golden day in the history of Gujarat when the glacier waters from Manasarovar, Mt. Kailas in Himalaya reach upto River Sabarmati near Ahmedabad. This can be accomplished within the next 3 years since the Sarasvati Nahar has to be extended by only about 200 kms. to reach Gujarat bringing the sacred waters of the reborn River Sarasvati.

### National Water Grid

The creation of National Water Grid has the potential to make Bharat a developed nation by 2020 and the rebirth of River Sarasvati in Gujarat will provide an impetus to reach the Brahmaputra waters upto Kanyakumari. Similarly, using the nuclear power plant (using semi-permeable membrane technique and pressurised water) available at Kalpakkam nuclear power station, designed by Dr. Bhattacharjee, seawater from the coastal regions of Gujarat and the saltywaters of River Luni can be desalinated to supply fresh water to coastal towns of Gujarat

and along the Luni River basin. The rebirth of Sarasvati in Gujarat will help solve the problems of water resources in Gujarat for many generations to come.

### **Historical facts**

According to almost all ancient texts of Bharat, starting with Tandya Brahmana and other Puranas and Itihasas, the Vedic River Sarasvati joined the sindhu sagar at Prabhas Patan (Somnath). Recent scientific discoveries point to this bharatiya tradition as historical truth.

In Mahabharata, in s'alyaparva, there are many verses describing the pariyatra of Shri Balarama, elder brother of Shri Krishna from Dwaraka, through Somnath and along the banks of River Sarasvati upto Plaksha Pras'ravana in Himalaya. On the way, Shri Balarama offers homage to our ancestors and prays in many as'rama-s of rishi-s. Some places mentioned are: Prabhas Patan, Udapana, Chamasobheda, S'ivodbheda, Nagodbheda, Pruthudaka, Kurukshetra, Karapachava (Yamunotri). Further researches are necessary to precisely locate these places.

### **Scientific discoveries**

Siwalik hills were left-laterally displaced. NNW-SSE-trending tear fault is still active. The earlier west-flowing rivers were swung southwards, following the path of the fault. The Bata stream which joins Yamuna from the west has a very wide valley. [NRSA, ISRO, Hyderabad]

Prof. SS Merh and Dr. Sridhar of University of Baroda have identified the ancient delta areas of River Sarasvati in the Rann of Kutch, an area which was perhaps composed of islands exemplified by the archaeological discovery of Dholavira (Kotda).

National Institute of Ocean Technology has discovered that the ancient courses of Rivers Narmada and Tapi were submerged by the incursion of the sea and creation of Gulf of Khambat, about 10,000 years ago. Two archaeological sites have been discovered on the banks of these submerged rivers, about 30 metres below the sea level. These sites are located between the sites near Surat and the sites of Lothal and Padri in Saurashtra, pointing to a Gulf of Khambat archaeological complex on the banks of Vedic River Sarasvati. It is not mere coincidence that the place name of the town in Surat is called Bharuch, which is Bhrugukaksha in Mahabharata. Bhrugu was an ancient Rigvedic rishi.

Earthquakes in Kutch and Saurashtra, with E-W trending faults. Bet Dwaraka and Dholavira are close to these faults. [After Biswas, 1987; Rajendran and Rajendran, 2000].

As the Indian plate continues its journey moving north at the rate of 6 cms. per year and hits against the Eurasian plate, resulting in plate tectonics, and continuing rise of Himalaya at the rate of 1 cm. per year, river courses undergo many changes caused by the upliftment of land formations in some regions and subsidence in others. Combined with the plate tectonic earthquake of the type which occurred in Bhuj on 26 January 2001, the incursion of the sea eroding the coastline of Gujarat and most of Bharat's coastline of 7500 kms., the settlements located close to the coastline can be identified by marine archaeological explorations. The discovery of Dwaraka and Lothal as archaeological sites of Sarasvati Civilization (about 4500 years Before Present), point to the essential maritime, riverine nature of the civilization.

### **Cultural heritage**

Discovery of the burial of a woman in Mehargarh, 300 kms. north of Rann of Kutch, revealed jewellery and a wide bangle made of s'ankha. This burial is dated to 6500 Before Common Era. The s'ankha industry continues even today in the Gulf of Khambat and Gulf of Mannar

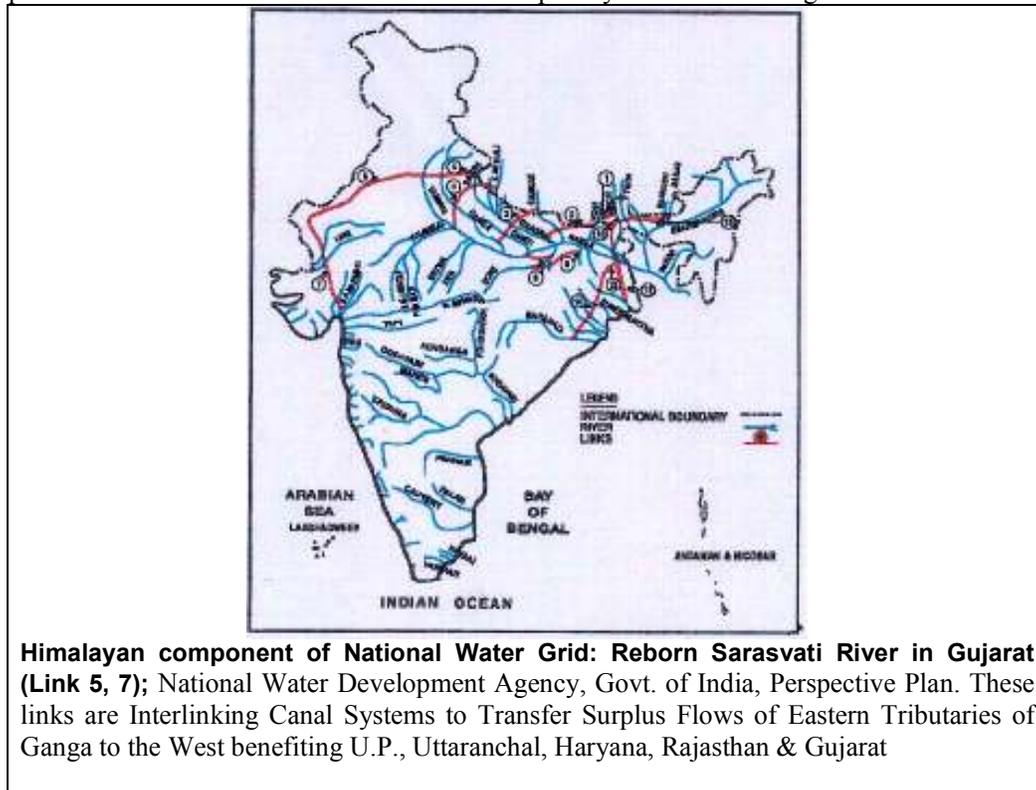
of Bharat, attesting to an 8500 year old continuing industry since the s'ankha species called turbinella pyrum has provenance only in the coastline of Bharat and nowhere else in the world. The discovery of s'ankha industry may explain the reason why one of the jyotirlinga sthan is called Omkares'var situated on the confluence of Rivers Narmada and Kaveri. The sound om is the sound generated by the s'ankha used as a trumpet. Mahabharata refers to the panchajanya (literally, born of five people) which is the s'ankha of Shri Krishna.

The discovery of over 500 archaeological sites along the coastline of Gujarat, south of Dholavira, the existence of Nal Sarovar which links up Little Rann of Kutch with Gulf of Khambhat during monsoon periods when the Nal Sarovar expands, point to the possibility that River Sarasvati had coursed beyond Rann of Kutch into Saurashtra through Nal, Lothal, Padri, Rangapura and upto Prabhas Patan (Somnath). It is also likely that the ancient courses of Rivers Narmada and Tapi had also coursed through the present day Saurashtra which has uplifted regions caused by recurrent plate tectonic events.

### Rebirth of River Sarasvati

Projects are ongoing which will have a long-term beneficial impact on major parts of North West India and revive memories of over 5,000 years ago, by reviving the mighty Sarasvati River. A mighty perennial river which had nurtured an ancient civilization which has given us the Vedas, had been desiccated due to tectonic causes, river migrations and aeolean activity (aandhi phenomenon). This is an unparalled event in the history of human civilization. Today technological means are available to revive this sacred river and to make the legacy of Sarasvati meaningful not only to entire Bharat but to the whole world. The project to revive Sarasvati River will be a superb project, of international significance.

The complete course of Vedic River Sarasvati as described in the vedic texts, itihaasa and purana has been delineated thanks to multi-disciplinary scientific investigations.



The details of the projects which could accomplish the Rebirth of River Sarasvati with optimal use of

1. glacial sources of water,
2. water harvesting and
3. interlinking of rivers as part of a National Water Grid to achieve Developed Bharat Vision 2020.

1. Construction of Sarasvati Sarovar with 11 check dams at Adi Badri, Yamunanagar Dist., Haryana. This is an excellent example of integrated watershed management: water harvesting, ecology conservation and development of a Vedic herbal garden. The sarovar has been so constructed as not to disturb the flow of the ancient Sarasvati channel at Adi Badri into the Sarasvati Creek/River that flows beyond Kapalamochan, Ajatashram, Bibipur Lake and Pehoa.
2. The continuation of water harvesting techniques to reactive the ancient Sarasvati River channels which are shown on Survey of India toposheets and in Village Revenue records. This can integrate the subsurface drainage systems with surface runoffs taking into account the present-day conditions of irrigation systems based on tube wells since at many places, the groundwater is topping up to the surface.
3. At Pehoa (Pruthudaka), bathing ghats have been created using tube wells to augment the flows within the Sarasvati River Stream.
4. Linking up the monsoon waters through Sarasvati River beyond Pehoa and Sirsa with the Rajasthan Nahar (Rajasthan Canal) is the next phase of the rebirth of Sarasvati. The Nahar draws from the perennial glacier waters of Rivers Sutlej and Beas which are gathered through Bhakra-Nangal and Pong Dams at Harike Reservoir. The Nahar has gone beyond the zero point of Mohangarh (55 kms. West of Jaisalmer close to Pakistan border) and is flowing up to Gedra Road in Barmer Dist. Projects are ongoing to line the canal from Mohangarh to Gedra Road. The Nahar has already produced dramatic results; a good example of the benefits of interlinking of rivers, by the disappearance of sand dunes and forestation in Rajasthan Thar Desert! Lakhs of acres of land have been brought under cultivation and drinking water reaches the cities of Jodhpur and Barmer. It is significant that a project completion tower erected at Mohangarh refers to this Nahar as Sarasvati Mahanadi Rupa Nahar, attesting to the desires of the local people.
5. Originally, the Rajasthan Nahar was designed as a navigable channel to provide the multiplier effects of a waterway as an economic means of transport, a transport alternative. By reviewing this original design option and by starting the Links 5 and 7 of the Perspective Plan drawn by National Water Development Agency (Govt. of India, Min. of Water Resources), the Nahar can be extended up to River Sabarmati as shown in Map 2. The major components of the Links are a channel from River Sharada across Yamuna to join with the Nahar: a. Karnali-Yamuna; Sharada-Yamuna; Yamuna-Sirsa Branch of Western Yamuna Canal (Rajasthan); Ganga-Sirhind Canal; Ganga-Sirhind Canal; Tajewala-Bhakra; Hariki Tailend of Rajasthan Canal; Extension of Rajasthan Canal to Sabarmati.
6. Extension of the Rajasthan Canal beyond Gedra Road, Barmer Dist. can be done on a priority basis in two stages: a distance of about 100 kms. up to Rann of Kutch and a further distance of 150 kms. up to Sabarmati.
7. Suggestions for design criteria are:

- making the reborn Sarasvati River stream a navigable channel;
- construction of percolation tanks along the canal route to provide for groundwater recharge since it is possible to construct one million sustainable tube wells in Thar desert alone using the aquifers just below 30 to 60 m. below the surface, now subject to slow recharge from northerly sources;
- As part of the National Water Grid, desalination of waters of streams such as River Luni and along the coastline of Gujarat for drinking water needs of coastal cities and towns, can be achieved using the desalination plant designed by Dr. Bhattacharjee of Kalpakkam Power Station, Chennai using semi-permeable membrane and pressurized water techniques at a cost of 4.5 paise per litre;
- Plantations of walnuts, dates and other high-value cash crops, together with halophytes such as salicornia brachiata as an edible oil resource all along the Sarasvati River Basin;
- Restoration of tirthasthana and ashramas of Rishis and munis as pilgrimage/heritage sites with bathing ghat and lodging facilities for pilgrims.

The great Sarasvati River will flow again, its spiritual form will regain its Vedic glory, as the legacies of the river are flooding back all over again. The metaphor of Sarasvati in three rupa: amba, nadi and devi (mother, river and divinity) is as old as the R.gveda attesting to the antiquity of the roots of Bharatiya culture, hindu knowledge systems and civilizational ethos. The Hindu rashtra was born on the banks of river Sarasvati exemplified by Vis'vamitra stating in the R.gveda: vis'vamitrasya brahmedam rakshati bharatam janam (This mantra of Vis'vamitra will protect the nation of Bharata). It is no mere coincidence that the Gujarati word bharatiyo means 'caster of metals'. The metallurgical and technological traditions exemplify the contribution made by the bharatiya to world culture and civilization.

**This indeed is a tribute to the memory of Pujaneeya Moropant Pingle and Padmashri Vishnu Vakankar who pioneered the researches into River Sarasvati inspiring a network of scientists and scholars from a number of disciplines to establish the bases of Bharatiya Itihaas on the banks of Vedic River Sarasvati. As the River is reborn in Bharat, a national water grid will emerge taking Bharat to a developed nation status.**

S'ubha Deepavali.

Dr. S. Kalyanaraman  
11 November 2004

S'ubha Deepavali, Kaliyuga Samvat 5106

## About the Author



Dr. S. Kalyanaraman has a Ph.D. in Public Administration from the University of the Philippines; his graduate degree from Annamalai University was in Statistics and Economics. His PhD dissertation was on development administration, a comparative study of 6 Asian countries, published as *Public Administration in Asia* in 2 volumes.

He was a Senior Executive in the Asian Development Bank, Manila, Philippines for 18 years from 1978 to 1995 responsible for the world-wide IT network of the Bank and disbursements on a portfolio of US\$60 billion for over 600 projects in 29 developing countries of Asia-Pacific region. Prior to joining the Bank, he was Financial Advisor on the Indian Railways (responsible, as part of a professional team, for introducing computers on the Railways) and Chief Controller of Accounts, Karnataka Electricity Board. He took voluntary retirement from the Bank five years' ahead of schedule and returned to Bharat to devote himself to Sarasvati River researches and development projects. He is well-versed in many languages of Bharat: Tamil, Telugu, Kannada, Hindi, Sanskrit. He has compiled a comparative dictionary for 25 ancient Indian languages, titled *Indian Lexicon*. He has set up a website on Sarasvati River and Civilization with over 30,000 files (<http://www.hindunet.org/saraswati>); he is the founder of the yahoo group, Indian Civilization, which has over 800 members (April 2003). His work, *Sarasvati*, was published in 2001 a compendium on the discovery of Vedic River Sarasvati. The present 7-volume encyclopaedic work on *Sarasvati Civilization* is a result of over 20 years of study and research. He is Director, Sarasvati Nadi Shodh Prakalp, Akhil Bharatiya Itihaasa Sankalana Yojana, Chennai 600015. The Prakalp is engaged in researches related to Sarasvati Civilization and interlinking of national rivers of Bharat.

He has contributed to many scholarly journals and participated in and made presentations in a number of national and international conferences including the World Sanskrit Conference held in Bangalore in 1995. He delivered the Keynote address in the International Conference of World Association of Vedic Studies, 3<sup>rd</sup> Conference held in University of Massachusetts, Dartmouth, in July 2002. [kalyan97@gmail.com](mailto:kalyan97@gmail.com)