

**STUDY ON BHAISHAJYA MAHA YAJNA USING  
ELECTROPHOTONIC IMAGING AND ENVIRO-TECH**

Thesis submitted by

**SUSHRUTHA S**

Towards the partial fulfillment of

**DOCTOR OF PHILOSOPHY (YOGA)**

**DECEMBER 2014**

Submitted to



**Swami Vivekananda Yoga AnusandhanaSamsthana**

**(Deemed University)**

**# 19, EknathBhavan, Gavipuram Circle**

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Under the guidance of

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## **DECLARATION**

I, hereby declare that this study was conducted by me at Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA), Bengaluru, under the guidance of Dr. Ramachandra G Bhat, Vice Chancellor and Dr HR Nagendra, Chancellor, S-VYASA University Bengaluru.

I also declare that the subject matter of my thesis entitled;

**STUDY ON BHAISHAJYA MAHA YAJNA USING ELECTROPHOTONIC IMAGING AND ENVIRO-TECH**

has not previously formed the basis of the award of any degree, diploma, associate-ship, fellowship or similar titles.

Date: 25th December, 2014

SUSHRUTHA S

Place: Bengaluru

(Candidate)

## **CERTIFICATE**

This is to certify that Sushrutha S who was given Ph.D. registration with effect from August 1, 2009 by Swami Vivekananda Yoga Anusandhana Samsthana, Deemed University under the Division of Yoga-Spirituality has successfully completed the required training in acquiring the relevant background knowledge and has completed the required course of research for not less than two years to submit this thesis entitled **STUDY ON BHAISHAJYA MAHA YAJNA USING ELECROPHOTONIC IMAGING AND ENVIROTECH** as per the regulations of the University. We also declare that the subject matter of the thesis has not previously formed the basis of the award of any degree, diploma, associate-ship, fellowship or similar titles.

Ramachandra G Bhat MA, PhD

Vice Chancellor

S-VYASA (Guide)

H.R. Nagendra, ME, Ph.D.

Chancellor S-VYASA

(Co-guide)

## **ACKNOWLEDGEMENT**

I would like to express the deepest gratitude to my guides, Dr Ramachandra G Bhat and Dr. H. R. Nagendra for their guidance and encouragement.

I thank Dr. T. M. Srinivasan, Dean- Division Yoga and Physical Science and Dr Krishna Madappa for their suggestions and consistent support. I thank Coordinators, Dr Ravikumar Itagi and Dr. Subrahmanya P who helped me throughout PhD program.

I'm grateful to Sri Rishidev Narendran Ji, Dr Sripriya Mataji, Sri Satyan Ji, Sri Boss Ji and the entire team of Jiva Yoga Wellness Centre, Bangalore for allowing me to do research on Bhaishajya Maha Yajna.

I thank Dr. Balaram Pradhan, Dr. Judu Illavarasu, Meenakshy K.B. and Dr. Bhawna Sharma, who helped me through regular discussion and supported me during all crucial times. I also thank all my Ph.D. friends who helped me during various phases of my work. I also would like to thank all the participants involved in my research as subjects. I would like to thank the entire faculty and all my friends of Veda Vijnana Gurukula and Prabodhini Gurukula who gave the base for my knowledge in ancient Vedic knowledge. I thank Rajesha HK and Thyagaraju U for their concern and support during different phases of my Ph.D.

I will be always grateful to my university Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA) for its support in promoting my research career. I thank all staff members of SVYASA University. I would like to thank all my students of Division of Yoga-Spirituality.

I am indebted to my Parents for their inspiration and motivation, love and support. I thank my family members for their support whenever required. I thank my wife, Chaya HS, for her support.

Date: 16 December, 2014

Place: Bengaluru

Sushrutha S

## Standard International Transliteration Code for SAMSKṚTAM

अ	आ	इ	ई	उ	ऊ	ऋ		
a	ā	i	ī	u	ū	ṛ		
ऌ	ए	ऐ	ओ	औ	अं	अः		
ṛ	e	ai	o	au	am	aḥ		
	क	ख	ग	घ	ङ			
	ka	kha	ga	gha	ṅa			
	च	छ	ज	झ	ञ			
	ca	cha	ja	jha	ña			
	ट	ठ	ड	ढ	ण			
	ṭa	ṭha	ḍa	ḍha	ṇa			
	त	थ	द	ध	न			
	ta	tha	da	dha	na			
	प	फ	ब	भ	म			
	pa	pha	ba	bha	ma			
य	र	ल	व	श	ष	स	ह	ळ
ya	ra	la	va	śa	ṣa	sa	ha	ḷa

## **ABSTRACT**

### **INTRODUCTION**

Bharat is believed to be a cultural and spiritual land. Spirituality is practiced here through different methods and among all, Yajna being highest spiritual practice. Number of ancient spiritual texts advocate positive changes of performance of Yajna at individual and at environmental levels. Empirical studies on Yajnas may support the cultural practices by understanding their mechanisms. Since these practices are very subtle in nature, it is very difficult to quantify the changes at gross levels; hence, newly developed technologies such as Electrophotonic Imaging (EPI) and EnviroTech are used in this study to observe subtle changes both in people and in the environment.

### **LITERATURE REVIEW**

Ancient Vedic traditional literature review brings out the model of how Yajnas support subtle and gross world. The smoke generated out of Yajna Kunda (sacred pit) reaches the atmosphere generating rain clouds. Thus the eco - balance was maintained meticulously in ancient India. The scientific literature review provides suitable and apt technologies to trace the subtle changes that involve individual and collective levels.

### **AIM AND OBJECTIVES**

The aim of the study was to investigate subtle changes in participants who were actively involved in performance of Bhaishajya Maha Yajna, through measurements of Electrophotonic Imaging parameters and to observe levels of pollution in the atmosphere during two consecutive years 2013 and 2014.

## **METHODS**

### **SUBJECTS**

For EPI parameters, the subjects were from Kerala, Karnataka and Andhra Pradesh, and were followers of a specific Yoga module called Jiva Yoga, led by a spiritual master from Kerala. They numbered 29 in 2013 and 21 in 2014. Air samples were taken from the surrounding area (200 meter away from Yajna Kunda) using EnviroTech to measure pollution levels.

### **DESIGN**

EPI parameters were taken three times, including base assessment and EnviroTech parameters were taken pre and post-performance of Bhaishajya Maha Yajna.

### **ASSESSMENTS**

Following are the EPI measured variables.

**Area:** the number of pixels in the image having brightness above a pre-set threshold. It is observed that area shifts in diverse situations. Increase in area is indicated by an increase in the number of pixels. **Average Intensity:** an evaluation of the Intensity spectrum of the pixels in the images indicating electro-photon discharges from fingertips. **Entropy:** an indicator of the level of chaos and disharmony in the system.

EnviroTech had **SO<sub>2</sub>**, **NO<sub>2</sub>** and **Respirable Suspendable Particulate Matter (RSPM)** as variables to measure pollution levels.

## **DATA EXTRACION AND ANALYSIS**

Data from EPI parameters were obtained according to the norms of EPI standards, capturing images from 10 finger tips. SciLab software was used to extract the required variables to convert them into numerical data. RMANOVA was used to analyze EPI parameters using SPSS 16.0.

EnviroTech data were analyzed by comparing them to standard values.

## **RESULTS**

### **EPI PARAMETERS**

**Area** - A repeated measure of ANOVA showed, that for 29 people in 2013, the area of three measurements were statistically different,  $p = 0.017$ . Post-hoc analysis for three measurements confirmed the statistical difference between first measurements and second measurement  $p = 0.017$ . However, in 2014, for 21 people,  $p = 0.001$ , the post-hoc analysis showed that first measurement and second measurement were statistically significantly different,  $p = 0.001$ , and first measurement and third measurement were also statistically significant,  $p = 0.033$ .

**Average Intensity** - A repeated measure of ANOVA showed, for 29 people in 2013, the Average Intensity between three measurements were statistically different,  $p < 0.001$ , the post-hoc analysis showed the statistical difference between first measure and second measure,  $p < 0.001$ , and second measurement and third measure,  $p = 0.047$ . For 21 people in 2014, a repeated measure of ANOVA showed significant difference,  $p < 0.001$ . Post-hoc analysis showed significant difference between first measurement and second measurement,  $p < 0.001$ , and first measurement and third measurement,  $p < 0.001$ .

**Entropy** - A repeated measure of ANOVA did not show statistical difference, for 29 people in 2013, between three measurements,  $p = 0.274$ . A repeated measure of ANOVA in 2014 also, for 21 people, did not show statistical difference,  $p = 0.771$  between the three measurements.

### **ENVIROTECH VARIABLES**

**Nitrogen Dioxide** increased by 13.51 percent from pre assessment within accepted standard values ( $80 \mu\text{g}/\text{m}^3$ ),

**Sulphur Dioxide** decreased 43.39 percent from base within standard values ( $80 \mu\text{g}/\text{m}^3$ ), and

**RSPM** increased 65.15 percent from base assessment exceeding 9 numerical values from standard value ( $100 \mu\text{g}/\text{m}^3$ ).

### **CONCLUSION**

The study concludes that human subjects attending BMY displayed statistical changes in Area, Average Intensity and Entropy, suggesting over all human energy field reconstruction occurred at its optimal level. Forty three percent reductions in Nitrogen Dioxide support the performance of traditional rituals to reduce pollutant levels and to lead a naturefriendly life.

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# **CHAPTER 1**

## **INTRODUCTION**

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## 1.0 INTRODUCTION

Each philosophy has certain practices that form the essence of that philosophy. Indian culture and tradition incorporate Yajña (fire ceremony involving offering selected substances) as one of the core performances for fulfillment of worldly desires. All the auspicious performances in Indian tradition admit worship of Agni (the sacred fire) in one form or the other. Throughout ages, fire has been venerated as a symbol of Brahman. The first hymn in Rig Veda is related to Agni: "I invoke and worship Agni, light of life, self-effulgent lord of the universe, foremost leader and inspirer, blazing light of Yajnic creation, high-priest of cosmic dynamics, controller of natural evolution, and most generous giver of the treasure of life" (Tulasi, 2013).

Ayurveda (Knowledge of Life and Science of Living) recommends Yajna for management of diseases through Japa (repeating a sacred name of a particular God), Homa (fire offering) and Surarchana (worship of God). A Mantra from Rig Veda comprehends the result of performing Yajña with a specific note: *Yajāmahesaumanasāyadevān*|| (Rig Veda || 1-173-2) meaning 'We perform Yajña in favour of Devas for sanctification and bracing the Manas (an aspect of mind)'.

The Sanskrit word 'Yajña' etymologically means 'to worship', 'to unite or connect', 'to do charity unconditionally (Dāna) in right manner to the deserved' (Gyanashruti & Srividya, 2006). Pūrva Mīmāṃsa, one of the schools of Indian philosophy, proclaims that – "*Devatoddeśenadravyatyāgah*" meaning 'Yajna is an act of offering desired materials to aspiring Devas (deities). Yajña is a unique method of offerings to deities (Bheemacharya, 2011). One of the texts explains Yajña as a combination of offerings to Devas, recitation of

Mantras from three Vedas with Ritviks (performers of Yajña), and Dāna (acknowledgements or respecting noble people) (Acharya, 1998).

Yajña is a systematic process in which herbs are offered along with recitation of Mantras to accelerate the process of harmonizing the creation and human life. This action purifies Mahāprāna (Krishnamurti, 2007). In addition to this, Yajña influences physical, psychological, spiritual and social conditions at large (Surendra & Nagendra, 2007). Chanting of Mantras produces vibrations which makes human body resonate to Mantras' mystic powers and responds in a profound manner (Yogitha, Nagarathna, John, & Nagendra, 2010).

Sri Krishna in Bhagavad-Gita, says this with respect to Yajnas: “Serve the gods through Yajña and let the gods be gracious to us. Thus, each serving the other selflessly attains the highest good.” [Bhagavad Gita 3.11] (Goyandaka, 1988). “Oblations given to Agni reach the Sun, which in turn transforms into clouds through vaporization resulting in rainfall and gives back in the form of food grains which is the base for human progeny.” [Manu Smriti 3.76] (Sheshanavartna, 2011).

Vedas demonstrate three domains of living for betterment of process and they include karma (action), dhyana (meditation) and jnana (knowledge). As long as individuality continues as human being, actions will follow and this will eventually lead to knowledge. According to the Dhatupatha, the word Yajna derives from yaj\*in Sanskrit language that broadly means, [a] worship of GODs (natural forces), [b] synchronization between various domains of creation and [c] charity.

The concept of God differs from religion to religion. The ancient Hindu scriptures conceptualizes Natural forces as GOD or Devatas (Deva that which enlightens [div = light]).

Commonly, in all ancient civilizations the worship of Natural forces as GODs was prevalent. Therefore any form of manifested (Sun, fire and so on) and or unmanifested (Prana, Manas and so on) form of energy is considered as GOD in Hindu tradition also.

Worship conceives the idea of request to the sources of energy forms from where the energy is drawn for the use of all life forms. Worshiping the Gods (Upasana) can be in the form of worship of manifest forms, prostration, collection of ingredients or devotees for worship, invocation, study and discourse, and meditation.

Sacrifice is also a ritualistic mode of connecting between various domains of creation and their respective deities through the eternal messenger AGNI (fire) (Sangatikaranam); the degree of freedom to think and act rests with the individual especially with human beings depending on how one connects to these realms spiritually through the mode of Yajna. That is considered as Loka where the Karmaphala (result of actions, either merit or demerit) are being manifested. One enjoys Svargaloka (heaven) on account of Punya, suffers in Narakaloka (hell) on account of Papa, and takes birth as human to pile up the Karmaphala for the next cycle of existence. Thus, new cycles of birth and death continue forever without an end until one realizes one's false concept of eternity and the resultant deplorable repetition. In this regard, ritualistic sacrifice plays a major role by which beings in this world please the GODs for fulfillment of their cherished desires. Raghuvamsha of Kalidasa, gives specifically reference as to how the various realms were sustained just as King Dilipa, a great king who "performed great sacrifices by utilizing the treasures of earth to please the GODs and they drained the heavenly treasures in the form of rains. Thus by a mutual exchange between beings of various realms harmoniously, the sustenance of these worlds by sacrifice was ensured". Bhagavad Gita [3.11 – 12] also upholds the similar view in mutual exchange for

sustenance. “Cherish the Devas with Yajna and may the Devas cherish you, thus cherishing one another you shall gain the intended wealth and maintain the cosmic harmony; factually natural forces are purified and energized by this system of Yajna.”

Appropriate Charity (Danam): every living being is a custodian of limited resources of vast Cosmos for a while to experience the results of action done in the previous birth. Depending upon the quantity of merits and demerits, longevity and quality of life will be decided so as to spend some time here on earth. In this span of time one has to look after the family, society and other living beings by default because of the support that one gets for such sustenance. As an obligatory action one should take care of others by sharing and caring. This is also Yajna.

## **SOCIAL CONDITION OF INDIA LEADING TO GROWTH OF KNOWLEDGE AND PRACTICAL APPLICATION**

In comparison to the rest of the world, Bharat contributed a lot to the field of knowledge. The social condition was very conducive to this development. Philosophy emerges and expands in a condition in society, when all common necessities are taken care. Quite often British have reported that when they entered India for the first time, they could not find people who were starving for food. Social conditions contributed to harness knowledge which supported India at any given point of time in history.

Vedic scriptures are the spiritual literature; the expression Vedic is derived from the Sanskrit word ‘Veda’, which means revealed knowledge or intuitive knowledge. The Veda may be understood by simply accepting what the Veda says about itself. Since the Vedic self-understanding may be amazing or even unbelievable to the modern reader, it seems it’s important to dedicate a few sentences to clarify probable misunderstandings. The different

opinions about the origin and history of Vedic scriptures are due to the fundamental difference of world-views between the followers of the Veda and modern mundane scholars.

Modern Indology says Vedas are but a mere accumulation of texts from different sources, written over a long period of time, starting from about 1500 BC to 1000 AD, after the hypothetical Aryan invasion into the Indian Subcontinent. Only then, a 'Vedic' culture was formed through a mixture of several tribes. If we believe this scenario, then it is natural to think that the Indian scriptures are nothing but a collection of disorganized mythological texts. Maharshi Aurobindo says this reveals the shallow understanding of Vedas by Westerners.

Ignorance and deliberate demotion of Indian culture by few authors lead many to be misled by the Western view of point. Vedas refer to very ancient cultures, timeless revelations and divine incarnations. They also say that the entire saga of Vedic revelation has a systematic structure and a clearly defined goal, being compiled by the great Vedic Rishis (seers and sages), and headed by Veda Vyasa, about five thousand years ago. This knowledge was then systematically put into a written form in order to prevent it from being lost during the forthcoming ages.

The structure of the Vedic scriptures can be compared to a staircase with many steps, with specific scriptures corresponding to each step. The Vedic scriptures describe both the goal and the steps leading up to fixed goal.

Any individual's evolution is not limited to one single life. Maharshi Aurobindo compares any life with a spiral movement; circular and upward. Vedic understanding is based on the concept of reincarnation, which declares that the steps of this symbolical staircase can also be understood as life times. From a superficial point of view, Vedic scriptures may appear to be

unsystematic and even contradictory, but this impression can easily be reconciled by finding out how each step is connected to the goal.

The ultimate goal of life is liberation from all types of bondages and enjoying eternal bliss, a state 'devoid of varieties of sorrows and sufferings' as it is popularly stated by a Sanskrit line,

सुखप्रप्ति दुःखनिवृत्तिश्च

*Sukhapraptiduḥkhanivṛttiśca*

“Getting happiness and discordance of sufferings” is the focus of every endeavor by any living being”.

Indian scriptures have shown different paths to reach the same goal by different methods to aspirants of this goal, considering the fact that “Bhinnarucirhi lokah” meaning each one is different and likes and dislikes of each is of innumerable characters. So the path followed by each is obviously different.

This study is aimed at glancing at different techniques advised by ancient scriptures including Upanishads, Bhagavad Gita, Smritis and Itihasas. A good number of Spiritual aspirers go for Tantra for quick results, but end up with complex knots of immediate and intensive effects. Considering all these complexities, saints of yore showed the right path which has no side effects, Satvik and safe practices. Bhagavad Gita rightly divides faith into three: Satvik, Rajasik and Tamasik.

The rituals can be classified under three categories based on their origin, namely Shrauta (prescribed in Vedas), Smarta (prescribed in Smritis) and Tantra-Agama (prescribed in Tantra and Agamas). Experimental research in the present work is not related with two former categories; hence we suppose Bhaishajya Maha Yajna is a newly invented method by one of

the spiritual masters, Sri Narendran Ji, the founder of Shaktiveda Wellness Centre, Bangalore which resembles Tantra based ritual from his personal experiences based on scientific approach. The next chapter, literary research, elaborated about Shrauta and Smarta Yajnas. The present research work is connected with new invented method of performing Yajna. Experimental research work involved two modern techniques to measure effect of Yajna.

1. EPI (Electrophotonic Imaging) is a Bio-Photonic-Emission- Imaging-Processing technique developed by Dr Konstatine Korotkov, a Russian scientist and his team in collaboration with American scientists. It has innumerable applications in research. Human Psycho-Emotional alterations can be traced by capturing the photonic emission from all ten fingertips. The images captured through the camera are processed in software for further analysis.
2. EnviroTech measures pollution level in the environment due to Nitrogen dioxide and Sulfur dioxide and dust particle to observe if they increase or decrease during a process, here the Yajna.

In summary, Bhaishajya MahaYajna is entirely different in its approach than the conventional method having innovative ideas.

## CHAPTER 2

### LITERARY RESEARCH FROM TEXTS

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## **2.0 LITERARY RESEARCH FROM TEXTS**

### **2.1 AIM**

To compile Vedic concept related to Yajna and its relation to other spiritual practices

### **2.2 OBJECTIVES**

1. To understand how concept of Yajna is inherent in Indian culture
2. To present a concise study of Yajna from the traditional view point.

### **2.3 METHODOLOGY**

#### **Sources**

- Bhagavad Gita
- Āyurveda texts
- Yoga Texts- Patanjali Yoga Sutras etc.
- Taittiriya Aranyaka
- Tantra Texts

### **2.4 INCLUSION CRITERIA**

The texts which present the core concepts of Yajna and its implications were taken for study.

The texts, having a close connection between Yajna and Yoga, were included in the study.

Those texts were taken to study which emphasize maintenance of eco-balance through rituals and ceremonies prescribed in ancient texts.

## 2.5 EXCLUSION CRITERIA

Those texts were excluded which were merely dealing with the procedure of Yajna, without advocating their philosophy and science behind it.

## 2.6 PREVIOUS RESEARCH IN THE FIELD

Ayurveda (Knowledge of Life and Science of Living) postulates that manifestation of diseases is caused by the impressions from the previous births, environment, and our relation to people and the world etc. There are multifarious methods to identify and cure diseases in Ayurveda. Diseases can be managed through Japa (repeating a sacred name of a particular God), Homa (fire offering) and Surarchana (worship of God). A Mantra from Rig Veda comprehends the result of performing Yajña with a specific note: *Yajāmahe saumanasāyadevān*|| (Rg Veda || 1-173-2), meaning ‘We perform Yajña in favour of Devas for sanctifying and bracing the Manas (an aspect of Mind)’ along with other facets of inner tools (Antahkarana) in order to reach an intended spiritual goal.

The Sanskrit word ‘Yajña’ etymologically means, ‘to worship’, ‘to unite or connect’, ‘to do charity Dana unconditionally in right manner to the deserved’ (Bheemacharya, 2011). Pūrva Mīmāmsa, one of the schools of Indian philosophy, proclaims that – *Devatoddeśena dravyatyāgaḥ* meaning for the purpose of satisfying the deities, we give oblations to them. Yajña is the procedure of offerings to deities (Gyanashruti & Srividya, 2006).

One of the texts explains Yajña as a combination of offerings to Devas, recitation of Mantras from three Vedas with Rtviks (performers of Yajña), and Dāna (acknowledgements or respecting noble people)(Acharya, 1998).

Yajña is a systematic process in which herbs are offered along with recitation of Mantras to accelerate the process of harmonizing the creation and human life. Smoke generated in a Yajña has medicinal value because of specific herbs offered into Agni; hence inhalation of the smoke brings changes in physical construction in humans. This action purifies Mahāprāna. In addition to it, Yajña influences spiritual values and life style changes. Chanting of Mantras produces vibrations which makes human body resonate to Mantras” mystic powers and responds in a profound manner to synchronize oneself with the cosmos. These vibrations reverberate and spread specific subtle energy waves in the surrounding atmosphere while the oblations are offered with specific chants. So Yajña has physical, psychological, spiritual and social values.

The entire process of Yajña, consisting of mantra chanting, lighting the sacrificial fire and offering Havis (sacred sticks) to the gods in the form of ghee, Vanaspati (materials from plants and trees) and other objects, purifies the environment significantly. In fact, Yajñas have been successfully performed even in modern times to induce rainfall, to check spread of epidemics and for various mundane and spiritual purposes.

With reference to Yajña, Śrī Krishna says in Bhagavad-Gita, "The devotees of the Lord are released from all kinds of sins because they eat food which is offered first in sacrifice. Others, who prepare food for personal sense enjoyment, verily eat only sin" [Bhagavad Gita 4.31]. "Serve the gods through Yajña and let the gods be gracious to us. Thus, each serving the other selflessly will attain the highest good." [Bhagavad Gita 3.11]. "Through Yajña, deities went to heaven, enmity transforms to friendship, so Yajna is considered to be the greatest performance one can deliver as an action. Oblations given to Agni reach the Sun, which in

turn transforms that into clouds through vaporization resulting in rainfall and gives back in the form of food grains which is the base for human progeny.” [Manu Smriti3.76].

TABLE 1: STUDIES CONCERNING YAJNA AND ALLIED SUBJECTS

## SUMMARY OF PUBLISHED RESEARCH AND THESES

NO	TOPIC & STUDIES	SUMMARY	STRENGTHS	LIMITATIONS	COMMENTS
1.	Yajñas, Yagas, Agnihotra and Homas: <b>Surendra Rawat 2008</b>	<ul style="list-style-type: none"> <li>• Concept of Yajña.</li> <li>• The Rationale of Yajña</li> <li>• Human-Divine Relationships and cooperation</li> <li>• Eco-friendly life</li> <li>• Typology of Yajñas–</li> </ul>	<ul style="list-style-type: none"> <li>• Types are described Well</li> </ul>	<ul style="list-style-type: none"> <li>• Shruta Yajnas are not discussed in detail</li> </ul>	<ul style="list-style-type: none"> <li>• Aptoryama Yajnas</li> <li>• There are differences between Agnihotra and Agnikarya</li> </ul>
2.	Concept of Kundalini according to Yoga and Spiritual Lore <b>Sanjay Kumar, 2004</b>	<ul style="list-style-type: none"> <li>• Kuṇḍalinī and spiritual psychosis; negative effects of wrong practices of kuṇḍalinī; process of Kundalini</li> </ul>	<ul style="list-style-type: none"> <li>• Good references are provided</li> </ul>	<ul style="list-style-type: none"> <li>• Tantra tradition is not clearly mentioned</li> </ul>	<ul style="list-style-type: none"> <li>• Kundalini Yoga is not a separate branch of Yoga</li> <li>• Science should be understood well</li> </ul>
3.	Study of Siddhis in Indian Classical Literature, <b>Gourav Chandratre, 2006</b>	<ul style="list-style-type: none"> <li>• The path of Siddhis– a step in Tantra through Samyama. Samyama becomes tool for Tantra Sadhana,</li> <li>• Trifold path for Sadhaka, Saadhya and Sadhana, Channelizing the power in the right path.</li> </ul>	<ul style="list-style-type: none"> <li>• Philosophy of Siddhis is dealt in detail; the extraordinary powers which are innately available.</li> </ul>	<ul style="list-style-type: none"> <li>• Science of Siddhis is not described</li> </ul>	<ul style="list-style-type: none"> <li>• Mechanism of Siddhis is given in Patanjali Yoga Sutras</li> </ul>

All above studies summarize that spiritual path have many practices such as, Yoga, Kundalini Yoga, Agnihotra, Pranayama, Yajna and other similar performances.

Though Kundalini Yoga is not an independent stream of Yoga, it was practiced independently in medieval Indian history. It is developed as a part of Tantra, giving rise to secret practices in much closed circles, because the masters of Tantra thought that, Tantra in the hands of thugs may harm larger society, rather being used as an extraordinary tool for spiritual growth. Even today there involves very esoteric effects and subtle changes in energy body.

Yajna are divided into 5 in Taittiriya Aranyaka, 2<sup>nd</sup> chapter. Five divisions are as follows; Deva Yajna, Pitr Yajna, Bhuta Yajna, Manushya Yajna and Brahma Yajna. These have to be followed daily. Ultimately, leading life synchronized with nature, allows one to realize how important the nature in ones' life is. It also implies, what can be the negative effects if the life is not synchronized.

Patanjali Yoga Sutras bring out the concept of Siddhis as one grows spiritually. Many masters of Yoga stuck with Siddhis, indulging the lives by showing their powers to others which eventually pulls down ones personality. Siddhis are acquired from 5 different sources; 1) birth, 2) special herbs, 3) Mantra, 4) Tapas and 5) Samadhi. Patanjali Yoga Sutras support three paths among 5; Mantra, Tapas and Samadhi. A spiritual sadhaka does not accumulate any result of action, because he follows Karma which *Ashukla* and *Akrishna*.

## 2.7 PRESENTATION OF VERSES FROM VARIOUS TEXTS AND A THEORETICAL FRAMEWORK

“VijnanamYajnamTanute”, this statement found in Taittiriya Upanishat leads us to the real concepts of science and spirituality. This statement harmonizes both spirituality and science paving the way for probing and for proving. Science becomes spiritually rooted when it works with ecology for eco balance at Brahmanda and Pindanda levels. This very endeavor for spiritual science and scientific spirituality was the main research area for the Rishis of yore. This endeavor is called Yajna where the real performer is Atman and the divine spouse accompanying him is none other than Shraddha (spiritual faith).

For Brahmajnana, it is accepted that Sannyasa is the only immediate step, not the performance of any other action. Contextually different components of Yajna to a Sannyasi will be explained here,

तस्यैवं विदुषो यज्ञस्यात्मा यजमानः श्रद्धा पत्नी शरीरमिध्ममुरो वेदिर्लोमानि .... तै आ १०-८१ ॥

*Tasyaivaṃ viduṣo yajñasyātmā yajamānaḥ śraddhā patnī śarīramidhmanuro vedīrlomāni  
... || Taittirīya Āraṇyaka 10-81 ||*

“For him (Sannyasi who is already realized - Jivanmukta), it was told how Sannyasa is very important and the Yajna to be performed by him will be as following, a) Atma, the witness of all sensory actions is said to be Yajamana (owner of performance), b) Shraddha, spiritual aspiration is considered as wife, c), Shariram, physical body is fuel, d) Uras etc (different organs in the body), are the stage or ground for performing Yajna, e) Loma, hairs on the body are flame sparkles etc.....”.

In this context the whole life journey becomes Yajna where every activity is systematically structured, technologically innovative and ecologically harmonious and balanced.

Modern physical sciences are accepted and regarded for their utility, practicability and for bringing comfort. It is no doubt that the human endeavor is able to unearth the secrets of the physical world at its minutest levels to get the uttermost benefits out of any object through science. But, as the quantum physics argues, the uncertainty of the position of an electron at a given time, the science lags in its vividness to explain everything from the accepted facts starting from Newton's laws of gravity to theory of everything and even meta-theory.

On the other hand, the science of eastern countries grounded on widely accepted and applied theories of non-measurable factors through physical parameters such as Prana, Prakriti, Devatas, Jeeva-Atma, Parama-Atma, Gunas, Samskaras and Vasanas etc., Bharat has been promoter and extender of non-physical sciences (Shastras) and laid down the same knowledge from generation to generation. The Vedas and allied texts (Shrutis and Shastras) are authoritative source for all knowledge, though it seems to contradict day-to-day life from an apparent and relative perspective. Most of the Upanishadic (culminating section and core of Vedic texts) sentences seem to contradict themselves unless it is understood at their real core.

Vedas are interpreted in three different dimensions of existence which encompass all living and non-living beings i.e. Adhibhautika (consideration of living being all around and nature), Adhidaivika (considering natural forces/ cosmic conscious centers) and Adhyaatmika (centered at one-self including conscious, unconscious and subconscious levels). One scholar gave Yajna (fire ceremony) based interpretation i.e. Adhiyajnika. Yajna is the best and sacred

action which can be performed in a person's life which admits offering prescribed physical materials to the fire and even nonphysical materials to the conceptual fire.

The eastern countries have been protected for very long time because they have one unique philosophy in diverse traditions with multiple schools of thoughts. Though Vedic knowledge is common all over the world, the implementation of the knowledge differs geographically according to the environmental and physical conditions. The Karmas (rituals/actions) referred to in Vedas deteriorated from generation to generation for lack of understanding and misunderstanding the practices which are entirely different from the actual. Of them, Yajnas are most commonly understood in wrong way confining it to just material offer.

There are many voices to bring the science behind ancient practices. Limitations of the measurements restrict the physical meanings in esoteric world which, in its turn causes non acceptance of the subtle facts. As Yajnas involve physical and meta-physical occurrences in it, all these research approaches can succeed partially, limited to the physical level. The practice and subjective experiences alone are considered to be real and the present nature of research work may fail totally in this field.

The type of scholars and scientists in the field of Indian sciences vary from very orthodox to highly liberal and logical approach according to the capability of understanding and experience of people.

### **2.7.1 VEDAS – SOURCE OF EVERY KNOWLEDGE BRANCH OF INDIA**

For any available knowledge sources in India, Vedas are the base. Some of the knowledge seen to be directly available and some indirectly indicated. The secrets of the universe come

through personalities who attained a state of *Ritumbhara Prajna* which comes after intensive practice of Sadhana (spiritual practice) under proper guidance. *Ruthumbhara Prajna* is a state of mind which reveals only the truth of the universe. It falls after “*Nirvicara-vaisharadya*” resulting *Adhyaatma Prasada* (spiritual silence) says sage Patanjali. One becomes absolutely hush and is able to bring out infinitely *Prasada* (calmness). The calmness which is already there in the individual will be expressed by these Sadhanas.

Human structure becomes an antenna to receive positive energy from cosmos on account of strict practice of Yoga. Normally, people are charged negatively in terms of subtle energy, and receive negative energy. Rishis are sacred souls who have purified and refined the entire individual existence without leaving even the smallest mark of dirt in the mind and body. Their life style is aligned to nature outside, and then without even an acknowledgement, inner being cohered to the creation outside. This is the reason the life-span of people of yore was verily long compared to the present generation. Entire process of life was synchronized with nature so that the changes outside can be cognized and remedial measures can be taken in advance.

Any traditional practice in different parts of the world, have inherited science at varied levels, brought up by natives of the respective region. There are rituals and austerities followed in India and are unique for its Vedic source of knowledge to unearth the secrets of nature. The practice of *Yajña* (*Homa, Havana or Agnihotra* – fire rituals in physical terms) is a unique contribution to humanity, originated from India. *Yajña* is a process of herbal sacrifices in *Agni* (holy fire) aimed at the finest utilization of the subtle properties of sacrificed matter, in physical terms with the help of the thermal energy of fire and the sound energy of the

mantras. Modern scientific research has also shown significant therapeutic applications of Yajña and affirmed its potential in the purification of the environment.

Traditional practices and approaches of India such as Yoga, Nyāya (logical system), Vaiśeṣika (atomism) etc., are given status of independent sciences, considering their width of knowledge and applicability. Of these, Yajña (fire ceremony) is considered to be the most sacred and sanctified ritual in practice. There are hundreds of customs and practices of Yajña in different regions of country.

Worship should be eco-friendly, without disturbing any other systems including animals, birds, plants etc. Devatas (Energy centers in nature), bestow the best on all living beings if humans are in harmony with creation. Any imbalances in nature, (internal/external) natural energy centers cause calamities indicating wrong lifestyle of humans. Indian scriptures advocate techniques in order to avoid such disequilibrium. Thus, having synchrony with Devatas -, one leads a life as a serene outlook in cooperation with each other in the cosmos. Consequently, nature also imparts its positive energy to those who lead life accordingly.

### **2.7.2 BHAGAVAD GITA – A PRINCIPLE TEXT ON YAJNA**

Normally, different actions have different intentions. Different actions may have a single grand cumulative intention or an action can have different intentions. So, the nature and the depth of action is depended on the intention attached to it.

Bhagavad Gita admits the result of an action as a binding factor, but here is an exceptional action which does not bind a sadhaka.

यज्ञार्थात्कर्मणोऽन्यत्र लोकोऽयं कर्मबन्धनः ।

तदर्थं कर्म कौन्तेय मुक्तसङ्गः समाचर ॥ भ. गी. ३-९ ॥

*Yajñārthātkarmaṇo'nyatra loko'yam karmabandhanaḥ ।*

*Tadarthan karna kaunteya muktasaṅgaḥ samācara ।। bha. gī. 3-9 ।।*

“The World is bound by action other than those performed 'for the sake of sacrifice'; do thou, therefore, O son of Kunti, perform action of that sake (for YAJNA ) alone, free from all attachments”.

When was the process of Yajna bestowed on humans? Why people are compelled to some extent to perform Yajna without even considering status, cast and creed. The followers of Hindu culture accept that Prajapati, the creator created this world and the created world is being maintained well as given in this context,

सहयज्ञाः प्रजाः सृष्ट्वा पुरोवाच प्रजापतिः ।

अनेन प्रसविष्यध्वमेष वोऽस्त्विष्टकामधुक् ॥ भ. गी. ३-१० ॥

*Sahayajñāḥ prajāḥ sṛṣṭvā purovāca prajāpatiḥ ।*

*Anena prasaviṣyadhvameṣa vo'stviṣṭakāmadhuk ।। bha. Gī. 3-10 ।।*

PRAJAPATI (the Creator)- , having in the beginning (of creation) created mankind, together with sacrifices said, “by this shall you prosper; let this be the milch-cow of your desire --- “KAMADHUK” (the mythological cow which yields all desired objects)”.

After creation of manifested world and Yajna, the creator advised humans to follow the natural process by performing Yajna,

देवान्भावयतानेन ते देवा भावयन्तु वः ।

परस्परं भावयन्तः श्रेयः परमवाप्स्यथ ॥ भ. गी. ३-११ ॥

*Devānbhāvayatānena te devā bhāvayantu vaḥ ।*

*Parasparani bhāvayantaḥ śreyaḥ paramavāpsyatha | | bha. Gī. 3-11 | |*

“With this (Yajna), you do nourish the gods and may those DEVAS nourish you; thus nourishing one another, you shall, attain the Highest Good”.

It is not just Prajapati asked humans to perform Yajna, but he also assured that humans are blessed enough to gain any thing they wish which should be nature friendly. Whoever does not follow the rule is considered to be a culprit. Culprit is punished heavily according to the rule of nature,

इष्टान्भोगान्नि वो देवा दास्यन्ते यज्ञभाविताः ।

तैर्दत्तानप्रदायैभ्यो यो भुङ्क्ते स्तेन एव सः ॥ भ. गी. ३-१२ ॥

*Iṣṭānbhogānhi vo devā dāsyante yajñabhāvitaḥ |*

*Tairdattānapradāyaibhyo yo bhūikte stena eva saḥ | | bha. Gī. 3-12 | |*

“The DEVAS, nourished by the sacrifice, will give you the desired objects. Indeed he who enjoys objects, given by the DEVAS, without offering (in return) to them, is verily a thief”.

It is better to follow what is advised for human welfare. Whoever follows the natural process will be out of dangers and avoid all types of impurities; otherwise the entire life is just chaotic.

यज्ञशिष्टाशिनः सन्तो मुच्यन्ते सर्वकिल्बिषैः ।

भुञ्जते ते त्वघं पापा ये पचन्त्यात्मकारणात् ॥ भ. गी. ३-१३ ॥

*Yajñāśiṣṭāśinaḥ santo mucyante sarvakilbiṣaiḥ |*

*Bhujjate te tvaghāni pāpā ye pacantyatmakāraṇāt | | bha. gī. 3-13 | |*

“The righteous, who eat the "remnants of the sacrifices" are freed from all sins; but those sinful ones, who cook food (only) for their own sake, verily eat but sin”.

Bhagavan Krishna now presents the actual status of Yajna, how it is a center of the creation, how everything is established in Yajna,

अन्नाद्भवन्ति भूतानि पर्जन्यादन्नसम्भवः ।

यज्ञाद्भवति पर्जन्यो यज्ञः कर्मसमुद्भवः ॥ भ. गी. ३-१४ ॥

कर्म ब्रह्मोद्भवं विद्धि ब्रह्माक्षरसमुद्भवम् ।

तस्मात्सर्वगतं ब्रह्म नित्यं यज्ञे प्रतिष्ठितम् ॥ भ. गी. ३-१५ ॥

*Annādbhavanti bhūtāni parjanyaḍannasambhavaḥ ।*

*Yajñādbhavati parjanyaḥ yajñaḥ karmasamudbhavaḥ ॥ bh.Gī. 3-14 ॥*

*Karma brahmodbhavani viddhi brahmākṣarasamudbhavam ।*

*Tasmātsarvagatani brahma nityani yajñe pratiṣṭhitam ॥ bh.Gī. 3-15 ॥*

From food come for the beings; through rain food is produced; from sacrifice arises rain, and sacrifice is born of action. Know you that action comes from BRAHMAJI (the creator) and BRAHMAJI come from the Imperishable. Therefore, the all- pervading BRAHMAN (God-principle) ever rests in sacrifice.

The above statements clarify the status of Yajna, the context continues to say,

एवं प्रवर्तितं चक्रं नानुवर्तयतीह यः ।

अट्टायुरिन्द्रियारामो मोट्टं पार्थ स जीवति ॥ भ. गी. ३-१६ ॥

*Evani pravartitani cakrani nānuvartayatīha yaḥ ।*

*Aghāyurindriyārāmo moghani pārtha sa jīvati ॥ bh. Gī. 3-16 ॥*

“He who does not follow here the wheel thus set revolving, is of a sinful life, rejoicing in the senses. He lives in vain, O Son of Pritha”.

Almost all the religions discuss about two worlds; a) a physical world in which we all experinece good and bad intantaniously and mostly immediately, and b) meta-physical world, the unseen world in which one experiences results of one’s many actions. The second world is devided into two, heaven and hell. Heaven is the world of joy and hell is the world of suffering. Our actions constitute placement of a human either in heaven or hell based on

amount and intensity of Punya (collection of results of good actions as merit) and Papa (collection of results of bad actions as demerit).

Following verse emphasises on a fact that on account of following actions prescribed by the Vedas, in this world the results are very quick in nature. So people, without even knowing the background, are anxious to get what they don't even deserve. Worshiping gods became a customary to fulfill their greed, ego-stricken persons perform actions just to satisfy their greed. Thus, actions and worships lost their natural purity, Gita continues to say,

काङ्क्षन्तः कर्मणां सिद्धिं यजन्त इह देवताः ।

क्षिप्रं हि मानुषे लोके सिद्धिर्भवति कर्मजा ॥ भ. गी. ४-१२ ॥

*Kāṅkṣantaḥ karmaṇāni siddhiṁ yajanta iha devatāḥ ।*

*Kṣipraṁ hi mānuṣe loke siddhirbhavati karmajā ॥ bh. gī. 4-12 ॥*

“They, who long for satisfaction from actions in this world, make sacrifices to the gods; because satisfaction is quickly obtained from actions in the world-of-objects”.

As told in previous verses, actions are performed with different intentions, only few sadhakas intend to reach Him (supreme reality), here different methods will be elaborated one after the other.

Basic concept of Yajna is offered here in following verse. It is in common practice all over Bharat to chant this Shloka before eating. Many people chant without understanding its meaning which may lead to a mechanical action and lose its importance. The very intention to chant this mantra is that every action - even if it is done for sustenance of life such as breathing, eating, excreting, observing, thinking and etc.- should be done consciously and with a divine touch. A quote glorifies importance of eating as the base of existence of the

body itself - 'We are what we eat'. It does not mean all other actions have less importance., No one action is superior and others inferior. Following verse claims the same by saying,

ब्रह्मार्पणं ब्रह्म हविर्ब्रह्माग्नौ ब्रह्मणा हुतम् ।

ब्रह्मैव तेन गन्तव्यं ब्रह्मकर्मसमाधिना ॥ भ. गी. ४-२४ ॥

*Brahmārpaṇaṁ brahma havirbrahmāgnau brahmaṇā hutam |*

*Brahmaiva tena gantavyaṁ brahmakarmasamādhinā | | bha. gī. 4-24 | |*

“BRAHMAN is the oblation; BRAHMAN is the clarified butter, etc., constituting the offerings; by BRAHMAN is the oblation poured into the fire of BRAHMAN; BRAHMAN verily shall be reached by him who always sees BRAHMAN in all actions”.

Any action and every action is great, hence, all action are compared to Yajna which is relatively accepted as devine action by society at large. The next few verses elaborate what other ways different people follow according to their convenience and with available resources.

In every type of Yajna, there are four essential factors, (1) the deity invoked to whom the oblations are offered, (2) the fire in which the offerings are poured, (3) the material things that constitute the offerings and, (4) the individual who is performing the Yajna.

दैवमेवापरे यज्ञं योगिनः पर्युपासते ।

ब्रह्माग्नावपरे यज्ञं यज्ञेनैवोपजुहति ॥ भ. गी. ४-२५ ॥

*Daivamevāpare yajñāni yoginaḥ paryupāsate |*

*Brahmāgnāvāpare yajñāni yajñenaivopajuhvati | | bha. gī. 4-25 | |*

“Some YOGIS perform sacrifice to DEVAS alone (DEVA- YAJNA); while others offer "sacrifice" as sacrifice by the Self, in the Fire of BRAHMAN (BRAHMA-YAJNA)”.

श्रोत्रादीनीन्द्रियाण्यन्ये संयमाग्निषु जुहति ।

शब्दादीन्विषयानन्य इन्द्रियाग्निषु जुहति ॥ भ. गी. ४-२६ ॥

*Śrotrādīnīndriyāṅyanye saṁnyamāgniṣu juhvati |*  
*Śabdādīnviṣayānanya indriyāgniṣu juhvati | | bha. gī. 4-26 | |*

“Some again offer hearing and other senses as sacrifice in the fires-of-restraint (SAMYAMA-YAJNA); others offer sound and other objects of sense as sacrifice in the fires-of-the-senses”.

*सर्वाणीन्द्रियकर्माणि प्राणकर्माणि चापरे ।*  
*आत्मसंयमयोगाग्नौ जुहति ज्ञानदीपिते ॥ भ. गी. ४-२७ ॥*  
*Sarvāṅīndriyakarmāṅi prāṅakarmāṅi cāpare |*  
*Ātmasaṁnyamayogāgnau juhvati jñānadīpīte | | bha. gī. 4-27 | |*

“Others again sacrifice all the functions of the senses and the functions of the breath (vital energy) in the fire of the YOGA of self-restraint, kindled by knowledge”.

*द्रव्यज्ञास्तपोयज्ञा योगयज्ञास्तथापरे ।*  
*स्वाध्यायज्ञानयज्ञाश्च यतयः संशितव्रताः ॥ भ. गी. ४-२८ ॥*  
*Dravyajñāstapoyajñā yogayajñāstathāpare |*  
*Svādhyāyajñānayajñāśca yatayaḥ saṁśitavratāḥ | | bha. gī. 4-28 | |*

“Others again offer wealth, austerity and YOGA as sacrifice, while the ascetics of self-restraint and rigid vows offer study of scriptures and knowledge as sacrifice”.

*अपाने जुहति प्राणं प्राणेऽपानं तथापरे ।*  
*प्राणापानगती रुद्ध्वा प्राणायामपरायणाः ॥ भ. गी. ४-२९ ॥*  
*Apāne juhvati prāṅaṁ prāṅe'pānaṁ tathāpare |*  
*Prāṅāpānagatī ruddhvā prāṅāyāmaparāyaṅāḥ | | bha. gī. 4-29 | |*

“Others offer as sacrifice the out-going breath in the in-coming, and the in-coming in the out-going, restraining the courses of the out-going and in-coming breaths, solely absorbed in the restraint of breath”.

*अपरे नियताहाराः प्राणान्प्राणेषु जुहति ।*  
*सर्वेऽप्येते यज्ञविदो यज्ञक्षपितकल्मषाः ॥ भ. गी. ४-३० ॥*  
*Apāre niyatāhārāḥ prāṅāṅprāṅeṣu juhvati |*

*Sarve'pyete yajñavidō yajñakṣapitakalmaṣāḥ | | bha. gī. 4-30 | |*

“Others, with well-regulated diet, offer vital-airs in the Vital- Air. All these are knowers of sacrifice, whose sins are destroyed by sacrifice”.

यज्ञशिष्टामृतभुजो यान्ति ब्रह्म सनातनम् ।

नायं लोकोऽस्त्ययज्ञस्य कुतोऽन्यः कुरुसत्तम ॥ भ. गी. ४-३१ ॥

*Yajñasiṣṭānṛtabhujo yānti brahma sanātanam |*

*Nāyanī loko'astyayajñasya kuto'nyaḥ kurusattama | | bha. gī. 4-31 | |*

“The eaters of the nectar ‘remnant of the sacrifice’ go to the Eternal BRAHMAN. Even this world is not for the non-performer of sacrifice; how then the other (world), O best of the Kurus?”.

एवं बहुविधा यज्ञा वितता ब्रह्मणो मुखे ।

कर्मजान्विद्धि तान्सवनिवं ज्ञात्वा विमोक्ष्यसे ॥ भ. गी. ४-३२ ॥

*Evāṇi bahuvīdhā yajñā vitatā brahmaṇo mukhe |*

*Karmajānviḍḍhi tānsarvānevāṇi jñātvā vimokṣyase | | bha. gī. 4-32 | |*

“Thus innumerable sacrifices lie spread out before BRAHMAN (literally at the mouth or face of BRAHMAN). Know them all as born of action, and thus knowing, you shall be liberated”. After presenting varieties of Yajnas, Sri Krishna’s final verdict is that everything ends or accomplishes in realization through Jnana,

श्रेयान्द्रव्यमयाद्यज्ञाज्ज्ञानयज्ञः परन्तप ।

सर्वं कर्माखिलं पार्थ ज्ञाने परिसमाप्यते ॥ भ. गी. ४-३३ ॥

*Śreyāndravayamayādyañjāñjānayañjāḥ parantapa |*

*Sarvāṇi karmākhilāṇi pārtha jñāne parisamāpyate | | bha. gī. 4-33 | |*

“Superior is "knowledge-sacrifice" to "Sacrifice-with-objects," O Parantapa. All actions in their entirety, O Partha, culminate in Knowledge”.

Thus, these types of Yajnas are presented in Bhagavad Gita.

Intention plays major role as said earlier, and is again elaborated.

अन्तवचु फलं तेषां तद्भवत्यल्पमेधसाम् ।

देवान्देवयजो यान्ति मद्भक्ता यान्ति मामपि ॥ भ. गी. ७-२३ ॥

*Antavattu phalanī teṣāṅ tadbhavatyalpamedhasām |*

*Devāndevayajo yānti madbhaktā yānti māmapi || bha. gī. 7-23 ||*

“Verily the "fruit" that accrues to those men of little- intelligence is finite. The worshippers of the DEVAS go to the DEVAS but My devotees come to Me”.

ज्ञानयज्ञेन चाप्यन्ये यजन्तो मामुपासते ।

एकत्वेन पृथक्त्वेन बहुधा विश्वतोमुखम् ॥ भ. गी. ९-१५ ॥

*Jñānayajñena cāpyanye yajanto māmupāsate |*

*Ekatvena pṛthaktvena bahudhā viśvatomukham || bha. gī. 9-15 ||*

“Others also, offering the "Wisdom-sacrifice" worship Me, regarding Me as One, as distinct, as manifold-Me, who is in all forms, with faces (sight) everywhere”.

त्रैविद्या मां सोमपाः पूतपापायज्ञैरिष्ट्वा स्वर्गतिं प्रार्थयन्ते ।

ते पुण्यमासाद्य सुरेन्द्रलोकमश्नन्ति दिव्यान्दिवि देवभोगान् ॥ भ. गी. ९-२० ॥

*Traividyā māṅ somapāḥ pūtapāpāyajñairiṣṭvā svargatīṅ prārthayante |*

*Te puṇyamāsādya surendraloka-maśnanti divyāndivi devabhogān || bha. gī. 9-20 ||*

“The Knowers of the three VEDAS, the drinkers of SOMA, purified from sin, worshipping Me by sacrifices, pray for the way to heaven; they reach the holy world of the Lord-of-the-gods and enjoy in heaven the Divine pleasures of the gods”.

Punya and Papa are temporary, they are like currency, are exhausted after use; one has to earn them if one wants them again. In the process of gaining Punya and Papa, human beings give rise to new Samskaras and Vasanas which create Punya and Papa again. This vicious circle is called Samsara in ancient texts. Following verse presents this very concept.

ते तं भुक्त्वा स्वर्गलोकं विशालंक्षीणे पुण्ये मर्त्यलोकं विशन्ति ।

एवं त्रयीधर्ममनुप्रपन्नागतागतं कामकामा लभन्ते ॥ भ. गी. ९-२१ ॥

*Te tani bhuktvā svargalokāni viśālanikṣīṇe puṇye martyalokāni viśanti |  
Evaṁ trayīdharmamanuprapannāgatāgatāni kāmakāmā labhante | | bha. gī. 9-21 | |*

“They, having enjoyed the vast heaven-world, when their merits are exhausted, enter the world-of-the-mortals; thus abiding by the injunctions of the three (VEDAS), desiring (objects of) desires, they attain to the state of "going-and- returning" (SAMSARA)”.

Finally, Sri Krishna ends his comments, saying, ‘worship of any deity is but worshipping me’. Difference between the worshipers of other deities and worshipers of me, lies in the method of reaching directly or indirectly. Worshipers of other deities take a knotty path which demands many lives to reach Him, but those who worship Him (absolute reality) reach directly and quickly.

येऽप्यन्यदेवता भक्ता यजन्ते श्रद्धयान्विताः ।

तेऽपि मामेव कौन्तेय यजन्त्यविधिपूर्वकम् ॥ भ. गी. ९-२३ ॥

*Ye’pyanyadevatā bhaktā yajante śraddhayānvitāḥ |  
Te’pi māmēva kaunteya yajantya vidhipūrvakam | | bha. gī. 9-23 | |*

“Even those devotees, who, endowed with faith worship other gods, worship Me alone, O son of Kunti, (but) by the wrong method”.

अहं हि सर्वयज्ञानां भोक्ता च प्रभुरेव च ।

न तु मामभिजानन्ति तत्त्वेनातश्च्यवन्ति ते ॥ भ. गी. ९-२४ ॥

*Ahaṁ hi sarvayajñānāṁ bhoktā ca prabhureva ca |  
Na tu māmabhijānanti tattvėnātaścyavanti te | | bha. gī. 9-24 | |*

“(For)I alone am the enjoyer in and the Lord of all sacrifices; but they do not know, Me in Essence, and hence they fall (return to this mortal world)”.

यान्ति देवव्रता देवान्पितृन्यान्ति पितृव्रताः ।

भूतानि यान्ति भूतेज्या यान्ति मद्याजिनोऽपि माम् ॥ भ. गी. ९-२५ ॥

*Yānti devavratā devānpitṛnyānti pitṛvratāḥ |*

*Bhūtāni yānti bhūtejyā yānti madyājino'pi mām | | bha. gī. 9-25 | |*

“The worshippers of the DEVAS or gods go to the DEVAS; to the PITRIS or ancestors go the ancestor-worshippers; to the BHUTAS or the elements go worshippers of the BHUTAS; but My worshippers come unto Me”.

यत्करोषि यदश्नासि यज्जुहोषि ददासि यत् ।

यत्तपस्यसि कौन्तेय तत्कुरुष्व मदर्पणम् ॥ भ. गी. ९-२७ ॥

*Yatkaroshi yadaśnāsi yajjuhoṣi dadāsi yat |*

*Yattapasyasi kaunteya tatkurushva madarpaṇam | | bha.Gī. 9-27 | |*

“Whatever you do, whatever you eat, whatever you offer in sacrifice, whatever you give in charity, whatever you practice as austerity, O Kaunteya, do it as an offering to Me”.

महर्षीणां भृगुरहं गिरामस्म्येकमक्षरम् ।

यज्ञानां जपयज्ञोऽस्मि स्थावराणां हिमालयः ॥ भ. गी. १०-२५ ॥

*Maharṣīṇāṁ bhṛgurahaṁ girāmasmyekamakṣaram |*

*Yajñānāṁ japayajño'smi sthāvarāṇāṁ himālayaḥ | | bha. gī. 10-25 | |*

“Among the great RISHIS I am Bhrigu; among words I am the one-syllabled "OM"; among sacrifices I am the sacrifice of silent repetition (JAPA-YAJNA); among immovable things, the Himalayas”.

Yajna is one among intense spiritual practices according to 13<sup>th</sup> chapter of Bhagavad Gita.

अभयं सत्त्वसंशुद्धिर्ज्ञानयोगव्यवस्थितिः ।

दानं दमश्च यज्ञश्च स्वाध्यायस्तप आर्जवम् ॥ भ. गी. १६-१ ॥

*Abhayaṁ sattvasaṁśuddhirjñānayogavyavasthitih |*

*Dānaṁ damaśca yajñaśca svādhyāyastapa ārjavam | | bha.Gī. 16-1 | |*

“Fearlessness, purity of heart, steadfastness in the YOGA -of-Knowledge, alms-giving,

control of the senses, sacrifice, study of the SHASTRAS, and straightforwardness etc. are spiritual practices”.

What kind of Yajna becomes fruitless and should be not practiced?

आत्मसम्भाविताः स्तब्धा धनमानमदान्विताः ।

यजन्ते नामयज्ञैस्ते दम्भेनाविधिपूर्वकम् ॥ भ. गी. १६-१७ ॥

*Ātmasambhāvītāḥ stabdhā dhanamānamadānvitāḥ ।*

*Yajante nāmayaज्ञैस्ते dambhenāvidhipūrvakam ।। bha. gī. 16-17।।*

“Self-conceited, stubborn, filled with pride and drunk with wealth, they perform sacrifices in name (only) out of ostentation, contrary to scriptural ordinance”.

Arjuna had a question, ‘what if someone performs Yajna with very deep devotion but lacking the knowledge from the scripture? Is it right to practice without having any scriptural understanding? Are there any varieties of Yajna that are performed by knowers of shastra and those performed by those ignorant of shastra? Sri Krishna answers as follows:

ये शास्त्रविधिमुत्सृज्य यजन्ते श्रद्धयान्विताः ।

तेषां निष्ठा तु का कृष्ण सत्त्वमाहो रजस्तमः ॥ भ. गी. १७-१ ॥

*Ye śāstravidhīnūtsṛjya yajante śraddhayānvitāḥ ।*

*Teṣāṁ niṣṭhā tu kā kṛṣṇa sattvamāho rajastamaḥ ।। bha. gī. 17-1।।*

“Those who, setting aside the ordinances of the scriptures, perform sacrifice with faith, what is their condition, O Krishna? Is it SATTWA, RAJAS or TAMAS?”.

There are three types of devotion and performance of the same.

त्रिविधा भवति श्रद्धा देहिनां सा स्वभावजा ।

सात्त्विकी राजसी चैव तामसी चेति तां शृणु ॥ भ. गी. १७-२ ॥

*Trividhā bhavati śraddhā dehināṁ sā svabhāvajā ।*

*Sāttvikī rājasī caiva tāmasī ceti tāṁ śṛṇu ।। bha. gī. 17-2।।*

“Three-fold is the faith of the embodied, which is inherent in their nature the SATTWIC (pure), the RAJASIC (passionate) and the TAMASIC (dull, dark). Thus thou hear of it”.

सत्त्वानुरूपा सर्वस्य श्रद्धा भवति भारत ।

श्रद्धामयोऽयं पुरुषो यो यच्छ्रद्धः स एव सः ॥ भ. गी. १७-३ ॥

*Sattvānurūpā sarvasya śraddhā bhavati bhārata ।*

*Śraddhāmayo'yaṁ puruṣo yo yacchraddhaḥ sa eva saḥ । । bha. gī. 17-3 । ।*

“The faith of each is in accordance with his nature, O Bharata. Man consists of his faith; as a man's faith is, so is he”.

The categories we observe here are natural and not forced. It comes naturally to a person.

Satvik, Rajasik and Tamasik people perform as follows:

यजन्ते सात्त्विका देवान्यक्षरक्षांसि राजसाः ।

प्रेतान्भूतगणांश्चान्ये यजन्ते तामसा जनाः ॥ भ. गी. १७-४ ॥

*Yajante sātṭvikā devānyakṣarakṣāṁsi rājasāḥ ।*

*Pretānbhūtagaṇāṁścānye yajante tāmasā janāḥ । । bha. gī. 17-4 । ।*

“The SATTWIC, or "pure", worship the gods (DEVAS); the RAJASIC or the "passionate" the YAKSHAS and the RAKSHASAS; the others, TAMASIC people, or the "dark or dull" folk, worship ghosts (PRETAS) and hosts of BHUTAS, or the nature/spirits”.

Here after Anna (food), Yajna, Tapas (austerity) and charity are divided on the basis of innate and inherent quality of a person,

आहारस्त्वपि सर्वस्य त्रिविधो भवति प्रियः ।

यज्ञस्तपस्तथा दानं तेषां भेदमिमं शृणु ॥ भ. गी. १७-७ ॥

*Āhārastvapi sarvasya trividho bhavati priyaḥ ।*

*Yajñastapastathā dānaṁ teṣāṁ bhedanimaṁ śṛṇu । । bha. gī. 17-7 । ।*

“The food also which is dear to each is three-fold, as also sacrifice, austerity and alms-giving.

You may now hear the distinction of these”.

अफलाङ्क्षिभिर्यज्ञो विधिदृष्टो य इज्यते ।

यष्टव्यमेवेति मनः समाधाय स सात्त्विकः ॥ भ. गी. १७-११ ॥

*Aphalānksibhiryajño vidhidṛṣṭo ya ijjate |*

*Yaṣṭavyameveti manaḥ samādhāya sa sāttvikaḥ | | bha. gī. 17-11 | |*

“That sacrifice which is offered by men without desire for fruit, and as enjoined by ordinance, with a firm faith that sacrifice is a duty, is SATTWIC or 'pure'”.

अभिसन्धाय तु फलं दम्भार्थमपि चैव यत् ।

इज्यते भरतश्रेष्ठ तं यज्ञं विद्धि राजसम् ॥ भ. गी. १७-१२ ॥

*Abhisandhāya tu phalanī dambhārthamapi caiva yat |*

*Ijjate bharataśreṣṭha taṁ yajñāni viddhi rājasam | | bha. gī. 17-12 | |*

“The sacrifice which is offered, O best of the Bharatas, seeking for fruit and for ostentation, you may know that to be a RAJASIC YAJNA”.

विधिहीनमसृष्टान्नं मन्त्रहीनमदक्षिणम् ।

श्रद्धाविरहितं यज्ञं तामसं परिचक्षते ॥ भ. गी. १७-१३ ॥

*Vidhihīnamasṛṣṭānnam mantrahīnamadakṣiṇam |*

*Śraddhāvīrahitaṁ yajñāni tāmasaṁ paricakṣate | | bha. gī. 17-13 | |*

“They declare that sacrifice to be TAMASIC which is contrary to the ordinances, in which no food is distributed, which is devoid of MANTRAS and gifts, and which is devoid of faith”.

Every action in Hindu culture starts with OM,

ॐ तत्सदिति निर्देशो ब्रह्मणस्त्रिविधः स्मृतः ।

ब्राह्मणास्तेन वेदाश्च यज्ञाश्च विहिताः पुरा ॥ भ. गी. १७-२३ ॥

*Omtatsaditi nirdeśo brahmaṇastrividhaḥ smṛtaḥ |*

*Brāhmaṇāstena vedāśca yajñāśca vihitāḥ purā | | bha. gī. 17-23 | |*

“OM, TAT and SAT" –this has been declared to be the triple designation of BRAHMAN. By that were created formerly, the BRAHMANAS, VEDAS and YAJNAS (sacrifices)”.

तस्मादोमित्युदाहृत्य यज्ञदानतपःक्रियाः ।

प्रवर्तन्ते विधानोक्ताः सततं ब्रह्मवादिनाम् ॥ भ. गी. १७-२४ ॥

*Tasmādomityudāhṛtya yajñadānatapaḥkriyāḥ |*

*Pravartante vidhānoktāḥ satatam brahmavādinām || bha. gī. 17-24 ||*

“Therefore, with utterance of 'OM' are begun the acts of sacrifice, gifts and austerity as enjoined in the scriptures, always by the students of BRAHMAN”.

तदित्यनभिसन्धाय फलं यज्ञतपःक्रियाः ।

दानक्रियाश्च विविधाः क्रियन्ते मोक्षकाङ्क्षिभिः ॥ भ. गी. १७-२५ ॥

*Tadityanabhisandhāya phalaṁ yajñatapaḥkriyāḥ |*

*Dānakriyāśca vividhāḥ kriyante mokṣakāṅkṣibhiḥ || bha. gī. 17-25 ||*

“Uttering "TAT" without aiming at the fruits, are the acts of sacrifice and austerity and the various acts of gift performed by the seekers of liberation”.

There are different opinions regarding duties in Sannyasa. Some opine that Sannyasi should not do any desire-based activity other than acts for realizing oneself, being a roll model in any society. But Bhagavad Gita strongly recommends the performance of Yajna even for a Sannyasi,

त्याज्यं दोषवदित्येके कर्म प्राहुर्मनीषिणः ।

यज्ञदानतपःकर्म न त्याज्यमिति चापरे ॥ भ. गी. १८-३ ॥

*Tyājyaṁ doṣavadityeke karma prāhurmanīṣiṇaḥ |*

*Yajñadānatapaḥkarma na tyājyamiti cāpare || bha. gī. 18-3 ||*

“That all actions should be abandoned as evil, declare some philosophers; while others (declare) that acts of sacrifice, gift and austerity should not be relinquished”.

निश्चयं शृणु मे तत्र त्यागे भरतसत्तम ।

त्यागो हि पुरुषव्याघ्र त्रिविधः सम्प्रकीर्तितः ॥ भ. गी. १८-४ ॥

*Niścayaṁ śṛṇu me tatra tyāge bharatasattama |*

*Tyāgo hi puruṣavyāghra trividhaḥ sanprakīrtitaḥ | | bha. gī. 18-4 | |*

“Hear from Me the conclusion or the final truth, about this "abandonment," O best of the Bharatas; "abandonment," verily, O best of men, has been declared to be of three kinds”.

Whatever be the condition, let not one indulge in not performing Yajna even a day, because Yajna is a purificatory factor for all humans.

यज्ञदानतपःकर्म न त्याज्यं कार्यमेव तत् ।

यज्ञो दानं तपश्चैव पावनानि मनीषिणाम् ॥ भ. गी. १८-५ ॥

*Yajñādānatapaḥkarma na tyājyaṅ kāryameva tat |*

*Yajño dānani tapaścaiva pāvanāni manīṣiṇām | | bha. gī. 18-5 | |*

“Acts of sacrifice, charity and austerity should not be abandoned, but should be performed; worship, charity, and also austerity, are the purifiers of even the 'wise”.

Thus, Bhagavad Gita strongly advocates performance of Yajna in every condition at varied levels.

### **2.8.3 SOURCE OF YAJNA - TAITTIRIAY ARANYAKA**

Taittiriya Aranyaka – Mahanarayana Upanishat (Tai. Aranyaka, chapter 10)

This is a prayer from an aspirer to Agni (fire):-, “O Agni please protect me by your luminous light, you are capable of removing sins of devotees swiftly; you are beyond water since you are the cause, you are above every mountain since your residential place is the tip of hills named Kanaka, Meru etc.; you are the stroller of all forests, you pervade all plants and trees such as Soma creeper etc.; most importantly, you engage every human and is worshipped by all. Though you reside in purest place such as Vedic ritual and impure location such as graveyard, you stay pure forever. Such great entity O Agni! Please protect me.”

Here is a Prayer to Paramatma, who is in the form of Yajna, “O almighty! My proximal salutations to you, please accept my offering to you to stay in my house, bless me with material enjoyment, lots of wealth, effulgence, since you are such a glorious personality. I too grow like you if you stay in my house. After performing Yajna you are to distribute the result of actions. For above all reason, I want your gracious presence”. Thus is the prayer offered, after praising Agni.

Sannyasa is considered to be the best tool among all the tools to destroy the vicious circle of cyclic repetition of Samsara. Similarly there are many more instruments that are presented; **Satya** (presenting a fact as experienced by one), **Tapas** (following austerities very strictly such as not eating food during specific timings as part of ritual etc), **Dama** (restraining of the ego, controlling all the senses), **Shama** (controlling inner tool by having mastery over emotional extremities), **Dana** (giving wealth to eligible people in right manner as prescribed in scriptures), **Dharma** (following Ishta, Purta, and Datta Karma as told in scriptures), **Prajananam** (begetting children), **Agni** (performing fire ceremonies), **Agnihotra** (specialized fire rituals), **Yajna** (performing Darshapurnamasa, Jyotishtoma etc. regularly since all gods attained heaven by performing these rituals), **Manas** (an aspect of inner tool (Antahkarana), **Nyasa** (retiring from all kinds of actions as guided by Rishis such as Aruni and Jabala etc.); thus this section glorifies Sanyasa. Even if all above tools are important to achieve the ultimate goal that is Moksha, Yajna which is one of tools plays an important role as said in Shatapatha Brahmana, ‘Yajna is the best action that humans can perform’ and Yajna is for purifying very existence itself.

All the above tools will be elaborated in detail in the following section one after the other; the eighth tool is Agni.

अग्नयो वै त्रयी विद्या देवयानः पन्था गार्हपत्य ऋक्पृथिवी रथन्तरमन्वाहार्यपचनं यजुरन्तरिक्षं वामदेव्यमाहवनीयः  
साम सुवर्गो लोको बृहत्तस्मादग्नीन् परमं वदन्ति ।

*Agnayo vai trayī vidyā devayānaḥ panthā gārhapatya ṛkṛthivī  
rathantaramanvāhāryapacanaṇi yajurantarikṣaṇi vāmadevyamāhavanīyaḥ sāma suvargo loko  
bṛhattasmiādagnīn paramaṇi vadanti | (Tai. A, chapter 10. 47)*

Garhapatya, Dakshinaadada and Ahavaniya are three Agnis. Knowledge about these three Agnis is important, since all Vedas intend to motivate performance of rituals and these rituals have to be performed with blessings of these three Agnis. These three Agnis are the path to attain godhood. Among these three Agnis, Garhapatya represents Rigveda and preponderantly discusses subjects related to Prithiviloka (the layer of creation in which earth-dominant beings live) having ‘Rathantarasama’. Dakshinagni represents Yajurveda and discusses about Antarikshaloka (the layer which has atmosphere above earth) having ‘Vamadevyasama’; and lastly Ahavaniya represents Samavaeda and covers the subjects concerned with Svargaloka (layer beyond atmosphere) having ‘Brihadrathantarasama’.

The ninth tool is Agnihotra;

अग्निहोत्रं सायं प्रातर्गृहाणां निष्कृतिः स्विष्टग्ं सुहृतं यज्ञक्रतूनां प्रायणग्ं सुवर्गस्य लोकस्य ज्योतिस्तस्मादग्निहोत्रं  
परमं वदन्ति ।

*Agnihotrani sāyaṇi prātargṛhāṇāṇi niṣkṛtiḥ sviṣṭagṃ suhṛtaṇi yajñakratūnāṇi prāyaṇagṃ ni  
suvargasya lokasya jyotistasmādagnihotrani paramaṇi vadanti | (Tai. A, chapter 10. 49)*

Next tool for achieving our goal is performing Agnihotra etc. Agnihotra should be followed twice a day, evening and morning which involves much expenses and in its turn brings money. Bereft of Agnihotra Agni burns the entire house, because Agnihotra is Svishta (auspicious act, Yaga), is Suhrita (auspicious act, Homa). Yaga is defined as offering materials intending to reach the Devatas. Homa is offering materials into fire. This is the

beginning; all other rituals start after this, such as Yajna and Kratu. The difference between Yajna and Kratu is this; Kratu involves use of a Yupa (pillar of timber or log) in specialized rituals such as 7 Soma Yajnas, other fire rituals may not necessarily involve Yupa. In the list of all these great practices Agnihotra is placed at the beginning. Thus Agnihotra is an important tool. Hence it is called light-like instrument to reach heaven.

The tenth tool is Yajna;

यज्ञ इति यज्ञेन हि देवा दिवं गता यज्ञेनासुरानपानुदन्त यज्ञेन द्विषन्तो मित्रा भवन्ति यज्ञे सर्वं प्रतिष्ठितं तस्माद्यज्ञं  
परमं वदन्ति ।

*Yajña iti yajñena hi devā divāni gatā yajñenāsūrānapānudanta yajñena dviṣanto mitrā  
bhavanti yajñe sarvāni pratiṣṭhitāni tasmādyajñāni paramāni vadanti* \ (Tai. A, chapter 10,  
50)

Some people consider Yajna is the best tool. This is because gods attained heaven by performing Yajnas, destroyed all evil forces by performing Yajnas. By performing Yajnas even enemies become friends. So Yajna plays major role for any important achievement.

Above discussed tools are directly related to fire ceremony and allied practices. Thus Yajna is glorified in this section among all the tools offered to an aspirer for reaching the desired goal.

After Yajna, Manas and Sannyasa will be discussed as great practices in detail.

## 5 MAHA YAJNAS

This section discusses in detail regarding 5 Yajnas which are actually the base for the entire Hindu culture and social structure.

प्रजापतिः किल सोमयागेभ्यः अर्वाचीनान् अग्निहोत्रपौर्णमास्यामावास्यनामकान्परस्परमुच्चावचान्ससर्ज ।

*Prajāpatiḥ kila somayāgebhyaḥ arvācīnān  
agnihotrāpaurṇamāsyānāvāsyanāmakānparasparamuccāvācānsasarja* ।

Prajapati, the creator of all worlds at different levels of existence, conferred Agnihotra, Purnamasya etc. together called Avasya which are relatively superior and other rituals, which were even earlier to Somayagas (Yajnas involving the juice of creeper called Soma). Affection towards Agnihotra led him to make categories of different Yajnas, guiding future generations to follow.

Taittiriya Aranyaka claims that study of Vedic texts and scriptures is the supreme practice by which even the greatest souls attained different levels of higher states of consciousness.

The eighth section of second chapter of Taittiriya Aranyaka is called Svadhyayabrahmana, because it emphasizes on Svadhyaya (Vedic self-study). Eligibility to attain higher states of consciousness is acquired by being sanctified through Svadhyaya. Hence Svadhyaya and other allied practices are glorified in this chapter. A remarkable work by Sayanacharya in second chapter of Taittiriya Aranyaka says how spiritual masters became so;

कल्पादावेव ब्रह्मणाः सृष्टा न ह्यसदादिवत्कपमध्ये पुनः पुनर्जायन्ते तस्मादजाः । ते च पृश्नयः शुक्लाः स्वरूपेणैव निर्मलाः सन्तोऽपि पुनस्तप आचरन् । तदीयेन तपसा तुष्टं स्वयम्भु ब्रह्म जगत्कारणत्वेन स्वतः सिद्धं परब्रह्मवस्तु कंचिन्मूर्तिं धृत्वा तपसमानांस्तानृषीननुग्रहीतुमभ्यानर्षदाभिमुख्येन प्रत्यक्षमागच्छत् । ततस्ते मुनयः ऋषिधात्वर्थविषयत्वादृषयोऽभुवन् । तस्मादन्येषामपि ऋषीणामनयैव व्युत्पत्यर्षित्वं सम्पन्नम् । ततस्ते मुनयः सर्वकामप्रदं किंचिद्यज्ञं कामयमानाः स्वयम्भुब्रह्मरूपां तां देवतामुपासितवन्तः । तद्देवतानुग्रहात्ते मुनयः एतं वक्ष्यमाणं ब्रह्मयज्ञं सर्वकामहेतुमपश्यन् । दृष्ट्वा च नं यज्ञमाहरन्ननुष्ठितवन्तः । तेन यज्ञेन देवानपूजयन्त ।

*Kalpādāveeva brahmaṇāḥ sṛṣṭā na hyasadādivatkapamadhya punaḥ punarjāyante tasmādajāḥ | Te ca pṛśnayaḥ śuklāḥ svarūpeṇaiva nirmalāḥ santo'pi punastapa ācaran | tadīyena tapasā tuṣṭāni svayambhu brahma jagatkāraṇatvena svataḥ siddhāni parabrahmavastu kañcinnūrtiṁ dhṛtvā tapasamānānīstānṛṣīnanuগ্রহীতুমভ্যানর্ষদাभिमुख्येन प्रत्यक्षमागच्छत् | Tataste munayaḥ ṛṣidhātvarthaviṣayatvādr̥ṣayo'bhuvan | Tasmādanyeṣāmapī ṛṣīṇāmanayaiva vyutpatyarṣitvani sampannam | Tataste munayaḥ sarvakāmapradāni kiñcidyajñāni kāmayamānāḥ svayambhubrahmarūpāni tāni devatānupāsītavantāḥ | Taddevatānugrahātte*

*munayaḥ etāni vakṣyamāṇāni brahmayajñāni sarvakāmahetumapaśyan | Dṛṣṭvā ca nani  
yajñamāharannanuṣṭhitavantaḥ | Tena yajñena devānapūjayanta |*

“Ajas (who do not have birth) were created in the beginning of Kalpa (4,320,000 human years). Ajas performed Tapas (austerity) even when they were pure by nature. Pleased by the austerity of these people, the creator took a form to reveal himself to Ajas. Hence forth, any aspirer who passes through this process of getting a vision of the original form of the reality would be named Rishis. Knowers of these started performing Yajnas which are capable of bestowing anything desired by any one and thus started their spiritual journey with Yajna. They worshipped the creator through Yajna which is in the form of study”.

These 5 Yajnas are performed on a daily basis. They are completed on the day of start, not finishing one Yajna on one day and starting the next on another day. Followings are five Yajnas, a) Deva Yajna, b) Pitr Yajna, c) BhutaYajna, d) ManushyaYajna and e) Brahma Yajna,

पञ्च वा एते महायज्ञाः सतति प्रतायन्ते सतति सन्तिष्ठन्ते देवयज्ञः पितृयज्ञो भूतयज्ञो मनुष्ययज्ञो ब्रह्मयज्ञ इति  
*Pañca vā ete mahāyajñāḥ satati pratāyante satati santiṣṭhante devayajñāḥ pitryajñō  
bhūtayajñō manuṣyayajñō brahmayajña iti*

“It was the glory and importance of study of scriptures explained in eighth chapter.

Contextually 5 types of Yajnas are elaborated in detail with methods of their practice”;

In the beginning Deva Yajna is told,

यदग्नौ जुहोत्यपि समिधं तदेवयज्ञः सन्तिष्ठते,  
*Yadagnau juhotyapi samidhani taddevayajñāḥ santiṣṭhate,*

Ideally Purodasha (special material prepared from wheat) etc. are the materials in Yajna, but one can use Samiths in absence of Purodasha. Performing Yajna intending offering to Devatas

(Indra, Varuna, and Agni etc.) is named as Deva Yajna. This process involves offering the desired or suitable materials to intended Devatas. The Sages, who came at a later period of time, started a new set of texts which can facilitate in every possible way, giving ideal method and supporting to original method. They also gave options to follow without lacuna in situations where it cannot be done in an ideal way. For example in the absence of Purodhasha, use of Samiths is accepted for offering.

This concept of performing Deva yajna is nothing but showing concern towards nature. As told in Bhagavad Gita, mutual help between human and gods is through nourishing mutually. But industrialization in the West leads us to forget the culture of preserving attitude and violating natural rules which in turn creates havoc in nature. It seems impossible for the modern person to get back to these original practices.

The second Yajna is Pitryajna;

यत्पितृभ्यः स्वधा करोत्यप्यपस्तत्पितृयज्ञः सन्तिष्ठते,

*Yatpitṛbhyāḥ svadhā karotyapyapastatpitṛyajñāḥ santiṣṭhate,*

“In the absence of Pinda (solid ball of cooked rice as an offering to forefathers) through a specific word ‘SVADHA’, our entire dynasty is remembered including great Rishis. Thus offering once completes Pitṛ Yajna”.

Every branch of modern science is invented from a human being who was deeply involved in finding the truth behind simple natural happenings. Hence the branch of science considers the progenitor as an equal to GOD. Similarly in olden days, every family was in contact with such great scientists who could reveal the secrets of nature by their virtue and austerity. Since all our creativity and existence is grounded on our forefathers, it is hence obligatory to at least

remember them every day. Though it seems to be mechanical in nature, it should nevertheless be followed.

The third one is BhutaYajna;

यद्भूतेभ्यो बलिगुं हरति तद्भूतयज्ञः सन्तिष्ठते,  
*Yadbhūtebhyo baligū harati tadbhūtayajñāḥ santiṣṭhate,*

“After performing ritual Vaishvadeva, feeding animals and birds in the form of Bali (anything eatable by respective animals) is Bhuta Yajna. Bhuta means any creature which are plenty in number and which maintain balance in nature just by their mere existence”.

This is one of the most interesting and amazing aspect of living with nature. It is so predominant that the Vedic texts emphasis very much on looking after the animals around us. It gives such a closeness with other creatures that even some animals are able to communicate their feeling better than humans. Even today, in villages, folks name each and every cow and look after them like their own children. There are even historical events supporting this very fact. Thus taking care of creatures around humans is Bhuta Yajna.

Manushya Yajna is fourth one;

यद्ब्राह्मणेभ्योऽन्नं ददाति तन्मनुष्ययज्ञः सन्तिष्ठते,  
*Yadbrāhmaṇebhyo'nnam dadāti tanmanuṣyayajñāḥ santiṣṭhate,*

“After the performance of Vaishvadeva offering food or any respectable materials especially food and showing reverence to Atithi (a guest having no fixed appointment) is Manushya Yajna”.

One of the most sanctified concepts, Atithi, is a highly remarkable and respectful way of showing concern to needy. Whoever comes home without appointment and who is in need of

food, shelter or any kind of support should be looked after without any grudge. Today's world needs this attitude urgently where human's emotional growth is very much at stake. Even members of a family are unable to adjust each other; there is no respect to each other and inability to understand each other. The entire problem can be sorted out through this Manushya Yajna. Generally Brahmanas (people spending time, energy and sources to promote knowledge, performing rituals for welfare of the society, sharing and accepting alms in society, who have real responsibility to take society forward) are given food or clothing.

Brahma Yajna is the final one;

यस्त्वाध्यायमधीयीतैकामप्यृचं यजुः साम वा तद्ब्रह्मयज्ञः सन्तिष्ठते

*Yastvādhyāyamadhīyītaikāmapyṛcaṁ yajuḥ sāma vā tadbrahmayajñāḥ santiṣṭhate*

“Scriptural study of texts which were passed on to preceding generations in the dynasty from father, grandfather and great-grand fathers is said to be Brahma Yajna. Study of even a single sentence and doing sadhana on methods leading to realization is Svadhyaya which is nothing but Brahma Yajna”.

Patanjali Yoga Sutras consider two aspects as Svadhyaya –

प्रणवादिमन्त्रजपः मोक्षशास्त्राणाम् अध्ययनम् च

*Praṇavādinantraḥ japaḥ mokṣaśāstrāṇām adhyayanam ca [P.Y.S. 2-1]*

It means repetition of Mantras such as OM or ATHA etc. and the study of scriptures which bring freedom. Adhi Shankara discussed regarding three aspects in life leading to spiritual growth – getting human birth, strong desire of attaining realization (absolute freedom) and company of worthy people (Satsanga). Svadhyaya from this section of Vedas and other textual enforcement is always on Brahma Yajna. So, Vedic education was necessary to uphold spiritual values in any sane society.

Adi Shankara says, in his monumental work on Bhagavad Gita;

दीर्घेण कालेन अनुष्ठातृणां कामोद्भवात् हीयमानविवेकविज्ञानहेतुकेन अभिभूयमाने धर्मे प्रवर्धमाने चाधर्मे .....

*Dīrghēṇa kālena anuṣṭhātṛṇāṃ kāmōdbhavāt hīyamānavivekavijñānahetukena  
abhibhūyamāne dharme pravardhamāne cādharṁe.....*

“It is the natural cycle of rising of Adharma and fall of Dharma and visa-versa. Performers of great rituals were in the clutches of lust and desires, eventually infatuation grew. Thus great performances lost their importance and their esoteric effects. All these happen by humans filled with ego and other evil forces. “Whence Adharma rises, thence the creator incarnates to protect righteous and destroy the evil forces”.

परित्राणाय साधूनां विनाशाय च दुष्कृताम् ।

धर्मसंस्थापनार्थाय सम्भवामि युगे युगे ॥ भ-गी ४.८ ॥

*Paritraṇāya sādḥūnāṃ vināśāya ca duṣkṛtām ।*

*Dharmasāṁsthāpanārthāya sambhavāmi yuge yuge । । Bha-Gī 4.8 । ।*

“For the protection of godly people and to destroy the evil, I incarnate in every Yuga.

This is the actual concept of 5 Yajnas in detail.

FIGURE 1 – UNIVERSAL WELLBEING – MECHANISM OF YAJNA

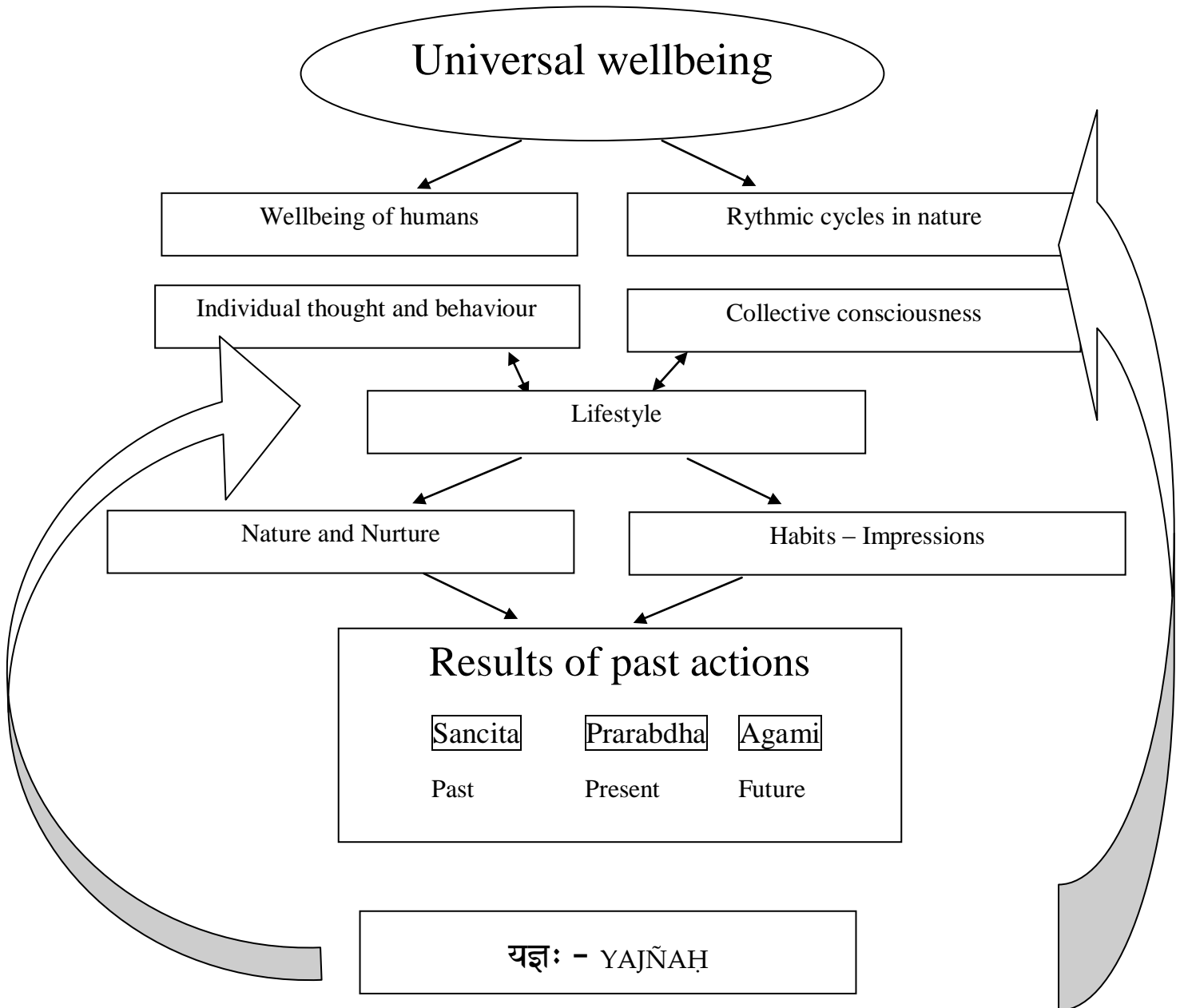


Figure 5 (model) explains, how Yajna is at the core of human performance and an important cause to establish universal wellbeing. Yajna influences two layers; individual life style and collective consciousness.

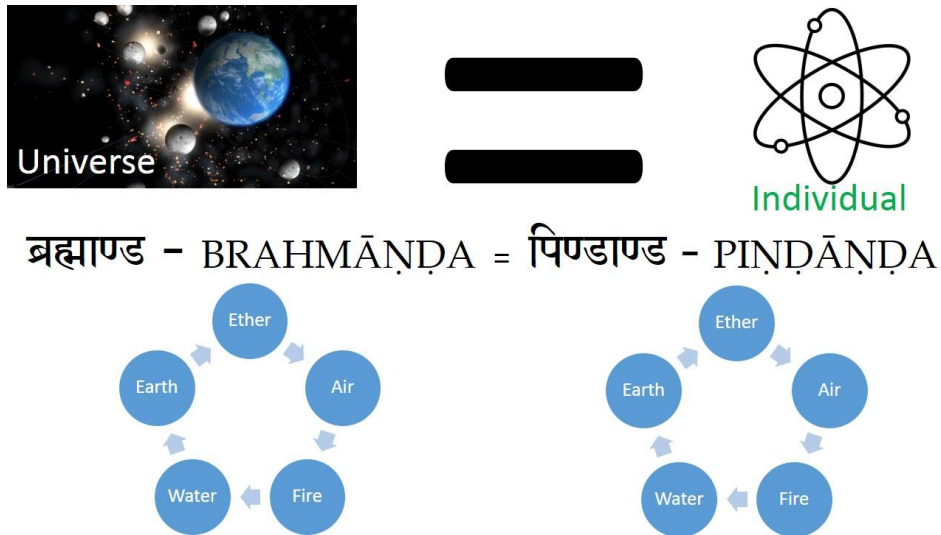
All actions that humans perform, should ideally be centered at universal wellbeing as the focus . Human beings can maintain wellbeing if the surrounding nature is condusive and biological rhythm is maintained well.

यदेव ब्रह्माण्डे तदेव पिण्डाण्डे ।

*yadeva brahmāṇḍe tadeva piṇḍāṇḍe ।*

“ What is in every individual is out in there in creation also”.

PLATE 1 - BRAHMANDA AND PINDANDA



This very sentence establishes the oneness of everything in creation, inside and out. Hence, well being of every living system is depended upon the wellbeing of the nature outside. How is nature outside maintaining balance?

Human wellbeing is based upon the thoughts and the behavior of an individual; the rhythmic cycles in nature is the collective consciousness of people living in a specific region, which creates diverse culture and social scenario in different locations on the surface of earth.

Most well established societies frame norms and laws which eventually evolve as a particular lifestyle in that society. Gradually society considers some behavior as favorable and some others as unfavorable. Therefore, social values and norms are confined to a limited scope of application. But, there can be universal values which should be followed without barrier of caste, creed, gender, location, time and space. Sage Patanjali names all these universal values as Yama; non-violence, uttering the truth, non-stealing, mastery over the senses and non-accumulating of material things more than required.

Since society is based on the individuals, that society becomes the ideal which accommodates a high number of ideal individuals. Individual beings act and behave as they are brought up along with qualities they have innately at birth. Thus, social ethics and moralities tend to create habits and impressions in all individuals in that society very strongly; therefore, individuals connect every activity with good and bad, favourable and unfavourable behavior.

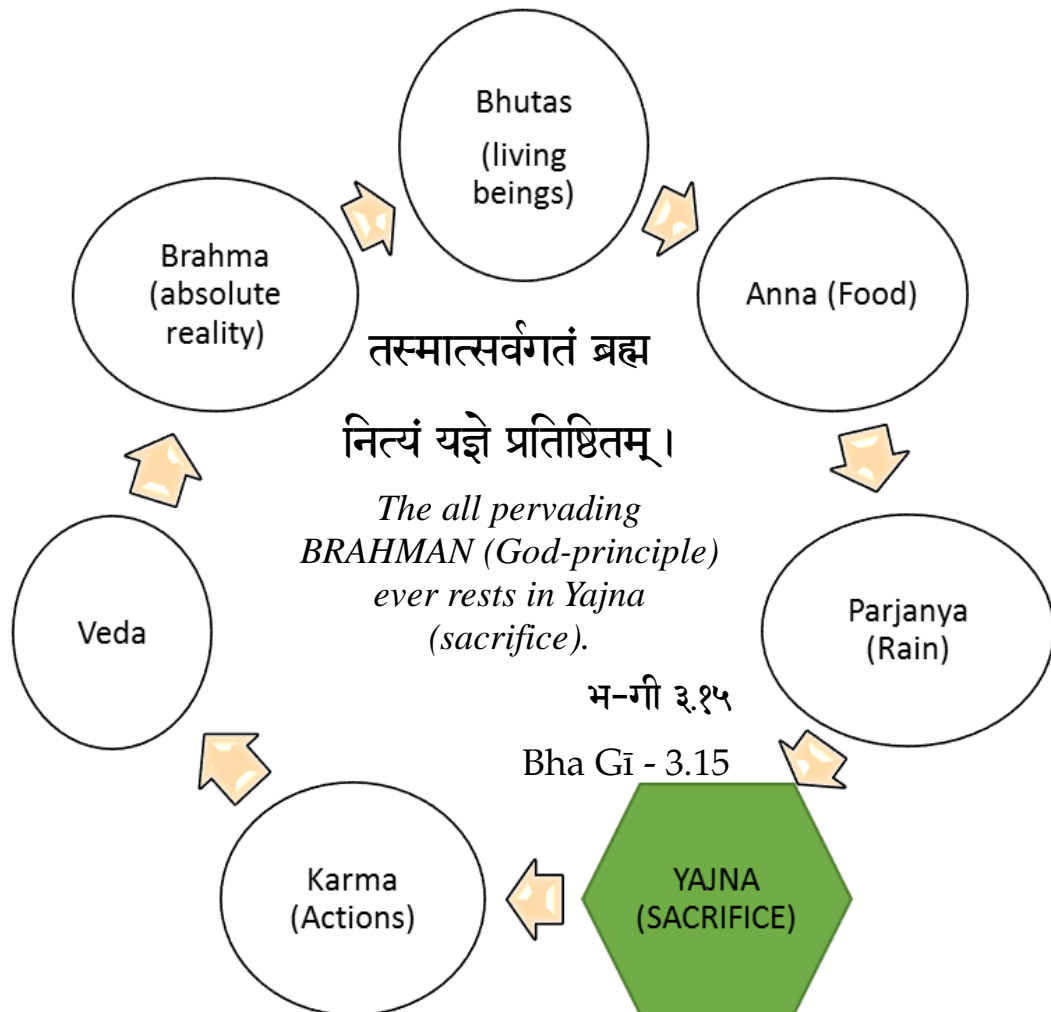
Individuals' nature is decided based in results of past actions. The present life, in Samskritam, is endowed with *Prarabdha* Karma, a set of past actions starting their fructification. For example, if an individual actioned Papa (actions which accumulate suffering as a result) in the past life, *Prarabdha* Karma will be resulting in taking birth as animal or bird or any other lower (in terms of freedom to think and act) creature. That is its *Prarabdha*.

So, all living beings are always connected with their own Karma (actions), according to Indian scriptures. This vicious circle of connecting with Karma, consequential accumulation of

*Punya* and *Papa*, results in enjoyment and suffering. Thus vicious circle continues forever, binding human beings in this world.

Bhagavad Gita proclaims that performing any action as Yajna (sacrifice) releases one from bondage; therefore, one should do every action with an attitude of Yajna. Gita continues to educate how the sustenance of world is completely in control of Yajna.

PLATE 2 – MAINTANANCE OF GROSS WORLD



Deeper understanding of the Vedas conveys that very the nature is god. Literal meaning of word 'Deva' is that which is illuminating, shining, effulging etc. Indirectly, these denote any source of energy considered as god; hence, Vedic culture has many gods, because there are many manifestations of energy. Though all are forms of energy, a manifestation of energy differs from each other. Vedic scriptures say earth originates from water, water from fire, fire from the air and the air from ether.

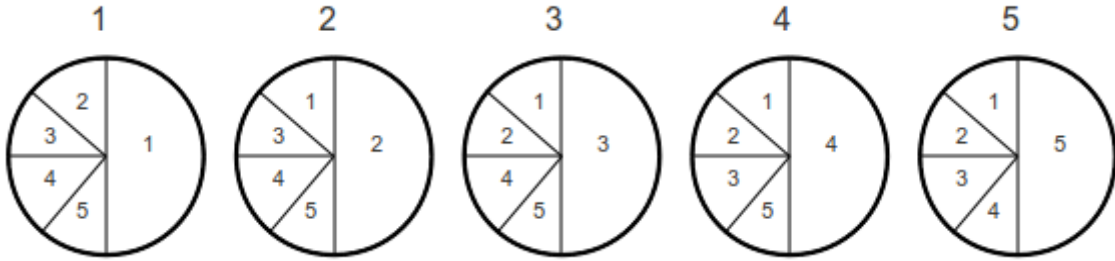
तस्माद्वा एतस्मादात्मन आकाशस्सम्भूतः । तैत्तिरीय उपनिषत् - २.२ ॥

*tasmādvā etasmādātmana ākāśassambhūtaḥ | tāittirīya upaniṣat - 2.2 | |*

“From Atma ether (Akasha) took birth”.

Sequentially all other elements came into existence from these five basic elements. So, cotextually all these later creation process is nothing but the energy source in different forms. The entire manifested world is permutation and combination of 5 elements.

### PLATE 3 – PANCHIKARANA AND EVOLUTION



Presenting triple combination of the evolution theory, Chandogya Upanishat says, "Let me make each of these three tripartite" (Chandogya. Upanishat. 6. 3. 3). According to these mantras, Lord first created fire, water, and earth and combined them according to the process of triple combination. This process is also called *Trivritkarana*, which resembles

*Pancikarana* of Nyaya and Vaisheshika. Each of the gross elements fire, water, and earth contains half of its own kind and one fourth of each of the other two. The creation of five elements is supported by the Shruti and smriti.- Ether and air have been apparently left out in the *Trivritkarana* process. Though these five gross elements are alike in so far as each of them contains the five elements, yet they are differently named as ether etc. owing to the "preponderance of a particular element in them" (Brahma Sutras 2. 4. 22). [Preponderance—Each is named after the element it contains in the largest proportion].

After explaining the evolution process, the mantras say, God in the form of water intended to create earth, therefore all the elements in the scriptures are considered as Deva (God, the source of energy). In this context, the group of Devas making collective consciousness, influenced by individual performance, especially satisfied by the performance of Yajna. All the gods will be rejoicing by the offerings of human prayers through Yajna; positive attitude of individuals, causing universal wellbeing in larger picture.

## **2.8 CONCLUSIONS**

Yajna transforms the life into spiritual journey. It's a gift and responsibility which are offered to humankind to maintain equilibrium with nature. The natural synchrony brought in this creation by following Yajna.

## **CHAPTER 3**

### **LITERATURE REVIEW**

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### **3.1 SCIENTIFIC RESEARCH ALREADY DONE ON YAJNA**

Objective observations, based on research by other authors, and the scientific evidences found during experimental field studies conducted indicated that, Homa was found to be one of the most economical means of purifying environmental pollution. Emissions during Homa are not only non-toxic but are beneficial to the environment. Ash collected from the bottom of Homa pits showed nutrition value and therefore Agnihotra farms exhibited medicinal properties (Rao, Ram, Kiran, & Srivatsav, 2012).

Agnihotra is a very simple method of performing Yajña or offering oblations to fire at the transitional moments of sunrise and sunset. Sunrise and sunset are the conjunctions and rhythmic cycles of nature and they leave their immediate effect on all living beings (Kar, 2012).

During the Vedic ritual ‘Aptoryama Yajna’, the collective consciousness of people gathered sufficient strength, while chanting of mantras to make a random sequence to exhibit non-random result on the day. Such measurements are made through the use of REG (Random Event Generator), an electronic system that produces normally truly random numbers. In many observations, when the collective consciousness of a group in and around REG changes (due to meditation, chanting, or even a mega event like the cricket finals in World Cup match), the randomness of REG output also changes in significant ways. In Yajna events, the results indicate that the Yajna did bring about an enhancement in ordering of REG output along with possible increase in power of psycho-kinesis in a session (Bancel & Nelson, 2008). The study could find that there was an increase in the bacterial counts at 20 meters and also at 40 meters distance. Further, it was found that as the Yajña has progressed,

there was an increase in bacterial counts due to positive effect of Yajna. There are other studies that seem to measure emotional imprints in the environment by recording the changes in randomness of certain fundamental physical processes. The randomness changes towards more order when the system is exposed to increase ordering in the environment. The reason for this may be due to positive emotions in the environment. Emotions are powerful thoughts according to Yoga. These powerful thoughts are cancelled when the waves associated are out of phase and the thoughts get into resonance when the phase and frequency are matched. The study showed that the Yajña sacrifice with mantra had significant influences on the REG as compared to pre and post with no event. In the environment of a Yajña, an REG produced greater ordered changes than chance excursions; REG was influenced perhaps due to positive emotions. The synergy of matched emotions can influence or change the perceived order in the atmosphere (Thakur, Nagendra, & Nagarathna, 2012).

One of the studies could trace significant differences between Gayatri Mantra (GM) and Random Thinking (RT) sessions. During GM chanting the values recorded on REG increased to cross parabolic graph, showing the significant change in consciousness level, it decreased in the RT sessions. This showed significant differences between the two groups, during the sessions, when analyzed (Neha, Swamy, & Nagendra, 2006).

Agnihotra research at SVYASA University showed significant changes from the base line data for three seasons, autumn, winter and summer taken over a period of 15 days each. These experiments were carried out by exposing seeds to Agnihotra ritual and the growth pattern was compared to control seeds. Four parameters, viz. Root length, shoot length, fresh eight and dry weights were measured. An analysis of the data showed that the Agnihotra sacrifice along with mantra was overwhelmingly more effective in the germination process (Devi,

Swamy, & Nagendra, 2004).

In another study, 5 g soil were mixed with 0.1 g ash (Agnihotra / non-Agnihotra) and shaken in 25 ml water for 48 hours. The same amount of ash (Agnihotra / non-Agnihotra) was shaken without soil in 25 ml water for 48 hours. Finally, water soluble phosphate content was measured in the water solutions. It was found that Agnihotra-ash may increase the amount of extractable Phosphorus in soil; this effect was also generated with a non-Agnihotra-ash, which was produced without chanting a mantra, and not at sunrise or sunset. It was particularly strong when the non-Agnihotra ash was produced in a copper pyramid. A possible explanation may be the time of soil / ash contact, which may have been too short in the two latter extraction methods to allow the subtle energetic forces to unfold their effects (Kratz & Schnug, 2007).

Medicinal fumes emanating from the process of Agnihotra have been observed by researchers in the field of Microbiology to be clearly bacteriostatic in nature, which eradicate bacteria and micro-organisms, the root causes of illness and diseases. Hence, considering the hazardous effect of chemical fumigation, Agnihotra fumes may be the most lucrative alternative to combat the notorious microorganism present in air. The reduction in the microbial load in the air due to Agnihotra fumes might be due to the medicinal volatiles or antimicrobial nanoparticles released. Hence, the Agnihotra fumes can be used not only for disinfection of air but also it can be environmentally exploited for the physical, mental, intellectual and spiritual development by implicating R and D based on nanotechnology of Agnihotra (Pachori, Kulkarni, Sadar, & Mahajan, 2013).

The cosmic biological and psychological effects influence significantly the biological and

psychical, collective and individual organizational processes. The cosmic connections between Man and the Universe do not represent a one-sided action, but a mutual, meaningful, life-giving interaction, in which Man also is an active participant; thus humankind needs to accept the challenge of fulfilling its original, natural destination (Grandpierre, 1999).

Traditional cultural practices have much impact on the social condition and have a role in the healing process to a great extent. Duane quotes Robert's research finding elaborating the increase in the functional intelligence of the species (Elgin et al., 1997).

Music and other collective performances influence the collective conscious level greatly by bringing about positive changes in the environment around. With suitable methods such as EPI (GDV), it is possible to observe the changes objectively (K. Korotkov, Orlov, & Madappa, 1997).

### **3.2 POLLUTION: SULPHUR DIOXIDE, NITROGEN DIOXIDE AND RESPIRABLE SUSPENDABLE PARTICULATE MATTER (RSPM)**

Pollution is the major unfavorable result of the civilization. Majorly pollution categorized into air, water, noise, marine based have already adversely altered our natural resources. Among with them, air pollution is recognized as major cause for environmental health problems and WHO also admits the fact that, air pollution is the single biggest environmental health risk in 2012. Air pollution rate has increased since Second World War onwards as the result of intensive increase in the industrialization around different parts of world as an inseparable instrument of civilization. Numbers of studies and discussions have been conducted on air pollution in past years. For instance, over 500 projects have been conducted alone in United States spending nearly 2 million dollars for these studies (Ludwig, H, 1963).

Sulphur dioxide is a compound composed of sulphur and oxygen, released in natural process like volcanic eruptions (followed by water and carbon dioxide) and from anthropogenic or man-made sources. It is slightly soluble in water to form weak acidic aqueous solution i.e. sulphuric acid which has more chemical properties than sulphur dioxide. For instance, when sulphur dioxide reacts with atmospheric humidity sulphuric acid is formed which binds with the surface of air particles and percolates deep into the lungs and distributed throughout the body during respiration (Johns et al., 2012).

There are other dangerous effects of sulphuric acid is in the form of acid rain. When it reacts on the surface of different of aerosol particles, it is soluble in water and can be oxidized within airborne water droplets to form sulphuric acid ( $H_2SO_4$ ), which falls as acid precipitation or "acid rain". Sulphur dioxide has great identity on the global scale due to its utility as well as disadvantageous effect on climate. It has significant health and environmental effects, including the formation of acid rain, smog and influences global warming (Weil, Sandler, & Gernon, 2006) .

A study was conducted in China on children school. Longitudinal studies were done targeting sick building syndrome (SBS) for two years. Pollutants such as nitrogen dioxide ( $NO_2$ ), sulphur dioxide ( $SO_2$ ), ozone ( $O_3$ ), particulate matter (PM10) etc. were studied in 2010-2012. PM10 was found to be positively associated with new onset of skin, mucosal and general symptoms,  $SO_2$  was positively associated with new onset of skin symptoms, while  $NO_2$  was positively associated with new onset of skin, general and mucosal symptoms. In summary, environmental pollution, including PM10,  $SO_2$  and  $NO_2$ , could increase the prevalence and incidence of SBS and decrease the remission rate. Moreover, parental asthma and allergy (heredity) and pollen or pet allergy (atopy) can be risk factors for SBS.

Sulphur dioxide is also associated with asthma, chronic bronchitis, morbidity and mortality increase in old people and infants. Study conducted by Haahtela and co-workers (1992) on 75 people of the community resulted that at least 75% of them experienced eye irritation and 25% of them experienced neuropsychological illness and respiratory problems after acute exposure to sulphur dioxide. In contrast to this, low level concentration of the pollutants like sulphur dioxide can be hazardous to the children and synergistic effect of sulphur dioxide with other particulate matters in the air increase the observed effects (Simoni et al., 2003).

Asthmatic patients experience higher health risk on sulphur dioxide exposure (Ostro, Michael, Wener, & Selner, 1991). The irritant gases may increase an animal's susceptibility to bronchial carcinoma. Sulphite and bisulphite, produced in the respiratory tissue after inhalation of  $\text{SO}_2$ , are reactive nucleophiles (they are also the active ingredients formed after application of  $\text{SO}_2$  when used as a food preservative) (Willburn, 2008). In addition, both have a lone pair of electrons so oxidation can result in the production of free radicals, which may result in a number of adverse reactions including DNA chain cleavage. In high concentrations, sulphite (concentrations were not reported) are mutagenic (Wellburn, 1998). In-vitro studies demonstrated that sulphite enhanced the mutagenic effects. Individuals are differentially susceptible to sulphur dioxide because of presence of sulphur oxidase enzyme in the body. Sulphur is highly toxic for people's health, although humans are more resistant than other living organisms in environment. For instance, the level of  $0.3 \mu\text{g}$  per cubic meter of air implies a potential risk for human health, but for trees,  $0.2 \mu\text{g}$  per cubic meter is extremely dangerous. Because of that, sulphur oxides ( $\text{SO}_x$ ) and sulphuric acid ( $\text{H}_2\text{SO}_4$ ) are related with the damage and destruction of vegetation, soil deterioration, and construction material and water courses degradation.

The present research thus looks into effects of Yagna at two levels, namely, subtle and gross. At the subtle level, the reaction and response of humans to the procedure are measured through latest equipment, Electrophotonic Imaging. This instrument is able to track stress levels, adaptation to environmental conditions (both positive and negative) and ordering that takes place in the environment. The gross aspects of environmental changes that take place during a Yajna is tracked through Enviro-Tech, a well-accepted test equipment for observing environmental pollution and their possible neutralization due to the practice of Yajna. Thus, the present study pays attention to both individual and collective changes when Yajna is performed following specific method (especially herbal offerings) developed by a spiritual master from southern India.

## 3.3 SUMMARY TABLE

TABLE 2: SUMMARY OF RESEARCHES DONE ON YAJNA AND AGNIHOTRA

S.No	CITATION	DESIGN	RESULTS	STRENGTHS	LIMITATIONS	COMMENTS
1.	Ghanashyam et al., 2012	Continuous Recording	<ul style="list-style-type: none"> <li>Specific sessions such as Pravargya, Garuda Cayana etc. had significant results which are capable of influencing REG</li> </ul>	<ul style="list-style-type: none"> <li>Selected sessions tracked, rather collective effect</li> </ul>	<ul style="list-style-type: none"> <li>Integrated approach is suitable than selected sessions.</li> </ul>	<ul style="list-style-type: none"> <li>The study does not take chanting of mantras into consideration</li> <li>Study design is appreciable using in usage REG studies</li> </ul>
2.	Neha et al., 2004	30 males age range 18 to 25	<ul style="list-style-type: none"> <li>Gayatri Mantra (GM) chanting showed significant results compared to random thinking</li> </ul>	<ul style="list-style-type: none"> <li>First study with Gayatri mantra using REG.</li> </ul>	<ul style="list-style-type: none"> <li>The state of mind is not considered in the study.</li> </ul>	<ul style="list-style-type: none"> <li>Very small time duration will not make any conclusions.</li> </ul>
3.	Jina et al, 2004	Four sets of seed were measured in three seasons	<ul style="list-style-type: none"> <li>Mantras of Agnihotra, chanting and offering showed significant results</li> </ul>	<ul style="list-style-type: none"> <li>Supports the fact that chanting of specific mantras while seeding and energizing before use</li> <li>Seasonal observation strengthens the hypothesis</li> </ul>	<ul style="list-style-type: none"> <li>This is only one method of Agnihotra. Vaidika method is not dealt with.</li> </ul>	<ul style="list-style-type: none"> <li>This present study involves the method of Agnihotra which does not Vedic way of performing</li> </ul>

4.	Surendra et al., 2009	Ash collection from 20 meters and 40 meters distance	<ul style="list-style-type: none"> <li>Bacterial growth was more at 40 meters distance – no bacterial activity was found after 48 hrs</li> </ul>	<ul style="list-style-type: none"> <li>Specified the duration of effect of Homa on bacterial growth</li> <li>Seems to be all comprehensive assessment</li> </ul>	<ul style="list-style-type: none"> <li>Other effects of on different materials were not studied</li> </ul>	<ul style="list-style-type: none"> <li>The methodology of analysis of data concerned with REG can be improved</li> </ul>
5.	Sylvia & Ewald 2007	Ash solution Soil P along with water solubility	<ul style="list-style-type: none"> <li>Agnihotra ash in particular to improve solubility and thus plant availability of soil Phosphorus is clearly observable</li> </ul>	<ul style="list-style-type: none"> <li>Copper vessels or the container plays a major role in larger effects</li> </ul>	<ul style="list-style-type: none"> <li>Did not take into count the effect of container in solubility</li> </ul>	<ul style="list-style-type: none"> <li>Methodology used is very professional and leading to further investigation</li> </ul>

### **Summary of studies**

Aptoryama Yajna, showed how collective consciousness is verily changed by performing ritual in traditional method. Different stages of Yajna (Cayana, Mathana, Pravargya etc.) have different intensity of effect on collective consciousness. Similarly, when these Yajnas were performed in smaller scale, Agnihotra, then also desirable effects can be expected. Though subtle changes are observed through REG, the physical effects are measured by using the Agnihotra ash in cultivation. Research by Sylvia and Edward confirmed the effect of Agnihotra ash, as increasing agent of phosphorus value in soil when it is mixed with water and added to soil. It is also surprising that container or vessels used for Agnihotra also have their effect on soil phosphorus levels. Rawat et al showed how ash in different distance from Yajna Kunda differ each other while bringing changes in bacterial growth.

Research at SVYASA Yoga University supported the fact, even in different seasons Agnihotra performance has increased effect on seed germination when compared to control group. Since all these fire rituals have mantras as inevitable aspect, Neha et al. ensured how Gayatri Mantra is effective in regulating individual consciousness when chanted in traditionally versus Random Thinking.

All these scientific studies lead present research to observe positive changes of Bhaishajya Maha Yajna on human energy field as measured using EPI. While EPI parameters (will be elaborated in material and method section) take individual positive changes in to consideration, EnviroTech variables ensure the levels of pollutants in environment.

## **CHAPTER 4**

### **AIM AND OBJECTIVES**

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## **4.0 AIM AND OBJECTIVES OF THE STUDY**

### **4.1 AIM**

- To examine the effects of Bhaishajya Maha Yajna on human energy and the environment

### **4.2 OBJECTIVES OF RESEARCH**

- To observe changes in pollutants in the environment through EnviroTech system,
- To establish the subtle effect of Bhaishajya Maha Yajna on human energy fields measured using EPI (Electrophotonic Imaging)

### **4.3 RESEARCH QUESTIONS**

- Does peoples' energy field respond to Bhaishajya Maha Yajna effectively, measured using EPI?
- Are there any changes in the level of pollutants in the surroundings?

### **4.4 HYPOTHESIS**

- There are observable positive changes in Area, Average Intensity and entropy of human consciousness field when people perform Bhaishajya Maha Yajna, as measured using EPI.
- Bhashajya Maha Yajna reduces levels of Sulphur dioxide, Nitrogen dioxide and Respirable Suspendable Particulate Matter pollutants in the environment.

### **4.5 NULL HYPOTHESIS**

- There are no observable positive changes in Area, Average Intensity and entropy of human

consciousness field when people perform Bhashajya Maha Yajna, as measured using EPI.

- Bhashajya Maha Yajna does not reduce levels of Sulphur dioxide, Nitrogen dioxide and Respirable Suspendable Particulate Matter pollutants in the environment.
- 

#### **4.6 RELEVANCE AND BENEFITS OF THE STUDY**

- The study may provide a suitable model for daily performances of Yajna which can benefit environment to remove major pollutants around one's living area.
- The study may bring out an innovative method to strengthen human energy field based on the ancient practices such as Yajnas and Yoga.
- The study can support the idea of using traditional practices as therapeutic technique.

# CHAPTER 5

## METHODS

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## **5.0 METHODS**

### **5.1 SAMPLES**

#### **5.1.1 Sample for Electrophotonic Imaging (EPI)**

The subjects of interest for this study are members of a group led by a spiritual master from Kerala, southern India. These subjects are actively involved in the entire process of performing Bhaishajya Maha Yajna (BMY) by following certain practices: conducting brief Yajnas every month, collecting holy sticks for annual Yajna, collecting firewood, preparing necessary oils etc. These subjects (29 in 2013, 21 in 2014) have age ranging from 20 to 40 (males and females), who were ready to volunteer for the study. Subjects were asked to fill an informed consent form to acquaint them with the entire procedure and make sure they volunteer for the study without any emotional disturbance. Majority (70%) of the subjects were from Kerala and some (10%) of them were from the neighboring villages, practicing specific Yoga Module developed by Rishidev Narendran Ji, and the rest (20%) of them were newly introduced to this group.

#### **5.1.2 Samples for Enviro-Tech**

Air samples were collected from the venue of Yajna performance, 50 meters away from Yajna Kunda (dimensions: 27 feet length and 18 feet width and 5 feet depth, in an elliptical shape). Collection of samples was performed before 24 hours of Yajna (from 23 Jan 2013, 6.00 AM to 24 Jan 2013, 6.00 AM) and after (from 27 Jan 2013, 3.00 PM to 28 Jan 2013, 3.00 PM).

EnviroTech is based on CSIR-NEERI (Government of India) technology and is the only PM (10) sampler that conforms to Indian standards (BIS 5182 (Part 23): 2006). Owing to its

modular design, this model (APM 460 DXNL) can be easily paired with a gaseous sampling attachment (for monitoring SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, Ozone etc.). It also monitors Respirable Suspended Particulate Matter (RSPM) concerning health issues related to particle size in air of the surrounding area during Yagna performance. Levels of RSPM differ from region to region within the country (Central Pollution Control Board, India).

## 5.2 SAMPLE CHARACTERISTICS

The demographic data of the subjects is presented in the table below.

TABLE 3: DEMOGRAPHIC DATA OF VOLUNTEERS

Year	Details	Sample	Age	Mean	Observe	Active
2013	Males	26	15 – 45	34	1	25
	Females	3	36 – 40	38	0	3
	Total	29	15 – 45	34	1	28
2014	Males	8	19 – 40	36	0	8
	Females	13	18 – 41	27	0	13
	Total	29	18 – 41	30	0	21

## 5.3 INCLUSION CRITERIA

The volunteers/ participants/ who are actively willing to take part in the SBMY.

## 5.4 EXCLUSION CRITERIA

- Subject under stronger medicine will be excluded
- Volunteers with missing fingers will be excluded from the study
- Any cut or wound on the fingertips of hand and legs
- Feeling of electric tingling or discomfort while data collection
- For females: during pregnancy, or menstruation on the measurement day

## 5.5 INFORMED CONSENT-

All the participants were given informed consent and signed forms were received after explaining the study in detail.

## 5.6 DESIGN

### 5.6.1 EPI– MULTIPLE MEASUREMENTS

Bhaishajya Maha Yajna

	Pre -----	Assessment 1 -----	Assessment 2
	6.00 AM	9.00 AM (after 27 hrs)	12.00 PM (after 54 hrs)
Year 2013	24 Jan 2013	25 Jan 2013	26 Jan 2013
Year 2014	21Feb 2014	22 Feb 2014	23 Feb 2014

### 5.6.2 ENVIRO-TECH:

Pollution level

Pre -----	Post
24 Hours before SBMY	24 Hours after SBMY

## 5.7 ASSESSMENTS

### 5.7.1 EPI

EPI was developed by Russian scientist, Dr. Konstantin Korotkov in 1996 to capture, map and analyze the electromagnetic field emanating from the human body in response to pulsed electrical field excitation. In response to the electrical stimulus given to the body (fingertip), a weak “electron cloud” forms near the surface (of the fingertip), and is amplified by excitation

of the molecules in the surrounding air molecules resulting in a glow which is captured by an optical CCD camera system and translated into a digitized computer image (Tiran & Chummun, 2005).

Traditional Chinese Medicine recognizes that representations of the whole body are found in each organ or region of the body. Systems of complementary medicine in the west term these phenomena 'Reflexology', and use them in systems of diagnosis and massage etc. The phenomenon of fingertip diagnosis in EPI is an example of reflexological diagnosis applied to the fingertips, using Pranic Energy Fields, which are the media through which reflexological maps could arise. EPI Test-retest reliability of baseline values have an overall variance of 0.236 and a standard deviation of 0.387. Variance in patterns of emission and calculated diagrams is about 10% for human fingers, and 3% for materials; hence the instrument is of acceptable quality for research and has been used in various research investigations (Konstentine, 2001).

### **5.7.2 EnviroTech**

EnviroTech is based on CSIR-NEERI technology and is the only PM 10 sampler that conforms to Indian standards (BIS 5182 (Part 23): 2006). Owing to its modular design, this model (APM 460 DXNL) can be easily paired with a gaseous sampling attachment (for monitoring SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, Ozone etc). It also monitors Respirable Suspended Particulate Matter (RSPM) concerning the health issues related to particle size in air of the surrounding area during respiration. Levels of RSPM differ from region to region within the country (Central Pollution Control Board, India).

## **5.8 VARIABLES**

This study concentrates on three important variables for constituting and giving analysis on human energy field. Balance, Active Coefficient etc are the variables which are not considered in this study because they do not give direct connection to energy field. They are meant for detailed analysis of patient or participation who is looking for certain type of medication and treatment. So, the present study discusses only three variables for detail analysis.

### **5.8.1 List of EPI variables**

- **AREA:** This is the number of pixels in the image having brightness above a pre-set threshold. It is observed that area shifts in diverse situations; ex – Yajna, Yoga, types of meditations. Increase in area is indicated by an increase in number of pixels. Increase in area implies increase in metabolic rate in human system for various reasons.
- **AVERAGE INTENSITY:** An evaluation of the Intensity spectrum for the pixels in the images indicating electro-photon discharges. We can observe average intensity shifts in diverse conditions: ex – Yoga, Yajna, types of meditations. Increase or decrease implies how deeply the system is being affected.
- **ENTROPY:** This is an indicator of the level of chaos and disharmony in the system. Entropy shows how the system responses to the stimuli. Lower the entropy better the result.

Table of variables and their significance:

<b>Variable</b>	<b>Definition</b>	<b>Significance</b>
<b>Area</b>	Number of pixels above pre-set threshold	↑Favourable ↓Unfavourable
<b>Average Intensity</b>	Intensity spectrum	↑Favourable ↓Unfavourable
<b>Entropy</b>	Level of disorderliness	↓Favourable ↑Unfavourable

### 5.8.2 List of EnviroTech variables

- Respirable Suspended Particulate Matter,
- Sulphur Dioxide and
- Nitrogen Dioxide along with pre-post Yajna values.

## **5.9 INTERVENTION - BHAISHAJYA MAHA YAJNA**

Bhaishajya Maha Yajna is a ritual initiated by Rishidev Narendra Ji near Bommandahalli, Jigani, Bangalore. Two hundred and sixteen herbal Samits (holy sticks) were used which were collected yearlong according to a standard procedure. The Yajna continued for 4 days and 3 nights. There were 81 anti-social themes (such as accidents and violence) identified for nullifying during this Yajna. During each hour varieties of Samits were offered to counteract anti-social activities. Veda chanting from Rigveda and Yajurveda was continued throughout Yajna to create a spiritual ambience. Three types of base firewood were used. Nine types of plant based oils were offered. The name of Yajna itself is self-explanatory. Bhaishajya (Bhishak - medicine related) indicates the relation of the ritual for curative purpose at physical, Pranic, psychological, social, intellectual and spiritual levels which may be personal, interpersonal and intrapersonal.

### **PROCEDURE OF BHAISHAJYA MAHA YAJNA**

- Preparation for BMY will start one year prior to the Yajna
- On every full-moon-day the volunteers collect Samits (selected sacred sticks)
- Sacred fire (Agni) will be brought to the venue of Yajna
- By 6.30 AM on the day of start of Yajna, Agni will be installed in Agni Kunda
- Samits will be offered every hour for a total of 81 times
- Three types of base firewood will be used
- At fixed timings deities will be invoked to receive oblations

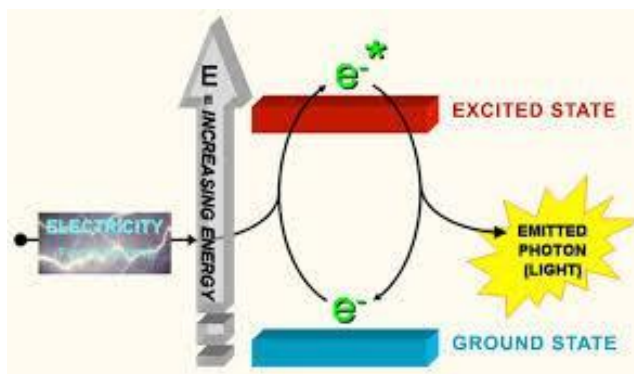
PLATE 4: VENUE OF YAJNA AND PERFORMANCE OF BHAISHAJYA MAHA YAJNA



PLATE 2: ELECTROPHOTONIC IMAGING (EPI) ALSO KNOWN AS GAS DISCHARGE VISUALIZATION (GDV) TECHNIQUE



A. Different Models of EPI systems with glass sheet on which fingers are kept

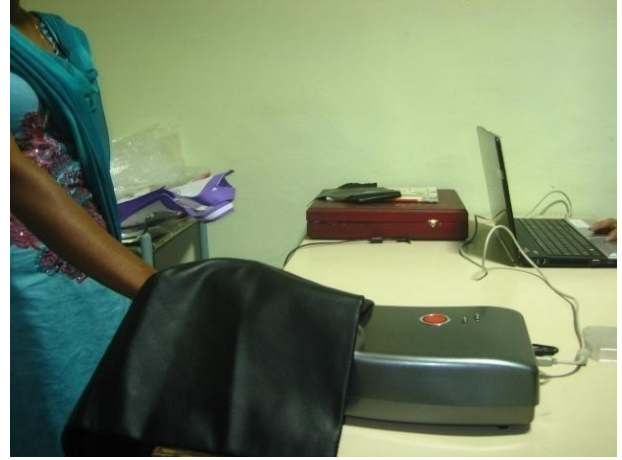
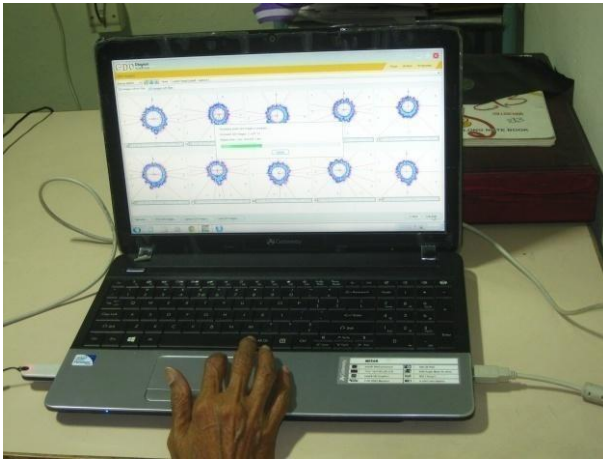


B. Electron excitation and Photon Production due to electrical field



C. EPI Camera pro, which is designed for measuring one finger at a time used in this study. Subjects place their each fingertip, one at a time, on a glass electrode.

PLATE 6: EPI MEASUREMENT IS BEING TAKEN



The image of gas discharge of various points on fingertips, are captured by a CCD camera.

Images are then processed and matched with standard patterns. Graphic results of biometric analysis are presented on the computer screen

PLATE 4: ENVIROTECH SYSTEM



This EnviroTech system measures air quality and RSPM in the environment.

## CHAPTER 6

### DATA COLLECTION AND ANALYSIS

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## **6.0 DATA EXTRACTION AND ANALYSIS**

### **6.1 DATA COLLECTION**

#### **6.1.1 EPI data**

EPI data were collected using computers. EPI-GDV software programs (SciLab program) were utilized for transforming different electrical response into numeric data. Consent forms and demographic data were recorded in pen and paper format.

#### **6.1.2 EnviroTech data**

EnviroTech data were collected from EnviroTech system. The system was kept 200 meters from Yajna Kunda.

### **6.2 DATA SCORING**

#### **6.2.1 EPI data**

GDV program (SciLab) automatically generates and stores subjects' data with extension “\*.slb”. These data can be exported to Microsoft excel file for each subject separately. SciLab is one of the GDV programs which works on logarithm, inbuilt software to analyze EPI grams based on pixels, intensity etc. ‘SciLab’, a GDV program is used to process, also in other materials such as water, soil and gems etc.

#### **6.2.2 EnviroTech data**

EnviroTech systems’ samples were taken to chemical laboratories and get the count of Particles of 10 microns & below collected on Filter Paper holder and SPM, bigger than 10

microns were collected in a separate sampling bottle under the 'cyclone' collector.

### **6.3 DATA ANALYSIS**

#### **6.3.1 EPI data**

EPI Data were analyzed using SPSS 16.0 and MS excel 2010 software. RMANOVA was used to analyze multiple measurements for within the group differences.

#### **6.3.2 EnviroTech data**

EnviroTech pre-data were compared with post data, no statistical methods were used.

**CHAPTER 7****RESULTS**

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## 7 RESULTS

### 7.1 EPI PARAMETERS

TABLE 4 – CHANGES IN THE EPI PARAMETERS

Descriptive Statistics							
Parameters	Time	6:00 AM		9:00 AM		12:00 PM	
	Year	Mean	SD	Mean	SD	Mean	SD
Area	2013	10756.96	1490.4	9357.10*	1722.62	9848.75	2550.6
Intensity		75.26	6.5	69.18*	5.21	72.32*	6.91
Entropy		1.99	0.07	1.96	0.2	1.92	0.22
Area	2014	8707.24	901.19	9605.37*	751.68	9381.43	798.71
Intensity		85.66	6.37	90.25*	5.32	90.14*	5.39
Entropy		2	0.1	1.99	0.04	1.99	0.06

\*  $P < 0.05$ .

#### 7.1.1 Area

A repeated measure of ANOVA showed that for 29 people in 2013, the area (number of pixels in EPI images) of three measurements were statistically different,  $F(2, 56) = 4.406$ ,  $p = 0.017$ , partial  $\eta^2 = 0.136$ . The post-hoc analysis for three measurements confirmed the statistical difference between first measurement ( $10756.96 \pm 1490.40$ ) and second measurement ( $9357.10 \pm 1722.62$ )  $p = 0.017$ . However in 2014, for 21 people,  $F(2, 40) = 7.977$ ,  $p = 0.001$ , partial  $\eta^2 = 0.285$ . Post-hoc analysis showed that first measurement ( $8707.24 \pm 901.19$ ) and second measurement ( $9605.37 \pm 751.68$ ) were statistically significantly different,  $p = 0.001$ , and first measurement ( $8707.24 \pm 901.19$ ) and third measurement ( $9381.43 \pm 798.71$ ) were also statistically significant,  $p = 0.033$ .

### 7.1.2 Average Intensity

A repeated measure of ANOVA showed, for 29 people in 2013, the Average Intensity between three measurements were statistically different,  $F(2, 56) = 10.571$ ,  $p < 0.001$ , partial  $\eta^2 = 0.274$ . The post-hoc analysis showed the statistical difference between first measure ( $75.26 \pm 6.50$ ) and second measure ( $69.18 \pm 5.21$ ),  $p < 0.001$ , and second measure ( $69.18 \pm 5.21$ ) and third measure ( $72.32 \pm 6.91$ ),  $p = 0.047$ . For 21 people in 2014, a repeated measures of ANOVA showed significant difference,  $F(2, 40) = 15.163$ ,  $p < 0.001$ , partial  $\eta^2 = 0.431$ . Post-hoc analysis showed significant difference between first measurement ( $85.66 \pm 6.37$ ) and second measurement ( $90.25 \pm 5.32$ ),  $p < 0.001$ , and first measurement ( $85.66 \pm 6.37$ ) and third measurement ( $90.14 \pm 5.39$ ),  $p < 0.001$ .

### 7.1.3 Entropy

A repeated measure of ANOVA did not show statistical difference, for 29 people in 2013, between three measurements,  $F(2, 56) = 1.324$ ,  $p = 0.274$ , partial  $\eta^2 = 0.045$ . A repeated measure of ANOVA in 2014, for 21 people, between three measures also did not show statistical difference,  $F(2, 40) = 0.262$ ,  $p = 0.771$ , partial  $\eta^2 = 0.013$ .

## 7.2 ENVIROTECH RESULTS

TABLE 5: ENVIROTECH STANDARD VALUES AND EXPERIMENTAL VALUES

	Respirable Suspended Particulate Matter	Sulphur Dioxide	Nitrogen Dioxide
Standard	100 $\mu\text{g}/\text{m}^3$	80 $\mu\text{g}/\text{m}^3$	80 $\mu\text{g}/\text{m}^3$
Pre	66	53	37
Post	109	30	42
Change of value	43	23	5
Percentage	65.15 % $\uparrow$	43.39 % $\downarrow$	13.51 % $\uparrow$

Table 3 gives standard values of Respirable Suspended Particulate Matter, Sulphur Dioxide and Nitrogen Dioxide along with pre-post Yajna values.

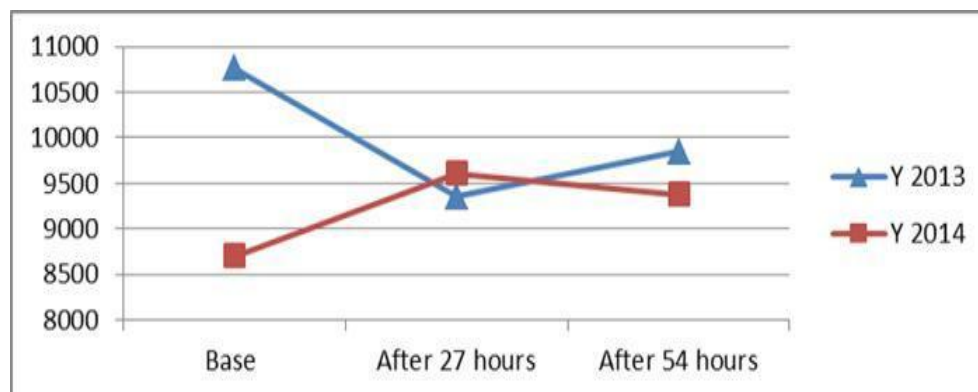
### 7.3 INTERPRETATION

#### 7.3.1 Area

Area is the number of pixels in the image having brightness above a pre-set threshold. It is observed that area shifts in diverse situations; ex – Yajna, Yoga, types of meditations. Increase in area is indicated by an increase number of pixels. In the two Yajna observations the data conveyed as follows.

Increase in area is considered favorable and decrease as unfavorable, according to our hypothesis.

GRAPH 1 – LINE GRAPH OF AREA IN EPI DIAGRAM DURING MEASUREMENTS IN 2013 (LINE WITH BLUE TRIANGLES) AND IN 2014 (LINE WITH RED SQUARES)

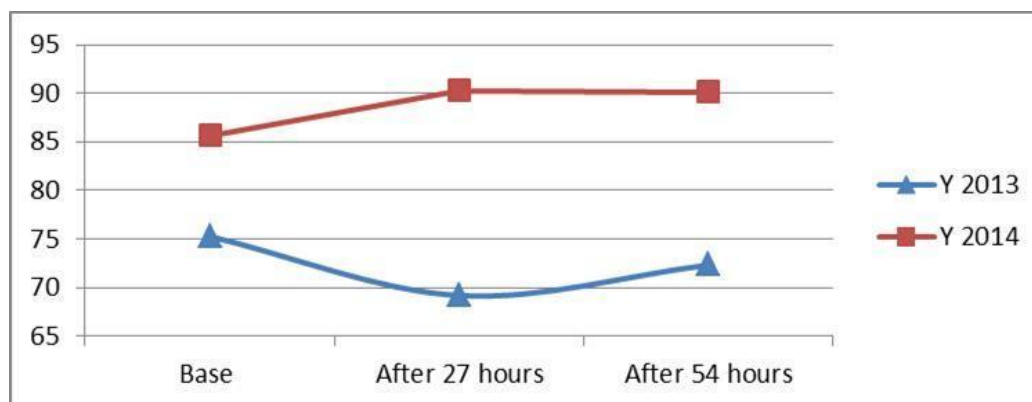


In 2013 Yajna, it is observed a heightened initial start, a gradual decline and leveling as the Yajna progresses. Yajna of 2014 shows a lower start value compared to 2013, rapidly increasing and leveling as the Yajna progressed reaching a value close to 2013 value.

### 7.3.2 Average Intensity

Average Intensity is an evaluation of the Intensity spectrum for the pixels in the images indicating electro-photon discharges. We observe average intensity shifts in diverse conditions: ex – Yoga, Yajna, types of meditations.

GRAPH 2 – LINE GRAPH OF AVERAGE INTENSITY DURING YAJNA IN 2013 (LINE WITH BLUE TRIANGLES) AND IN 2014 (LINE WITH RED SQUARES)

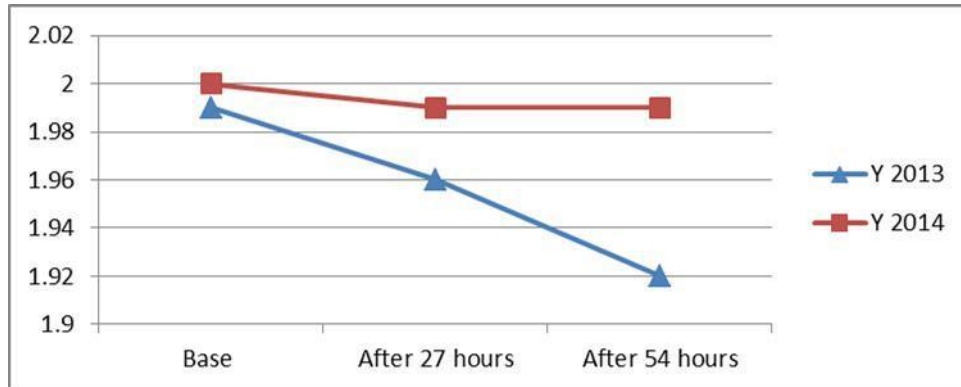


In 2013, the Average Intensity declined slightly from the base observation and leveled off. The base value was larger in 2014 indicating the preparedness and willing of participants (all of whom have attended in 2013) to take part in Yajna. Then the intensity remained constant and settling to its optimal state.

### 7.3.3 Entropy

Entropy is an indicator of the level of chaos and disharmony in the system.

GRAPH 3 – LINE GRAPH OF ENTROPY LEVELS DURING YAJNA IN (LINE WITH BLUE TRIANGLES) AND IN 2014 (LINE WITH RED SQUARES)



There is a reduction in entropy in 2013. In 2014, it reduced marginally and remained stable after the initial dip.

**CHAPTER 8****DISCUSSIONS**

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## 8.0 DISCUSSIONS

Bhashajya Maha Yajna was conducted in two consecutive years 2013 and 2014. EPI variables and EnviroTech values convey as following;

**Area**, in 2013, there was statistical difference between first measurement ( $10756.96 \pm 1490.40$ ) and second measurement ( $9357.10 \pm 1722.62$ ), and in 2014, it was found that first measurement ( $8707.24 \pm 901.19$ ) and second measurement ( $9605.37 \pm 751.68$ ) were statistically significantly, and first measurement ( $8707.24 \pm 901.19$ ) and third measurement ( $9381.43 \pm 798.71$ ) were also statistically significant.

**Average Intensity**, in 2013, data showed the statistical difference between first measure ( $75.26 \pm 6.50$ ) and second measure ( $69.18 \pm 5.21$ ), and second measure ( $69.18 \pm 5.21$ ) and third measure ( $72.32 \pm 6.91$ ). In 2014, data showed significant difference between first measurement ( $85.66 \pm 6.37$ ) and second measurement ( $90.25 \pm 5.32$ ), and first measurement ( $85.66 \pm 6.37$ ) and third measurement ( $90.14 \pm 5.39$ ).

**Entropy**, the data did not show statistical difference, in 2013 or in 2014.

**Enviro-Tech**, the results showed that Nitrogen dioxide levels reduced to 43 percent after the performance of Yajna, Sulphur dioxide levels increased to 23 percent, and also RSPM levels increased to 13 percent.

## 8.2 COMPARING WITH PREVIOUS STUDIES

### 8.2.1 EPI - Area

The results indicate that Yajna improves area (number of pixels) of the EPI images denoting high metabolic rate in human systems. This would imply proper utilization of metabolic energy and optimization of biological processes in the body. It is seen that in both years, the area

values, though separated at the start of Yajna, tend to be normalized at appropriate value for optimal metabolism. BMY involves reciting mantras and offering herbals into fire; both these seem to move the system towards positive health. Results support the logic that Yajna could be a tool for a better activity of the human system. Similar fact is reflected in a study where Yogasana and Yajna were compared for stress levels. Yogasana group showed below normal Activation Coefficient (AC) (0.0 to 2) before the practice and ended up at normal values AC (2.0 to 4.0), showing optimal stress response. Though there were high values of AC (4.0 to 6.0) indicating high stress level before Yajna, it came to normal values AC (2.0 – 4.0) after Yajna (Sushrutha, Hegde, Nagendra, & Srinivasan, 2014).

### **8.2.2 EPI - Average Intensity**

The results show the capacity of the human system to facilitate support of any process towards healing. Generally, both Area and Average Intensity are the measures of this ability. Heightened Average Intensity values in 2014 compared to 2013 values confirm that preparedness and willingness of participants to accelerate process of healing and energizing towards spiritual growth. Since the participants in 2014 had already undergone exposure to Yajna in the previous year, they were anticipating and accepting the changes that could come due to this experience.

### **8.2.3 EPI - Entropy**

The results evidently show that reduction of Entropy in 2013 is higher than in 2014. Other studies also support that first time response to intervention is greater than the subsequent ones for repetitive practices. Participants of Yajna were so excited about performance and procedure of Yajna in 2013 that the reduction of Entropy was much higher than in 2014. Consistency of Entropy values was maintained in 2014 throughout Yajna and this confirms that disharmony

and chaos were not extreme but stability was established in human systems.

#### **8.2.4 EnviroTech**

The results prove that performance of Yajna reduces certain pollutants in the air. Medicinal values in herbals (216 types of plants, 3 extracted oils and banyan logs as firewood) could have helped nature to remove pollutants especially sulphur dioxide which causes acid rain and many diseases in living organisms. “The colloidal molecules of cow’s ghee and other constituents could bind, attract and grab pollutants in the air. The seized molecules as they settle on the ground would alkalize the soil. When they come in contact with plant, they could stick to leaves and act as a time-release foliar nutrient. Physically, because of the ghee, the smoke could be electrically charged” (Pathak & Berk, 1998). In Ayurveda, prescription of herbals in varied dosages and combinations for different diseases is common. The very name and purpose of this Yajna aims at bringing health to all living beings in cosmos. However, Respirable Suspended Particulate Matter (RSPM) was high in number after the Yajna because of ash nanoparticles released from Yajna Kunda. This may not disturb living beings’ health; on the contrary, it could support Ayurvedic concept that inhalation of smoke being is promoting, especially during a Yajna. Further, as Ayurveda decrees Dhumapana (smoking of prescribed herbal plants) is health promoting in daily therapeutics; hence it is presumed that the smoke may not disturb the health of those taking part in the Yajna and might even support healthy outcome in people. This of course, needs to be tested further (Sushrutha et al., 2014).

### **8.3 MECHANISMS**

Human energy field is influenced by various factors; physiological and psychological changes. When Yajna was performed in two years 2013 and 2014, all the participants who were disciples of Rishidev Narendran Ji had only one intention i.e., Universal peace and harmony guided by the grand principle called Sarveshvara (lord of all). This psychological shift from scattered state to one grand intention, made human systems to rise its energy level by increasing Area and Average intensity. Entropy, level of disorderliness or chaos simultaneously reduces to its lowest point.

The results of EnviroTech showed increase in sulphur dioxide, may be because of the location chosen for performing Yajna. Outskirts of Bangalore is a kind of wastage dumping area, plastics, rubber and other waste materials have been burnt continuously in that area which might have caused to increase in sulphur dioxide.

Herbal offerings could have reduced the levels of nitrogen dioxide. Two hundred and sixteen varieties of herbs, prescribed in Ayurveda, naturally causes healthy atmosphere by reducing nitrogen dioxide.

EnviroTech data showed increase in Particulate Matter, which confirms the nanoparticles of ash from sacred pit spread over larger place.

The further studies in the same field may help in understanding of mechanism of all results.

# CHAPTER 9

## APPRAISALS

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## **9 APPRAISALS**

### **9.1 SUMMARY**

Yajnas and many ceremonies in Indian tradition have significant influence on subtle layers of human personality. Spiritual growth is ensured if any practice is followed continuously and committedly. This study is one example of how human energy field alters positively to external stimulus such as Yajna or any other ritual if followed according to the procedure mentioned in the scriptures. It is evident that performing Yajna reduces certain pollutants in the environment leading to healthy environment.

### **9.2 CONCLUSIONS**

Bhaishajya Maha Yajna which is being performed by a group of practitioners annually has effects on human energy field and environment. There is observable positive changes in Area, Average Intensity and Entropy, implying increased human energy field in individuals who participated.

Medicinal herbs, used in Yajna and most importantly the participants having one grand intention to uplift humanity, caused these observed positive changes.

### **9.3 STRENGTH**

These are the first observations in understanding the effects Yajna using EPI parameters, for effect of Yajna on humans.

Pollution levels before and after Yajna, measured through standard commercial equipment support the earlier qualitative observations.

The present research work establishes the objectivity of research on human energy field related studies. Therefore, future methodology in this field can be refined and done effectively.

#### **9.4 LIMITATIONS**

This study measures only overall effect of Yajna, the effects of individual components of Yajna such as offering to Fire, final offering etc., are not measured. Only a few of the 81 focal themes were followed in this research.

#### **9.5 USEFULNESS**

The role of Yajna in bringing positive response in individuals creates an atmosphere of togetherness in the participants. It is likely the reduction in SO<sub>2</sub>, if confirmed through more observations, could be used in the control of pollution in the atmosphere.

#### **9.6 SUGGESTIONS FOR FUTURE WORK**

Collection of data could be performed more number of times after major events that demarcate different phases of Yajna. Comparing the outcome of this Yajna to more traditional, Veda based Yajna could result in choosing the best method for specific outcomes.

Any material, used in Yajna is believed to be sanctified according to tradition. The future researchers can identify to measure sanctification. As we discussed in the previous section the smoke coming out of Yajna can support health status of humans.

Any system of medicine prescribes the dosage of medicine based on severity and further complications of disease, responding to prescribed medicine. Similarly, when we consider Yajna as therapeutic mode of practice, it is mandatory to understand those factors which play

major role in bringing the desired results, for example, **Samits** (sacred sticks which are offered into fire), **Dravya** (any material for Yajna), **Mantra** (chanting of Mantra which is connected with respective deities), **Krama** (procedure of performance of Yajna), **Kala** (prescribed specific time for different Yajnas), **Sthana** (specific place of performing Yajna) and most importantly people involving in performing Yajna; **Yajamana** (one who intended to perform Yajna and who owns the results Yajna), Ritviks (performers of Yajna) and so on.

Chemical properties of herbs can be taken for future study. Gaseous samples of verities of herbs, combinations of different herbs and intake of medicinal valued ash after Yajna; such studies can support cultural practices, followed for thousands of years, which have deep science behind.

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**APPENDICES**

**RAW DATA OF EPI PARAMETERS**

RAW DATA of EPI PARAMETERS IN 2013 JAN												
SLN	Name	Area 1 24 Jan 2013 6.00 AM	Area 2 25 Jan 2013 9.00 AM	Area 3 26 Jan 2013 12 PM		A. Intensity 1 24 Jan 2013 6.00 AM	A. Intensity 2 25 Jan 2013 9.00 AM	A. Intensity 3 26 Jan 2013 12 PM		Entropy 1 24 Jan 2013 6.00 AM	Entropy 2 25 Jan 2013 9.00 AM	Entropy 3 26 Jan 2013 12 PM
1.	ADR	11356.10	6540.70	6540.70		77.36	68.50	68.19		1.98	1.68	1.72
2.	AKP	6029.60	10057.90	10057.90		61.81	66.26	78.80		1.72	2.08	2.06
3.	AVP	10243.30	8741.60	8741.60		75.55	68.83	76.89		2.05	2.06	2.01
4.	AAV	11405.70	3671.50	3671.50		75.70	56.30	67.69		1.98	1.08	1.85
5.	ATLI	8586.90	9573.90	9573.90		68.69	70.78	68.84		1.90	1.98	1.71
6.	AVS	11498.10	9752.60	9752.60		77.31	65.54	68.14		1.97	2.04	2.04
7.	BLS	10497.70	9129.90	9129.90		72.37	66.91	73.51		2.06	1.93	1.78
8.	BRG	11356.10	6540.70	6540.70		77.36	68.50	68.19		1.98	1.68	1.72
9.	CDD	13660.30	10394.10	10394.10		86.26	71.81	73.49		1.96	2.03	2.06
10.	JNP	12459.80	11354.20	11354.20		85.54	73.35	79.16		2.03	2.07	1.95

11.	JVP	12043.20	11281.50	11281.50		84.32	81.46	75.75		1.98	2.04	2.06
12.	KKS	10000.90	8685.80	8685.80		67.64	61.26	64.31		2.05	1.88	2.06
13.	KDM	10953.20	11114.50	11114.50		69.68	65.02	70.06		2.04	2.01	2.02
14.	MHS	9640.90	9905.20	9905.20		71.28	71.10	67.20		2.05	2.05	1.88
15.	MNS	8370.40	8087.60	8087.60		66.89	61.51	56.08		2.00	1.92	1.27
16.	MMN	11480.20	10170.30	10170.30		76.82	76.34	64.74		2.01	1.93	1.23
17.	PKR	11987.90	9803.70	9803.70		71.90	69.72	83.79		2.06	1.97	2.04
18.	RVM	11495.90	8325.70	8325.70		77.53	69.81	76.97		2.01	2.04	2.08
19.	RGN	10424.40	10458.90	10458.90		77.23	73.22	80.13		2.01	2.08	2.01
20.	RJP	9556.50	11090.10	11090.10		70.37	73.52	74.83		2.05	2.10	2.01
21.	RMS	11637.30	11635.20	11635.20		74.98	69.56	67.24		2.00	2.02	2.12
22.	RKA	12078.20	10034.00	10034.00		89.15	73.57	77.45		1.93	1.95	1.95
23.	SPD	9199.70	10724.40	10724.40		72.94	75.16	90.09		1.94	2.11	2.04
24.	SSK	10898.70	8167.30	8167.30		65.00	60.56	69.19		2.05	1.83	1.99
25.	SRS	11091.20	9470.70	9470.70		78.98	72.06	71.14		1.98	2.06	2.14
26.	SBR	11415.00	7609.90	7609.90		78.40	65.03	73.62		2.02	1.97	1.98
27.	SKD	10737.50	9873.00	9873.00		80.05	70.20	75.01		2.00	2.08	2.05
28.	SRS	12124.00	10304.20	10304.20		80.99	70.62	62.38		1.93	2.00	1.84
29.	SRK	9723.00	8856.70	8856.70		70.29	69.58	74.33		1.99	2.05	2.03

RAW DATA of EPI PARAMETERS IN 2014 FEB												
SLN	Name	Area 1 21 Feb 2014 6.00 AM	Area 2 22 Feb 2014 9.00 AM	Area 3 23 Feb 2014 12 PM		A. Intensity 1 21 Feb 2014 6.00 AM	A. Intensity 2 22 Feb 2014 9.00 AM	A. Intensity 3 23 Feb 2014 12 PM		Entropy 1 21 Feb 2014 6.00 AM	Entropy 2 22 Feb 2014 9.00 AM	Entropy 3 23 Feb 2014 12 PM
1.	ABR	8262.90	9026.90	8132.20		95.07	102.22	94.52		1.97	1.98	2.01
2.	AMR	9044.10	9601.50	8905.80		84.55	92.31	91.49		2.00	1.99	1.95
3.	BLK	6633.10	7534.90	10080.40		77.58	81.22	89.42		2.00	2.07	2.05
4.	BSB	8944.00	9917.00	9891.60		88.29	96.97	94.49		2.06	2.01	1.98
5.	CNK	7748.10	9468.70	8737.60		77.26	86.31	89.67		1.87	1.91	2.05
6.	HRT	8252.90	9652.00	9030.00		85.29	93.39	91.58		2.04	2.00	2.03
7.	JJS	8694.20	10064.80	9362.10		83.29	91.54	90.69		2.11	1.98	2.03
8.	JTS	8569.50	9477.60	10122.40		96.56	92.89	96.21		1.87	1.91	2.00
9.	PRM	9906.80	10599.40	9921.10		82.90	86.93	84.96		2.10	2.00	1.88
10.	PRD	9678.20	10034.60	9816.50		88.84	88.88	86.94		1.96	2.02	1.96
11.	RHK	9087.70	9345.10	9699.20		85.75	89.77	91.44		2.05	2.01	2.01
12.	RDK	9617.60	10515.40	10424.50		77.61	80.28	81.68		2.03	2.01	2.03
13.	RTN	10184.20	9734.80	9970.40		89.47	90.88	90.77		1.95	1.98	1.90
14.	SHT	8913.00	8335.30	10060.50		83.98	85.07	92.77		1.95	2.01	1.92
15.	SHB	8096.20	9602.50	9148.00		85.55	92.88	94.35		2.04	1.97	2.02

16.	SLP	8697.30	9422.10	9176.30		96.93	98.17	98.87		2.06	2.00	1.93
17.	SRD	8845.20	10513.30	6887.10		74.90	87.76	78.71		2.05	1.98	2.05
18.	SRN	8928.40	9490.20	8926.50		83.45	84.33	82.16		1.67	2.00	1.91
19.	SRG	8246.30	8927.00	9695.70		91.41	92.90	98.39		2.05	2.01	1.97
20.	SKM	6876.50	10742.80	9493.30		79.07	90.33	85.11		2.13	1.99	2.07
21.	VNP	9625.80	9706.90	9528.90		91.09	90.23	88.63		2.06	1.94	1.99

## **INFORMED CONSENT FORM**

Title: STUDY ON BHAISHAJYA MAHA YAJNA USING ELECROPHOTONIC IMAGING AND ENVIRO-TECH

### INFORMATION TO THE PARTICIPANTS:

This study, is being conducted as a part of Ph.D. Program in Swami Vivekananda Yoga Anusandhana Samsthana University (SVYASA University), trying to observe the changes during ancient traditional practices like Homa in the human energy field which will be measured on EGD/EPI.

Your consent is sought to take part in this study. If you consent to take part in this study, the investigator will ask you to undergo GDV/EPI test. The test may take approximately two minutes for one assessment. It is expected not to cause any serious adverse effect on your physical or mental health. During the entire period of the study you, Sri/Smt \_\_\_\_\_ can continue to do your day-to-day activities.

Please note that you have a right to refuse to take part in the study at any time. Your refusal will not adversely affect your health. Please also note that the information you are going to divulge, to us and the content of any information about you will be kept in utmost confidentiality.

### Undertaking by the investigator:

Your consent to participate in the above study is sought. You have a right to refuse consent or withdraw the same during any part of the study without giving any reason. I undertake to maintain complete confidentiality regarding the information obtained from you during the course of the study. If you have any doubts about the study, please feel free to clarify the same. Even during the study you are free to contact the investigator for clarifications if you so desire. The phone number of the investigator is given below:

Investigator Name	Phone Number
Sushrutha S	09449442084

Consent:

I have been informed about the procedures of the study. The possible risks too have been explained to me as stated in the information. I have understood that I have the right to refuse my consent or withdraw it any time during the study without adversely affecting my health. I am aware that by subjecting to this investigation, I will have to give more time to assessments by the investigating team and that these assessments do not interfere with my health.

I, \_\_\_\_\_, the undersigned, give my consent to be a participant of this investigation/study program.

I, \_\_\_\_\_, the undersigned, give my consent to be for my interview to be audio-taped.

Signature of the Participant

(Name)

Date:

Signature of the investigator

(Name and Designation)

Place:



THREE ARTICLES FROM THIS RESEARCH WORK

1. Sushrutha, S., Nagendra, H. R., & Bhat, R. G. (2014). Significance of fire ceremony in Hindu society. *IJMER*, 3: 7(3), 260-273.
2. Sushrutha, S., Madappa, K., & Nagendra, H. R. (2014). Effect of Bhaishajya Maha Yajna on Human energy field and Environment. *IJRSE*, 2(9), 687-694.
3. Sushrutha, S., Hegde, M., & Srinivasan, T. M. (2014). Comparative study on Yajna and Yogasana on stress level measured by EPI. *IJSR*, 3(8), 1402-1408.

## The significance of fire offering in Hindu society

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### Abstract

India is a land of social and cultural diversity. It is also rich in tradition encompassing an integrated approach of lifestyle that goes in tune with nature. Most of the ancient Hindu scriptures emphasise on appropriate action, work or duty (*karma* in Sanskrit language) following righteousness so that one can achieve spiritual salvation. Indian philosophies show the suitable path based on the nature of individual attitude and behaviour to fasten the process. The foremost among the ancient Hindu scriptures are the Vedas. They form the social, cultural, religious and scientific foundations for the Hindu way of life that generally promotes righteous actions to enhance humanity. The fire offering is called *Yajna* in Sanskrit. Even the worship of Nature itself is considered as an offering to God. Hindu scriptures state that natural energy centres in the cosmos have been understood as *Devatas* (Gods) and different methods of worshipping them are used. This article highlights the concept of *Yajna*, its significance and the offerings made for suitable purposes in Hinduism. Brief scientific outlook of these ritualistic offerings made for special purposes is also presented so as to bring out the importance of sacrificial practices in the modern context.

Key words: *Yajna* – *Devatas* - fire offering - Harmony between living beings

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## Introduction

Vedas demonstrate three domains of living for betterment of process and they include *karma* (action), *dhyana* (meditation) and *jnana* (knowledge). As long as individuality continues as human being, actions will follow and it will eventually lead to knowledge. According to the Dhatupatha the word *yajna* derives from *yaj\** in Sanskrit language that broadly means, [a] worship of GODs (natural forces), [b] synchronisation between various domains of creation and [c] charity.<sup>1</sup>

The concept of God differs from religion to religion. The ancient Hindu scriptures conceptualises Natural forces as GOD or *Devatas* (*deva* that which enlightens [*div* = light]). Commonly in all ancient civilizations the worship of Natural forces as GODs was prevalent. Therefore any form of manifested (Sun, fire and so on) and or unmanifested (*Prana*, *Manas* and so on) form of energy is considered as GOD even in Hindu tradition.

Worship conceives the idea of requite to the sources of energy forms from where the energy is drawn for the use of all life forms. Worshiping the Gods (*Upasana*) can be in the form of worship of manifest forms, prostration, collection of ingredients or devotees for worship, invocation, study and discourse and meditation.

Sacrifice is also a ritualistic mode of connecting between various domains of creation and their respective deities through the eternal messenger AGNI (fire) (*Sangatikaranam*); the degree of freedom to think and act rests with the individual especially with human beings depending on how one connects to these realms spiritually through the mode of *Yajna*. That is considered as *Loka* where the *Karmaphala* (result of action either merit or demerit) is being materialised. One enjoys *Svargaloka* (heaven) on account of *Punya*, suffers in *Narakaloka* (hell) on account of

Papa, and takes birth as human to pile up the *Karmaphala* up for the next cycle. Thus, a new cycle of birth and death continues for ever without an end until one realizes about false eternity of deplorable repetition. In this regard, ritualistic sacrifice plays a major role by which beings in this world please the GODs for fulfilment of cherished desires. *Raghuvamsha* of *Kalidasa*, specifically gives the reference as to how the various realms were sustained just as King *Dilipa*, a great king who “performed great sacrifices by utilising the treasures of earth to please the GODs and they drained the heavenly treasures in the form of rains. Thus by a mutual exchange between beings of various realms harmoniously, the sustenance of these worlds by sacrifice was ensured”. [Bhagavad Gita 3.11 – 12] also upholds the similar view in mutual exchange for sustenance. “Cherish the *Devas* with *Yajna* and may the *Devas* cherish you, thus cherishing one another you shall gain the intended wealth and maintain the cosmic harmony factually natural forces are purified and energised by this system of *Yajna*.”

Apposite Charity (*Daanam*): every living being is a custodian of limited resources of vast Cosmos for a while to experience the results of action done in the previous birth. Depending upon the quantity of merits and demerits longevity and quality of life will be decided to spend some time here on earth. In this span of time one has to look after the family, society and other living beings by default because of the support that one gets to sustain. As an obligatory action one should take care of others by sharing and caring. This is also *Yajna*.

### **Sacrificial fire**

Fire is regarded as the primordial divine element that aids creation, sustenance and destruction of the universe. Fire was regarded as a messenger of GODs and was summoned in all sacrifices to carry special offerings to them. Several customs were associated with sacrifices such as the ignition (*Janana*-birth), protection and extinguishing the fires. Since Vedic times several

sacrifices like those involving consecrating cooked items (*Paka-Yajnas*), involving usage of Soma (an extraction of a chosen creeper known as *Somayajnas*) and those involving the offering of oblations (*Havir-Yajnas*) collectively known as *Shrauta-Yajnas* (*Yajnas* originated directly from Vedas) have been performed. These gradually declined in course of time giving rise to *Smarta-Yajnas* (*Yajnas* prescribed in *Smritis*) which are performed during several ceremonies associated with an individual from one's birth to death.

Fire was believed to be a living person invoked in sacrifices and it was customary to perform sixteen rites (*Samskaras*) such as conception (*Garbhadhana*), birth (*Jatakarma*), first feeding (*Annaprashana*) and so on. These rights have been elaborately dealt in several ancient texts beginning from the Vedas, *Shrauta Sutras*, *Agama* texts, and post Vedic texts specially dealing on sacrifices.<sup>2</sup>

Apart from these Hindu scriptures highlight the significance of 5 great *Yajnas* that have to be performed by every householder. *Taittiriya Aranyaka*<sup>3</sup> mentions these as (i) *Deva Yajna* (*offerings to GODs*): worship of GODs in different ways which are suitable for one's level (ii) *Pitr Yajna* (*Offerings to forefathers*): reverential bonding with parents, respecting and adoring the forefathers who were the cause for one's existence, by practicing the family tradition etc. One's welfare depends upon welfare of many members in the family. So this kind of *Yajna* tries to please all the family members in past. (iii) *Bhuta Yajna* (*offerings to animals, birds and so on*): compassion towards the nature, animals, birds and any creature in the world. To look after the living beings is *Bhuta Yajna*. Almost all the deities have vehicles in the form of animals. While worshipping the particular deity, invariably their vehicles are also worshipped. This way revering animals taking care of all the animals is *Bhuta Yajna*. (iv) *Manushya Yajna* (*offerings to humanity*): it is an expansion of emotions to encompass the entire humanity as a family.

“Consideration of mine and thine weigh only with those little minded; to the large-hearted, on the other hand, the whole world is like a single household” – is the standpoint of the narrow-minded, for the magnanimous-hearts however, the entire earth is but a family.<sup>4</sup> Stretching helping hands in need is real *Manushya Yajna*. (v) *Brahma Yajna* (offerings in the form of wisdom): showing the reverence to the scriptures by studying under the real master who is traditionally oriented.

Various Hindu Traditions also speak of several other *Yajnas* as enunciated in the Bhagavad Gita as follows: (i) *Dravya Yajna*: offering selected and sacred plants into the fire chanting specified Mantras related to particular Gods and Goddesses for welfare of one. This includes sharing one’s belonging with others and charity to needy and eligible. (ii) *Tapo Yajna*: following strict conduct in order to purify and master oneself by the process of varieties of practices, such as, sacrificing physical comforts, sitting for longer duration at one place, breath control, reducing sensory pleasures, study of scripture into deeper levels, contentment with limited and minimal resources and so on. It may vary from mild to very severe levels also. People depending upon intensity to reach the intended goal follow the same. Tapa is followed in three levels - emotional, vocal and physical. Being calm, happy, voluntary control over speech, pure emotions – tapas at emotional level; non-provoking words, speaking truth, study of the scriptures – tapas at vocal level; finally - respecting elders, cleanliness, and non-violence – Tapas at physical level. (iii) *Yoga Yajna*: constant practice of methods to control the *Manas* (Mind) through vigour practice in the path of Yoga lay down by Patanjali and other Gurus. Nature of mind is to wander, to have control over mind through multifarious activities. *Patanjali Yoga Sastra* states that total mastery over mind through practice and mastery over desires is Yoga. (iv) *Svadhyaya Yajna*: study of scriptures that really can make one to reach *Moksha* (complete liberation) or repetition of selected and initiated *Mantra* for longer duration, until one gets total mastery over on the same, especially *OM-kara*. OM based *Dhyanas* (meditations) are many in number, explained in almost all the

major literature of India. Self-analysis also considered as *Svadhya* in this context which actually show that what is the rate of inner growth in life. (v) *Jnana Yajna*: to seek true knowledge through strict austerity. The only goal in one's life in this path is self-realisation by every means.<sup>5</sup>

The classification and description of *Yajnas* as outlined above significantly highlights the purpose of performing any *Yajna*. In the modern context there are certain sections of the society who oppose the performance of *Yajnas* on similar lines as those of the *Charvaka* (*atheist*) philosophers of ancient Indian traditions. The *Charavakas* outrightly rejected the attainment of heaven obtained by sacrifice of an animal (*Pashu*) in *Yajna* supporting the view that in that case one could offer ones' own father so that he may attain heaven.<sup>6</sup>

### **Performance of sacrificial rituals**

From Vedic times fire was ignited by rubbing sacrificial twigs (called *Arani*) together. The churning of fire involves the use of both palms and the ten fingers that are considered to be the sisters of fire. From this rubbing there is symbolic act of conception (*Garbhadhana*) of fire. *Rgveda* <sup>1</sup>RV (5.2.1-2) says *the Arani* which gives birth to *Agni* is called *Yuvati* (young mother) and *Mahishi*. This mother clasps her child to the bosom, does not give it to the father. Sometimes the text speaks that *Agni* has two mothers such as the lower *Arani* and upper vertical stick [RV 1.141.3]. RV [3.29.1-3] compares this kindling of fire by friction to procreation<sup>7</sup>. The ancient sages even prescribed all the rituals associated from birth to death (as for humans) to the sacrificial fire. These include the various rituals of *Garbhadhana* (Conception), *Punsavana* (Rite of engendering a male child), *Simantonnayana*, (rite of parting the hair ceremoniously), *Jatakarma* (Birth), *Namakarana* (Naming), *Annaprashana* (First feeding), *Caula* (First cutting),

*Upanayana* (Thread ceremony), *Vrata* (with gifts of cows given symbolically to preceptor), *Samavartana* (returning home after studies), *Vivaha* (marriage) with respective mantras for *Agni*. The performance of sacrificial rituals also involves the worship of several deities seeking their grace to remove several obstacles, the symbolical union of the ladles – *Sruk* (being personification of *Shakti*) and *Sruva* (Personification of *Purusha*), expiatory ceremonies to ward off evils originating in the course of performance of *Yajna*.<sup>7</sup>

“*Yajna* is an offering to higher divine beings” from where humans and other living beings on earth are drawing energy for their existence. “Let the offering be more than what I receive” (Narasimhan, et al. 2011). Krishna, in the *Bhagavad Gita*, gave a clear idea about the mechanism of nourishment of both Humans and Gods. “All beings are evolved from food, the production of food is dependent on Rain, the Rain has its origin from *Yajna* and *Yajna* is rooted in rooted in prescribed action (Karma). Karma has its origin in the Vedas and the Vedas proceed from the indestructible (GOD), hence all-pervading infinite is always present in *Yajna*”. [*Bhagavad Gita* 3.14-15]. This is also upheld by the *Mahabharata* [*Anushasanika Parva Vishnusahasranama*. 971 – 980].

Harmonious way of living in the creation itself finally becomes *Yajna*. If the bestowed boon by gods is not returned back, one is considered as thief, returning nothing. *Yajna* is simply a way of expressing our deep sense of appreciation and gratitude to them for the parts that they play in this creation. This is the only way to retort GODs. The righteous one who eats the remnants of the sacrifice are freed from all sins; but those sinful ones who cook food only for their own sake, verily eat sin. [*Bhagavad Gita* - 3.16].

### **Individual’s attitude while performing *Yajna***

“The ladle with which an oblation is offered, the fire into which offering is given and the act of offering oblation is Brahma. Oblation poured into fire called *Iswara* (the lord), by God, is regarded as sacrifice. One who performs such sacrifices is merged in Him and attains Him”. [Bhagavad Gita 4. 25-28] helping a Practitioner (*Sadhaka*) to realize oneself spiritually. The man who does not offer, for him neither this world nor those beyond are happy [Bhagavad Gita - 4.31]. In order to comprehend reality different types of *Yajnas* are included facilitating every *Sadhaka*.

Man is bound by his own action except when it is performed for the sake of *Yajna* [Bhagavad Gita - 3.9]. One of the important properties of the offering is that one can be free from the bondage of getting tied up by doing. It is an ideal action which results in making one free from bondages. The idea behind the performance of *Yajna* is for social welfare and wellbeing of nature. The process of *Yajna* starts from the intention (*Sankalpa*). One intends to achieve some goal based on one’s desires and *Yajna* serves as the means to achieve the goal.

### **Offerings in *Yajna***

Beginning from Vedic times the sages ordain the offering of various items (*Sambhara*) in performance of *Yajnas*. Some of these include pure ghee of cow, various types of sacrificial twigs (*Samits*), grains, parched rice, rice recipes (*Charu*, *Payasa* and so on), honey, *Darbha* grass, herbal plants (*Soma* and several Ayurvedic formulations). These offerings were made at certain auspicious times of the year for specific purposes.<sup>8</sup> Material offerings that were made were supposed to be of good quality collected at auspicious times and apt places for the sake of its fullest results according to the ancient scriptural prescriptions. Such prescriptions are found in several *Shrauta* text and appendices of four Vedas, and also in post Vedic texts and manuals dealing with sacrifices.

These performances were broadly divided into four categories such as *Nitya*, *Naimittika*, *Kamya* and *Prayashcitta*. *Nitya* performances are done twice a day in dawn and dusk (*Sandhyavandanam* and *Agnihotram*) which includes salutations to Sun and fire offering with minimal materials; *Naimittika* includes all festivals and occasional performances (*Darshapurna*, *Pradosha*, *Vratas* and so on) in accordance with seasonal changes; *Kamya* Karmas are performances to fulfil the desires such as (*Putrakameshti* – *Yajna* done for begetting children; *Pashuyaga* – *Yajna* for increasing the animals; *Rajasuya* – consecration of a king and so on); *Prayashcitta* actions are nothing but expiatory to pacify the negative effects for unintended mistakes.<sup>9</sup>

Apart from these the main motive of a sacrifice is to shed one's ego and offer whatever GOD has given to others without expecting any returns. Although several texts mention sacrifices involving slaughter of animals, there is a misinterpretation of the practices. What the texts actually prescribe is the sacrifice of the evil qualities within the individual self that resembles animals' in behaviour (*Pashuttva*). This assumes significance in the view of offerings made blindly by the sacrifice without having prior knowledge of each action performed during *Yajna*. In modern contexts it is quite natural to observe the performance of several sacrificial rituals blindly and merely for the attainment of one's desires. Such individuals differ no less than the Atheist (*Charvakas*) who maintain that when a sacrificial animal is bound to attain heaven why not sacrifice one's own father so that he may also attain the same bliss!<sup>10</sup> However Vedic and Post-Vedic texts also prescribe special offerings to fulfil certain desires that were made during auspicious and inauspicious periods. Auspicious offerings include those made during *Rajasuya*, *Ashwamedha*, *Darshapurnamasa* and so on. Inauspicious offerings include those made during drought conditions, portents, natural-calamities and so on for appeasing the deities governing those natural forces. As an example one may consider the *Karirшти Homa* prescribed in *Taittiriya*

*Samhita* wherein *Karira* [Capparis aphylla] fruits are offered in the sacrificial fire resulting in auspicious smoke that pervades the atmosphere and inducing rain so as to remove the inauspiciousness of drought.<sup>11</sup>

### **Experimental observations of *Yajna* and effects**

As mentioned above the offerings that were made by the sacrificer in different occasions gave specific results at the appropriate times with the grace of divine interventions.

Research studies in India and abroad indicates the efficacy of several *Yajnas* that benefitted society with enhanced improvements in physiological and psychological well-being of individuals, Good agricultural outputs, Harmonious balance between man and nature and so on. As an example the *Agnihotra* Fire rituals are believed to bring about equilibrium of nature, holistic growth and enhancement of human life. *Agnihotra* basically involves offerings such as cow-dung cakes, cow's ghee, sacrificial twigs such as *Vata* (*Ficus Bengalensis*), *Audumbara* (*Ficus Glometra*), *Palasha* (*Butea Frondosa*), *Bale* (*Aegle Marmelos*) and so on.<sup>12</sup> Of these experimentally found that the offerings of ghee produces acetylene and sucks the pollutants in the air thus purifying it. Cow dung contains plenty of Menthol, Ammonia, Phenol, Formalin and so on, thus acting as disinfectant to eradicate pathogens in the atmosphere. The offerings of sacrificial twigs have medicinal and beneficial effects such as reduction of excessive heat in atmosphere. EEG tests of the sacrificers have been found to be showing increased Alpha waves indicating the brain being in complete relaxation. The *Mantras* chanted during the offering of oblations also charm them with energy that connects the sacrificer to the spiritual deities to whom the offerings are made.<sup>13</sup> Similar effects of *Agnihotra* performance on plant growth, seed germination, curing of skin diseases, water purification have been investigated based on different experiments performed by scientists.<sup>14</sup>

Similar experimental Observations of *Atiratrm Yajna*, *Somayajnas*, *Karirshiti Homa* and others to bring about rain as well as to induce Moisture content (*Somamsha*) in the present Global Warming scenario have been reported from several places at which the Yagas were performed.<sup>15</sup> *Somayaga* is a sacrificial ritual in which Soma juice oblations to the deities thus energising the five elements in the universe (Earth, Fire, Air, Water and Ether) in order to bestow prosperity and restore natural equilibrium. These Yajnas show enhanced monsoon rain fall that was timely and sufficient so as to bring about agricultural prosperity. The Natural cycle of six seasons is accelerated and regulated by the performance of *Somayagas*. In an average about 70% accuracy of rainfall has been recorded in the places where *Somayagas* were performed.<sup>16</sup>

## **Conclusion**

Indian traditional practices such as *Yajna* and *Yoga* have their relevance even in the present scenario. Among all the performances Fire ceremony plays major role in refining the human thoughts and life process in accordance with the Nature. Eco-friendly method of leading life can answer the individual and social challenges to uplift Humanity with apt method. This can happen only by clear understanding of every action one performs. However fire ceremony helps human to understand the nature around and systematizes oneself in tune with nature. From the above discussion on offerings made, one needs to equip with this knowledge of the kind of offerings so that fire offering ceremony enhances the positive effects to bring about a traditional, harmonious, prosperous society for the future generations.

## **Acknowledgement**

I would like to thank the chancellor and Vice-chancellor, Swami Vivekananda Yoga Anusandhana Samsthana, Bangalore, Prof G. Agoramoorthy, Tajen University, Taiwan and K.G. Sheshadri who supported in refining the article.

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## Comparative study of Influence of Yajña and Yogāsana on stress level as Measured by Electron Photonic Imaging (EPI) Technique

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### Abstract

**Background:** Vedic literature makes injunction of Yajña extensively as one of the *Karmas* to achieve the intended goal by performing a set of activities, maintaining synchrony with creation. Various Yajñas have been explained for removal of diseases. Electro Photonic Imaging (EPI) technique, a specially designed instrument is used to measure human stress level based on the autonomic nervous system activity. The present study is designed to explore the influence of Yajña on normal healthy individuals' stress level.

**Aim:** To compare the influence of Yajña and Yogāsana sessions on stress level using Activation coefficient as measured by EPI.

**Settings and Design:** In a self as active control study, 18 participants underwent one hour yoga session on the first day and Yajña session on the next day. Data were taken before and after the session of the respective event. The subjects of study were participants of YIC (Yoga Instructor Course) from different places in India who have recently gone through one month of Yoga Instructor Course at Praśānti Kuṭ īram.

**Methods and Material:** In the study participants had one hour Yoga session and on the next day, they took part in Saraswati Yajña for one hour and ten minutes. On each day, EPI data were taken before and after the session of each event. These are the two interventions in the study.

**Statistical analysis used:** SPSS-12.00 software was used for data analysis. Paired sample t-test was used for analysis.

**Results:** Within group differences showed significant change observed in Activation coefficient ( $p < .021$ ) of EPI parameter in Yajña session indicating decreased stress level after Yajña session.

**Conclusions:** Yajña brings about a larger decrease in stress level compared to Yogāsana session. The effects of Yajña which were observed could be because of the use of medicinal plants and procedure involved in Yajña. So Yajña can be performed not only as a traditional practice but also as therapy for effective stress management.

**Key-words:** Yajña, Yogāsana, Mantra, stress and EPI

## INTRODUCTION

Each philosophy has certain practices that form the essence of that philosophy. Yajña (fire ceremony involving offerings selected substances) holds a supreme position in Indian culture. All the auspicious performances in Indian tradition admit worship of Agni (the sacred fire) as an important component. Selected and specified materials are offered to Agni in multifold along with chanting of Veda Mantras as appropriate to different *Devatas* (deities or cosmic centers in creation). Throughout ages, fire has been venerated as a symbol of Spirit. The first hymn in Rig Veda is related to Agni:

"I invoke and worship Agni light of life, self-refulgent lord of the universe, foremost leader and inspirer, blazing light of Yajnic creation, high-priest of cosmic dynamics, controller of natural evolution, and most generous giver of the treasure of life" (Ralph T. H. Griffith, 1896)

Ayurveda (Knowledge of Life and Science of Living) postulates that manifestation of diseases is caused by the impressions from the previous births, environment, our relation to people and the world etc. There are multifarious methods to identify and cure diseases in Ayurveda. Diseases can be managed through Japa (repeating a sacred name of particular God), Homa (fire offering) and Surarchana (worship of God). A Mantra from Rig Veda comprehends the result of performing Yajña with a specific note: *Yajāmahe saumanasāya devān*|| (Rig Veda || 1-173-2) meaning ‘We perform Yajña in favour of Devatas for sanctification and bracing the Manas (an aspect of Mind)’ along with other facets of inner tools (Antahkarana) in order to reach intended goal.

## YAJÑA AND ITS BASIS

The Sanskrit word ‘Yajña’ etymologically means ‘to worship’, ‘to unite or connect’, ‘to do charity unconditionally (Dāna) in right manner to the deserved (Gyanashruti & Srividya, 2006).

Pūrva Mīmāṃsa, one of the schools of Indian philosophy, proclaims that - *Devatoddeśena dravya tyāgaḥ*) meaning for the purpose of satisfying the deities, we give oblations to them. Yajña is the procedure of offerings to deities. (Bheemacharya, 2011)

One of the texts explains Yajña as a combination of offerings to Devatas, recitation of Mantras from three Vedas with Ṛtviks (performers of Yajña), and Dāna (acknowledgements or respecting noble people). (Acharya, 1998)

Yajña is a systematic process in which herbs are offered along with recitation of Mantras to accelerate the process of harmonizing the creation and human life. Smoke generated in a Yajña has medicinal value because of herbs offered into Agni; hence inhalation of the smoke brings changes in physical structure in human. This action purifies Mahāprāṇa (Raju Krishna Murti, 2007). In addition to it, Yajña influences spiritual values and life style changes (Rawat & Hr, 2007). Chanting of Mantras produces vibrations which makes human body to resonate to Mantras’ mystic powers and responds in greater manner (Yogitha et al., 2010). These vibrations reverberate and spread specific energy waves in the surrounding atmosphere while the oblations are offered with specific chants (Rawat & Hr, 2007) . So Yajña has physical, psychological, spiritual and social value.

The entire process of a Yajña, consisting of mantra chanting, lighting the sacrificial fire and offering *Havis* to the gods in the form of ghee, *Vanaspati* (materials from plants and trees) and other objects, purifies the environment significantly. In fact, Yajñas have been successfully

performed even in modern times to induce rainfall, to check spread of epidemics, and for various mundane and spiritual purposes.

With reference to Yajña, Śrī Kṛṣṇa says in Bhagavad-Gita, "The devotees of the Lord are released from all kinds of sins because they eat food which is offered first in sacrifice. Others, who prepare food for personal sense enjoyment, verily eat only sin." [Bhagavad Gita 4.31] "Serve the gods through Yajña and let the gods be gracious to us. Thus, each serving the other selflessly will attain the highest good." [Bhagavad Gita 3.11] (Goyandaka, 1988) "Through Yajña, deities went to heaven, enmity transforms to friendship, so Yajna is considered to be the greatest performance one can deliver as an action. Oblations given to Agni reach the Sun, which in turn transforms that into clouds through vaporization resulting in rainfall and gives back in the form of food grains which is the base for human progeny." [Manu Smriti 3.76] (Sheshanavartna, 2011)

### **EPI Electron Photonic Imaging, also known as GDV (Gas Discharge Visualization)**

EPI was developed by Professor K. G. Korotkov on the basis of Kirlian effect. EPI is an instrument, which measures human energy field. It is computer registration and analysis of 'Gas Discharge Glow' (GDV-images) of any biological object placed in a high intensity electric field. EPI studies involve placing the object on a glass electrode and an electronic circuit provides a high-intensity electric field (with duration 10 microseconds applied with frequency 1024 Hz). As a result of impulse effect a sequence of gas discharge is formed during the specified exposure time. Spatial distribution of the glow emitted by the discharge is registered with a light-sensitive CCD matrix (a charge-coupled device) situated directly under the glass electrode.

### **EPI Parameter**

Several parameters are derived from the image obtained in the EPI instrument. These parameters are related to functioning of physiological systems of the body. Overall activity of the body mind complex to stress inputs and balances in energy could also be calculated. We present here one parameter of importance, known as Activation Coefficient the details of which are presented below.

**Activation Coefficient:** It is one of the EPI parameters to analyze the level of a person's involvement to stress-adaptation. This also provides the level of stress and balance of activity of sympathetic and parasympathetic nervous systems work. Table 1 gives the values of Activation Coefficient and the observed psycho-emotional states (K. G. P. D. Korotkov, 2002).

Table 1: Activation Coefficient Level and its interpretation

S.No	Activation Coefficient	Condition
1	0 to 2	Calm balanced condition meditator, slow / deferred response, sluggishness
2	2 to 4	Normal level of stress reaction, compensated, active emotional
3	4 to 6	Emotional excitement (driving, surgeons)
4	6 to 8	High emotional excitement, emotional overload
5	8 to 10	Psychological problems; inadequate state

## Methodology

### Aim

To compare the influence of Yajña and Yogāsana practice on the Activation Coefficient of GDV diagram in normal healthy individuals.

### Objectives

1. To study the impact of Saraswati Yajña at psycho-emotional level of Yajña participants,

2. To study the psycho-emotional level in Yogāsana group, and
3. To compare the psycho-emotional level of Yajña group and Yogāsana group.

### Hypothesis

- Null Hypothesis:

Ho=There is no difference of impact of Yajña and Yogāsana on psycho-emotional level of healthy volunteers.

- Alternative Hypothesis:

Ha=There may be some impact of Yajña and Yogāsana on psycho-emotional level of healthy volunteers.

### Research Design

Day 1

Pre EPI test -----Yogāsana ----- Post EPI test

Day 2

Pre EPI test -----Saraswati Yajña---- Post EPI test

Design of the study was one group comparative study, between Yoga session and Yajña session; the two interventions were provided on two consecutive days.

EPI – grams were captured for all ten fingers of the subjects without filter and with filter in succession using EPI equipment. Then subjects practiced one hour of yoga taught by experienced instructors. Yoga session includes *Sūryanamaskāra*, *Pranayama* and Deep Relaxation Technique (DRT 5 minutes). After the practice, once again EPI parameters were recorded. Next day morning subjects were made to attend Yajña session. Yajña procedure includes *Gaṇapati Pūja*,

*Puṇyāha Vācana*, *Kalāśa Pujā* and *Varuṇa Pūja*, invoking and worshipping *Saraswati* in *Kalasha*, chanting of particular Mantras, offering oblations with Mantra chanting and *Prārthana* or prayer. EPI parameters were recorded before and after the Yajña session recorded.

### **Sources of Subject**

Participants were from various countries who recently went through one month of YIC (Yoga Instructor Course) at Praśānti Kuṭīram, SVYASA Yoga University, Bangalore. Sample size (n) is 18 (6 females, 12 males).

### **Inclusion Criteria**

- Willing to participate in the study
- Both male and female subjects were selected for the study.

### **Exclusion Criteria**

- Participants with missing fingers
- Females during their menstrual cycle and pregnancy,
- Those who have cardiac, neurological and psychological problems.

### **Ethical considerations**

- Signed Informed consent of the respondents were obtained before the start of the intervention,
- The participants in the study were explained about the nature of the study in detail

### **Interposition / Intervention**

For Experimental session:

Saraswati Yajña was designed referring to the classical texts. The Yajña program (70 minutes) was as follows:

1. Prātasmarāṇa stotra (morning prayer) (3 minutes)
2. Gaṇapati puja (worship of Ganapati to remove obstacles) (4 minutes)
3. Puṇyāha vācana (selected Mantras for auspiciousness) (10 minutes)
4. Kalaśa puṇjā and Varuṇa puja (installation of deities in copper pot and worship) (10 minutes)
5. Sthalaśuddhi and Agnisthapāna (cleansing the place and installation of Fire ) (10 minutes)
6. Chanting of Saraswati Mantra 108 times (20 minutes)
7. Offering holy sticks along with Saraswati mantra (10 minutes)
8. Prārthana or prayer (concluding prayer) (3 minutes)

The Yoga session (60 minutes) is as follows:

1. 10 minutes loosening practice
2. 10 minutes breathing practice
3. 10 minutes Sūryanamaskāra
4. 10 minutes Pranayama, and
5. 20 minutes deep relaxation technique (DRT)

## **DATA COLLECTION**

On the first day subjects were asked to come at 05.00 A.M. in the morning on empty stomach. GDV-grams were captured for all ten fingers of the subjects first without filter and then with filter using GDV-camera. After the practice, once again GDV parameters were recorded. Next day morning subjects were asked to come at 05.00 A.M. on empty stomach and participated in a Yajña session. GDV parameters were recorded before and after the Yajña session.

## Data Analysis

All variables were expressed as mean  $\pm$  standard deviation. A paired sample t-test was used for analysis of pre-post changes in the two groups. Statistical significance was set at  $p < 0.05$ , and all the analyses were performed using SPSS 12.00 software.

## Results

Shapiro-Wilks test was used for normality test. The data were normally distributed with  $p > 0.05$ . To assess the impact of session (pre-post assessments) paired sample t-test was used within the group. The results are tabulated in the tables below.

Table 3: Yajna and Yoga Session pre-post recordings

	Pre		Post		p value
	Mean	SD	Mean	SD	
Yoga Session	2.82	.97	3.65	1.98	.105
Yajña Session	4.09	1.88	3.19	1.47	.021*

\*  $p < 0.05$  comparing the pre and post scores using the Paired sample t-test

Changes are observed in both groups but Yajña showed statistically significant result compared to Yoga session. Significant reduction in Activation Coefficient, [ $p = 0.021$ ] was seen in Yajña session but not in Yogāsana session.

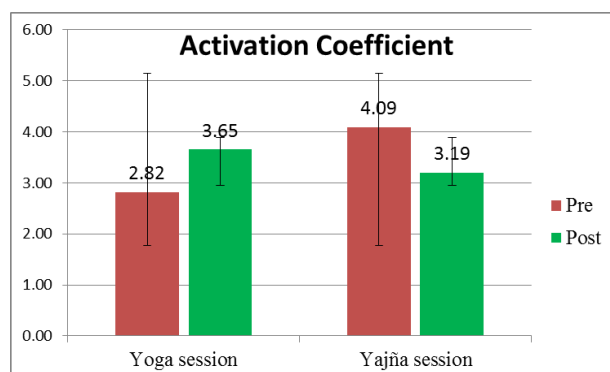


Fig 1: Comparison of Activation Coefficient of Yoga and Yajna sessions, pre and post

## Discussion

The result shows that P-value is statistically different when two groups are compared to each other. Mean and standard deviation of Activation Coefficient changed more in Yajña session indicating the influence of reduction in stress level during Yajña.

1. Yajña involves a set of performances. The deity on which Yajña is being performed is meditated on deeply by all who are gathered there. The process of pondering upon one subject (deity or ritual in the context of Yajña) makes mind to concentrate and slow down breathing, subsequently influencing the state of the mind. Hatha Yoga Pradīpika provides strong relation between breath and mind; if mind is roving the breath is unsteady, meaning breathing pattern is highly disturbed and if the breathing is disturbed so is the mind.

2. Ayurveda incorporates Dhūmapāna (inhalation of prescribed smoke) in dinacarya (daily routine) for many diseases as a therapeutic practice. Smoke emanating during Yajña facilitates body to be energized through inhalation of the specific ingredients that are offered to fire. . Thus it is hypothesised that stress level could come down. (11).

3. A recent paper has shown unequivocal increase in brain blood flow when there is oxygen deficit in the brain. The deficit comes about when a person suspends breathing for as short a time as 15 seconds. MRI shows increase in brain blood flow in wide areas of the brain due to increased CO<sub>2</sub>. In case of reduced intake of oxygen, a similar response could be visualized whereby there is a gradual increase in arterial PCO<sub>2</sub>. “Carbon dioxide is a cerebral vasodilator; therefore, an elevation in PCO<sub>2</sub> will subsequently increase whole-brain cerebral perfusion, resulting in a decrease in the deoxyhaemoglobin concentration of the cerebral blood and ultimately a whole-brain increase in the .... fMRI signal”. Thus, Saraswati Homa smoke from fire wood could cause better brain blood flow through internal feedback mechanism leading to reduced stress level indicated by Active Coefficient.

4. Participants were asked to chant Mantras related to one of the deities, Saraswati. Recitation of Mantra in particular – which has an emotional component – could influence the person to calm down and hence bring down stress level. Subjects were educated about Mantras and the connected Devata of Mantra which made them focus towards recitation. This focus could also have caused reduction in stress level.

5. Though there is an increase in Activation Coefficient in Yogāsana session, these tend to bring balance in autonomic functions, including sympathetic and parasympathetic nerves in the optimal range indicating normal stress level, at eustress level. Hence it is inferred that stress level increase from Yogāsana are balancing than aggravating.

6. It has been shown that the physiological benefits of Yoga could have a dose-response behaviour. In other words, the more one practices Yoga, the more are the benefits seen [13]. Thus, a short session of Yoga could be only a start of a long process and may not indicate beneficial effects as seen in this study. To have a good comparison, at least three months of yoga practice is required before we could say with any certainty if one procedure is better than another.

7. Yagna, if performed properly needs special persons who could chant the Sanskrit verses with correct intonation and style. It is also expensive to perform a yagna. Thus, performing yagna at home or in a temple is a concerted effort, needing resources that are usually kept for special occasions only. Yoga on the other hand is a self-help procedure and could be easily learned and performed anywhere in the world. Regular practice of Yoga could help in many areas, including in the management of stress.

8. It is possible that ‘meditative component’ is strong in Yagna and not as much in this particular practice of yoga. Effectiveness of meditative components in reducing stress through central processing of information has been demonstrated in studies [14]. Yoga, as practiced here, has no specific meditative component whereas Yagna is based on dharana or withdrawal of the senses

and concentration on mantra and the devata. Thus, it is not surprising that Yagna is more effective in reducing stress-related components in EPI.

9. Thus, while short term benefits are seen in Yagna performance, practicality of learning and practicing Yoga along with meditation is an important adjunct in the management of stress in individuals.

## **CONCLUSION**

Yajña, a spiritual practice mentioned in various ancient texts of Indian philosophy, showed therapeutic effects which are also mentioned in texts. Medicinal plants and ghee are the main materials for Yajña. This study has shown that one hour of Yajña can reduce stress level more efficiently than one hour yoga session as measured by Activation Coefficient of EPI- gram. Thus, Yajña can also be practiced for more effective results for stress management programs. However, it is also be noted that Yoga practice can be useful in balancing the energy system in a person.

## **ACKNOWLEDGEMENTS**

We thank the participants of YIC-143 who agreed to become subjects for the research. We thank Kuldeep, Dr. Vijay Kumar, Dr Ramachandra Hegde, Bhagat, Sanjay, Viswajit, Anusha and Shailesh for giving the precious time to collect data, without who it would have been impossible to accomplish this study. We thank the coordinators of the YIC and Yoga & Consciousness course who have given this opportunity.

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## Effect of Bhaishajya Maha Yajna on Human Energy Field and Environment

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### Abstract

**Objective:** Positive influence of Yajna (fire ceremony) on human physiological, psychological and spiritual well-being and environment is mentioned in ancient Indian literature. The purpose of this study is to explore how Bhaishajya Maha Yajna influences the human energy field measured with Electro Photonic Imaging (EPI) technique to follow the response at individual level and also to observe the pollution level in the environment before and after.

**Methods:** Electro Photonic Imaging method was used to assess the subjects. The subjects were from Kerala practicing a special type of Yoga lead by an expert, some of whom were actively involved and others just observing Yajna. Bhaishajya Maha Yajna was performed in outskirts of Bangalore, continuously for 81 hours during two consecutive years 2013 and 2014. The participants were assessed three times; at fixed intervals of 27 hours from the base reading. After getting informed consent from the participants, 29 and 21 were the sample size respectively in the two years. EPI Measurements were made on all ten fingertips of subjects, the patterns of light emitted from the subjects' fingertips were digitally recorded and computer analyzed. Parameters including Area, Average Intensity and Entropy were calculated and statistically compared between three measurements. SPSS version 18.0 was used for the analysis. Pollution level was measured using Enviro-Tech, a standard environmental test equipment to observe the level of SO<sub>2</sub>, NO<sub>2</sub> and RSPM.

**Results:** Two times observations showed statistically significant positive changes in both years. Among three parameters Entropy was maintained constantly at a fixed level, while others (Area and Average Intensity) showed statistically significant changes in both years. In general, the changes between first and second measurements showed greater alterations than between second and third reading in EPI parameters. Forty three percent of reduction in Sulphur Dioxide was observed in the environment.

**Conclusions:** Attending this Yajna influenced EPI parameters of finger emission patterns significantly and thus supported the objective of the study. EPI seems to be an appropriate tool to measure subtle energy field. Yajna can be one of the practices to invoke the potentials of human internal energy. The performance of Yajna helps in cleansing the environment of certain pollutants.

Key words: Yajna – EPI/GDV- human energy field – Offerings – Environment

**Introduction**

The scriptures of India pronounce that the goal of human existence is towards self-realization. This is also known as Moksha or release from our cyclic existence in this world. The attainment of Moksha is through several methods, one of them being the performance of Yajna. Yajna is performed in India for both one's own spiritual advancement and for the welfare of humanity. This practice has been followed from time immemorial [1].

Performance of Yajna involves offering Dravyas (sacred materials) into fire. At the initial level the offerings are of physical items followed by offering subtle facets of one's being which includes emotional and intellectual aspects symbolically into the fire. Bhagavad Gita [4. 24-31] enumerates different Yajnas; "Some offer hearing and other senses as sacrifice into the fire of restraint; others offer sound and other objects of sense into the fire of senses, some others again offer sacrifice with the functions of senses and those of the breath (vital energy), into the fire of Yoga of self-restrain, kindled by knowledge" [2].

Indian practices such as Yoga and Yajna bring stress levels to normal. Factors such as smoke coming out of Yajna Kunda (sacred pit), correct method of chanting Veda Mantras, knowing the background concepts of tradition etc cause reduction in stress levels facilitating health maintenance at optimal level [3].

Objective observations, based on research and scientific evidences during experimental field studies found Yajna to be one of the most economical means of purifying environmental pollution. Emissions during Yajna are not only non-toxic but are beneficial to the environment. Agnihotra is a very simple method of performing Yajna or offering oblations to fire at the transitional moments of sunrise and sunset. Sunrise and sunset are the shortest rhythmic cycles of nature and they leave their immediate effect on living beings [4]. Ash collected from the bottom of the sacred pit showed mineral value and therefore this ash has been used in agriculture farms for healthy growth of plants [5].

To analyze the ash content after Agnihotra, the ash is mixed with water after 48-hour of conclusion of Agnihotra. It was found that Agnihotra-ash may increase the amount of extractable P in soil; this effect was also generated with a non-Agnihotra-ash, which was produced without chanting a mantra, and not necessarily at sunrise or sunset. There was particularly larger amount of P in soil when non-Agnihotra ash was produced in a copper pyramid. A possible explanation may be the time of soil / ash contact, which may have been too short in the two latter extraction methods to allow the subtle energetic forces to unfold their effects [6].

Agnihotra research at SVYASA University showed significant changes in seed germination parameters from the data during three seasons, autumn, winter and summer conducted for a period of 15 days each. Four parameters, viz. root length, shoot length, fresh weight and dry weight were measured of seed germination. An analysis of the data showed that the Agnihotra sacrifice with mantra was overwhelmingly more effective in the germination process than control conditions [7].

There are other studies that seem to measure emotional imprints in the environment by recording the changes in randomness of certain fundamental physical processes. One such instrument is known as Random Event Generator (REG) which records the randomness of electronic generation from a semi-conductor diode. The randomness changes towards more order when the system is exposed to increased-ordering in the environment. The reason for this may be due to positive emotions in the environment. Emotions are powerful thoughts according to Yoga. These powerful thoughts are cancelled when the waves associated are out of phase and the thoughts get into resonance when the phase and frequency are matched [8]. One of the studies could trace the significant changes between chanting of Gayatri Mantra and Random Thinking sessions. During Gayatri mantra chanting, REG show patterns that imply breaking of randomness in the surrounding environment when compared to Random Thinking session [9].

The cosmic biological and psychological effects influence significantly the biological and psychical, collective and individual organizational processes. The cosmic connections between Man and Universe do not represent a one-sided action, but a mutual, meaningful, life-giving interaction, in which Man is also an active participant if humankind accepts the challenge of fulfilling its original, natural destination [10]. Traditional cultural practices have much impact on the social condition and have a role in the healing process to large extent. These practices increase the functional intelligence of the species as discussed by Dr. Robert [11].

Music and other collective performances greatly influence the collective conscious level by bringing positive changes in the environment. With a suitable measurement method such as EPI, it is possible to observe the changes in the environment objectively [12].

It is very important to show evidences from *Puranas* (subordinate texts for understanding deeper Vedic concepts and ideas) and *Itihasas* (history of Indian culture and practice in particular) which exhibit numerous references for physical and meta-physical results due to rituals such as Yajna, Yoga, Mantra, Tantra etc. The present study pays attention to both individual and collective changes when Yajna is performed following specific method (especially herbal offerings) developed by a spiritual master from southern India.

**Materials and methods**

Samples A. Sample for EPI – The subjects of interest for this study are members of a group led by a spiritual master from Kerala, southern India. These subjects are actively involved in the entire process of performing Bhaishajya Maha Yajna (BMY) by following certain practices: conducting brief Yajnas every month, collecting holy sticks for annual Yajna, collecting firewood, preparing necessary oils etc. These subjects (29 in 2013, 21 in 2014) have age ranging from 20 to 40 (males and females), who were ready to volunteer for the study. Subjects were asked to fill the consent form to acquaint them with entire procedure and make sure regarding volunteering for the study without any emotional disturbance. Majority (70%) of the subjects were from Kerala and some (10%) of them were from the neighboring villages, practicing specific Yoga Module framed by Rishidev Narendran Ji, and the rest (20%) of them were newly introduced to this group.

Table 1 – Details of sample size of Yajna participants

Year	Details	No	Age Range	Mean Age	Observer	Active Participants
2013	Males	26	15 - 45	34	1	25
	Females	3	36 - 40	38	0	3
	Total	29	15 - 45	34	1	28
2014	Males	8	19 - 40	36	0	8
	Females	13	18 - 41	27	0	13
	Total	29	18 - 41	30	0	21

The Electro Photonic Imaging (EPI, also known as Gas Discharge Visualization - GDV) measurement was taken three times from the baseline with fixed interval of 27 hours. This specific study is repeated two times in consecutive years Jan 2013 and Feb 2014. Both Yajnas started by 6.00 AM.

Bhaishajya Maha Yajna

	Pre -----	Assessment 1 -----	Assessment 2
	6.00 AM	(9.00 AM) after 27 hrs	(12.00 PM) 54 hrs
Year 2013	24.01.2013	25.01.2013	26.01.2013
Year 2014	21.02.2014	22.02.2014	23.02.2014

EPI was developed by Russian scientist, Dr. Konstantin Korotkov in 1996 to capture, map and analyze the electromagnetic field emanating from the human body in response to pulsed electrical field excitation. In response to the electrical stimulus given to the body (fingertip), a weak “electron cloud” forms near the surface (of the fingertip), and is amplified by excitation of the molecules in the surrounding air molecules resulting in a glow which is captured by an optical CCD camera system and translated into a digitized computer image.

Traditional Chinese Medicine recognizes that images of the whole body are found in each organ or region of the body. Systems of complementary medicine in the west term these phenomena ‘Reflexology’, and use them in systems of diagnosis and massage etc. [13]. The phenomenon of fingertip diagnosis in EPI is an example of reflexological diagnosis applied to the fingertips, using Pranic Energy Fields, which are the media through which reflexological maps arise.

EPI Test-retest reliability of baseline values have an overall variance of 0.236 and a standard deviation of 0.387. Variance in patterns of emission and calculated diagrams is about 10% for human fingers, and 3% for materials [14]; hence the instrument is of acceptable quality for research and has been used in various research investigations.

**B. Samples for Enviro-Tech:** Air samples were collected from the venue of Yajna performance, 50 meters away from Yajna Kunda (dimensions; 27 feet length and 18 feet width and 5 feet depth in elliptical shape). Collection of samples was performed before 24 hours of Yajna (from 23.01.2013, 6.00 AM to 24.01.2013, 6.00 AM) and after (from 27.01.2013, 3.00 PM to 28.01.2013, 3.00 PM).

EnviroTech is based on CSIR-NEERI technology and is the only PM 10 sampler that conforms to Indian standards (BIS 5182 (Part 23): 2006). Owing to its modular design, this model (APM 460 DXNL) can be easily paired with a gaseous sampling attachment (for monitoring SO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, Ozone etc). It also monitors Respirable Suspended Particulate Matter (RSPM) concerning the health issues related to particle size in air of the surrounding area during respiration. Optimum level of RSPM differs from region to region within the country (Central Pollution Control Board, India).

**Intervention**

Bhaishajya Maha Yajna is a ritual initiated by Rishidev Narendra Ji near Bommandahalli, Jigani, Bangalore. Two hundred and sixteen herbal Samits (holy sticks) were used which were collected yearlong according to a standard procedure. The Yajna continued for 4 days and 3 nights. There were 81 anti-social themes (such as accidents and violence) identified for nullifying during this Yajna. During each hour varieties of Samits were offered to counteract anti-social activities. Veda chanting from Rgveda and Yajurveda was continued throughout Yajna to create a spiritual ambience. Three types of base firewood were used. Nine types of plant based oils were offered. The name of Yajna itself is self-explanatory. Bhaishajya (Bhishak - medicine related) indicates the relation of the ritual for curative purpose at physical, pranic, psychological, social, intellectual and spiritual levels which may be personal, interpersonal and intrapersonal.

Procedure of Bhaishajya Maha Yajna

- Preparation for BMJ will start one year prior to the Yajna
- On every full-moon-day the volunteers collect Samits (selected sacred sticks)
- Sacred fire (Agni) will be brought to the venue of Yajna
- By 6.30 AM on the day of start of Yajna, Agni will be installed in Agni Kunda
- Samits will be offered every hour for a total of 81 times
- Three types of base firewood will be used
- At fixed timings deities will be invoked to receive oblations

**Results**

EPI parameters

Table 2 – Changes in the EPI parameters

Descriptive Statistics							
Parameters	Time	6:00 AM		9:00 AM		12:00 PM	
	Year	Mean	SD	Mean	SD	Mean	SD
Area	2013	10756.96	1490.40	9357.10*	1722.62	9848.75	2550.60
Intensity		75.26	6.50	69.18*	5.21	72.32*	6.91
Entropy		1.99	0.07	1.96	0.20	1.92	0.22
Area	2014	8707.24	901.19	9605.37*	751.68	9381.43	798.71

Intensity		85.66	6.37	90.25*	5.32	90.14*	5.39
Entropy		2.00	0.10	1.99	0.04	1.99	0.06

\* P<0.05.

Area - A repeated measure of ANOVA showed, that for 29 people in 2013, the area (number of pixels in EPI images) of three measurements were statistically different,  $F(2, 56) = 4.406$ ,  $p = 0.017$ , partial  $\eta^2 = 0.136$ . The post-hoc analysis for three measurements confirmed the statistical difference between first measurement ( $10756.96 \pm 1490.40$ ) and second measurement ( $9357.10 \pm 1722.62$ )  $p = 0.017$ . However in 2014, for 21 people,  $F(2, 40) = 7.977$ ,  $p = 0.001$ , partial  $\eta^2 = 0.285$ . Post-hoc analysis showed that first measurement ( $8707.24 \pm 901.19$ ) and second measurement ( $9605.37 \pm 751.68$ ) were statistically significantly different,  $p = 0.001$ , and first measurement ( $8707.24 \pm 901.19$ ) and third measurement ( $9381.43 \pm 798.71$ ) were also statistically significant,  $p = 0.033$ .

Average intensity - A repeated measure of ANOVA showed, for 29 people in 2013, the Average Intensity between three measurements were statistically different,  $F(2, 56) = 10.571$ ,  $p < 0.001$ , partial  $\eta^2 = 0.274$ . The post-hoc analysis showed the statistical difference between first measure ( $75.26 \pm 6.50$ ) and second measure ( $69.18 \pm 5.21$ ),  $p < 0.001$ , and second measurement ( $69.18 \pm 5.21$ ) and third measure ( $72.32 \pm 6.91$ ),  $p = 0.047$ . For 21 people in 2014, a repeated measures of ANOVA showed significant difference,  $F(2, 40) = 15.163$ ,  $p < 0.001$ , partial  $\eta^2 = 0.431$ . Post-hoc analysis showed significant difference between first measurement ( $85.66 \pm 6.37$ ) and second measurement ( $90.25 \pm 5.32$ ),  $p < 0.001$ , and first measurement ( $85.66 \pm 6.37$ ) and third measurement ( $90.14 \pm 5.39$ ),  $p < 0.001$ .

Entropy - A repeated measure of ANOVA did not show statistical difference, for 29 people in 2013, between three measurements,  $F(2, 56) = 1.324$ ,  $p = 0.274$ , partial  $\eta^2 = 0.045$ . A repeated measure of ANOVA in 2014, also for 21 people, between three measures did not show statistical difference,  $F(2, 40) = 0.262$ ,  $p = 0.771$ , partial  $\eta^2 = 0.013$ .

EnviroTech results

Table 3 - EnviroTech standard values and experimental values

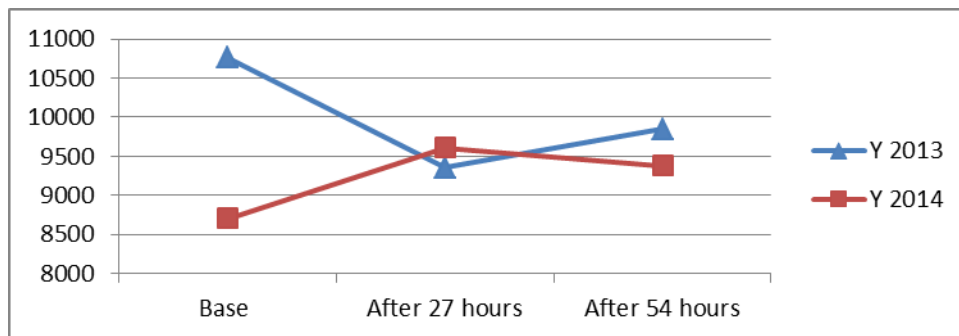
	Respirable Suspended Particulate Matter	Sulphur Dioxide	Nitrogen Dioxide
Standard Values	100 µg/m3	80 µg/m3	80 µg/m3
Pre	66	53	37
Post	109	30	42
Change value	43	23	5
Percentage	65.15 % ↑	43.39 % ↓	13.51 % ↑

Table 3 gives standard values of Respirable Suspended Particulate Matter, Sulphur Dioxide and Nitrogen Dioxide along with pre-post Yajna values.

**Interpretation**

**Area:** the number of pixels in the image having brightness above a pre-set threshold. It is observed that area shifts in diverse situations; ex – Yajna, Yoga, types of meditations. Increase in area is indicated by an increase number of pixels. In the two Yajna observations the data convey as follows.

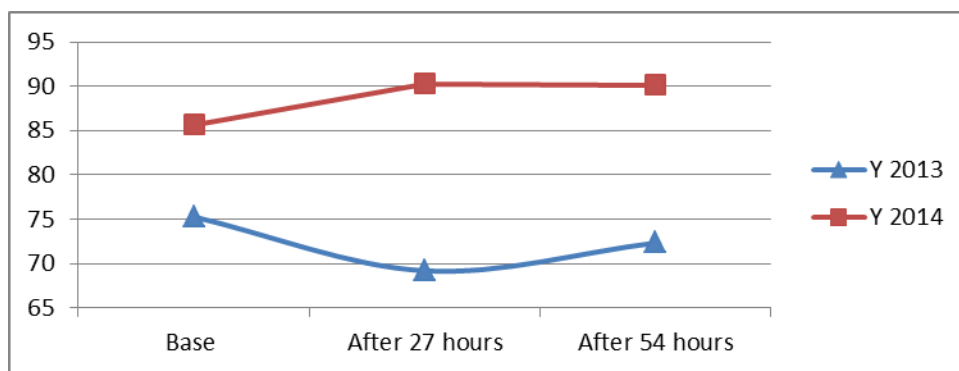
Chart 1 – Line graph of Area in EPI diagram during measurements in 2013 (line with blue triangles) and in 2014 (line with red squares).



In 2013 Yajna, it is observed a heightened initial start, a gradual decline and levelling as the Yajna progresses. Yajna of 2014 shows a lower start value compared to 2013, rapidly increasing and levelling as the Yajna progressed reaching similar value to 2013.

**Average Intensity:** is an evaluation of the Intensity spectrum for the pixels in the images indicating electro-photon discharges. We can observe average intensity shifts in diverse conditions: ex – Yoga, Yajna, types of meditations.

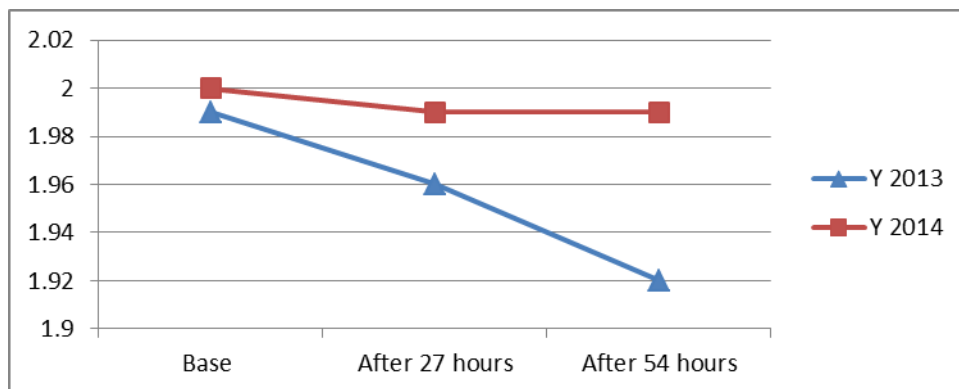
Chart 2 – Line graph of Average Intensity during Yajna in 2013(line with blue triangles) and in 2014 (line with red squares).



In 2013, the Average Intensity declined slightly from the base observation and levelled. The base value was larger in 2014 indicating the preparedness and willing of participants (all of whom have attended in 2013) to take part in Yajna. Then the intensity remained constant and settling to its optimal state.

**Entropy:** this is an indicator of the level of chaos and disharmony in the system.

Chart 3 – Line graph of Entropy levels during Yajna in (line with blue triangles) and in 2014 (line with red squares).



There is a reduction in entropy in 2013. In 2014, it is observed to be stable during the Yajna.

## Discussion

Bhaishajya Maha Yajna (BMY) was conducted in two consecutive years (2013 and 2014) and shows significant results in human energy field and environmental pollution levels. The following factors are to be considered while observing results due to the performance of subtle practices such as Yajna, Yoga and Tantra etc. Vedic esoteric practices have integrated developmental approaches rather than concentrating only on few selected individual aspects of entire human and environmental systems.

In the two years of Yajna related research, we have looked at both individual levels of subtle energy and environmental factors related to pollution. Two devices were used: EPI system for human energy monitoring and EnviroTech for assessing environmental pollutants.

Area – The results indicate that Yajna improves area (number of pixels) of the EPI images denoting high metabolic rate in human systems. This would imply proper utilization of metabolic energy and optimization of biological processes in the body. It is seen that in both years, though separated at the start of Yajna, the area values tend to be normalized at appropriate value for optimal metabolism. Since BMY involves offering herbals into fire, smoke coming out of Kunda stirs the system towards health. Results support the logic that Yajna could be a tool for the better performance of the human system. Similar fact is reflected in a study where Yogasana and Yajna were compared for measuring stress level. Yogasana group showed below normal Activation Coefficient (AC) (0.0 to 2) before the practice and ended up at normal values AC (2.0 to 4.0), showing optimal stress response. Though there were high values of AC (4.0 to 6.0) indicating high stress level before Yajna, it came to normal values AC (2.0 – 4.0) after Yajna [3].

Average Intensity – The results show the capacity of the human system to facilitate support of any process towards healing. Generally both Area and Average Intensity are the measures of this ability. Heightened Average Intensity values in 2014 compared to 2013 values confirm that preparedness and willingness of participants to accelerate process of healing and energizing towards spiritual growth.

Entropy – The results evidently show that reduction of Entropy in 2013 is higher than in 2014. Other studies also support that first time response to intervention is greater than the subsequent ones for repetitive practices. Participants of Yajna were so excited about performance and procedure of Yajna in 2013 that the reduction of Entropy was much higher than in 2014. Consistency of Entropy values was maintained in 2014 throughout Yajna and this confirms that disharmony and chaos were not extreme but stability was established in human systems.

EnviroTech – The results prove that performance of Yajna reduces certain pollutants in the air. Medicinal values in herbals (216 types of plants, 3 extracted oils and banyan logs as firewood) could have helped nature to discard pollutants especially sulphur dioxide which causes acid rain and many diseases in living organisms. “The colloidal molecules of cow’s ghee and other constituents could bind, attract and grab pollutants in the air. The seized molecules as they settle on the ground would alkalize the soil. When they come in contact with plant, they could stick to leaves and act as a time-release foliar nutrient. Physically, because of the ghee, the smoke could be electrically charged” [5]. In Ayurveda, prescription of herbals in varied dosages and combinations for different diseases is common. The very name and purpose of this Yajna itself aims at bringing health to all living beings in cosmos. However, Respirable Suspended Particulate Matter (RSPM) was high in number after the Yajna because of ash nanoparticles released from Yajna Kunda. This may not disturb living beings’ health; on the contrary, it could support Ayurvedic concept that inhalation of smoke being health promoting, especially during a Yajna. Further, as Ayurveda decrees Dhumapana (smoking of prescribed herbal plants) is health promoting in daily therapeutics; thus it is presumed that the smoke may not disturb the health of those taking part in the Yajna and might even support healthy outcome in people. This of course, needs to be tested further.

## Conclusion

Human energy field alters positively to external stimulus such as Yajna and any ritual if followed according to the procedure mentioned in the scriptures. Performing Yajna reduces certain pollutants in the environment.

## Acknowledgement

Authors of this article thank Rishidev Narendran Ji, Mata Sripriya and entire team of Jeeva Yoga, Bangalore. We thank KSPCB, State Govt. Karnataka, for support in measuring pollutants' level. We would like to thank Prof Ramachandra G Bhat, VC, SVYASA University and Prof TM Srinivasan for giving valuable time in editing the paper.

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