sandhi

- An initiative by IIT Kharagpur

(A consortium approach by the Pan-IIT-SPAs)

Sandhi Summer Interns 2014

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'India of the ages is not dead nor has she spoken her last creative word; she lives and has still something to do for herself and the humane peoples'...... but still the ancient immemorable SHAKTI recovering her deepest self, lifting her head higher towards the supreme source of light and strength and turning to discover the complete meaning and a vaster form of her Dharma (religion).

Shri Aurobindo

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SANDHI or Scientific Approach to Networking & Designing of Heritage Interfaces

IIT Kharagpur is planning to make a distinctive headway to create a 'people-centric' platform to realize a vision called 'SANDHI'. The platform will activate a cluster of projects under the 'Science-Technology & Culture-Heritage Interface' theme. The organizational framework of the Center called 'SANDHI' will be steered by an Apex Committee headed by the competent authority of IIT Kharagpur, and supported by distinguished experts and representatives recognized by the MHRD, Government of India. The idea and operational framework of 'SANDHI' emanates from the convergence of four concerns drawn from an ancient realization as evident in the tradition of 'Srutis' (realized or omniscient web of knowledge systems) in India.

Language based pedagogy

The Core Word: Pranava

Making of First Branch: Vowels

Subsequent branches: Vowels + Consonants
Ground centric + people centric Language systems

Language networking in Place-work-folk variations
Indo European tree

FOUNDATIONS OF LANGUAGE SYSTEMS
epistemological and ontological

Foundation of four levels: 'Sandhi' (the morphophonology of Language systems or 'Vak')

The operational framework of 'SANDHI' is based on an ancient conception of primordial 'Word' revealed or manifested in four levels of creation. In Indian tradition, it is evident as a realization called 'VAK' (meaning the primordial creative impulse or Word) intuitively perceived and realized in deep contemplation (dhyana or Samadhi) by our ancient sages. An explanatory note on the foundation is forwarded herewith: In the Rig Veda, framework that runs throughout the universe, and constitutes and activates every planes of existence in it is evident. In the first mandala of the Rig Veda (1.164.45) it is said that: 'catvari vak parimita padani tani vidur brahmana ye minishinah, guha trini nihita neengayanti turiyam vaco manushya vadanti" (i.e. the cognoscenti know of the Vak that exists in four forms. Three are hidden and the fourth is what men speak). 'Vak' is the 'Word' of creation. It is the universal logos – the seed of the universe. It represents complementarities of 'Artha' (essence or meaning) and 'Sabda' (expression or vibration). The rhythms of cosmic vibrations issue forth from the four aforesaid levels. The four levels correspond to the various levels in manifestation in the universe, from the highest un-manifested to the lowest in the ground reality. They are:
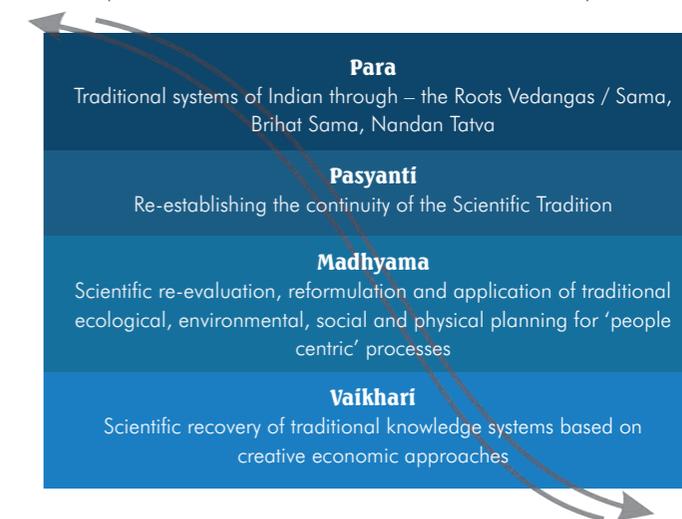
Para-Vak	Pashyanti
Madhyama	Vaikhari

'The modern physicist experiences the world through an extreme specialization of the rational mind; the mystic through an extreme specialization of the intuitive mind....to paraphrase an old Chinese saying, mystics understand the roots of the Tao but not its branches; scientists understand its branches but not its roots. Science does not need mysticism and mysticism does not need science; but men and women need both'

– Fritjof Capra

Four Themes

Sandhi (Confluence) – Pravaha (Flow)
(confluence leads to flow and flows lead to confluence)

Para
Traditional systems of Indian through – the Roots Vedangas / Sama, Brihat Sama, Nandan Tatva

Pasyanti
Re-establishing the continuity of the Scientific Tradition

Madhyama
Scientific re-evaluation, reformulation and application of traditional ecological, environmental, social and physical planning for 'people centric' processes

Vaikhari
Scientific recovery of traditional knowledge systems based on creative economic approaches

The core concern
Recovery of epistemological foundations

Analyses of ancient roots of Indian tradition
Classical language systems : recovery & application

Documentation of history of
Indian science and technology
Study of traditional text that can be lab tested

Design of community resources engineering, planning and management systems
Create piloting: Varanasi project

Recovery and regeneration of traditional knowledge systems
Create piloting: Urban and Regional Heritage

'Sandhi' – its epistemological and ontological foundations

The concept of 'SANDHI' is based on the integration of four concerns or SEEDS (see diagram on Language based pedagogy). The concerns correspond to the realization of 'Vak',the sacred cosmic word as encoded in the Vedas. The integration is based on a hierarchy – an is like a tree with the roots above and the branches below (urdha mulam addwa sakham) which also is an inside-outside relationship (antara-bahi or micro-macro).

The ancient realization of the Vedic seer-wisdom is evident in different historical period – in India and are created by sound – 'artha-srsteh puram sabda-srstih' (sound precedes the formation of objects). Lastly, we find in the Bible the verse, 'In the beginning was the Word, and the Word was with God, and the Word was God' [St. John 1:1]. Thus through a fundamental understanding of the

'And perhaps, in our own day, such a time for the conjunction of these two gigantic forces (Indian and Greek principles of metaphysics and sciences) have presented itself again. This time their center is India'
- Swami Vivekananda

integration of 'Vak', which stands for the cosmos and every level and variety in it. It may be noted that the four levels of VAK and its manifestation are conceptually delineated in the above Figure, which provides the epistemic domain and the ontological network of science-heritage interface, required for the outlining of a future pedagogy. It in other cultures. The Sanskrit grammarian, Bhartrihari, states in his Vakyapadiya 1.112: 'vageva viswa bhuvanani jajne' (i.e. It is Vak which has created all the worlds). Similarly, in Tantra, it is said that the Universe was set in motion by the primordial throb (adya-spanda) and that all objects of the Universe hierarchy of cosmic manifestation, from the highest unmanifest to the gross manifest, the seer formulates the basis of a 'conjunction' or 'a unified recovery' of Science-Heritage interface'. The thread or the interface of the two – the analytical (external) and intuitive (internal) worlds is called 'Sandhi.
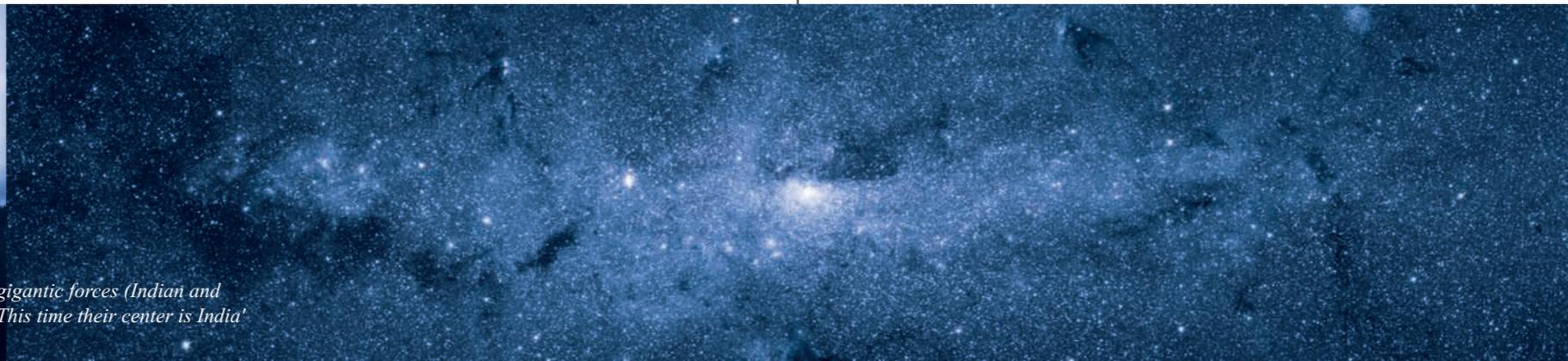
Organizational Framework of SANDHI

The organizational framework of the Center called 'SANDHI' will be steered by an Apex Committee headed by the competent authority of IIT Kharagpur, and supported by distinguished experts and representatives from the MHRD, Government of India. The Apex Committee will be formed of the Director, IIT Kharagpur, as Chairman of the Committee; Dean (SRIC) and Associate Dean (SRIC), who will jointly – I) coordinate and oversee all projects in consultation with the Overall Coordinator of 'SANDHI' from the aggregate level; ii) apportion funds from various sources; and iii) inter-link key coordinators across various concerns (having a seed concern or theme); and a key coordinator and his team of other principal investigators of various projects under Sandhi will monitor and outreach each and every project at the student-centric and people-centric levels.

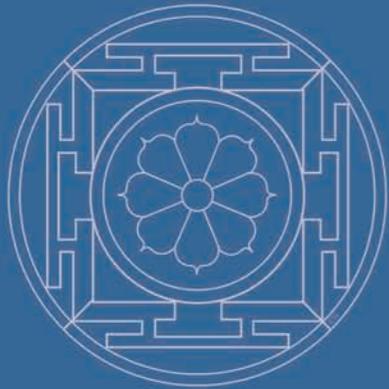# Operational Framework of SANDHI

Sandhi has four layers of projects, namely deep science exploratory projects; deep ecology and inter-disciplinary culture studies projects; deep exploratory projects; and creative economy regeneration projects

Deep science projects

◎ To develop a scientific rationale of Indo-European language systems applying geo-spatial and ethnographic mapping techniques based on sonic (etymologic/ articulate) matching principles and linguistic computational studies [Prof. Partha P. Chakraborti and Prof. Joy Sen]

◎ Decoding and Exploring Ancient Classification of Indian Classical Music through Machine Learning Methods and Audience Response a: Decoding Ancient Classifications of Indian Ragas b: Audience Response to Indian Classical Music Classification [Prof. Pallab Dasgupta and Prof. Priyadarshi Patnaik]

Deep exploratory projects

◎ The Effect of Meditation, Pranayam and Meditative Sounds on the Cognitive and Emotional Performance of Human Brain: a study using an integrated signal and image-based approach [Prof. Aurobindo Routray]

◎ Improving 'End-of-Life Care' (EoLC) for the Elderly by Integrating Indic Perspectives on Ageing and Dying [Prof. Suhita Chopra Chatterjee]

◎ Reconfiguring Dana (Generosity) as a new Institutional Financial Mechanism for Social Enterprises based on Indic perspectives [Prof. Narayan C. Nayak]

◎ Historical Evidence, Myth and Geophysical Modeling to Assess the Tectonic Movement and Risks Associated with the Odisha Coastal 'Heritage' Belt [Prof. William C. Mohanty]

Science without religion is lame, Religion without science is blind.
- Albert Einstein

Deep ecology and culture studies projects

◎ To establish a scientific correlation between 2-D footprints of Ecologic-Climatic construct and anthropocentric patterns & 3-D systems of iconographic patterns or 'footprints' (Mandala) as evident in design of Temple, Sacred Precincts and General Settlement forms in Indian architecture and also beyond India [Prof. Joy Sen and Prof. Haimanti Banerjee]

◎ A validation study of language system(s) based on analyses of a) Varna mala -– pattern text of linguistic mapping b) systems evaluation of words and patterns – psycho-physics of linguistic mapping c) coding users'-response/reaction study [Prof. Partha P. Chakraborti and Prof. Joy Sen]

◎ To establish linkages between iconographic re-interpretation of architecture and engineering patterns of Vedic and Buddhist periods based on:
a) Identification of underlying common patterns: built-forms; shape grammar; principles of design; styles and continuity embedded in the two layers
b) Earmarking a methodology to establish the continuity & re-interpretation of Indian history [Prof. Joy Sen and Prof. Haimanti Banerjee]

◎ To conduct a re-explorative geo-archaeological –architectural – iconographical study of: Chandraketugrah, East of Kolkata: as a potential site of current and future excavation for re-interpreting the chronology of Indian history (500 BC – 500 AD) based on the textual insights by a) Megasthenes b) Ptolemy and c) Huen Tsang & others [Prof. Arindam Basu, Prof. Probal Sengupta and Prof. Abhijit Mukherjee] [Prof. Joy Sen, Prof. Saikat Paul and Prof. Abhijit Mukherjee]

◎ To conduct a re-explorative geo-archaeological –architectural – iconographical study of Ratnagiri-Lalitagiri-Udaygiri (Pushpagiri belt) of Coastal Odisha: in the extended context of Sarnath-Nalanda and South East Asia/ Indonesia [Prof. Probal Sengupta, Prof. Arindam Basu and Prof. Abhijit Muherjee] [Prof. Priyadarshi Patnaik, Prof. Arindam Basu and Prof. Joy Sen]

◎ A multi-dimensional exploratory study of the 'Heritage City' of VARANASI for studying the patterns of: Cosmological-Historic footprints (A), geo-morphological footprints (B), habitat of educational systems, ancient physical and social engineering systems + creative economy (C) [Prof. Abhijit Mukherjee, Prof. Probal Sengupta, and Prof. Arindam Basu] [Prof. Partha P. Chakraborti, Prof. V. N. Giri and Prof. Joy Sen]

Creative Economy regeneration projects

◎ Assessing the current and future Creative Economic regeneration scope of traditional river-based heritage and Eco-tourism networks in Hooghly stretch of Kolkata Metropolitan Area [Prof. Saikat Paul and Prof. Joy Sen]

◎ A pilot project in the heart of Kolkata (Gariahat area) to re-design and re-resuscitate the livelihood of hawkers + allied informal sectors keeping in mind 'creative economy'. The concern is to boost the background technology of different home-stead, cottage-industrial products to which the Hawkers represent a retail end [Prof. Joy Sen and Prof. Koumudi Patil]

◎ A pilot project on 'Heritage tourism' considering the 'creative economy' of Kumartuli area – a) Terracotta and b) adobe related / reed plastered handicraft and image making. The concern is to re-explore the application and range of Terracotta technology as a building material in contemporary industry [Prof. Joy Sen and Prof. Koumudi Patil]

◎ A pilot project on 'Educational Heritage tourism' considering the 'creative economy' of College Street area [Prof. Joy Sen and Prof. Koumudi Patil]

'I believe in a spiritual world – not as anything separate from this world – but as its innermost truth. With the breath we draw we must always feel this truth that we are living in God. Born in this great world, full of the mystery of the infinite, we cannot accept our existence as a momentary outburst of chance, drifting on the current of matter towards an eternal nowhere.'

- Rabindranath Tagore

A Greater Sandhi:
maha sandhi

With the progress of SANDHI in IIT Kharagpur and other IITs, a spirit of MAHA-SANDHI has emerged. MAHA SANDHI is an agglomeration of PAN-Institutional initiatives aiming at integrated 'science-technology' and 'culture heritage' exploration at the Pan-IIT Level. The aim of MAHA SANDHI is to recover, recognize and reposition the various traditional knowledge systems and their inherent processes of India through deep science exploration. There are four important features:

▪ MAHA SANDHI is like a master lighted beehive, the effulgent solar world (Surja Mandalam) – where a systems approach between the whole conceptual frame and part project action plans will be co-evolved and sustained; where science and heritage is not an 'either-or', or 'east' and 'west' paradigms are not in conflict, but coalescing and co-evolving as one dicotyledonous seed (chanaka akriti dwi-vija)

▪ MAHA-SANDHI will promote a holistic and undifferentiated structure of pedagogy

(Akhanda Mandala akarang) based on a non-linear, intuitive, self-based and co-sharing learning approach, but encompassing in it the linear reductionist approach of science also.

▪ MAHA-SANDHI will promote a precognitive learning and a bearing process (Abhigyana and Abhidhamma) and also a flow of interactive network (Sutra) which will represent students' point of view; it will design an innovative credit support system; and introduce tacit, vocational skill-set learning mechanism will due emphasis on recovery and appropriate augmentation of traditional knowledge systems.

▪ MAHA SANDHI will finally promote the collective (MAHA) spirit of a PAN-IIT-inter (other) institutional network (Sutre mani gana iba) of SANDHI based on an interactive platform of Indian ethos and scientific inquiry inviting best of experts from corners of the nation and the globe.

Organizational Framework of MAHA SANDHI

The organizational framework of 'MAHA SANDHI' will be steered by an Apex Committee headed by the competent authority of IIT Kharagpur, and supported by a Core Expert Committee distinguished experts and representatives from other IITs and SPAs selected by the MHRD, Government of India. The Apex Committee will be formed of: The Director, IIT Kharagpur and other Directors of several IITs, SPAs and other organizations; and a network of Dean (SRIC), IIT Kharagpur and various Dean (SRIC)s representing various IITs and SPAs and other institutes.

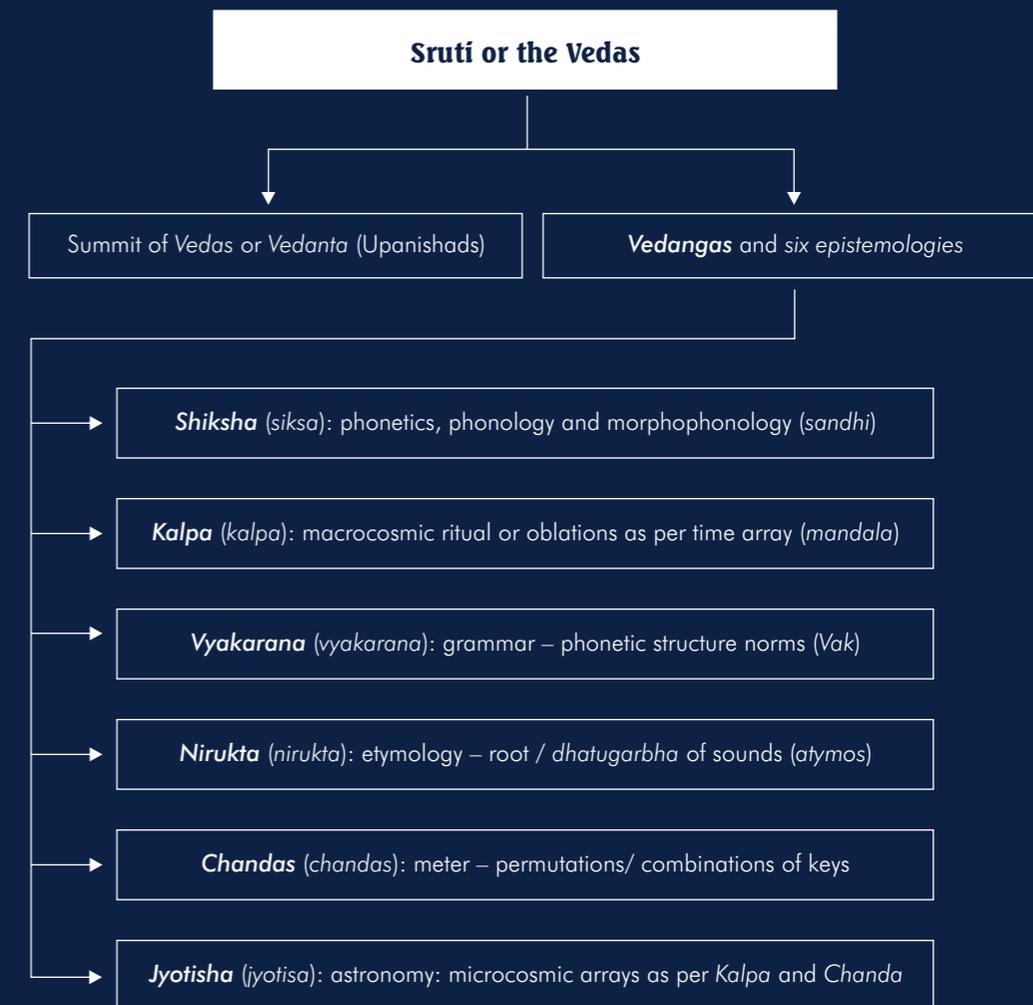## Operational Framework of MAHA SANDHI

- MAHA SANDHI has a three-stepped methodological framework, namely, a) Research-exploration; b) Development-recovery ; and c) Application-outreach catering to different social and economic community segments of our nation and the systems of traditional knowledge systems that they have possessed and nurtured through generations and ages in India.

- MAHA SANDHI will expand on an international level tracing the deep science and philosophical contributions of India to that of the world and recover the processes of exchanges through a science, epistemology and ontology of historic recovery.

- MAHA SANDHI will be eventually people-centric and ground-centric. Initiatives will culminate through pilot projects and students outreach programs inclusive of school children and relatively backward sections.

'It is of the one existence that yearning hearts speak in diverse ways', had said a Vedic Seer; and this is true not only in the abstract way, but in a concrete form also. Like the mystic Asvattha tree 'with its root above and the branches below', the Vedic tradition, in a broad sense, stands at the very source of almost all forms of Indian spiritual cults. And the interpretation of this tradition can be attempted with best results if we do not place the Vedas on the isolated heights of the past, but with a total vision of the present retrace our steps to the roots discovering, with penetrating insight, the links at every step. But this movement in depth must also be supplemented by a movement in breadth. One has to discover the master-idea that has been behind this historic development. And here, it is the spirit (in the microcosm) that must question the spirit in that stillness of the ocean where the womb (the Matrix) of the word lies sunk in the depths of the waters – the flows of super-consciousness'....And this connection, nothing can be more illuminating than the following remarks of Yaksa in his epilogue to the NIRUKTA (the womb, the etymos): - 'concerning the mantras, none can claim to have perceived the truths if one is not a seer or a spiritual energizer (raised Shakti)' (Nirukta, XIII.12.13)'

- Sri Anirban
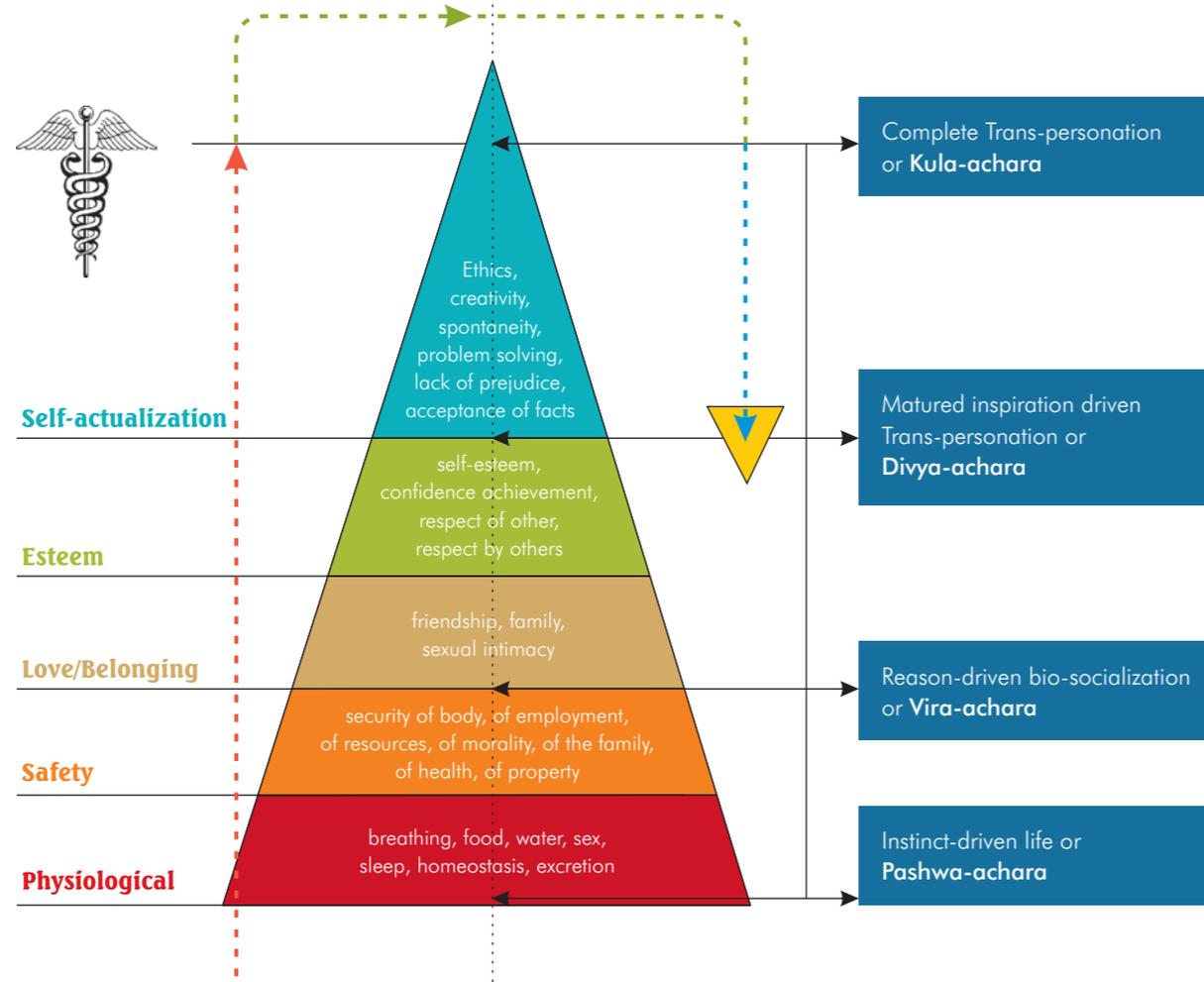
Project Proposal 1 Maha Sandhi

Deep exploration of the six Vedanagas and Tantras at a Pan-Indian level looking at Epigraphy, Iconography and Textual interpretation

Sruti or the Vedas

Summit of *Vedas* or *Vedanta* (Upanishads)　　　*Vedangas* and *six epistemologies*

Shiksha (*siksa*): phonetics, phonology and morphophonology (*sandhi*)

Kalpa (*kalpa*): macrocosmic ritual or oblations as per time array (*mandala*)

Vyakarana (*vyakarana*): grammar – phonetic structure norms (*Vak*)

Nirukta (*nirukta*): etymology – root / *dhatugarbha* of sounds (*atymos*)

Chandas (*chandas*): meter – permutations/ combinations of keys

Jyotisha (*jyotisa*): astronomy: microcosmic arrays as per *Kalpa* and *Chanda*

Study of *Vedanga*: based on morphophonology (*Sandhi*) and subsequent deep phonetic structures or *Tantras* (*Matrikas*)

An exploration of Tantra as a system of primordial knowledge systems based on recovery of

- Earliest epigraphy traditions as coded in the Vedas – mainly the Sukla and Krishna Yadjur Veda
- Ramifications of Tantra – Viswasartantra and other bodies of knowledge – Ganatantra; Samajtantra; Prajatantra
- Hidden connections (codes) between 'sutras' discovered through Computational linguistics (machine learning applications)

Complete Trans-personation or Kula-achara

Matured inspiration driven Trans-personation or Divya-achara

Reason-driven bio-socialization or Vira-achara

Instinct-driven life or Pashwa-achara

Self-actualization — Ethics, creativity, spontaneity, problem solving, lack of prejudice, acceptance of facts

Esteem — self-esteem, confidence achievement, respect of other, respect by others

Love/Belonging — friendship, family, sexual intimacy

Safety — security of body, of employment, of resources, of morality, of the family, of health, of property

Physiological — breathing, food, water, sex, sleep, homeostasis, excretion

MAHA SANDHI based on 'Hierarchy of Needs' (Abraham Maslow) and the Hierarchy of Evolution (as per TANTRA)

Ascent (Agama) ▶
Spanda ▶
Descent (Nigama or Recognition at Heart) ▶

Key Trans-Indian Eco-Exploratory initiatives

No.	Nature / Place/ Folk	SANDHI (core)	DESIGN (inputs)	FUTURE OF CITIES (application)	Creative economy revivals (business plan)
1.	**Bahai Temple and its legacy**	IIT KGP, D	IIT KGP, SPA	IIT KGP, SPA	IIT KGP, SPA
2.	**Coastal sites:** Puri; Mammalapuram; Karaikul (Pondicheery); Kanya Kumari	IIT system	IIT system	IIT system	IIT system
3.	**Extended Varanasi Project** - Tibetan Kasi - Uttar kasi - Kasi - Kanchi (Shiva and Vishnu)	IIT KGP IIT BHU	IIT KGP IIT BHU IIT K	IIT KGP IIT BHU IIT R IIT K	IIT KGP IIT BHU IIT K
4.	**Himalayan Ecology:** Pancha-Kedar; Uttarakhand; Kumaun belt; Kashmir Himalayas; Darjeeling (Dorjee-lingam: Vajrayana exploration)	IIT KGP IIT R	IIT R IIT B IIT K	IIT R IIT KGP IIT D SPA D, B, V	IIT K IIT KGP
5.	**Indo-Islamic architecture and study of Sufism:** Fatehpur Sikri & aftermath	IIT system	IIT system	IIT system	IIT system
6.	**Indo-European Architecture** - French, Portuguese - British influence	IIT System SPAs	IIT System SPAs	IIT System SPAs	IIT System SPAs
7.	Puri-Nilachal/ Nil-parbata or Kamakshya/ Nilgiri (Sringeri) and **51 Shakti peeths**	IIT KGP	IIT KGP	IIT KGP	IIT KGP
8.	**Rock cut caves** of Sahyadri mountains (Western Ghats): Ajanta; Ellora; Karli, Bhaja, Pandulena, nasik, Kanheri	IIT KGP	IIT B	IIT KGP + IIT B + IIT K + SPAs	IIT B IIT KGP
9.	Sites of **Buddhism in India**	IIT system	IIT system	IIT system	IIT system
10.	Ujjain and Nasik: **In search of Nath Yogis – antiquities and relevance**	IIT KGP IIT BHU	IIT KGP	IIT KGP	IIT KGP
11.	**Varanasi Project**	Ongoing (2014 – 2017)			

Key Trans-Indian Geo-Exploratory initiatives

No.	Projects	Methodology	GG and Exploration Geophysical applications
1.	Anangpur Dam, Faridabad, Haryana & Satpula, New Delhi	A comparative study of the development of bridge engineering design during the last one thousand years.	IIT D + IIT KGP + SPA D
2.	Ancient Cities built around high lands, mounds: Rajgir, Bihar	LiDAR Survey (Robotics) for understanding the mounds of ancient city.	IIT KGP + IIT Patna
3.	Ancient Monastic Complexes: Nalanda; Vajragriri-Pushpagiri-Lalitagiri complex, Odisha; Sankisa, Uttar Pradesh	Ground Penetrating Radar (GPR) Survey in the protected area to locate earliest structures and towards north of the protected area to understand the extent of the site.	IIT KGP + IIT BBSR + SPA V
4.	Cheraideo Maidens, District Sibsagar, Assam	To understand the distribution pattern of burial mounds and their extent through Ground Penetrating Radar Survey.	IIT KGP + IIT G
5.	Comparative studies: Chandraketugarh, Bengal and Dholavira and area around Rann of Kach, Gujarat	Mathematical modeling of the Harappan city, Ground Penetrating Radar Survey and total station survey.	IIT G + IIT System
6.	Karli Caves, Maharashtra; Bagh Caves, Madhya Pradesh	GPR study through remote sensing radar, with facility to lower the camera in cavaties and gaps for taking pictures of the collapsed rock-cut caves.	SPA Bhopal + IIT KGP
7.	Major Citadels and Fort Complexes in India: Red Fort, Delhi	Morph metric and GPR Survey of ground water and resistivity besides Ground Penetrating Radar (GPR) Survey.	IIT D + SPA D + IIT R + IIT KGP
8.	Vigukot (Brigukutch/ Ancient Bargyaza), Rann of Kach, Gujarat	Geo-exploratory study of earthquake evidence and water channel of old river system Ground Penetrating Radar Survey.	IIT G + IIT B + IIT KGP

Key Varanasi-Specific Exploratory Initiatives

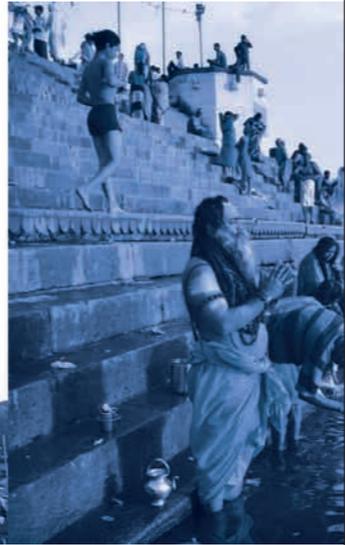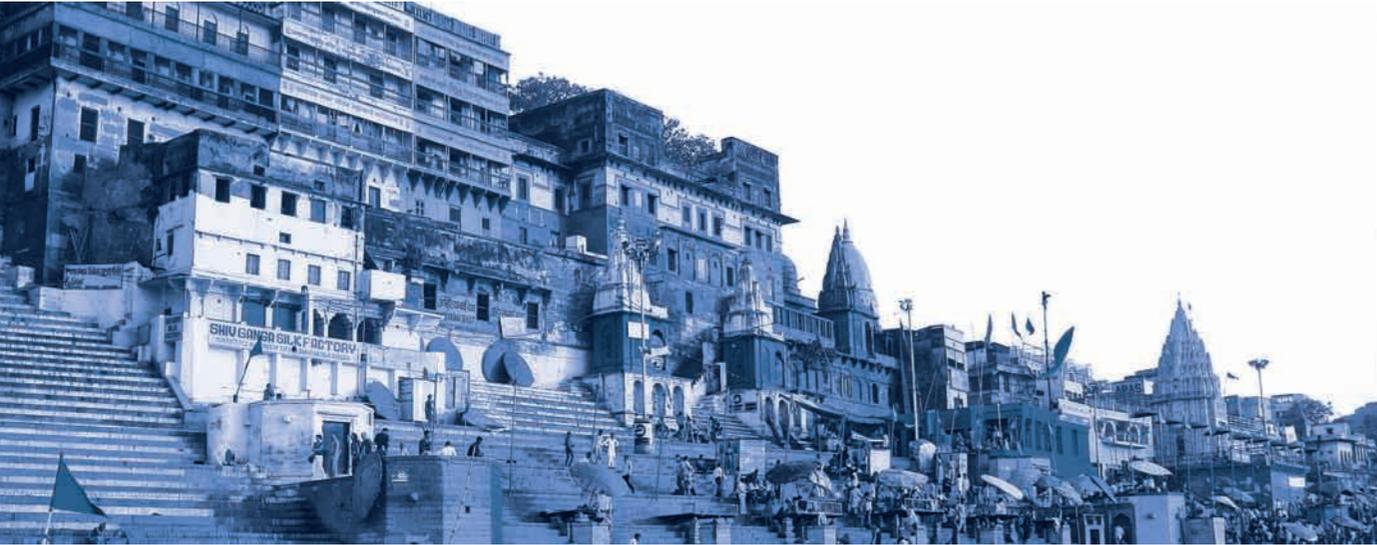| No.	Key programs	Targets
1.	Capacity building of Urban Livelihood	Living creative communities of Varanasi
2.	Capacity Building and Recognition Programs and Institutional Augmentation Workshops	Based on Ayurvedic traditions, Musical traditions, Epigraphy recitation tradition in relation with Guilds, Patronage & Popular themes of Varanasi
3.	Capacity building through short and long term courses	On surveying, GIS and archaeometry of Varanasi region
4.	Creation and Capacity Building of Varanasi Integrated Informatics and Analytics Lab	To promote the City Scape as a Living Continuity of Indian Habitat Tradition and Heritage, say,
5.	Study of Flows	'Water' and capacity Building of boat-based Tourism in the context of Varanasi, and its spirituality and culture
6.	The study of Sanskrit and its contemporary application	To new knowledge systems based on Indo-European Language networking and research, patenting and integrated inter-disciplinary and inter-continental business plans: fields of Ayurveda; Art work; Design processes; Community systems and Livability in Varanasi
7.	Urban Renewal Mission project	On Varanasi's urban design, various public spaces around ghats, network planning, pedestrian micro zoning, and urban services and transportation engineering
8.	Urban Heritage Mission on temples and people	Urban Heritage Mission on temples and people and their behavior at market place based on creative communities, their work places, their graphic designs, as well as social relations within and outside the community
9.	Urban Epigraphy documentation, dissemination and cultural studies	Sacred texts and their parampara from the city of Varanasi having national as well as universal complementarities
10.	Varanasi's contributions to Science and Technology	In the form of an exhibition through models, iconography (3D and 2D inter-related studies) and visual aids
11.	Visual documentation techniques of contemporary and heritage structures of Varanasi	To generate visual narratives and archival materials
12.	World Heritage and Eco-tourism Mission project around the twin centers of Varanasi-Sarnath	Based on Art, Cultural studies, Iconography, philosophy, history and sciences – based on related Buddhist communities of Tibet, Bhutan, SE Asian countries and Japan, Korea and China

Key Maha Sandhi Capacity Building Initiatives

- Capacity Building and Orientation Program Workshops for Fusion of Culture through Science and Technology

- Faculty and Personnel Capacity Building and Orientation Workshops through Educational Technology Programs for SANDHI platform for redefining curricula, pedagogy of infusing knowledge through science and technology

- Sustainable development through traditional knowledge systems and inclusion in course curricula

- Strategic Workshops and Outreach Programs for opening Indian cultural resources through embedded knowledge systems

- Advanced Educational Technology Programs for promoting Culture orientation beyond performing arts through encoding and e-portal-ing of Knowledge systems for Developing fascinating narratives on Historical cities, crafts communities and their creative economy, languages and communication portals across cross-cultural systems inclusive of music and aesthetic systems, outreach community care, philanthropic and advanced contemplative design manifesto systems for engaging Students to society and ethos through constant interactive portals and workshops

- Capacity outreach and interactive programs for bridging live precincts, monuments and sites to museums of learning for knowing and sustaining Indian culture

- Grassroots Capacity Building Programs for Documentation Cell programs for synthesizing contemporary systems of knowledge along with ancient systems for a) a comprehensive urban design manifesto and b) future of Cities based on NREGA initiatives and Pan-National Urban Livelihood Mission (JNNURM)

- Incubation and advanced Capacity building Centers for identifying and promoting New domains in the business of Culture like Art Management, Creative Economy regeneration and Urban Revival/ Livable Future of Cities Program in different Heritage-cum-Modern Cities of India (Bhubaneswar; Ujjain, Lucknow, Delhi, Jaipur, Varanasi and others)

- Promotion of a network of SANDHI Centers of Excellences in IITs, SPAs, IIMs, NIDs for a Pan-National Mission on bridging tangible engineering systems and Intangible Culture and sustaining a Education – Research – Application continuum

- Center for Archaeological Sciences and Technologies for creation of a national database of cultural heritage, monuments and artifacts

- Interdisciplinary Informatics Lab and analytics labs for systems of Future of Cities-Region

- Creation of heritage conservation labs for analyses of Structural forms, Structural Material Characterisation, Structural Behavior, Structural Assessment, Retrofitting to adaptive reuse and revival of building stocks and overall urban design and city planning

- Capacity building through short and long term courses on various aspects of a) geology b) archaeology c) ethnography and anthropology d) community ad urban planning e) utility systems and urban engineering f) project management and building g) operations and maintenance

Key Maha Sandhi Outreach & Pedagogy Materials Initiatives

Promotion of Journals of Pan-IIT-SPA system contribution

- Journal on SANDHI-DESIGN-FUTURE-of-CITIES-and-their-REGION (Core – inner – outer periphery)
- Sikhara: Journal of Integrated Himalayan ecology and sustainable development
- Sagara: Journal of coastal management, traditional community systems and eco-tourism
- Sthabara: Journal of community management, traditional creative economy systems and sustainable development in Indian cities and their region
- Jangama: Community planning and HR Management and Capacity building

E-Portals of Pan-IIT-SPA system contribution

- Film making: a) On Deep projects: Matrika and Abhidhamma / Vajrayana; b) Geo-archaeological exploration: revival of India's heritage in Science and Technology; c) Vedanta and Sufism – a synthesis; d) Traditions of Dara-shiko, Mirza-Ghalib, Kabir and the Dervishes – Maramaiyabada; e) Buddhism and the Gospel of St. Paul

- Educational outreach packages
- Vigyan-Samskriti-katha-sagar (Sandhi series)
- Paramapara-Prajukti-katha-sagar (Design series)
- Nagar-o-Anchalik-katha-sagar (Future of Cities series)