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# TABLE OF CONTENTS

CHAIRPERSON'S MESSAGE	iv
EDITORIAL : Niraj Kumar	vi
ARTICLES	
• Jewish Diaspora of Mumbai in the Late 19th Century as Covered by Press / Dr. Neeta M.Khandpekar	1
Indo-Afghan Political Relation Under Modi Government / Afroz Ahmad & Najish	15
• Indian Print Media Reporting on OBOR Initiative: A Quantitative and Qualitative Analysis / <i>Ajay Krishna &amp; Ren Huilian</i>	24
• Effective Management of Panchayats in India- An Approach Paper <i>Ajay S Singh</i>	32
• Economics of Cultivation Among the Small and Marginal Farmers in Andhra Pradesh / <i>Dr. Karri Kishore Babu</i>	47
• Emergence of Risks in Absence of 'Proper' Policy/Programmes : A Case of Industrial Development-Induced Displacement in Hajira Village of South Gujarat / <i>Ankit Patel</i>	61
Changing Trends of Some Bio-Physico-Chemical Characteristics of Sagardighi of Cooch Behar, West Bengal, India / <i>Abdul Miraj &amp; Sudip Kumar Bhattacharya</i>	79
Optimizing the Sustainability of Tourist Infrastructure in Dal Lake Watershed of Kashmir Himalayas / <i>Arif H Shah, Zahoor A Nengroo &amp; M. Sultan Bhat</i>	95
<ul> <li>Poetry is the Wisdom of Nature / G. Mend-Oovo</li> </ul>	105
• Book Review / Neeta M. Khandpekar	112

• SUBMISSION GUIDELINES 115

# **CHAIRPERSON'S MESSAGE**

Quality education and research always lead to betterment of oneself and the society at large. Earlier the ideas and concepts were generated sporadically by the individuals; some of them were outstanding thinkers and exceptional genius. Nowadays research has been institutionalized. Concepts for steering the society to a desired state are mostly emanating from the institutions. Individual genius does have leeward space in the field like literature, philosophy or futuristic technology.

Institutional knowledge is deployed for regulating the territory, serving the population as also building a dream world for maximum happiness to the maximum people. When India gained independence after long British rule, there were innumerable doubting Thomases. The sceptics would pronounce collapse of the nation-state under the pressure of plethora of problems. But, within a century of end of its humiliation, India is set to emerge as the second largest economy of the world and would beat the U.S. in size of GDP. India has become one of the major poles in a multipolar international order and a beacon of hope for countries in Asia and Africa. What made this possible was institutionalization of research. From the very first day, government of the day invested in institutions of higher research—from science, humanities to smart governance. Thus, we find how these institutions operate as chiasma of governance inspite of periodic change of governments based upon varying ideologies.

The current issue of the Journal of Indian Research carries several papers that directly impinge on governmentality. There are papers on study of impact of industrialization on local populace, sustainability of water bodies, cost of cultivation for different groups of farmers in different regions, India's involvement in geopoliticscum-geoeconomics of Asia. We are publishing a long essay by a governancepractitioner on effective management of Panchayats in India. Ajay S. Singh argues in the essay, "Effective Management of Panchayat in India- An Approach Paper" that after the recommendations made by the Fourteenth Union Finance Commission, fund devolution to Gram Panchayats(GP) has increased significantly.... There are several schemes of Government of India being implemented through Panchayats or providing benefits to villagers with direct or indirect involvement of GP. Schemes like Mahatma Gandhi National rural Employment Guarantee Scheme (MGNREGS), PM Antyodaya Yojana (PMAY), PM Grameen Sadak Yojana (PMGSY), National Rural Livelihood Mission (NRLM), National Social Assistance Programme (NSAP), PM Krishi Sinchayee Yojana (PMKSY) of Ministry of Rural Development, National Drinking Water Mission and Swachha Bharat Mission-Grameen of Ministry of Drinking Water and Sanitation have annual allocation of more than Rs.1.28 lakh crores. Similarly, Ministry of Food, Ministry of Health and Ministry of Human Resource Development have huge allocations for rural areas. Governments alone spend an average amount of

about Rs.2 crore in every GP every year. This huge allocation is not yielding desired results due to severe constraints of infrastructure, capacity to plan and execute village development and social sector projects, and lack of delegation of financial powers along with accountability systems. Mr. Singh details the existing software for financial management and how these may be synergised to get useful information without doing redundant and duplicate activities for financial management and monitoring of the fund released to GPs.

We hope that the academic community would enrich the forthcoming issues of the Journal of Indian Research with similar doable concepts for betterment of the country.

I am happy to extend warm wishes and greetings for the New Year 2018 to all the readers, contributors and the JIR team.

Achere Jame arouting

Dr. Ashok Kumar Gadiya

# EDITORIAL

# HISTORIOGRAPHY AND GENOGRAPHY

Historical knowledge is neither sedentary nor sedimentary. It changes with time and technology. When tools like radiocarbon dating emerged, there was revolution in historical narrative. Professional historians sought the assistance of the archaeologists to rewrite histories. More they excavated, more of past was exhumed and different shades emerged. History, some argued, became hermeneutical reading of excavated past. Everything turned out to be fragments of texts, post-structuralists argued. History became archaeology of knowledge. But, all characterizations about history are temporary as is the nature of historical narrative itself.

With the application of bioinformatics in exploring history, more and more narratives are being developed based upon study of human mitochondrial DNA haplogroups. Excavations are done more in the realm of DNA codes, rather than territorial spaces. Human history is being written by examining the genomic datasets. Population geneticists replace the traditional archaeologists in this paradigm shift. Superhaplogroups, macrohaplogroups, clades, sub-clades, alleles, phylogenesis, heterozygosity, loci, polymorphism, affinity, genetic variance, gene flow, gene differentiation, mutation, autosome, genetic genealogy, biogeographic ancestry, genography and similar terms are migrating from the field of genetics into History.

With the advent of technology that can trace ancestry through own human cells, several companies have cropped up offering to resurrect individual ancestry at as low cost as US \$ 80. In 2007, 23 and Me was the first major company to begin offering such service to people. Now there are five such companies-23 and Me, Ancestry DNA, My Heritage, Family Tree DNA and the Genographic Project. The combined total of customers has crossed 10 million. Such surge in exploring one's genetic genealogy has spurred interest in ethno-history.

Quest for "Purity of races" has been replaced by unravelling "purity of genes" among various ethnic communities, more so who are either historically diasporic in nature or those who are autochthonous and native to a territory. Fables about intelligence of the Jews are abound for aeons world across. But, Jews themselves are not homogenous community. It is a wider connotation for different ethnic groups sharing common belief system and certain unchanging rituals. Traditionally, Jews are classified into three major groups- the Ashkenazim or Germanic, Sephardim or Iberian and Mizrahim or the Eastern Jews. There are other smaller groups like Bene Israel in

India, Baghdadi Jews who settled in Bombay around 19<sup>th</sup> century, Bukharan Jews of Central Asia and so on.

Not all Jews are famed for their intelligence and success. Observation of Jewish genius is basically associated with the Ashkenazi Jews. Albert Einstein was an Ashkenazi Jew. They have the highest IQ score as an ethnic group and average range is of 110-115. Gregory Cochran, Jason Hardy and Henry Harpending worked on the "Natural History of Ashkenazi Intelligence" (J. Biosoc. Sc., 2005) and concluded that Ashkenazi Jews have the highest average IQ of any ethnic group, combined with an unusual cognitive profile, while no similar elevation of intelligence was observed among Jews in classical times nor is one seen in Sephardic and Oriental Jews today. Their intelligence, specifically verbal and mathematical intelligence, is extraordinary but not spatial ability. They further found that the Ashkenazi experienced very low inward gene flow, and experienced unusual selective pressures that were likely to have favoured increased intelligence. Moreover, for the most part they had jobs in which increased IQ strongly favoured economic success, in contrast with other populations, who were mostly peasant farmers. The great majority of the Ashkenazi Jews had managerial and financial jobs, jobs of high complexity, and were neither farmers nor craftsmen. In this, they differed from all other settled peoples of which world have knowledge. In a way, they were the first community with high specialization in service sector thereby enhancing cognitive ability in comparison with other ethnic groups.

We know how India has been a melting pot of populations. Population migration as far as Australia and Mongolia took place through the eastern Himalayan Corridor and intensely being debated by the population geneticists. India is proud to have welcomed ancient Jews, Greeks and the first Christians. In the current issue of the Journal of Indian Research, we are publishing a paper on "Jewish Diaspora of Mumbai in the late 19<sup>th</sup> century as covered by Press" by Professor Dr. Neeta M. Khandpekar. She writes, "There is a mention of the Bene Israel community of Jewish merchants and their synagogues both in medieval Muslim chronicles and in Portuguese records, specifically of the Bene Israel settlements that were in the Konkan area, including the port of Chaul." These Bene Israel were called Telis, as they were engaged in the profession of oil pressing in the villages of North Konkan. While Hindu oil pressmen were termed Somavara Telis, these Bene Israel were termed Shaniwar Telis (Saturday Oilmen) as they abstain from work on Saturdays to observe Shabbath. Bene Israel Jews are settled in western coast of India from remote times and have become completely Indianised with Marathi as their mother tongue.

While Bene Israel in India have been a subject of intense research for historians and anthropologists, rarely have the Chitapavan from the same Konkan region been studied. Chitapavan have hazel eyes and fairer skin and like Ashkenazi Jews have been immensely successful and have made remarkable contribution in nationbuilding. Peshwas were the Chitpavan and they were not considered Brahmins by the local priesthood, causing the Deshasth a (native) Brahmins to boycott Peshwa rulers. Deshastha Brahmins under the leadership of Shripatrao, the Pant Pratinidhi opposed the appointment of Baji Rao I as the Peshwa. In fact, Baji Rao I, the first Chitpavan Peshwa, himself was refused permission to perform religious rites at the ghats on the river Godavari at Nasik, by the Deshasthas. Chitpavans were considered as newcomers and not Brahmin proper, who were viewed as usurper of the power and privileges of the Vedic Brahmins in Maratha Empire. After the conquest of Vasai(1739) against the Portuguese, the Chitpavans contested the Deshastha's, claim of being Vedic Brahmin. Deshasthas migrated to Mumbai to work with the British against the Chitpavan Peshwas. When Peshwas were finally defeated by the Britishers in the Battle of Koregaon, Pune (1818), in which Mahars and Brahmins were arrayed against the Peshwa army of fickle-minded Peshwa Baji Rao II, they did not sit silently. The First War of Independence in 1857 was led by three Chitpavans- Nana Sahib, Rani Laxmi Bai and Tatva Tope. Direct British Rule was established in India in 1858. Soon thereafter, Pune, the stronghold of Chitpavans, became the hotbed of uprising against British rule. May it be Chapekar brothers or Balwant Vasudeva Phadake, the armed uprising to overthrow British rule had nucleus among the Chitpavan community. Once it was realized that armed overthrow of the British rule was not feasible given the unequal distribution of military power, Chitpavans took lead in organizing the peaceful agitation against the British rule. Lokmanya Tilak and Gopal Krishna Gokhale were Chitpavans from Pune. In fact, the first session of Indian National Congress was originally scheduled to be held in Pune, but there was outbreak of plague and the venue was shifted to Mumbai. Chitpavans played pivotal role in shaping of modern India. May it be Bollywood or cricket or militant Hindu nationalism—these can be traced to the exploits of some Chitpavans. Dadasaheb Phalke, the father of Indian cinema was a Chitpavan. Grand Old Man of Indian cricket D. B. Deodhar was a Chitpavan from Pune. Veer Savarkar and Nathuram Godse belonged to this community. Nowadays also Chitpavans are in the forefront of building of modern institutions - from Madhuri Dixit in Bollywood to Sumitra Mahajan, Speaker of the current Lok Sabha; one can find chitpavans outperforming others.

Like the Ashkenazi Jews, the Chitpavans are known for high intelligence and beauty. The Bene Israel claim that Chitpavans too were Jews who settled in Konkan from later migration but converted to Hinduism. Chitpavans, known as Konkanastha Brahmins, originally belonged to the Chiplun(Chitpolan) and Ratnagiri part of the Konkan Coast, but spread to Pune, parts of Maharashtra, Karnataka, Madhya Pradesh and Uttar Pradesh. Recent genetic study to find out the genetic genealogy in fact has established that the Chitpavans have affinity with the Ashkenazi Jews from the Caucasus.

Sonali Gaikwad of National DNA Analysis Center and VK Kashyap of National Institute of Biologicals conducted extensive research on genetic composition of certain populations in western India and published "Molecular insight into the genesis of ranked caste populations of western India based upon polymorphisms across non-recombinant and recombinant regions in genome" (Genome Biology, 2005). They concluded ".... genetic association of Chitpavan-brahmin with Iranian, Ashkenazi-Jews (Turkey), Greeks (East Europe) and to some extent with Central Asian Turkish populations elucidating their distinct Nordic, "Scytho-Iranian" ancestry. The Caucasian link of Chitpavan brahmin has also been inferred from biparental microsatellites variations. The observed genomic analyses asserted the ethnographical fact that Chitpavan-brahmin share ancestry with conspicuously European-looking Pagan or Alpine group, who under religious pressure had migrated from Anatolian Turkey or East Europe to Gujarat coast probably via seavessel. Besides, their documented history is untraceable beyond 1000 years, further indicating that they were not part of the original Vedic migrations (early Indo-European) on the west coast."

Genetics is bringing out fresh connections across continents. Is geneticizing historical narrative a current fad which would dissipate down soon or will it lead to formation of genetic communities in a globalized world? Will nationhood pass the baton of "myth of superiority" to the genohood?

I take this opportunity to invite paper from ethnohistorians and population geneticists to initiate critical debate on shifting sands of historicity. Hope the militant crpto- nationalism that has ablaze the sub-continent at this juncture gets punctured and bludgeoned by the bioinformatical historicization!!

**(Niraj Kumar)** Honorary Editor

## JEWISH DIASPORA OF MUMBAI IN THE LATE 19<sup>th</sup> CENTURY AS COVERED BY PRESS

#### Dr. Neeta M. Khandpekar\*

#### ABSTRACT

The press penetrates every nook and corner of the society. It searches out and apprehends the most recluse and the most unsocial in the city and in the field. The Diaspora<sup>1</sup> (from the Greek, meaning "dispersion") has been the characteristic mode of existence of the Jewish people for more than two and a half millennia.<sup>2</sup> Today Jews in India are a miniscule minority who don't even find a separate mention in the census. In the religion-wise break-up of India's demographics, Jews figure in the 'Others' category which makes up 0.7% of the country's population. 40, 000 Jews from India immigrated to Israel upon its creation in 1948. According to the 2009 data by Hebrew University of Jerusalem, the number of Jews in India is 5, 000.<sup>3</sup> Today Israel and U.S. account for 81% of Jews.<sup>4</sup> The present paper tries to explore news items on Jews especially the Bene Israel group of Jews as highlighted by some Christian Newspapers like Bombay Guardian (BG) and Oriental Christian Spectator (OCS). Mumbai, Pune, Raigad, Thane, Dombivli, Ahmedabad and villages around Raigad in Maharashtra constitute the belt where one can find the largest representation of this ancient faith in India. An attempt has been made in the present study to look at the Jewish community altogether through the prism of modern press in India.

Keywords: Bene Israel, Christian Newspapers, Community, Diaspora, India, Jews.

#### INTRODUCTION

There is a mention of the Bene Israel community of Jewish merchants and their synagogues both in medieval Muslim chronicles and in Portuguese records, specifically of the Bene Israel settlements that were in the Konkan area, including the port of Chaul. They were visiting foreign merchants who, even when they were resident for long periods, ultimately and eventually returned to their homes abroad.<sup>5</sup> The sixteenth century Jewish traveller Pedro Texieira<sup>6</sup> and Ralph Fitch were probably at Goa at the same time, in 1589. Neither, however,

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#### Journal of Indian Research

mentions the other. In 1604, Pedro published *The Narrative of My Journey (Overland) from India to Italy*. He died in Amsterdam in about 1650.<sup>7</sup> Duarte Barbosa (1516), David Reubeni (1522), Linschoten (1569) and Bernier (1656- 1668) have given interesting accounts of the Jews in India.<sup>8</sup>

Interest in the origin of the Bene Israel led travellers and researchers to investigate the customs of the community in a twin attempt to determine past religious influences and to mould future practices. Bene Israel were somewhat isolated from the mainstream of Jewish activities until one David Ezekiel Rahabi<sup>9</sup> who arrived in Western India in the middle of the eighteenth century, in the course of his work for the Dutch East India Company<sup>10</sup>, encountered the Bene Israel and brought them back to mainstream Judaism which is known as the 'First Bene Israel Religious Revival'.

Whether the Bene Israel had migrated to the Konkan coast after 1200 A.D from other regions of India or whether they had been resident in the Konkan all along, since their initial migration to India, is an unsolved question. Bene Israel tradition however, does not refer to any migration from one region to another within India. Bene Israel (Yahudis) were called *Telis*, as they were engaged in the profession of oil pressing in the villages of North Konkan. Oil being used on every Saturday on a large scale to worship Hindu god Hanuman whose temple is found practically in every village. They were popularly known as *Shaniwar Telis*<sup>11</sup> (Saturday Oilmen) because they abstain from work on Saturdays and observe it as a complete day of rest (Sabbath).<sup>12</sup> Jews at Chaul<sup>13</sup> had settled there from remote times and had become completely Indianised with Marathi<sup>14</sup> as their mother tongue. They enjoyed complete freedom to practice their religion.<sup>15</sup>

#### **COVERAGE OF JEWS IN PRINT**

Bombay Guardian (BG) was a weekly established in March 1851. The last issue of this weekly available in Maharashtra State Archives, Mumbai is of July 22, 1905 with total of 31 issues. It was an interdenominational paper which covered leading features of home and foreign rule, reported progress in the mission field, tried to uphold the banner of public morality in accordance with scriptural teaching. Initially it was published every Friday and later every Saturday. Due to reduction in international postage in 1892, the circulation of this paper went wide from Australia to China. It also had occasional illustrations. George Bowen and Alfred Dyer were the most active editors of BG.

The Deputation from Board in America consisting of Drs Rufus Anderson<sup>16</sup> and Thomson reached Mumbai on 2<sup>nd</sup> February 1854 to personally see the local hurdles faced by the missionaries etc. They toured Maharashtra for 72 days.<sup>17</sup> Rev Mr. Winslow had been one of the educationists in Ceylon and he was against giving up heathen schools. He spoke the following in front of Deputation headed by Dr Anderson. He said, "I would not say to these children, because you are heathen I reject you', but 'because you were heathen I sought you out and gathered you into schools, ' It would be like saying all the Roman Catholics and Jews in your Sabbath schools here, that the schools were not for them. Wasn't the Gospel sent to the heathen? Why, then should it not be preached to them?"<sup>18</sup>

#### Journal of Indian Research

The first girls' school of the Bombay Presidency was established in 1824 by the American Mission in Bombay. The name of the school was Salem school and it was for the Jew Girls but the native girls were also enrolled in the school.<sup>19</sup> Religion-wise classification of the girls studying in the schools of Bombay Presidency in 1837-1838 is tabulated below.<sup>20</sup>

Religion	Number of Girl
	Students
Parsee	12
Hindu	312
Jain	01
Protestant Convents	09
Roman Catholics	09
(Indo-Portuguese)	
Jews	34
Muslims	07
Total	384

Table1: Number of Girls Students in Bombay Presidency (Religion-wise) (1837-38)

Mention of Agra Tract and Book Society publishing "*The Testimony borne by the Coran* to the Jewish and Christian Scriptures" occurs on the front page of the *BG* (June 7, May 31 1856). It says the work is in English, the quotations in Arabic and English.

The *BG* (September 20, 1856) issue <sup>21</sup> covered a detailed correspondence of the Jewish intelligences. It talks of one Kass Michaely Jamala who preached in Chaldean to the assembled villagers. On October 26, few Jewish houses had only females in Jezireh, the men being all absent in business. On October 27 Saturday, Jamala reports that he went to Synagogue and found the place as well as the congregation much smaller than he had expected. They offered him a *Talith* (fringed garment) and then requested him to read a portion of the Law of the Haphtorah.

*BG* (November7, 1874) covers anniversary gathering of the American Marathi Mission AMM (called Bombay Mission till 1834)<sup>22</sup> at Ahmednagar (one of the districts of Maharashtra). It was a sort of feast of Tabernacles<sup>23</sup> (in the Jewish feast the worshippers gathered together from all parts of the land at Jerusalem, and had an opportunity to get acquainted with one another). In this festival Christians from all parts of Ahmednagar Collectorate and some from more distant places came together to mingle their testimonies for the lord.... Among the visitors were George Bowen who edited *BG* for many years, Indian converts to Christianity like Rev. Narayan Sheshadri, Baba Padmanji and Dhanjibhai Nawroji. A full page letter, *My Conversion* by S.B., talks of a conversion of a staunch believer in Judaism to Christianity.<sup>24</sup> Jonanthan Edwards has pointed out about the three great annual festivals of the Jews. The first, the Passover, was fulfilled in the death of Christ, the second the feast of weeks was fulfilled in the pouring out of the Spirit on the

day of Pentecost. The third the feast of Tabernacles or Ingathering remains to be fulfilled.<sup>25</sup>

By 1875, Bombay became one of the biggest Zenana stations. Work was built up not only among the Hindus and Muslims but also among the Bene Israel Jews and Parsis. In 1875, the Bombay Indian Female Normal School was founded with a school motto "*Saved to Serve*".

A Big write up, *Jews Now in Palestine*, *Their condition and claims*<sup>26</sup> by H Friedlander from Jerusalem dated October 1882, says the Jews in Palestine are divided into two major groups, Sephardim and Ashkenasim.

Sephardim <sup>27</sup>	Ashkenasim
6000 in number	More than 9000
Native Jews of this country, descendants	They are from Poland, Russia and the Danubian
of the original Palestinian Jews, speaking	Principalities- all speaking German. They are
Arabic.	more interesting by their keen mental powers.
They are more attractive by their manners.	Ashkenasim came in Jerusalem in order to
Native descendants of the Jews. Expelled	retire from the world, and to live an intensely
from Spain in 1492.Speaking Spanish.	religious life, unfettered by worldly business.
Indian Jews are of Eastern Sephardic	
Tradition <sup>28</sup>	

Table 2:	Major	Classification	of Jews
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BG of 1885 carries a letter written by J E  $A^{29}$  dated December 17, 1885 to the editor of BG (possibly J E Abott<sup>30</sup> as he was associated with this area. Ashtami, and only his name matches with the JEA short form) in connection with little village 'Ashtami' near Roha in Konkan. Roha was a seat of American Mission Anglo-Vernacular School. In the attractions of Ashtami it says, Asthami has a public spirited and most hospitable son of Abraham, who is known far and wide by the name of Dada Saheb.<sup>31</sup> As an illustration of his hospitality J E A mentions that Dada Saheb's vacant bungalow was always placed at his disposal when visiting this part. Dada Saheb's other unobtrusive and thoughtful acts of kindness were too many to mention. He further says ... "The history of Jews in this region is very interesting. According to their tradition, small companies of six or seven were saved from a vessel wrecked on a coast, some 600 years ago. They found themselves entirely destitute, with no knowledge of the language of the natives. They turned their attention to the making of oil and became known as the Teli caste. They have now more or less abandoned this employment for agriculture and other pursuits. My hospitable friend owns many an acre, and is blessed in his basket and store; and need he has of abundance; for otherwise his quiver full of 19 children might raise many a wrinkle of anxiety on his brow. As it is, he regards his numerous household as a rich blessing from above."

A list of books of Basel Mission Book and Tract depository, Mangalore shows the name of the book "*Mill's British Jews*" (in the History Column).<sup>32</sup> In the books for children column, "Stories from Jewish History" is mentioned. Also a big full page advertisement of books

published by the BTBS (Bombay Tract and Book Society) mentioned following books about Jews in the list:

- 1. David King of Israel<sup>33</sup> Krummacher
- 2. Jewish Temple and the Modern Church- Dale
- 3. Moses<sup>34</sup> the Man of God-Taylor
- 4. David the Beloved- Taylor

Strangely, advertisements of BTBS are missing in 1895 issue of *BG* but advertisements of Bombay Auxiliary Bible Society (BABS) can be seen in small columns, as also its advertisement with Marathi Old Testament<sup>35</sup>, Ditto Genesis, Ditto Psalms etc. can be seen in many issues of *BG* 1893.

BG of Nov 10, 1888 in the Homiletical title mentions the following:

I. The release of the twelve tribes from Gilead by Joshua

- a) How he acknowledges the paternal help which had been afforded;
- b) Admonishes to faithful compliance with the commands of God;
- b) Dismisses them with his blessings to their tents.

II. As the two and half tribes got the approval and blessing of Joshua so may every Christian after faithful service gain the approval of the master.

*BG* of May 27, 1893 says 'It is gratifying to every well-wisher of Israel Says Word and Work, that Herr Ahlwardt, the anti-Semitic agitator of Germany, has been so overwhelmingly discredited. The 1895 issue of *BG* highlights the annual gathering of the Bombay Bible Women Sabha in Bombay; in which several Marathi Christians and Bible women took part. The subject of the Jews was specially discussed with following bibliography:

- 1. History of the Jews from Abraham<sup>36</sup> to the Captivity Rev. Baba Padmanji.
- 2. History of the Jews in captivity Rev. Tukaram Nathuji.
- 3. History of the Jews from the captivity to the coming of Christ Rev. E. S Hume.
- 4. Present condition of Jews in the World Miss Campbell.
- 5. Full field prophecies concerning the Jews Miss Patterson.
- 6. Unfulfilled prophecies concerning the Jews Rev. M. B. Fuller.
- 7. History of Bene Israelites, Past and Present- Miss Trott.
- 8. How to bring the Jews to Christ Miss Campbell.
- 9. A recent trip to Palestine Dr. Gurubai Karmarkar<sup>37</sup>.
- 10. Is Jesus coming again? Pandita Ramabai.

In January 1895, there is a small write up in BG(p.3)entitled 'To Your Tents O Israrel!' related to the coverage of the National Congress meeting in Madras where O. Evans talked about social and moral reforms. A long letter by Pandita Ramabai (1857-1922) who had earlier

been to America to secure financial help for the Mukti Mission appears in BG (August 27 1898), wherein in the last paragraph she writes My Beni-Israel friend, Miriambai, assisted my dear friend Sunderabai Powar in Managing the Sharada Sadan.<sup>38</sup>

The Feast of Tabernacles was one of the three great annual feasts of the Jews, the others being Passover and the Pentecost. It was a sort of Thanksgiving day, not only for the harvest of that year, at the close of which it was kept, but also as a commemoration of the wanderings of the Israelites in the wilderness. In Leviticus XXIII ( 34-44)<sup>39</sup> we read of the institution of this feast. One of its features was for the people to gather branches of trees and make for themselves booths and live in them, instead of living in their houses, during the eight days that the feast lasted. This was to commemorate the years they lived in tents, to remind them of what god has done for them in the past.

Every Israelite appeared in holiday garments wearing in his hand a palm branch or some other emblem of natural fruitfulness. At night all around the temple were beautiful illuminations.<sup>40</sup>

A report on '*The Bombay Exhibition of the Indian National Congress*' covered by the  $BG(24^{th}$  December 1904, p. 9) mentions in the ladies section about silk embroidery of the Bene-Israel and Hindu widows from Miss Abbot's School in Bombay. Death of one Grace Lazarus <sup>41</sup> was covered in the  $BG^{42}$  where it was mentioned how she was especially kind to the poor and gave them relief, that she would dispense medicine to the women and children that came to the Dispensary of her husband and spent her Sabbath in teaching Hindu, Bene Israel, Mahomedans and Christian children, and singing to them sweet song of Zion.

*BG* also covered prominently the Third Zionist Congress held in Basle, Switzerland from 15-19 August, 1899. The section is reproduced herein for historical value:

#### The Third Zionist Congress covered by Rev Isaac Levinson<sup>43</sup>

"The Third Jewish Parliament under the Presidency of Dr. Herzl has come and gone! Those who were present will remember it as a very memorable movement they have witnessed. Whatever critics may say against political Zionism, it is unquestionably one of the most remarkable forces in Jewish history. In spite of the protest Rabbis, and boycott of many of the wealthy Jews in Europe, it is an undoubted fact that ZIONISM IS MAKING HISTORY!

For some days before the meeting of the Congress, Basle presented a lively appearance. The hotels and restaurants were full. Everywhere Zionist were seen gaily walking about the streets and gardens. The Casino was again the "Congress Hall of Young Israel."

From early in the morning to late at night meetings of Sectional Committees were held; all appeared busy and "serious in a serious cause."

"Rabbis, professors, financiers, journalists- all were seen rushing hither and thither with an earnestness worthy of the great cause Zionism represents. Tuesday, August 15<sup>th</sup>, was the great day of the meeting of the Third Parliament of Israel. The Casino was fairly well filled with delegates from all parts of the world, the galleries crowded with friends and sympathizers,

amongst whom were two open Christians. The appearance of Dr. Herzl was a signal for an outburst of enthusiastic applause which lasted for some minutes. The address of the distinguished President was listened to with profound attention. Dr. Herzl told his delighted audience that when he was in Jerusalem he had an interview with the German Emperor. His Majesty received him as no other than the representative of the great Zionist movement. He was full of confidence in the triumph of Zionism, and that by and by they would have a charter from the Turkish Government under the Sovereignty of His Majesty the Sultan; then there would be a legal settlement of Israel in the land of their fathers.

The address of Dr. Max Nordau was again, as last year, a powerful deliverance. The distinguished orator had travelled all the way from Rennes, where he had been busy at the Dreyfus trial. Having delivered his address he returned to Brittany.

Throughout Jewish history, learning and study had formed the foundation of Jewish life and culture.

*The Bombay Guardian Weekly* was popular in the second half of the nineteenth century. It formed a close link between the readers of several countries. The *Oriental Christian Spectator* (*OCS*)<sup>44</sup> one of the oldest Christian periodicals in India was edited by John Wilson (1804-1875)<sup>45</sup>. It started publication in 1830 covering 19<sup>th</sup> century issues; the copies of same can be seen in Wilson College Library, Mumbai. It covered feedback of readers, society's glance by missionaries, evils in Hinduism, poetry etc. It was printed in around 40 pages at the American Mission, Bombay. There is a mention of the English Institution, the highest seminary of the Mission with an attendance of 264 pupils of Jew and other religions (*OCS*, February 1849, p. 50) as tabulated below:

Religion	Number
Hindus	112
Muslims	17
Bene-Israel and Jews	19
Indo-Portuguese (Roman Catholics)	89
Armenian	01
Protestants	24
Others	02
Total	264

Table 3:	Number	of Students	(Religion-wise)
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The same issue of OCS also talks of The Vernacular Boys school's attendance of December 1848 (Table 4).

Table 4: Number of Students in Vernacular Bo	Boys School (	(Religion-wise)
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Religion	Number
Hindoos	215
Musalmans	04
Bene Israel	171

Chart of Money School<sup>46</sup> of Church Missionary Society (CMS) which had 110 scholars also shows Bene Israel Jews (*OCS*, November 1848, p.400)

Table 5: Number of Students in CMS (Religion-wise)

Religion	Number
Hindoos	64
Musalmans	11
Bene-Israel	12
Parsee	01
Negro	01
Christians	21
Total	110

The above 110 scholars were divided into 6 classes as exhibited in Table 6.

 Table 6: Number of Students in CMS (Class-wise)

Class	Hindoos*	Christians	Jews	Musalmans*	Parsee	Negro*	Total
				(Muslims)		(Blacks)	
First	11	01					12
Second	05	06	03				14
Third	07	02	01				10
Fourth	04	01	02				07
Fifth (Section 1)	04	05	02	01	01		13
(Section 2)	05			01			06
(Section 3)	14	01	02	03			20
Sixth or Alphabet	14	05	02	06		01	28
Total	64	21	12	11	01	01	110

\*These words were in use during that period of time.

The syllabus for students was limited. The Upper Division (i.e. first and the second class) were taught from the sacred scriptures, History of Israelites and Acts of the Apostles. Dr Wilson wrote about his work with Bene-Israel and Jewish peoples who were residents of

Bombay before 1849. He says 'many of them with their parents and friends very regularly attended *marathi* lectures on the Lands of the Bible... however very few of them have yet been led to make a public profession of their faith in Jesus of Nazareth as the messiah promised unto their fathers.'

Gradually. the Jews in India assimilated into their surroundings. They adopted the regional dress as well as the local language. Even their names began to show the signs of assimilation. For instance, the first names were Indianized, Samuel became Samaji, Ezekiel as Hassaji, Issac as Issaji<sup>47</sup>. They adopted Hindu names such as Alloba, Elloba, Etba, Dhonba, Sukoba, Raghoba, Gowroba, Dhurmia, Dhondia, Rowji, Abaji, Bawaji, Kummaji, Dadji, Tanaji, Bunduji, Dhumbaji, Ramaji etc. The girls were given Hindu names such as Hassu, Essu, Aka, Maka, Thaka, Saku, Pittu, Raju, Ranu, Gowri, Byna, Bunna, Ladi, Hali, Chinna, Ambai etc.<sup>48</sup> They derived their surnames from the villages where they or their ancestors settled.

Name of Village	Surnames
Aadharne	Aadharnekar
Aakshi	Aakshikar
Aashte	Ashtekar
Bamnoli	Bamnolikar
Chinchavli	Chincholkar
Dive	Divekar <sup>49</sup>
Jhirad	Jhiradkar <sup>50</sup>
Dighode	Dighodkar
Rajapur	Rajpurkars
Tul	Tulkar
Pen	Penkar
Kehim	Kehimkar
Rohe	Rohekar

Table 7: Jew Villages and the Surnames of Resident Jews

Another peculiar fact about Bene-Israel has been mentioned which is not found in any other Indian community. The form of the surname of the married women is derived from husband's name with little modification. The wife of a Penkar would be Penkara and of a Kehimkar, Kehimkara.

As the surnames practically cover all the villages in which the Bene Israel community settled, it ought to help in determining to some extent the early fortunes of this group, their migration from village to village. Curiously enough, there are no Bene Israel surnames derived from the two towns of Revadanda and Alibag.<sup>51</sup> And yet two other insignificant little villages Rohe and Ashtami, quite close to the first mentioned, give us the Rohekars and the Ashtamkars. This might tell us that the Bene Israel arrived in India long before the town of Alibag and Revdanda developed.<sup>52</sup> They established synagogues in the Kolaba region at Alibag, Ambepur, Borlai, Pen and Revdanda.

#### CONCLUSION

Newspaper can be considered a great institution, which is influenced equally by its own tradition and character which is built up for it by a succession of workers as upon fleeting personals factors. It is rightly said that men come and go, but institutions live.<sup>53</sup> Even in the 21<sup>st</sup>century, one can look at this miniscule Jewish Diaspora (which allowed bilateral exchange of ideas) through newspaper sources.

The communities of Jews scattered outside Israel become known as the Diaspora. The Jews were a minority group everywhere they settled and they often suffered persecution. However, in India they attempted assimilation and became in-culture. Kumar Nawathe a businessman who writes for Marathi newspapers and magazines wrote a book in Marathi titled *Austwitz-Nazi Narasanhar*(Genocide) in 2008 <sup>54</sup>and for this he visited Warsaw. He stood still before a memorial wherein an American couple asked Nawathe if he was a Jew. When he said he was from India they said they were grateful to India because Indians were "tolerant and had never offended Jews by even a single word."<sup>55</sup>Delhi's Rabbi Ezekiel Isaac Malekar says, "My heart may be Israeli but my blood is Indian. This wonderful country has never persecuted the Jews and I am proud to belong here."<sup>56</sup>

Jews were seen to join other communities in search for ways to communicate their identity, albeit in new form. The Jews who settled in India formed three distinct groups, the Bene Israelis, Baghdadi<sup>57</sup> and Cochin Jews. Each group practiced important elements of Judaism and had active synagogues.<sup>58</sup> The Bene-Israel is one of the exotic Jewish communities, that excites considerable interest by virtue of their unusual history and exclusive physical and social characteristic. This paper has thrown glimpse of novelty that arises through cross fertilization of ideas between people of diversified belief-system. And the strength of the press is in covering, reflecting and critiquing this variety.<sup>59</sup>

#### **ENDNOTES**

- 1. Diaspora is a generic term applied to a group that has moved away from its motherland and settled in new surroundings away from home.
- 2. Barnouw, International Encyclopedia of Communications, p.26.
- 3. Ghose, A.K. (9 December 2012). 'Do come for the Mehndi at My Jewish Wedding', in *The Times of India*, p. 22.
- 4. See *Bombay Guardian (BG)* of March 11, 1899, p.10 which mentions how a remarkable increase in the population in Jerusalem during the last fifty years is exciting much interest. The number today (in the year 1899) is estimated at 45, 000, of these 28, 000 are Jews. Indeed, the whole Jewish population of Palestine is reckoned at 100, 000.
- 5. Israel, The Jews of India, p.12.
- 6. Texiera also went to Persia and Malacca
- 7. Adler (ed.), Jewish Travellers: 801-1755 A.D, p. xxiii.

- 8. Sternbach, 'Jews in Medieval India as mentioned by Western Travellers' in the *Proceedings* of Indian History Congress of 1945, p. 172.
- 9. In the Bible the word "*Rahab*" is occasionally used to refer to Egypt; perhaps David Rahabi's family, or he himself came from Egypt.
- 10. Mandelbaum(1977). 'Caste and Community among the Jews of Cochin in India and Israel' in Harjinder Singh (ed.).*Caste among Non-Hindus in India*, p.117.
- 11. Kulkarni(2000). Maharashtra: Society and Culture, p.170.
- 12. Isenberg(1988). India's Bene Israel, p.3.
- 13. A place 30 miles south east of Mumbai.
- 14. The Marathi Jews of Israel today say Israel is in their blood, India in their souls. Some of them still retain their Indian links including Marathi customs and language.
- 15. Chopra, Ravindran and Subramanian (1979). *History of South India Vol.II : Medieval Period*, p.197.
- 16. Oriental Christian Spectator (OCS) Newspaper of August, 1861, p.361 mentions about Rufus Anderson as one of the most enlightened missionary statesman of his age, who was opposed to sending women out as missionaries. He also wrote a tract entitled 'Labors and Hindrances of the Missionary'.
- 17. Shirgaonkar(1972). Ph.D Thesis, p.45.
- 18. Bombay Guardian (BG), May 17, 1856, p.155.
- 19. Patwardhan(1990). Ph.D Thesis, Pune, p.91.
- 20. op. cit Shirgaonkar, p.148.
- 21. Ibid., p.304.
- 22. The *AMM* diverted its attention to Ahmednagar (Maharashtra) by 1831 and made it the Jerusalem of Protestant Christianity in Western India.
- 23. Tabernacle, also called the Tent of Meeting (movable structure) was the centre of worship of the Israelites during early Biblical times.
- 24. BG, January 21, 1882, p.38.
- 25. BG, January 28, 1882, Front page.
- 26. BG, December 30, 1882, p.825.
- 27. The Hebrew name for Spain is Sephardim. *Hindustan Times* (19th April, 2008) mentions Indian Jews are of eastern 'Sephardic' tradition( p.18)
- 28. Hindustan Times, 19th April, 2008, p.18.
- 29. BG, December 26, 1885, p.822 mentions JEA as a missionary associated with American Marathi Mission.
- 30. Also the article by Madhavi Rajyadhyaksha, 'True Brit', in The Times of India, January

2010, p. 6 mentions about an American Rev. Dr. Justin E Abbot, who had a penchant for the work of Marathi Saintpoets. Abott is said to have translated the poetry of bards like Sant Tukaram and left behind money in his will for such translations in future.

- 31. Dada Saheb was a Jew.
- 32. BG, May 29, 1880, p.147.
- 33. Under King David and his successor Soloman, the Kingdom grew in size and power.
- 34. Moses taught his people to believe in One God. This became the central pillar of the Jewish faith. Interestingly the *BG* of February 14, 1863, cover page mentions about US Proclamation of Emancipation made in January 1863 under which 3, 119, 397 slaves were declared forever free. This was equal to the entire population of Scotland, and considerably greater than the number of Israelites whom Moses brought out of Egypt.
- *35. World Book Millennium*, 2010 mentions how the Jews produced the Hebrew Bible which Christians call the Old Testament. With its belief in One God and its moral teachings, the book became a cornerstone of two world religions, Christianity and Islam.
- 36. Abraham, the founder of the Hebrew people, according to Bible, was forced to leave his homeland because of unrest and war.
- 37. According to *BG* of April 22, 1899, p.3, Gurubai did her M.D. from Women's Medical College, Philadelphia. She rendered aid when plague appeared in the Boarding schools and the Widow's Home.
- Ramabai was instrumental in establishing Sharada Sadan near Wilson College, Mumbai in 1889.
- 39. Major source of Jewish scriptural law.
- 40. See BG, 18th February, 1899, p.7.
- 41. She died on 26th December, 1886.
- 42. See BG, 19th February, 1887, p.118.
- 43. As in *BG* of 7<sup>th</sup> October, 1899, p.3.
- 44. Published between 1830-1860.
- 45. Scottish Missionary and Orientalist who arrived in Bombay in 1829, was also the Vice Chancellor of University of Bombay. Wilson college was founded in his memory in 1887.
- 46. BG of 15<sup>th</sup>April, 1899(p.12) mentions how Money School was established in memory of Robert Cotton Money who served in the Revenue Dept in Southern Konkan. As a Christian, he had urged upon Government the claims of imparting a Christian Education.
- 47. Roland (1989). Jews in British India, p.12.
- 48. Kehimkar(1937). The History of the Bene- Israel of India, p.38.
- 49. Samuel Divekar, the man who facilitated the making of the Gateway of India and Mahatma Gandhi's doctor, David Arulkar were Jews.

- 50. The families of Jhiratkar, Shapurkar and Rajpurkar received *Sanads* (A *sanad* is a government document or warrant conveying a privilege or an authorization or faculty for something to be done) at first from the Mughal rulers and then from the chiefs of Angaria and of Janjira.
- 51. Front page of *BG* of July 17, 1880 gives a report of the Free Church Missions for 1879, which says there are Beni Israel Schools in the neighbouring Concan (also spelt Konkan), and an Anglo-vernacular school at Alibag.
- 52. Reuben (1913). The Bene Israel of Bombay, p. 9.
- 53. The Calcutta Review of January 1899, p.104.
- 54. 28th April, 2008 was birth centenary of Oscar Schindler
- 55. Eunice de Souza, 'Searching for Schindler' in *Mumbai Mirror* of 2<sup>nd</sup> January, 2009, p.6.
- 56. Hindustan Times, 19th April 2008, p.13.
- 57. David Sassoon was a famous Baghdadi Jew who formed many institutions across Mumbai. Sans Soci, the Palatial Mansion of the Sassoon family in Mazgaon was later converted to the Masina Hospital. There is also David Sassoon Library and Reading Room in his name founded in 1847.
- 58. In a write up 'The improvement of Bombay City' in *BG* of March 11, 1899, p.10, the map of part of Bombay is described, wherein Byculla area having Jewish Synagogue is mentioned. Hope Street has been renamed David Sassoon Library Marg after the Library of the same name nearby, Rachel Manasseh, one of the few surviving descendants of the eminent Sassoon family of Bombay was present at the renaming function. Manasseh describes David Sassoon as a "merchant Prince who made his money by trading in cotton".
- 59. Interview of Abe Rosenthal, columnist who had been associated with the *New York Times* (NYT) for over fifty years.*Times of India* of 13<sup>th</sup> March 1999(p.10).

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### INDO-AFGHAN POLITICAL RELATION UNDER MODI GOVERNMENT

Afroz Ahmad\* Najish\*\*

#### ABSTRACT

In the General Election held in 2014, India once again broke its own record by conducting the largest democratic exercise in history. The victorious Bharatiya Janata Party (BJP) won a majority in the Lok Sabha becoming the first party to do so since 1984 and the firstever non-Indian National Congress Party to rule India's federal government without need for coalition partners. During the election campaign, Modi blamed Congress-led United Progressive Alliance (UPA) that it has failed to endure friendly and cooperative relations with India's neighbors. He also made promise that if BJP will come to power, his leadership will take sufficient steps to revive friendly relations with neighbors. Since coming into power, Modi government has been continuously seeking to fulfill those promises by forging friendly ties with India's neighboring states. This paper seeks to examine the continuity and changes that have taken place in foreign policy of India towards Indo-Afghanistan relations under Modi Government.

Keywords: Afghanistan, changes, continuity, foreign policy, political reconciliation, rebuilding.

#### **INTRODUCTION**

The historical roots of India-Afghan relations can be traced back to ancient time. The friendship between India and Afghanistan are not solely restricted to the governments in New Delhi and Kabul. They have had strong historical contacts based on exchanges between the tradition, culture, and people. The bilateral ties between India and Afghanistan spans centuries, given Afghanistan's close links to the South Asian civilisation historically. India has traditionally maintained strong cultural ties with Afghanistan, resulting in stable relations between the two States.

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#### **INDIA-AFGHAN POLITICAL RELATION**

The present India- Afghan relations can be traced to King Zahir Shah (1933-1973). During the regime of King Zahir Shah, India enjoyed healthy and amicable relations with Afghanistan. Even after his overthrow, India managed to maintain good relations with succeeding communist regimes.<sup>1</sup> During the Cold War period, the two States tend to embrace almost similar foreign policy. While India was one of the active members of the Non-Aligned Movement, Afghanistan also tried to forge an independent foreign policy and, briefly was able to effectively play one superpower against the other thereby garnering economic assistance from both sides. Gradually, due to changing regional equations in South Asia where on the one hand the USA sought to establish close ties with Pakistan and on the other the Soviet Union started providing extensive military and economic aid generously. In such scenario, Afghanistan gradually fell into the Soviet orbit of influence, culminating in the Soviet invasion in 1979.

The Non-Aligned Movement was divided on this issue, and India was one of the few nations to support the Soviet invasion and occupation of Afghanistan, thereby damaging severely its prestige and credibility in the international community.<sup>2</sup> The collapse of the Soviet puppet regime of Mohammad Najibullah and the resulting civil war inside the country left India with limited influence in the country. Indeed even during the Burhanuddin Rabbani regime (1992-1996) in Afghanistan, India had a limited presence in the country.<sup>3</sup> In 1996, when Taliban came to power, India was at a loss to evolve a coherent foreign policy response. As Taliban had close ties with Pakistan, India's ties with Afghanistan hit their nadir through the Taliban's seven year rule when India supported the Northern Alliance of Ahmed Shah Massoud to oppose the Taliban by providing money and material.<sup>4</sup>

The dreadful terrorist attack on the United States on 11 September 2001 changed the political scenario in South Asia when the US declared War on Terror. The National Democratic Alliance (NDA) government promptly offered the US logistical support for military action against the Taliban regime.<sup>5</sup>Ever since the fall of the Taliban in 2001, India has tried to pursue a proactive Afghanistan policy, and a broad-based interaction is taking place between the two states.<sup>6</sup>The emergence of the Karzai regime in the wake of the toppling of the Taliban gave India an opportunity to rebuild its ties with Afghanistan. Karzai, who had obtained much of his education in India, was well disposed towards pursuing a cordial relationship.<sup>7</sup> India actively participated in the Bonn Conference and was instrumental in the emergence of post-Taliban governing and political authority in Afghanistan. Since then, India's main focus has been to support the Afghan government and the political process in the country as mandated under the Bonn Agreement of 2001.<sup>8</sup> India has continued to pursue a policy of high-level engagement with Afghanistan through extensive and wide-ranging humanitarian, financial, and project assistance, as well as participation in international efforts aimed at political reconciliation and economic rebuilding of the country.<sup>9</sup>

During each of his visits to India by President Karzai, several important bilateral initiatives have been announced by both sides. New Delhi has emerged as one of Afghanistan's top six donors, having extended a \$500 million aid package in 2001 and gradually increasing it ever since. This includes a \$70 million financial commitment by India for the construction of the

Zarani-Delaram road: a Preferential Trade agreement between the two states. This project was completed in 2008 by India's Border Roads Organization despite stiff resistance from the Taliban. The security of the Indian workers on this project was provided by a 300-manstrong paramilitary force furnished by India, which caused the project to exceed time and monetary deadlines. The Indo-Afghan Memorandum of Understanding (MoU)(2006) includes, interalia, cooperation in the fields of civil aviation, media and information, rural development, standardization, and education; and the establishment of a Joint Committee at the level of Commerce Ministers to conclude an Export-Import (Exim) Bank Line of Credit of \$50 million to promote business-to-business relations. Afghanistan has also required Indian aid in agri-technology, which would halt desertification, deforestation, and water wastage in Afghanistan.<sup>10</sup> India has built Afghanistan's new Parliament building and trained its legislators. It has also helped build a power transmission line to Kabul and developed a hydroelectric project at the Salma Dam in Herat at a cost of \$180 million.<sup>11</sup>Furthermore, India has also been active in providing various forms of humanitarian assistance to Afghanistan. India is also investing in the rebuilding of institutional capacity in Afghanistan by providing training to more than 700 Afghans in various professions, including diplomats, lawyers, judges, doctors, paramedics, women entrepreneurs, teachers, officials in various departments of Afghanistan's government, public officials, and cartographers. Afghanistan's public transport system relies on Indian support, as India is not only providing buses but also training traffic operators and other personnel related to transport. Finally, it granted as many as 500 scholarships on an annual basis to Afghan students under the aegis of the Indian Council for Cultural Relations (ICCR).<sup>12</sup>The former Indian Prime Minister, Manmohan Singh, visited Afghanistan in 2005, the first by an Indian head of government in 29 years. (Indira Gandhi visited Kabul in 1976, the last Indian Prime Minister to do so before Singh). In an act of significant symbolism, Singh's visit was also the first by a foreign Head of State or government to last for more than a day since the ouster of the Taliban in 2001, as Singh brushed aside concerns for his security and demonstrated India's special commitment to Afghanistan.<sup>13</sup> During the visit, Prime Minister Manmohan Singh announced that India would adopt 100 villages in Afghanistan to promote integrated rural development by introducing solar electrification and rainwater harvesting using technologies that have been developed and successfully demonstrated in India. While announcing a gift of 1000 sewing machine to the Ministry of Women's Affairs, it was agreed that India would assist in establishing a Women's Vocational Training Centre in Kabul.<sup>14</sup>

However the strategic realities in South Asia radically changed in the aftermath of killing of al-Qaeda chief Osama bin Laden by US commandos in the Pakistani town of Abbottabad on 2 May 2011. Indian Prime Minister Manmohan Singh lost no time in reaching out to Afghanistan with his two-day visit to Kabul, where he announced a fresh commitment of \$500 million for Afghanistan's development, over and above India's existing aid assistance of around \$1.5 billion.<sup>15</sup> New Delhi and Kabul agreed that the "strategic partnership" between the two neighbors, to be implemented under the framework of a Partnership Council to be headed by the foreign ministers of the two nations, would entail cooperation in areas of security, law enforcement and justice, including an enhanced focus on cooperation in the fight against international terrorism, organized crime, illegal trafficking in narcotics, and money laundering. The Indian Prime Minister, in a rare honour, addressed a Joint Session of the Afghan Parliament,

underscoring Indo-Afghan unity in fighting extremism. Most significant of all was Singh's expression of India's support for the Afghan government's plan of national reconciliation involving Taliban insurgents, thereby signalling an end to India's public opposition to a deal with the Taliban and bridging a strategic gap with the US.<sup>16</sup>

New Delhi's review of its regional foreign-policy priorities couldn't have come at a more urgent time. The Indian Prime Minister's visit was followed by the signing of a landmark strategic partnership agreement between New Delhi and Kabul during Hamid Karzai's visit to New Delhi in October 2011, which commits India to "training, equipping, and capacity building" of the Afghan security forces. India has pledged to train and equip Afghan army and police force, expanding on limited training it conducted for the Army in India a few years back in 2007. India acceded to Afghanistan's request for 150 army officers to receive training at Indian defence and military academies and also agreed to begin hosting training sessions for Afghan police officers.<sup>17</sup>

The two nations agreed to enhance political cooperation and institutionalise regular bilateral political and foreign office consultations. Underscoring its role as Afghanistan's main economic partner, India hosted the "*Delhi Investment Summit on Afghanistan*" in June 2012, where it called upon the private sector in the regional states to invest in Afghanistan "to create a virtuous cycle of healthy economic competition in Afghanistan."<sup>18</sup> The strategic pact with India is Afghanistan's way of trying to deal with an increasingly menacing Pakistan. During his visit to New Delhi, Karzai was categorical in stating that South Asia faced "dangers from terrorism and extremism used as an instrument of policy against innocent civilians."<sup>19</sup>

#### INDIA- AFGHAN RELATIONS UNDER MODI GOVERNMENT

After an overwhelming success in 2014 historic election BJP came to power, Modi invited heads of government of Afghanistan, Bangladesh, Bhutan, Maldives, Nepal, Pakistan and Sri Lanka in his swearing ceremony. Hamid Karzai, Afghanistan's President, readily accepted the invitation. After the ceremony, Modi described new government's first major initiative in foreign policy as the "right decision at the right time" with neighboring countries.<sup>20</sup>

First in the list, the Hon'ble Minister of External Affairs Smt. Sushma Swaraj visited Afghanistan and called on the President Karzai and jointly inaugurated a monumental Afghan Flag on 10 September 2014. This flag, a symbol of Afghan unity and nationhood was organised with assistance from various sponsors including the Flag Foundation of India. India announced the US \$ 1 million for creation of a National Public Park around the flag. Sushma Swaraj also inaugurated the new Chancery complex in Kabul from which the Embassy has started operating since July 2014. She pointed out that this was the clearest statement of 'No Exit' policy by India. During the '*Heart of Asia 2015 Conference*', Ministry of External Affairs Sushma Swaraj led a high level delegation to Islamabad. In the conference, Ministry of External Affairs stressed on increased connectivity, regional trade and openness with Afghanistan, and also "extended India's hand towards Pakistan" in this regard. PM Modi met the new President Dr Ghani on the sidelines of the SAARC Summit in Kathmandu in November 2014.

#### Journal of Indian Research

In 2014, Presidential elections were held in Afghanistan. After a protracted electoral process for two rounds of elections and UN mediated audit process, a Political Agreement was signed between two leading contenders Dr Ashraf Ghani and Dr Abdullah Abdullah which led to the formation of National Unity government, inaugurated on 29 September 2014. On 14 March 2015, Abdullah Abdullah, Chief Executive of Afghanistan arrived in India for a three days visit. During his visit he met with Hamid Ansari, the Vice President of India and some other high ranking government officials. He also participated in India Conclave Conference organised by the *India Today* magazine. President Dr Ashraf Ghani, paid an official visit to India in April 2015. During the visit, President Ghani met President of India, Shri Pranab Mukherjee; Prime Minister of India Shri. Narendra Modi; and External Affairs Minister Sushma Swaraj, Both sides discussed the cooperation and assistance in various sectors including the health, education, agriculture, disaster management, power sector and electoral management.<sup>21</sup>

On 25<sup>th</sup> December 2015, Prime Minister Narendra Modi, along with a high-level delegation paid a visit to Afghanistan. During his visit he called on President Ashraf Ghani; he met Chief Executive, Dr Abdullah and Former President Hamid Karzai. During his visit he inaugurated the newly built Afghan Parliament; and Prime Minister Narendra Modi announced 500 scholarships for the children of the martyrs of Afghan Security Forces in school and colleges both in Afghanistan and in India. Prime Minister Modi also gifted four Mi 25 Attack helicopter to Afghan Air Forces.

Prime Minister Modi and President Ghani discussed key aspects of utilisation of India's pledged assistance of over US\$ 2 billion for development in Afghanistan. The Prime Minister also assured the President that as always, India will continue to be guided by the priorities and requirements of the Government of Afghanistan, including priorities for reconstruction in Kunduz in the aftermath of terrorist rampage. The two leaders noted with satisfaction that India-assisted projects including Doshi and Charikar sub-stations and India-Afghanistan Friendship Dam in Chishti Sharif, Herat was to be fully functional shortly. President Ghani apprised Prime Minister Modi of the vast benefits to agriculture and the common man that would accrue from the Dam.<sup>22</sup>

President Ghani and Prime Minister Modi exchanged views on the security situation in Afghanistan, which faces serious challenges of terrorism, extremism and narcotics. Strongly condemning the barbaric incidents of terrorism in Afghanistan in recent months, the two leaders reiterated that peace in Afghanistan required the elimination of terrorism perpetrated and supported from sanctuaries and safe havens. Prime Minister Modi expressed deep admiration of the people of India for their brave Afghan brothers and sisters in combating all forms of terrorism at great cost to them. The two leaders agreed that groups and individuals that perpetrate violence on the people of Afghanistan cannot be allowed to exercise control or wield influence over any part of Afghanistan's territory in any manner whatsoever, as that would pose serious risks to the gains of the last nearly one and half decades, and renew those very threats against which the people of Afghanistan and international community had resolutely fought and made great sacrifices.In June, 2016, PM Modi made yet another trip to Afghanistan during which he with President Ghani jointly inaugurated the \$290 million Salma Dam in

Herat. The water from the dam will help irrigate the parched region and assist the country in taking advantage of the opportunities once the Chabahar port is completed. During the visit, it has been decided to conduct the first Strategic Partnership Council meeting headed by the Foreign Minister of the both country in the first quarter of 2016 along with four joint working group meetings.<sup>23</sup>

Recently on 24<sup>th</sup> October 2017, Afghan President Ashraf Ghani made a rushed visit to India, at the invitation of Prime Minister Modi. This was President Ghani's fourth visit to India in the last three years and the 12th personal interaction between the two leaders. During the visit both leaders discussed the issues related to cross-border terrorism and greater cooperation with India. According to the Joint Statement issued after the meeting between the two leaders, President Ghani appreciated India's "efforts in defence and security fields, including training of thousands of Afghan defence and security personnel". The Indian side "agreed to extend further assistance depending upon the needs of the Afghan defence and police forces". The Indian "leadership reiterated its support for a negotiated political reconciliation in Afghanistan that is Afghan led, Afghan owned and Afghan controlled. It was emphasised that renunciation of violence and terror; and closure of state-sponsored safe havens and sanctuaries were essential for any meaningful progress and lasting peace".<sup>24</sup>

Both sides agreed that the recent convergence and alignment of views at regional and international arenas have created opportunities for bringing peace, security and stability in Afghanistan. It was agreed to further deepen the bilateral strategic dialogue and consultations at all levels in order to achieve the shared objectives". Both sides "discussed the possibility for early operationalisation of the Chabahar Port, including the shipments of wheat in coming weeks to Afghanistan through the port. This step is vital in shaping new trade and transit opportunities for landlocked Afghanistan. The Indian side reiterated the readiness of its Integrated Check Post at Attari for receiving Afghan trucks carrying goods to and from India". Both sides "agreed to work closely with the regional and international partners; and consult, coordinate and cooperate in various international fora, with the view to further the objective of seeing Afghanistan emerge as a stable, peaceful, united, progressive, prosperous and pluralistic nation".<sup>25</sup>

#### CONCLUSION

In recent times, India's foreign policy towards Afghanistan has been geared more actively to secure a reciprocal friendship believing that such tie is beneficial for both sides. Since ancient times, both India and Afghanistan have been linked through cultural linkages. Though the partition of British India changed the geographical contiguity still it did not alter the warmth that both shared from time immemorial. Today Indo-Afghanistan relations are multidimensional and unique in scope and characterization as both countries have acknowledged complete sovereignty, territorial integrity and independence of each other. For India, the geographical location of Afghanistan makes it an immediate neighbor as well a gateway to/from central Asia. The importance of India in the wake of being a rising economic power is irresistible not only in region but at international arena. For post-independent India, Afghanistan showed its firm support to India against Pakistan on the issue of Kashmir as well as Pakistan's entry into UN in 1948. Amidst the changing power equations during the Cold war and Indira Gandhi's stand on Soviet invasion of Afghanistan generated discomfort for both countries, still they managed to maintain cordial ties in terms of cultural linkages as well as economic assistance. In 1996, India suffered greatest strategic setback with the rise of the Pakistan-backed Taliban to the centre stage in Afghanistan. Afghanistan under Taliban then notoriously shifted towards becoming a hub of terrorism which India had faced in form of bloody Islamic insurgency in Kashmir and hijacking of Indian airliner IC 814 to Kandahar in 1999. The post- 9/11 events tilted India towards favouring the opposition Northern Alliance against Taliban under the international clamour for "War on Terror".

The Indo-Afghan relation under President Hamid Karzai was seen as an attempt of reviving old ties by means of extending diplomatic and extensive humanitarian support to the Karzai Government by India. Remarkably, under Modi government the ties ameliorate onto a new level of increased connectivity, regional trade and openness with Afghanistan.Indian PM Modi emphasized on "Development and Good Governance" as key to reinvigorate its relationship with international community under the theme 'Chalein Saath Saath: Forward Together We Go' and 'Sanjha Prayas, Sab ka Vikas: Shared Effort, Progress for All'. Regular visits by leaders on both sides further cemented the ties between the two. Both India and Afghanistan have expressed mutual concerns over tackling the issues of terrorism, extremism and narcotics. It is important to keep in mind that despite the close ethnic, religious and geographical contiguity with Pakistan, Afghanistan tends to forge strong ties with India. This actually is a plus point for India because any upheaval in Afghanistan has direct impact on Indian security aspects. Similarly being a rising economic power in the region, India can provide huge assistance to Afghanistan in form of aid and intelligence for its stability in political as well as economic affairs. Both States have understood this very well that a mutual bonding based on common interest is vital for each other. Prime Minister Modi continuously sought to take this relationship to a new level from bilateral to multilateral engagement. The vulnerability of both India and Afghanistan towards growing terror activities prompted the two nations to take pledge in enhancing cooperation against terrorism and establishing peace throughout the region.

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## INDIAN PRINT MEDIA REPORTING ON OBOR INITIATIVE: A QUANTITATIVE AND QUALITATIVE ANALYSIS

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#### ABSTRACT

Media reporting on any subject or policy is the provider of first hand knowledge to the common people of a country. When it comes to reporting any other country's policy initiative or some socio-economic agenda, it automatically gets politicized in other country's media. Given the importance of role that media play at sub-regional, regional and inter-regional platform; it becomes quite inevitable for media to provide accurate and objective information to their readers. China's One Belt One Road(OBOR) initiative is one such initiative which frequently feature in Indian print media that had shaped the firsthand view of Indian common people about this initiative. Given the size and impact of this initiative, it is imperative for academia to critically examine the reportage done by Indian print media – Here Times of India and The Hindu, and try to understand India's perception on One Belt One Road(OBOR).

**Keywords:** Bangladesh, China, India Myanmar Economic Cooperation (BCIM EC), One Belt One Road(OBOR), *The Hindu, The Times of India*.

#### INTRODUCTION

Indian print media reporting on One Belt One Road(OBOR) is if not very intense then still had have done a considerably moderate reporting. India's English print media is basically dominated by two groups in terms of circulation, one is The *Times of India* and the other one is *The Hindu.*<sup>1</sup> *The Times of India* is generally considered as taking a hard stand on news related to China whereas *The Hindu* is considered as being very objective on China news and also document Chinese perception. Since the announcement of One Belt One Road(OBOR) by Chinese President Xi Jinping in Nazarbayev University in Kazakhstan and Indonesian Parliament in Indonesia in September and October 2013,

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respectively,<sup>2</sup> these two English medium Indian newspapers have given a considerable amount of reportage on the Chinese initiative. In this section we shall try to figure out the nature of their reporting and the significance for Indian policymakers or try to gauge the perception of Indian intellectual class through their articles that appeared in the above mentioned two print media. We have collected the news articles, editorials or any news piece that had appeared in these two English newspapers. To collect the news articles, we have used the Access World News portal which provides access to all the print news media reportage across the world as well as the online edition of these two newspapers. The time period wehave chosen is from 2013-2015, a total little more than two years of period. The initiative itself was pronounced in September and October 2013, so news regarding this initiative started appearing in electronic and print media from this time onwards itself. Years 2013 and 2014 have also been very crucial year for India and China as both the country saw change in leadership and major shift in their domestic and international profile. President Xi Jinping vowed to keep the pace of socio-economic reform and keep china as the engine of world economy while Indian Prime Minister Modi also embarked on the process of intense economic reform and emphasis on the trade and commerce. In such a crucial time period both China and India have embarked on series of projects which will have lasting impact on Asian economy as well as world economy. In this backdrop, we shall try to evaluate the reportage on One Belt One Road initiative in the abovementioned two Indian English print media quantitatively and qualitatively.

#### **QUANTITATIVE ANALYSIS**

Since the pronouncement of OBOR initiative, in the last four months of 2013, Indian media haven't given a very wide range of reportage on the Initiative. Most of the reporting were done on high-level bilateral exchange or State visit like Indian Prime Minister Manmohan Singh's visit to China in October, 2013. Indian media haven't reported that Chinese side has extended any invitation to Indian side to join OBOR initiative. This was most probably because Chinese side may be still working on the modus vivendi of OBOR project and wanted to do more homework before inviting India to join the project. They even may be trying to calibrate India's response if they are being invited to the project. The Times of India has clearly shown no sign of carrying big editorials on the Chinese initiative. They have merely mentioned this initiative under eye-catching themes like the reporting on 28<sup>th</sup> Oct, 2013 titled "Xi calls for comprehensive strategy to engage neighbors". In September 2013, Times of India reported that "China looking to sign FTA with SriLanka". In relation to directly related news on Chinese OBOR Initiative, as authors have searched through the Access World News Portal and the websites of above mentioned two English news print media, could not find articles. In fact, we were able to trace only single news article that appeared in The Times Of India (23 December, 2013), and in The Hindu (21 December, 2013). Both reported on Bangladesh, China, India, Myanmar Economic Cooperation (BCIMEC). This news was about the First Joint Working Group meeting of the BCIM EC held in Kunming and has got stamp of approval from the Indian government. Besides highlighting the positive aspect of this project, the challenges for

Indian diplomacy and business were also given voice in their reporting. Here the important point is that BCIM EC had been pronounced much before the pronouncement of *One Belt One Road Initiative* in September-October, 2013. BCIM EC have been in discussion among the scholars of the four countries since more than decade but it got official stamp in May, 2013 when BCIM EC were mentioned in India-China Joint communiqué during the State visit of Chinese Premier Li Keqiang to India.<sup>3</sup> In 2013, these two Indian print media reporting were confined to BCIM EC.

Reason behind it is quite evident. Indian print media have been paying much attention to China related issues in last few years given the growing trade and commerce activity between China and India. In May 2013, BCIM EC got official recognition by the government of both India and China as it was included in the Joint Communiqué in May, 2013. Second, the first official meeting of BCIM EC Joint Study Group was held in Dec, 2013 in Kunming, where India was represented by Joint Secretary (East) of Government of India, making it a high level intergovernmental meeting, thereby gaining importance in print media.

China although had announced the One Belt One Road Initiative in late 2013, but had not raised the initiative with India till Feb 2014. In Feb 2014, India-China held seventeenth round of border talk in New Delhi where Chinese Special Representative Yang Jiechi extended invitation to India to join Maritime Silk Road to Indian Special Representative Shiv Shankar Menon as reported by the PTI. But by the time, the then UPA government had already become a lame duck government and couldn't take major policy initiative. In 2014, India was passing through national election and outgoing UPA government was preoccupied with domestic politics. Given the political situation in India and China's ongoing deliberation on Vision and Action Plan for One Belt One Road, Indian print media, as it could be sensed from the intensity of their reporting, had not been pursuing the Initiative. It was only in March, 2015 when China announced Vision and Action plan for One Belt One Road Initiative that world media started following aggressively OBOR. In India, *The Times of India* and *The Hindu* had also raised their number of reporting on the Initiative in the following years. We have analyzed the entire collected news piece in both the newspapers in tabular form.

For the quantitative analysis, we have used different variables. We collated 147news articles (News pieces, editorials, opinion all included). News articles have been sorted using variables like length of articles(Below 350 words is categorized as short, above 350 words as medium and above 1000 words as long), degree of attention paid to OBOR, the number of themes of content, the nature of their perception on OBOR. Authors of news articles were also taken into consideration. Articles of journalists of the respective newspapers were characterized as the raw news material but editorial and opinion were characterized as analytical and influential category which had the ability of molding the public opinion. These editorials and opinions were written by scholars, International relation experts and public intellectuals from the national and international institutions. In Table 1, only directly related newspapers were counted on the different variables. Remaining articles that were indirectly related have been reckoned collectively in Table 3.
Newspaper		Length				
		Short (less than 350 words)	Medium (More than 350 words)	Long (More than 1000 words)		
The Hindu	2013	1	2	0	3	
	2014	7	13	1	21	
	2015	14	23	22	59	

 Table 1(a): News Items in Indian Newspapers by Length (2013-2015)

### Table 1(b): News Items in Indian Newspapers by Length (2013-2015)

Newspaper		Length			
		Short	Medium	Long	
		(less than 350	(More than 350	(More than 1000	
		words)	words)	words)	
The Times	2013	4	0	0	4
of India	2014	17	3	0	20
	2015	18	21	1	40

In order to know the attention paid by these two print media to Chinese initiative OBOR, an Attention Score has been calculated by dividing the total number of news pieces on OBOR or related initiative by 365 days multiplied by one hundred to get the standardized score. Year 2013 is exception as OBOR was initiated very late that year but still counted as full year for statistical purposes.

Newspaper	2013	2014	2015	Aggregated Score	Mean Score
The Times of India	14.6	73	146	233.6	77.86
The Hindu	21.9	76.65	215.35	313.9	104.6

Table2: Attention Score (2013-2015)

## THEMES OF THE EDITORIALS

What are the themes of the editorials constituting the content of the news is very important in determining the attention given to Chinese initiative of OBOR. After going through all the news pieces, we have broadly categorized three distinct themes that got priority in two Indian news print media: BCIM EC, CPEC, Maritime Silk Road. Besides these three themes that got most attention in their reporting, there are some other aspects of OBOR that got reported frequently in Indian print media. These include, *interalia*, China-Nepal-India Economic Corridor, Asian Infrastructure Investment Bank, BRICS bank, China-Myanmar Oil Pipeline project, etc. All these projects are now connected to China's grand OBOR initiative which got attention in Indian print media. There are some news items that can't be distinctly categorized so have been grouped into OBOR category as these reports are directly or indirectly related to the Initiative.

News	BCIM	CPEC	Maritime	China-	China-	CNI EC	AIIB	BRICS	Silk Road	OBOR	Total
paper			Silk Road	Indo EC	Eurasia EC			Bank	Fund		
The	1+1+8	0+5+12	2+10+11	0	0+1+0	0+1+	0+2+5	0+0+2	0+1+1	0+3+27	93
Hindu											
The	1+5+3	6	2+7+10	0+1+1	0	0+1+2	0+0+4	0+0+1	0+1+1	0+0+8	54
Times of											
India											

Table 3: Editorials by Theme (2013-2015)

From the above tables, it is quite evident that OBOR gained much attention in Indian public discourse in 2015 when China announced Vision and Action Plan of the initiative and Indian Prime Minister Narendra Modi visited China in May, 2015. In May 2015 itself, *The Hindu* published some six long articles on China which impinges upon the Chinese initiative. Even before Modi's State visit to China, in April, 2015, there appeared some half dozens of articles written by diplomats or scholars on peripheral geo-politics being crafted by China, all in the backdrop of President Xi's State visit to Pakistan.Year 2015 saw an upward trajectory in China-India bilateral exchanges as both countries were trying to gain support for their own several domestic developmental projects.

## **QUALITATIVE ANALYSIS**

After going through each articles themed on OBOR or even briefly mentioning this Chinese initiative in their content, we found a pattern that whenever a high level visit from either side happened, there had been a growing talk about this Chinese initiative in the Indian print media. On any State visit from either side to any country, media usually reports. In this context, there is a consistency on mentioning the Silk Road initiative directly or indirectly. Likewise, President Xi's visit to Southeast Asia (October, 2013) was reported by the Indian print media especially The Hindu. In their reporting, they even mentioned economic and strategic move of China in Southeast Asia. During Indian Prime Minister Manmohan Singh's State visit to China, there was talk about strategic dialogue between India and China but didn't find mention of the then newly pronounced Chinese initiative of OBOR. Again in February2014, Pakistan's President Mamnoon Hussain went on State visit to China and in April same year .Pakistan's Prime Minister Nawaz Sharif met Chinese Premier Li Keqiang to discuss CPEC plan. This became a hot topic for Indian media and they even published reportage on Chinese aid to Pakistan and their implication for India. Chinese President Xi Jinping's State visit to India in September, 2014 was also extensively covered and in that backdrop, Chinese Initiative OBOR also got mentioned. Indian Prime Minister Narendra Modi's State visit to China in May 2015 was also widely reported and in that backdrop Indian media published some report on the Chinese initiative. After analyzing the content, way of narration, length of the reporting, attitude in the reporting and the nature of reportage on the Chinese OBOR Initiative, we found out that most of the reporting can be categorized into following three sections:

**BCIM EC:** Since the announcement of OBOR initiative by the Chinese President Xi Jinping, Indian and Chinese both have emphasized on the BCIM EC. Indian media have reported profusely in this section. Although this initiative has been initiated much before OBOR initiative, in recent two years, this section of OBOR got a strong push. This was the main reason for widespread media attention. Both the above mentioned two print media have done more or less positive reporting on this section of OBOR as its success is connected to India's success.

**CPEC:** Since the moment when news of Chinese investment in Pakistan broke out, it became a topic of discussion in Indian print and electronic media. With the announcement of OBOR in 2013 and later the announcement of CPEC section during visit of Pakistan's President to China (Febuary, 2014), it became a flashing news in Indian Media. In February itself. The Hindu has widely covered visit of Pakistan's President to China and the outcome of second meetings of the Joint Cooperation Committee on China-Pakistan Economic Corridor. The Hindu reported, "China says, Economic corridor with Pakistan on, ignoring raising threat of terrorism in the proposed areas." (18th February, 2104). Report also quoted Chinese Foreign Ministry spokeswomen Hua Chunying stating, "The relevant cooperation is not directed at a third party, and it will have no detriment to the relevant parties' position on the [Kashmir] issue."Since China conformed about her plan of massive investment in economic corridors, India embarked on a series of diplomatic protests as reported by Indian media. First, the then India's Foreign Secretary Sujata Singh while meeting with China's Foreign Minister Wang Yi in April, 2014, lodged a formal complain about Chinese project traversing through the disputed territory. Again while official visit of Indian Vice-President in June, 2014, was on, India lodged official complaint. Chinese President visited Pakistan in April, 2015. It also became a bone of contention between the Indian and Chinese government. Indian government have formally conveyed dissatisfaction over this section of OBOR initiative through many diplomatic channels. Indian print media reporting on CPEC is quite intense given India's outright opposition to this section of Chinese project while completely ignoring China's official position on CPEC. The Hindu and The Times of India have been reporting on Chinese presence in disputed territory between India and Pakistan and Chinese investment which has been a cause of concern for Indian Government again doing negative reporting. From late 2013 till 2015, there were some few dozens of reportage that appeared in both the newspapers collectively ranging from raw information to strategic analysis of the project. They also repeatedly reported India's opposition to the project and Chinese response to them. According to these reports, CPEC Project got official stamp from the Chinese Government during the state visit of Chinese President Xi Jinping to Pakistan in April, 2015. Besides these Indian formal protests, these newspapers have also reported Chinese expert view about the project asking India not to be over worried on the Chinese project as China also maintain warm relationship with India and this project won't alter Chinese official position on Kashmir dispute between India and Pakistan. Indian strategists and foreign experts have written long editorials on the subject analyzing its impact on India's interest and long term geo-strategic implications. Of-course they have also criticized huge Chinese investment and utter neglect of Indian sensitivities which is not entirely true given the positive spirit of OBOR initiative.

### Journal of Indian Research

**Maritime Silk Road:** Indian print media has also done considerable amount of reporting on the Maritime Silk Road since it was offered to India in Febuary, 2014. Maritime Silk Road became a topic of intense debate in Indian strategic circle because many people think it would have a deep impact on the Indian interest in the Indian Ocean and Asia Pacific at large. Indian Ocean is considered as India's sphere of influence and India should have bigger say in this region. Given India's inability to project its influence and its own domestic and international issues, China have taken lead in projecting her own ambitious project in the Asia pacific and Indian Ocean. Under Maritime Silk Road, China would construct ports and infrastructure that had become a topic of intense debate in Indian print media. India's basic concern on the Maritime Silk Road is connected to the huge Chinese investment in SriLanka which were being highlighted by Indian media as strategic asset of China, that again goes against the spirit of globalization and China's effort to bring development in Asia and help realize Asian dream.

On the basis of the content analysis and the ideas extracted from their narration and attitude depicted in some editorials, we found out that these reporting can be categorized into following three sections:

Strategic: All the Indian news reporting on the OBOR can be summarized as more strategic rather than economic and policy initiative. Since India has always been wary of Chinese strategic assets in and around the Indian Ocean, the new push for connectivity and strategic infrastructure development in the Indian Ocean littoral countries make India more critical to such projects. Although Indian government has been showing more restraint in voicing their opinion but the media houses and public intellectuals have voiced their concern more critically. Chinese academia, strategic analysts, even Chinese Ambassador to India have tried to mitigate Indian concern by rightly voicing their idea of development and bringing together world's largest economy. In a report published by The Hindu (April 1, 2015), Chinese Ambassador to India Mr. Li had elaborated in detail the Chinese idea of OBOR and why India should join it. Chinese side has often expressed willingness to help Indian side mitigate their concern and bring India on board. Even Chinese side invited India to participate in Sri Lanka port city construction and be a part of economic activities. After going through a critical analysis of their reporting, it seems that India is not willing to play a second fiddle role in Chinese initiative. India's problem is lack of pragmatism that it often shows in their policy drive towards China.

Indian media have also highlighted President Xi's call for a new Asian Security concept that is broadly based on *"Panchsheel"* or *"Five principles of Peaceful Coexistence"*. In that positive spirit, India should not be worried about the strategic implication of the OBOR project as China has no such intention. China wanted to have *shared prosperity* for Asia and India should respect and cooperate in China's effort.

**Economic:** Although Indian print media reporting on OBOR has heavily taken strategic color but there are some who have voiced economic aspect of the initiative. Many have vouched for participating in the initiative given the economic benefit that India can reap from the initiative. India needs a huge amount of investment in infrastructure development and expertise that it badly lacks. China appears to be offering very timely all that India requires. Again, given the changed geo-political scenario, India should also change its stand of maintaining

### Journal of Indian Research

neutrality and always viewing the initiative of other countries through strategic eyes. In a globalized world, India would be successful in gaining economic benefit only if it changes her outlook on such grand initiative and adjusting domestic politics. After the new government took over in India in May 2014, The *Hindu* highlighted PM Modi as a business friendly leader who had visited China many times as the Chief Minister of Gujarat---a western State in India where there is ample Chinese investment, which should be the right approach for molding Indian public perception on the Chinese initiative for the sake of economic development of the region.

**Policy:** Some serious editorials and opinions published in both *The Hindu* and *The Times* of India have voiced serious policy problems in Indian approach towards China and are cautious about India dealing with China. Some former high level diplomats- cum- scholars had aired their concern in lack of vision on Indian side in dealing with China. China in the 21st century is a changed country with huge economic might with utterly different systems. Given China's complex power projecting initiative, India needs to showcase their imaginative power to harness the benefit and minimizing the loss in her influence in the respective domains. India can neither afford being a part of the initiative nor can be active participant in the initiative given China's solo approach towards crafting and implementing the project. India may opt for middle way to craft her role in this Pan-Asian connectivity. India must bring in some imaginative thinking in her foreign policy regarding China. It is the policy consideration that led India to launch its own *Project Mausaum* and *Spice Route Maritime Initiative* which is a good sign as China is willing to merge Silk Road Initiative with the Indian ones.

There are also some intermittent reportings which are indirectly related to OBOR initiative like reporting on Chinese economy and social issues that, after the announcement of OBOR initiative, are being frequently commented upon. We would summarize by saying that having some concerns on such a vast initiative is quite normal but then having a positive attitude should be the core idea to push forward the agenda of mutual cooperation for the sake of greater benefit and media can play a vital role in bridging the divide.

## **ENDNOTES**

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- 3. See Para 18 of the *Joint Statement on the State Visit of Chinese Premier Li Keqiang to India* at http://www.mea.gov.in/bilateraldocuments.htm?dtl/21723/Joint+Statement+on+t he+State+Visit+of+Chinese++Li+Keqiang+to+India; accessed on 25 February, 2017.

## EFFECTIVE MANAGEMENT OF PANCHAYATS IN INDIA- AN APPROACH PAPER

Ajay S Singh\*

#### ABSTRACT

This study examines the issues affecting decentralisation and empowerment of PRIs in India. It analyses the root cause of ineffective delegation of powers by looking at functions, functionaries and finances. Transfer of functions without functionaries is not of any use. Similarly transfer of functionaries or providing functionaries without accountability and proper skills is not going to offer desired benefits. Providing autonomy to PRIs is a long term goal and it may be done only by strengthening PRIs through proper institution building and making them grow like corporate. The paper prescribes use of ICT for the betterment of financial management and book keeping without adding more burden on already constrained resources of Panchayats. The paper deals in detail the existing software and how these may be synergised to get useful information without doing redundant and duplicate activities for financial management and monitoring.

**Keywords:** Accountability, autonomy, Block Development Officer (BDO), capacity building, decentralization, Gram Panchayat(GP), Panchayat, Public Financial Management System (PFMS), transparency.

### **INTRODUCTION**

#### Background

World-over, communities are favouring decentralisation of power. They are increasingly looking at solutions promoting democratic decentralisation, participative local governance and involvement of civil societies. Citizen-centric service delivery requires increasing attached government set up which is spatially close and smoothly accessible to the citizen, rather than typical empathy-invariant bureaucracy.

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Public administration passes through phases and one such phase was evident in nineties with a new wave of decentralisation. It is characterised by (i) devolution of powers and resources to elected local bodies; (ii) participation of the marginalised and downtrodden; (iii) local solutions for development; (iv) transparency and downward accountability; and (v) administrative reforms to support decentralisation.

## Panchayati Raj in India

Panchayati Raj was discussed and conceptualised in great detail in 1957 when Balwant Rai Mehta Committee, submitted its report and recommended the establishment of a threetier Panchayati Raj Institution (PRI) system at the village (gram), block (samiti) and district (zilla) levels. It remained only a concept and could not take off on the ground. The symbolic implementation of local government was noted by the Ashok Mehta Committee in its 1978 report. He highlighted the lukewarm attitude of the political elite and bureaucracy as the primary factor leading to the stagnation and eventual decline of PRIs. Finally through 73rd Constitutional Amendment Act (CAA)<sup>1</sup>India decided to introduce decentralisation through legislation in 1992. This amendment introduced Part IX in the Constitution, making State Legislatures responsible for devolving power and authority to PRIs. Article 243G, read with the Eleventh Schedule, further elaborated the process and operational part of it and expected the State Legislature to endow the Panchavats with such powers and authority to make decentralisation effective. This is aimed at enabling the 2.74 lakh PRIs in this country<sup>2</sup> (2.67 lakh Gram Panchayats or GPs, 6, 895 Block or Intermediate Panchayats and 700 District Panchayats) to handle responsibilities and take care of the "preparation and implementation of plans for economic development and social justice as may be entrusted to them, including those in relation to the 29 matters listed in the Eleventh Schedule."<sup>3</sup>

### Challenges

Since India is a federal democracy, this devolution of powers between the State Legislature and Panchayats in the Indian Constitution is only outlined and actual devolution was left at the discretion of the State. Thus the aspect of implementation of the cardinal provisions of the CAA to a large extent is dependent on the intention and strength of the State Government enactment and the will to take forward process of decentralization. There is progress in reforms but much is needed. After the recommendations made by the Fourteenth Union Finance Commission. fund devolution to Panchayats has increased significantly. It has awarded Rs. 2,00,292.20 crores as grants to Gram Panchayats (GPs) for the period from 2015-16 to 2019-20 towards provision of basic services in the GP. There are several schemes of Government of India being implemented through Panchayats or providing benefits to villagers with direct or indirect involvement of GP. Schemes like Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), PM AntvodayaYojana(PMAY), PM Grameen Sadak Yojana (PMGSY), National Rural Livelihood Mission (NRLM), National Social Assistance Programme (NSAP), PM Krishi Sinchayee Yojana (PMKSY) of Ministry of Rural Development, National Drinking Water Mission and Swachha Bharat Mission-Grameen of Ministry of Drinking Water and Sanitation have annual allocation of more than Rs.1.28 lac crores. Similarly, Ministry of Food, Ministry of Health and Ministry of Human Resource Development have huge allocations for rural areas. Governments alone spend an average amount of about Rs.2 crore in every Panchayat each year. This huge allocation is not yielding desired results due to severe constraints of infrastructure, capacity to plan and execute village development and social sector projects, and lack of delegation of financial powers along with accountability systems.

There is an urgent need to empower these PRIs by transferring functions, responsibilities and commensurate powers to manage it. PRIs shall be enabled to have suitable elected representatives with capacity to take informed decisions. It shall be provided with mechanism to engage suitable manpower and functionaries must be made available to them with clear control mechanism. Financial delegation and hand holding support to let them start functioning like a well-managed corporate bodies call for a holistic approach to their empowerment. Corporatisation of PRIs is must to make them effective and delivery-oriented in all 29 areas of activities allocated to them under the CAA.

### **AREAS OF IMPROVEMENT IN PRIS**

PRIs must get relevant functions, responsive functionaries and adequate finances before they may be expected to attain autonomy and work like a corporate. This would certainly result in improved:

- (i) decision making;
- (ii) operational flexibility manpower deployment, etc.;
- (iii) accountability and efficiency;
- (iv) disclosure of activities and financial health of the PRIs in time and in a professional manner and reward and remuneration linked with performance and productivity.

## **Decision Making**

Decentralization of powers to PRIs aims at transfer or dispersal of decision making powers, accompanied by delegation of required authority at all levels. It signifies the devolution of powers and authority of governance of the Union Government and State Governments to the sub-state level organizations i.e. Zila Panchayat, Block Panchayat and Gram Panchayats in India. Mahatma Gandhi's development approach was centred on a village where decision making is decentralised and primarily participatory. Gandhi's *Gram Swaraj* conceives an institution where decision would be taken at PRI level and State Government would only exercise such powers which are not within the scope and competence of the lower tiers of participatory governance institutions. Balwant Rai Mehta Committee observed that the country's development cannot progress without the co-location of responsibility and power at even the lower tiers of Government. It further observed that the character of the development programmes should change from "Government's programme with People's participation to People's programme with Governments participation."

In the absence of Panchayats' own financial resources they can hardly undertake programmes on their own in line with local requirements. Fourteenth Union Finance Commission has devolved finance but decision making is still not devolved to the GPs by the States. It is here that *decentralization* of political decision making needs to be complimented by measures to ensure fiscal autonomy for PRIs so that such institutions can spend the allocated funds in appropriate manner and also muster necessary financial resources on their own to be truly self-reliant in local decision-making and its implementation. For improved decision making, it is essential that clear delegation of powers is done, protocols are provided about what to do, how to do and whom to consult for technical and other support.

## **Operational Flexibility**

Since Panchayats implement State and Union Government schemes, they are required to adhere to the guidelines without any authority to deviate even a little as per necessities emanating from local conditions. There is plethora of directions and guidelines, which are well meaning but difficult to implement due to local constraints. Take an example. Under MGNREGA, after simplification of paper work now seven registers are required to be maintained by GP. These registers are to be maintained manually. First, GP will make entry in software and then do detailing in the registers. Entries made in one software namely NREGASOFT are again required in somewhat same manner in Priasoft which is a software for Panchayat level accounting. Book keeping requirement and redundancies are prescribed centrally and for entire India without looking at the availability of capacity to handle the documentation and paper work. There are many activities getting carried out by GPs, where engineering inputs are needed. GPs have to wait for the expert engineering inputs coming from the State or Centre. Local engineering inputs i.e. barefoot engineering are neither appreciated nor respected. GPs need to be provided with functional autonomy and power to select functionaries to complete their requirements.

### Accountability and Efficiency

It is true that under the government sponsored schemes, the schemes and / or beneficiaries are selected by the Panchayats in the Gram Sabha meetings. But often such meetings are captured by the village elite and the capacity of common villagers to register their claims gets limited. Since funds flow from State, maximum accountability is towards the government functionaries. Bureaucratic set up is very dominating and rigid to let accountability, and makes transfer to the villagers or Gram Sabha very cumbersome.

Efficiency of GPs depends on powers delegated and functionaries provided. Budget approval, project approval, fund allocation and verification of completed works and then release of payments are the main activities where capacity strengthening of PRIs is needed. Most of this is not under direct control of GPs, hence it is very difficult to make them efficient at their own. It mainly depends on factors outside their control. Atleast one officer to handle computerised bookkeeping and technical measurements is essential for every GP. Assessment of manpower or technical input requirement need to be done and flexibility to engage manpower shall be left to the PRIs. Broad guidelines may be provided and hand holding be done to facilitate selection of appropriate manpower for the expected pre-defined output.

## **Disclosure of Activities and Financial Health**

Every scheme of Government of India being implemented through PRIs has excessive provisions of disclosure and transparency. Virtually every program or project details and

beneficiary details is to be displayed on notice board or at other prominent place or Panchayat Bhawan. This is aimed at making things transparent to all villagers. There is provision of displaying everything but there is no mechanism to ensure its compliance and fulfilment of intent. Now with the popularity of ICT, it is getting more transparent in real sense. It is also getting popular in select areas as per reach and popularity of internet and social media. Disclosure of information is done in a format designed by either State Government or Government of India. It is seen that there is too much of data in public domain to derive meaningful information. Disclosure requirements may also be left to the PRIs. Let them decide about the areas of disclosure and then same may be facilitated through technical and administrative support.

### CRITICAL COMPONENTS FOR EFFECTIVE MANAGEMENT OF PRIS

In order to make PRIs successful, following four components shall be strengthened:

- (i) Functions;
- (ii) Functionaries and their capacity building;
- (iii) Transfer and generation of finances; and
- (iv) Autonomy.

Transfer of functions to PRIs after due study of local eco-system, availability of commensurate functionaries to help elected representatives to discharge these functions and providing adequate finances to manage the assigned functions are essential requirements for successful management of PRIs. Once these basic ingredients are in place, it becomes necessary to give autonomy to PRIs along with efforts to create capacities to handle delegated powers, carry out procurements, provide inputs for better planning and get the engineering works completed in a professional manner.

### **Assignment of Functions**

Transfer of functions has been done very liberally in many states in India. Functions which are discharged at local level and requires local inputs, monitoring and control shall be transferred to PRIs. It is getting popular year after year to transfer more and more functions to PRIs. Even though 29 items have been listed in the Schedule XI of the Constitution, this list is generic and still not accepted by all States uniformly across the country. Some States have devolved powers and functions within these items and some have done only part devolution. In most of the States, animal husbandry, dairying and poultry, fisheries, agriculture and extension, fuel and fodder, minor forest produce, social forestry and farm forestry are some of the primary functions handled or managed by the GPs.Secondary functions such as small-scale industries and khadi village and cottage industries, non-conventional energy and rural electrification have broader revenue earning potential but require significant technical knowhow hence not very popular in many States. Tertiary functions performed by GPs include providing sanitation, drinking water, construct & maintain streets, street & road lights, help people economically in case of natural calamities, arrangements for fairs, exhibition, wrestling & kabaddi matches for providing recreation to the people. GPs also perform administrative

### Journal of Indian Research

functions and have limited judicial power.

Even though construction of roads, culverts etc. is a very popular function of PRIs, this is hardly taken up by GPs. Urban functions like fire services, slum improvement and upgradation of cattle pond and prevention of cruelty to animals, provision of amenities and facilities like parks, garden and play grounds, public amenities including street lighting, parking lots, bus stops and public conveniences, regulation of land use and construction of buildings, solid waste management are still not handled by majority of the GPs. More worrying aspect of assignment of powers and responsibilities to PRIs is delegation of planning and social development, which is virtually non-existent in most of the cases.

Though functions are getting transferred to the PRIs, concomitant clarity of extent and reach of transfers is not there in many cases. There is disconnect between transfer of functions and corresponding authority to discharge those functions or take corrective action against delinquency during discharge of the functions in many States and GPs. Further, mere transfer of functions would not help decentralised democracy.

### **Functionaries and Their Capacity Building**

PRIs need accountable functionaries and adequate finances. First and foremost requirement is to have functionaries duly supported by adequate infrastructure to discharge the assigned functions. How many staff is placed at the disposal of GP or other levels of PRIs and how many are accountable to the Head of the concerned PRIs?The delineation of the role of the State and the various tiers of the Local Government has been debated at length by different committees. Under Central sector as well as State schemes, most of the functionaries are provided at Block level. Block Development Officer is the key administrator at this level. At district level, administrative and technical set up is much better. However, the cutting edge level of GP lacks suitable manpower. On an average, direct or indirect government spending in GP amounts to more than about 2 crores per year. For an entity handling such huge benefits need to be more robust and strong.

Capacity to lead these important institutions is generally lacking. It requires professional skill sets to run PRIs having diverse area of activities. There are capacity building initiatives taken by Government of India and training programs are organised through National Institute of Rural Development and Panchayati Raj, State Institute of Rural Development and other institutions involved in field of rural development. During last three years, more than 1500 crores were spent by the Government of India alone on capacity building. In this financial year 2017-18, there is a budget provision of Rs.691 crores for capacity building under *Rajeev Gandhi Panchayat Sashaktikaran Abhiyan*. More than 48.95 lacs PRI representatives have been trained during last two years i.e. 2015-16 and 2016-17. In addition, Government of India also incurs expenditure on IEC activities apart from incentivising Panchayats for better performance. Most of the training programs are aimed at training the elected representatives. Despite these efforts, there is general perception that awareness and competence of elected representatives of GPs is still not appropriately enhanced.

Elected representatives are not required to be formally educated; however States like Rajasthan made the minimum educational qualifications for candidates who contest elections for PRIs mandatory. About officials to support PRIs, there are no clear rules. State like Bihar has formulated some guidelines for selection of teachers for primary schools managed by PRIs. Large scale reforms are needed to improve the core staffing in Panchayat. This may be done with clear rules and guidelines to select employees for the core posts in Panchayat across the country. Currently emphasis on basic literacy for Panchayat staff to maintain records is being exploited in selecting staff who are having proximity with Panchayat members or administrators of the State. Such patrimonial selection of manpower, not only creates liability, it also affects outcomes of the PRI.

Merely providing manpower will not solve the problems as there are about 1.20 lacs community cadres engaged in work on rural development programmes in addition to the employees engaged under different schemes/program. These and other local functionaries are regularly trained using capacity building funds of the respective schemes. These functionaries are provided by State in most of the cases and they come under administrative control of the State. PRIs often keep complaining about unresponsive functionaries and lack of control of PRIs on their working, delivery and conduct. This virtually puts PRIs in a position where expectations are high but there is no one to help them or work with them. Thus despite large number of persons associated with developmental programs, it is often felt that suitable manpower is lacking or functions are getting compromised due to lack of responsible manpower.

Head count is not going to give desired results as clear and unambiguous empowerment allowing PRIs to take decisions and enforce them is also required. However, in practice this is not done as public servants entrusted with the discharge of functions are not under the control of the Local Government. Functions and functionaries have the umbilical relationship. It is seen that there are several functionaries at GP, Block and district level who are performing different functions under different schemes of the Central Government as well as State Government. These functionaries are tied to a particular scheme in most of the cases. Further, their engagement is also on short-term contract basis which is extended year after year but without giving the benefit of the continuity. Contractual workers are also assigned responsibility of unrelated activities/schemes. This has been highlighted by the Sumit Bose Committee in its draft report on HR requirements of Panchayats with a focus on implementation of rural development programs. The report has broadly looked at the administrative structure of the Mahatma Gandhi National Rural Employment Guarantee Act, the Pradhan Mantri Awas Yojana, the National Rural Livelihood Mission and that of the District Rural Development Agencies (DRDAs). Problem identified by the Committee is "the profusion of ill-organised cadres and temporary workers to manage programmes".

It is evident that the PRIs are yet to come up as units of self-governance due to inadequate organisational capacity. Overall infrastructure is also a concern in many states. Infrastructure like Panchayat Bhawan, office furniture, electricity, computers, internet connectivity, telephone etc are now essential for PRIs to be able to deliver and keep pace with requirements of reporting and compliance. It is seen that States like Kerala, Karnataka, West Bengal, Gujarat, Maharashtra and Goa have good infrastructure at PRIs and they are doing well in decentralised local administration. Whereas, States like Arunachal Pradesh, Jammu & Kashmir, Manipur, Bihar and Chhattisgarh are not doing well and they have poor infrastructure as well. Though

### Journal of Indian Research

one to one direct correlation is simplistic way of analysis, improving infrastructure in Gram Panchayats will definitely give good result in delivery of services at GP level. Infrastructure clubbed with devolution of powers of functionaries to the PRIs shall be done with linkages to functions being performed. It "should be patterned on the mapping of activities related to the devolved functions." In the initial phases, staff may be provided on deputation to assist the PRIs for assigned activities. Administrative mechanism to ensure accountability of such staff need to be clearly defined. "States or UTs may consider instituting a Panchayati Raj Administrative and Technical Service".<sup>4</sup> Panchayats should have the power to recruit personnel within the resources available; they should have power to regulate the service conditions within the framework provided by the State Government.

### **Devolution of Finances**

There are several sources of finance available with PRIs. It depends on delegation made to PRIs but theoretically they may have own sources of revenues and grants coming from Centre and State.



**Chart 1: Sources of Revenue of PRIs** 

It has been argued that PRIs need to be provided with finance to give them the real strength in terms of autonomy, effectiveness and efficiency. Independence of PRIs as local governments is critically dependent on the non-discretionary financial resources available to them. Finances shall not be dependent on whims and fancies of State or administrators. Funds are essential to fulfil the functional responsibilities assigned to PRIs. After Fourteenth Finance Commission(FC), assured devolution of funds to the PRIs has not only increased but it has become known and transparent.

There is no doubt that transfer of finances has been institutionalised after devolution in pursuance of the Fourteenth FC. But other fund devolution from Government of India and States is taking place in a very unprofessional manner. PRIs are treated as executors of programs/projects but hardly have any control over finances. Wherever they have some control, capacities have not been developed to handle finances in a prudent manner. Autonomy with clarity on role, functions, finances and accountability mechanism is lacking.

### Autonomy

Autonomy arises as an output of multi-layered efforts. Accountability and transparency is promoted through top down approach and in silos. Schemes promoted by different departments of the government at national and sub-national level lack synergy. Institutional mechanism to promote and bring autonomy with good governance ought to have a long term perspective on good governance. It must have clear defined functions, accountable functionaries and finances to support its activities. Accountability on various decisions taken by the PRIs shall be established in clear terms so that model is sustained. The framework for good governance shall provide for opportunities for panchayats, since they are institutions positioned at the cutting edge, the scope for participation of the citizens is immense in their working and the opportunities that exist for building transparency, accountability, fairness and equity in their working could be plentiful.

# RECOMMENDED SYSTEM FOR GOVERNANCE, ACCOUNTABILITY AND TRANSPARENCY

Each State must come up with a road map to transfer functions to PRIs. Transfer shall be done along with detailed guidelines about expectations from different levels of PRIs, corresponding delegation of administrative and financial powers and guidelines about exercising these powers. It may be considered to transfer functions as per the infrastructural strength and robustness of the institutions. Within a State, some districts may be transferred more functions and others may follow. Thus, rather than waiting for the capacity building and institution building to take place in the entire State, benefits of decentralisation of power may be derived in the areas where it has already come up or is better than other places. This would facilitate learning in the nearby areas and encourage other districts to follow them.

PRIs need to be empowered to engage manpower and to have control over them. There is a need to assess manpower for the functions to be performed by GP and other PRIs. Manpower and capacity building should not only be engaged for execution, but also for planning, monitoring, internal controls, financial management and evaluation to realize equitable growth and holistic development. Viability of providing technical and administrative manpower may be assessed at local level. Qualified and trained technical manpower generally migrates from villages. Therefore, local youth may be trained in skills needed in PRIs. To cater to the requirements, skill development programs being run in the country shall include basic engineering drawing and measurement, budgeting, government accounting and book keeping, internal audit, evaluation, social audit and public procurement. Module may be developed for multi-tasking experts for PRIs. Jobs or assignments in PRIs shall be provided only to those who have been skilled in the requisite skill sets as above. This would also encourage youth to take up skilling programs and get employment based on the acquired skills. Further,

### Journal of Indian Research

engineering colleges and technical institutions may be encouraged to send their students on summer training and other projects. During their project and study tour, they may help PRIs in suggesting designs for local developmental projects as per the requirement and feedback of the villagers. Further, they may also carry out measurements and conduct surveys to ascertain usefulness of the executed projects.

Pooled resources for GPs may be thought of with well-defined responsibility and reporting structure so that such functionaries do not end up not doing the work of a few GPs and get paid by the Block or any GP where he is reporting. Though, training is imparted to the functionaries, there is no database of skill set requirements. There is a need to carry out assessment of skill gap and plan of conducting training to reduce these gaps and then do follow up programs to enhance the skill sets. It is essential to create a pool of trained officers at GP and other levels to handle important developmental schemes. Currently training of functionaries is done in a piecemeal manner. Some are deployed on training, as they may be spared or they may be favoured to attend the program conducted by either the State or Government of India. Assessment of output of trained officials is also not done. Based on feedback, further training may be conducted and a decision may also be taken whether training is leading to improvement in skill sets or there is a need to engage suitable skilled person to perform the technical job. Thus, rules of engagement, deployment and redeployment may be framed for PRIs. For every functionary, there must be clear role and responsibility defined. To avoid undue harassment of functionaries, enabling provisions be also put in place. "It is necessary to develop a good human resource policy for staffing along with appropriate infrastructure."5A mechanism to ensure its compliance will help PRIs in the long run.

It is often noticed that factionalism at GP level leads to plethora of bonafide and malafide complaints against elected PRI representatives. Institutions adjudicating on them are alleged to be biased and unaccountable to their decisions. A well-structured mechanism to handle grievances and adjudication may be put in place. This institution may work at district level and gradually expand to block level and handle cases of entire domain of PRIs. Scheme-wise grievance redressal and ombudsman set up may be merged to this or strengthened to handle all functions.

Since funds are being made available by State and Central Government, problem of funds is not that severe. Currently it is more important to create capacities to utilise these funds in a very productive manner. With abundant funds come many vices and challenges, PRIs need to be trained to manage finances without compromising their autonomy and quality of decisions. IT is a good tool to strengthen them for this purpose.

### Use of ICT in Panchayat Administration

As explained above, many functions are being discharged by PRIs in almost all States. There are flagship schemes getting implemented through them. Under Ministry of Rural Development, Ministry of Panchayati Raj and Ministry of Drinking Water and Sanitation, these are getting implemented through State government which in turn uses Panchayat as implementing agency. In all the Centrally sponsored schemes, funds are transferred from Government of India to State Treasury. From Treasury it goes to Sub-Treasury or through SPV to GPs.



Chart2: Fund Flow from Government of India to GPs

Entire fund flow from Government of India to States or other autonomous bodies directly implementing central sector or centrally sponsored schemes are taking place through Public Financial Management System (PFMS). Many bigger schemes capture further details of the implementing agencies and beneficiaries. In many schemes there is dedicated software which is primarily Management Information System(MIS). It intends to capture fund flow and physical deliverables or outputs of the schemes. Some of the software is elaborate and they capture transactions recording physical and financial activities.

Software package NREGASOFT has been developed by NIC and it is taking care of document processing and forwarding the payment requests to PFMS. PFMS takes care of payment and accounting at Government of India level. Accounting at GP level is left to Panchayats to handle. Similarly there are other software portals handling fund flow or document processing up to district or GP level. Ministry of Panchayati Raj has put in place a software developed by NIC called Priasoft. This accounting and transaction software portal has been designed to capture transactions taking place at panchayat level. This is being used by many Pancahyats to handle accounting at GP level. However, as mentioned above, there are software already in use in the Panchayats where the Panchayat functionaries are required to key-in data and same or similar data is required to be keyed in again in Priasoft. Further, there are reporting requirements, which consume a lot of time of the functionaries in preparing reports which may be easily generated electronically. All this not only adds to redundancy but additional work at Panchayat level which is already deprived of trained manpower. In order to derive the benefits from technology and already developed software, there is a need to integrate MIS and other IT tools in such a manner that data interchange can take place seamlessly and benefits can be derived by the Panchavat, State and Central Government as the case maybe. To begin with,





data captured in NREGASOFT and other similar software maybe interchanged with Priasoft so that all the payments happening in the Panchayat can also be captured in Priasoft without making separate entries in the software.

**Chart 4: Software Flowchart** 



After mapping of data structure of schemes and PFMS with Priasoft, data interchange may happen seamlessly. Thus accounts would get prepared without any significant efforts at Panchayat level for these schemes. In all other cases, youchers may be prepared using Priasoft and fund transfer orders may be handled the way it is handled today. Once payment is made, expenditure report may be filed in PFMS using an interface to be developed between Priasoft and PFMS. Wherever GPs have capacity to handle payment using online systems or internetenabled fund transfers. PFMS's EAT (Expenditure, Advance and Transfer) module may be used. PFMS has a provision to release payments to the beneficiary, through this module, if the GPs is registered on the portal. It has a provision whereby all the money going to GPs can also be tracked scheme-wise, program-wise, agency-wise or any other attribute defined in the software. EAT module of PFMS captures expenditure incurred by the agency, advances given to any other agency or transfers made to any other agency. This module also handles payments to be made to the beneficiaries through electronic mode using the secure digital payment method. Thus, there will be a process through which payment will be made using PFMS, to the beneficiary and related account will be maintained in Priasoft whereas many management reports would be available in PFMS as well as Priasoft. It will also provide facility to look into the passbook of the agencies so that the minimum idle fund is kept with them and it may also be monitored by the higher level implementing agency. Once this PFMS module is used, Panchayats will be able to make payment through their bank and keep the account maintained and consolidated using the same. This will also enable them to get the bank re-conciliation done in a more scientific manner. For working under this module, officers need to be trained to work on this module using digital payment methods. There is a provision that user will use dongle for digital signature. However, there is need to introduce other modes of digital signature in PFMS which are easily available in the market.

In the village, every beneficiary may be allotted with one Ledger under which its accounts will be maintained. Each Ledger will contain details of the beneficiary and separate flags for payments received under different schemes of Government of India, State Government or Local Government. Demographic and other relevant data for ledger is already available in one scheme database or the other. SECC data is also a good source to link to the ledger. This ledger will enable the Panchayat to look at the money going into the beneficiary accounts, and overall benefits provided to the family. As per SECC data, reports may also be generated about the help extended to such families of poor economic status. Architecture of accounting maybe designed in such a manner that the ledgers may be maintained for schemes, beneficiaries and sub-ledgering may be done to capture expenditure with minimum efforts.

Further, geo-tagging and photo-evidence of works and beneficiaries also needs to be synergised at GP level. Technical persons going to capture photo or geo-tagged images may be used by GP administration to do the work for the GP, rather than only focussing on a scheme.

## CONCLUSION

PRIs are being provided with responsibility to discharge developmental and other social functions. Functions to be transferred to PRIs need to be done with close assessment of local requirements and capacity to handle them. With capacity enhancement, handling of the assigned functions would become effective.PRIs may be trained to manage book keeping and reporting with due disclosures. PRIs would become well managed with clearly defined rules of engagement and deployment of functionaries and adequate autonomy provided for better decision making.This would result in decentralisation of power and democracy in the same manner as envisaged by Gandhiji in his *Gram Swaraj* model of Panchayati Raj.

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## ECONOMICS OF CULTIVATION AMONG THE SMALL AND MARGINAL FARMERS IN ANDHRA PRADESH

## Dr. Karri Kishore Babu\*

### ABSTRACT

Small and marginal farmers have a significant role in ensuring social stability whose benefit cannot be qualified in monetary terms. Hence no agricultural policy will succeed without making these farms economically sustainable and vibrant. The paper discusses the causes of agrarian distress. Due to high cost of cultivation, the small and marginal farmers are still in the clutches of indebtedness and poverty. This agrarian crisis has manifested in the form of suicides and has reached to dangerous levels in the State of Andhra Pradesh. The gravity of this problem as well as its causes point out that most of the suicides were among cultivators who belong to the category of marginal and small farmers. These farmers are facing severe problems in access to timely quality inputs including capital and marketing of their produce in an efficient manner apart from the general problems being faced by the agrarian sector, ranging from poverty to crop failure, indebtedness, marital discord and alcoholism. Their ability to absorb high cost technologies is also limited as compared to both medium and large farmers. The main objective of the paper is to analyze the economics of cultivation of marginalized farmers in the Andhra Pradesh. The study was conducted in the State of United Andhra Pradesh. The primary data used for this paper are based on the crop year of 2013-14. A multi-stage random sample method has been employed to select 405 sample households from three regions namely Coastal Andhra, Rayalaseema and Telangana of pre-partition Andhra Pradesh. In the first stage three districts were selected at random from the list of districts in each region where more than 80 percent of farmers are marginal and small farmers. Thus, for this study, Warangal from Telangana, Guntur from Coastal Andhra and Chittoor district from Ravalasema region were selected. In the second stage, two mandals from these districts were selected at random. Altogether six mandals were selected from the list of mandals. In these mandals, more than 80 percent of marginal and small farmers depend on cultivation. In the third stage, one village from each selected mandal was selected. As many as 20 percent farm households consisting of marginal and small farmers formed the sample for the survey. Thus altogether 405 farm households were selected. Regional variation in cost of cultivation has been examined and discussed.

Keywords: Agriculture, cost of cultivation, farm investment income, output- input.

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### INTRODUCTION

Agricultural sector extends over 60.4 percent of the total geographical area in India (FAO, 2014) and makes it a vital component for the inclusive and sustainable growth of Indian economy. Agriculture sector provides employment to nearly 58 percent of the rural population. Approximately 30.5 percent of the rural population lives below poverty line (2012-13), thus there is urgent need for high growth rate in agricultural sector.

Agricultural sector not only contributes to overall growth of economy but also reduce poverty by providing the employment and food security to the majority of the population in the country. Over the last sixty years the production of food grains has increased from 52 million tons in 1950-51 to 250 million tons in 2011-2012, at the same time the production of oil seeds also increased from 5 million tons to 28 million tons. India got a third place in terms of production in paddy, wheat, fruits, cereals, groundnut and sugarcane.

The share of agriculture and allied sector in gross domestic product declined steadily from 38.8 percent in 1980-81 to 13.7 percent in 2012-13. The share of agriculture work force in total work force also declined from 75.9 percent in 1961 to 56.4 percent in 2010-11. The performance of agriculture in the post- independence period had been impressive as compared to the pre- independence period. The overall performance of agriculture and allied sector improved during the period 2001-2011. The low growth in GDP from agriculture during 2001-2011 coupled with higher instability would have led to more vulnerability and distress among the farming community.

Small and marginal farmers have a significant role in ensuring social stability whose benefit cannot be qualified in monetary terms. Hence no agricultural policy will succeed without making these farms economically sustainable and vibrant. The small and marginal farmers are still in the clutches of indebtedness and poverty. This agrarian crisis manifested in the form of suicides and has reached to dangerous levels in the State of Andhra Pradesh. The gravity of this problem as well as its causes pointed out that most of the suicides were among cultivators who belong to the category of marginal and small farmers. These farmers are facing several problems in access to timely quality inputs including capital and in marketing their produce in an efficient manner apart from the general problems being faced by the agrarian sector, ranging from poverty to crop failure, indebtedness, marital discord and alcoholism. Their ability to absorb high cost technologies is also limited as compared to both medium and large farmers.

The rapid increase in population, subdivision and fragmentation of land holdings and the changed family system from joint to nuclear families in rural India have made the size of holdings smaller and smaller. In Indian agriculture sector, area operated by marginal farmers has increased, but not the proportional holdings. On the other hand, both the number of large holdings (10 hectares and above) and the area operated by large holders have slightly declined. This shows that in future, Indian agriculture will be dominated by small and marginal holdings, on which application of new agricultural technology would become more difficult. The prominent feature of the structural change in agriculture is the increase in the number of marginal holdings of below one hectare, without a proportionate increase in the area operated

by them. This tendency is likely to continue in the near future also. Given the demographic trend, small holdings will remain with us as far as one can see, and their persistence would give rise to many problems in the application of the new agricultural technology to Indian agriculture.

Keeping in view the vast majority of small and marginal farmers and their resourceanaemic condition, the question is- how to make these farm households viable? How can these farmers maximize their total returns from farming? It is a known fact in India that small and marginal farmers are generally resource-poor. This is more so in arid and semiarid regions, where due to lack of adequate potential of development, like irrigation, the farmers are forced to use the available resources without caring for sustainability. As a result their poverty is further aggravated. Even in a favourable condition where facilities like irrigation, HYVs, fertilizers and bank loans for capital are available, these resource-poor farmers are unable to overcome the 'Poverty Trap' due to social, political, technical, and economic constraints.

The main objective of this paper is to analyze the economics of cultivation among the small and marginal farmers in a particular State, before bifurcation of Andhra Pradesh (Andhra Pradesh was partitioned in two States in 2014 into Telangana and Andhra Pradesh, the latter comprising two regions of Rayalseema and Coastal Andhra.)

The study was conducted in the State of united Andhra Pradesh. The primary data used for this paper are based on the crop year of 2013-14. A multi-stage random sample method was employed to select 405 sample households from these three regions. In the *first stage* three districts were selected at random from the list of districts in each region where more than 80 percent of farmers are marginal and small farmers. Thus, for this study, Warangal from Telangana, Guntur from Coastal Andhra and Chittoor district from Rayalasema region were selected. In the *second stage* two mandals from these districts were selected at random. Altogether six mandals were selected from the list of mandals. In these mandals, more than 80 percent of marginal and small farmers depend on cultivation. In the *third stage* one village from each selected mandal was selected. Thus altogether six villages were selected at random by following the criteria that majority of marginal and small farmers are depending on cultivation. Finally, farm households who completely depend on cultivation in each of the selected villages were listed. In the final stage, the villages were identified. The household census was conducted and a list of farm households operating below 5 acres of land holdings was prepared. Once the sample size was fixed for each village, the sample size for each stratum was determined by following the systematic sampling method using a random start. As many as 20 percent farm households consisting of marginal and small farmers formed the sample for the survey. Thus, 2024 operational farm households were listed. After arranging the list of farm households in an ascending order in terms of the size of their landholdings, the size of the sample for each village was fixed in proportion to their percentage of the farm households in that village. Out of the listed 2024 samples, 728 farm households from Coastal Andhra, 673 from Telangana and 623 from Rayalaseema regions were selected. Of the total households, 209 households were from marginal farm households and 196 households were from small farm size category. Thus altogether 405 farm households were selected.

### **EMPIRICAL ANALYSIS**

#### Per acre expenditure on Inputs-All crops

The information pertaining to per acre expenditure on major principal crops and its distribution among different inputs on both categories of farm households in the three regions along with the breakup of the expenditure on marginal and small farmers is presented in the Table 1. To ascertain the relative importance of different farm inputs in the total cost, inputwise breakup of total cost and corresponding percentage of different component items to total cost are computed and presented.

Apart from overhead cost, the expenditure on fertilizers, pesticides and human labours are the predominant components of total cost. The expenditure on fertilizers and pesticides is high in Coastal Andhra region compared with Telangana and Rayalaseema regions among both marginal and small farm households. In Coastal Andhra region, the proportion of expenditure on fertilizers is 27.87 percent to total cost of cultivation followed by 26.97 percent in Telangana and 26.15 percent in Rayalaseema region. Here the proportion of expenditure on fertilizers and pesticides among marginal and small farm in three regions can be observed that they are inversely related with the farm size on both categories of farm sizes. This may be due to the fact that marginal and small farm households practice more intensive farming. The use of fertilizers and pesticides is increasing due to low fertility of soil. The fertility of soil increases with multiple crops and crop rotation. Another reason is that farmer competes with co-farmers in applications of fertilizers and pesticides without following the government extension services and scientific measures. They follow only their neighbor farmers in the village. If one applies ten bags of fertilizers and pesticides in the total cost increases.

Another major input in the cultivation is hired labour. The expenditure on hired human labour constituted 22.51 percent (Rs. 12, 068) to the total cost of cultivation. Intra-regional data clearly shows that per acre expenditure on human hired labour is found to be high in Coastal Andhra region accounting for 22.07 percent (Rs. 14, 316) followed by 19.82 percent (Rs.13, 468) in Telangana and 18.97 percent (Rs. 6, 582) in Rayalaseema. The category of farm size clearly shows that the expenditure on hired labour is high among small farmers in the three regions, with 25.62 percent (Rs. 7, 526), 23.42 percent (Rs. 17, 010) and 18.97 percent (Rs. 7, 041), respectively. In case of marginal farmers, money spent on hired labour is 20.05 percent (Rs. 12, 138) in Coastal Andhra, 19.96 percent (Rs. 10, 325) in Telengana and 18.65 percent (Rs.6, 082) in Rayalaseema. This leads to the conclusion that the farmers of Coastal Andhra and Telangana regions are cultivating labour intensive crops viz cotton, chilli, paddy etc where more demand for labour reduces capacity to spend on application of fertilizes and harvesting of paddy. Nowadays the cause for increase in the wages of labour is implementation of MGNREGA works in these villages, where people get assured employment.

There is scarcity of the labour during the peak period of cultivation. During this time the labor is available at high wages and so the expenditure on hired laborers is increasing alarmingly. On the other hand, the proportion of family labour is high in Rayalasema region, accounting for 9.07 percent. One interesting point to be observed is that the input cost of labour

### Journal of Indian Research

is Rs. 5460/- in Coastal Andhra and it is Rs. 4672/- in case of Telangana region. Majority of marginal and small farmers work on their own farm, and hence, in such situation the imputed cost of labour will be high among the small and marginal farm in the three regions. A similar pattern has been observed among the marginal and small farms in the three regions with slight variations. It is also observed that there is direct relationship between proportion of expenditure to total cost on hired labour and farm size. There is inverse relation between expenditure on family labour to total cost and farm size.

The proportion of expenditure on seeds to total cost is 3.15 percent (Rs. 2, 037/-) in Coastal Andhra, 3.25 percent (Rs. 1126/-) in Rayalaseema and 3.04 percent (Rs. 1875/-) in Telangana region. It is clearly found that the expenditure on seeds is high in Coastal Andhra when compared to Telangana and Rayalaseema regions.

This also leads to speculation that it may be due to cropping pattern of Coastal Andhra and Telangana farmers who are cultivating commercial coops like cotton, chillies and maize. The cost of seeds of these crops is high when compared to paddy, jowar, sunflower crops. These low-cost crops are cultivated in Rayaleseema region where the expenditure on seeds is comparatively low. There is a significant difference in proportion of expenditure on seeds to total cost between regions growing commercial crops and those growing traditional crops.

Some agricultural operations like seed bed preparation, inter cultivation for weeding and land leveling for the cultivation of crops like paddy, cotton, chilies and tomato etc cannot be done in less time in the case of bullock labour hence, in these operations we found direct impact on total cost. The proportion of expenditure on bullock labour on the farm size among the three regions is found to be high in Telangana region which is accounting for 2.74 percent (Rs. 1686/-) followed by 2.59 percent (Rs. 1678/-) in Coastal Andhra and 2.66 percent (Rs. 921/-) in Rayalaseema regions. This may be due to the nature of cropping pattern. Hence, we can say that there is a direct relationship between expenditure on bullock labour and farm size.

Another important input that cause increase in the total cost is tractor (machine labour). The proportion share of expenditure on tractor to total cost is high in Telangana with 3.59 percent (Rs. 2210/-). In case of Rayalaseema region, it accounts for 4.71 percent (Rs. 1626/-) followed by Coastal Andhra which accounts for 3.37 percent (Rs. 2188/-). This may be due to cropping pattern and hardness of the soil. Commercial crops like cotton and chillies require deep ploughing. Whereas the paddy growing areas need tractor for seed-bed preparation (dammu). Another reason for this increasing hike in the tractor cost was hike in the diesel price. However, no significant relationship has been found between the farm size and proportion of expenditure on tractors to total cost.

The proportion of expenditure on traditional labour (bullock labour) accounted for 2.74 percent (Rs.1680/-) in Telangana region, 2.66 percent (Rs.921/-) in Rayalaseema and 2.59 percent (Rs. 1678/-) in Coastal Andhra region. The intra-size group data clearly reveals that the proportion of expenditure on bullock labour to total cost is high among small famers in the three regions when compared with marginal farmers. Hence it can be inferred that small farmers are mostly using traditional methods compared to other sub sections.

Table 1: Region and Category-Wise Per Acre Expenditure –All Crops

Source: Primary Data

Another major input is land. The rental values of owned land is found to be high in Coastal Andhra region which accounts for 21.04 percent (Rs. 13, 481) while it is 18.12 percent (Rs.11, 153/-) in Telangana and 18.68 percent (Rs.6, 482/-) in Rayalaseema regions. There is significant difference in proportion of rental value of land in Coastal Andhra, Telangana and Rayalaseema regions. This phenomenon leads to the conclusion that availability of water supply, cropping intensity and fertility of soil is basis for fixing the rental value of the land in Coastal Andhra.

Keeping these factors in view, an attempt has been made in this paper to examine the economics of farm business in the study area on the three regions and different size groups. The different types of cost concept of farm management have been studied by using the determinants observed by Ministry of Agriculture, Government of India and other notable agencies. Gross returns on farm production and net returns viz, farm business income, family labore income; net income and farm investment income are also computed and analyzed in detail.

### **REGION-WISE DISTRIBUTION OF COST OF CULTIVATION**

The information pertaining to per acre cost of production according to various cost concepts viz., Cost  $A_1$ , Cost  $A_2$ , Cost B and Cost C is shown in Table- 2. Here Cost  $A_1$  represents the out-of-pocket expenses incurred by the farmers, Cost  $A_2$  represents rental value of leased-in land along with Cost  $A_1$ , Cost B represents imputed value of own land and interest on fixed capital along with Cost  $A_2$  and Cost C represents imputed values like family labour income and interest on fixed capital along with Cost  $A_2$  and Cost B.

Region-wise cost of cultivation on the basis of different cost concepts are computed and are also furnished. Here Cost A1, includes all the paid –out cost viz. expenditure incurred on owned and hired human labour, owned and purchased seed, owned and purchased organic manure, fertilizers, pesticides and other farm operating expenses such as irrigation, transport, marketing charges, miscellaneous expenditure and interest on working capital. The value of depreciation on farm assets is also included in Cost A1. Cost A2 is obtained by adding rental value of leased – in land to Cost A1. Cost B is obtained by adding rental value of leased–in land to cost A1. Cost B is obtained by adding rental value of leased–in land to cost A1. Cost A2. Finally, net loss can be calculated by adding family labor income to Cost B. Operational cost includes expenditure on seeds, fertilizers, pesticides, bullocks, tractors and human labour. The expenditure like depreciation, irrigation charges, rent paid on leased-in land, rental value of owned land etc., comes under overhead cost. The Cost C is found to be high in Coastal Andhra followed by Telangana and Rayalaseema regions. The intra-size analysis also clearly shows that there is positive relation with farm size in the three regions.

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REGIONS	Farming. Category	COST A1	COST A2	COST B	COST C	PRIME COST
	Marginal	41210	43727	54976	60553	54196
Coastal Andhra	Small	49539	51963	65904	71192	64964
	Total	44576	47055	59392	64852	58547
Rayalaseema	Marginal	22786	23342	29755	32609	28837
	Small	24157	25075	33193	36610	32550
	Total	23501	24245	31547	34695	30773
	Marginal	33393	34541	46950	51731	46329
Telangana	Small	50613	54486	67571	72642	66874
	Total	41489	43918	56645	61562	55988
Total	Marginal	34392	35995	46578	51273	45823
	Small	42661	45188	57145	61817	56379
	Total	38173	40198	51409	56094	50650

Table 2: Region and Category-Wise Cost of Cultivation (All Crops)

Source: Primary Data

### **REGION AND CATEGORY-WISE OPERATIONAL AND OVERHEAD COSTS**

Region-wise distribution of operational cost and overhead cost size-wise is presented in Table 3. As the commercial crops growing farmers are considered to be more progressive as they use better inputs, the proportion of operational cost is to be more in these regions and in such holdings. In contrast, the total costs of traditional crops growing farmers are expected to have higher percentage of overhead cost as the use of modern input is lower in these holdings. Nowadays majority of farmers are using modern inputs without proper knowledge and also applying more inputs like fertilizers and pesticides even without any expert suggestions and hence the operational cost has been increasing alarmingly.

Apart from this, cash crops like cotton, chillies, groundnut are capital intensive in nature and also labour intensive crops when compared to food crops like jowar, paddy. It is well known that the operational cost depends on cropping intensity, and cropping intensity depends on availability of water through out the year. The timely completion of different operations depend on nature and climate conditions and the proportion of paid-out cost to total costs is found to be high in case of Coastal Andhra region. This may be due to predominance of input costs of intensive cash crops like cotton, chillies and maize. The data further reveals that proportion of paid-out cost to total cost is lower in Rayalaseema region.

It is also evident that there is a direct relationship between farm size and proportion of input costs to total costs in all the regions. On the other hand, the inverse relationship between farm size and proportion of input costs to total cost is associated with the negative relationship between farm size and the proportion of expenditure on family labour to total work.

## Table 3: Region and Category-Wise Operational and Overhead Cost(All Crops)

(Rs. Per Acre)

Regions	Farming Category	OPERATIONAL COST	OVERHEAD COST	TOTAL
	Manginal	40997	19555	60553
	Marginai	(67.71)	(32.29)	(100.00)
COASTAL	Small	49164	22028	71192
ANDHRA		(69.06)	(30.94)	(100.00)
	Total	44298	20555	64852
	10101	(68.31)	(31.69)	(100.00)
	Marginal	22500	10109	32609
	Marginal	(69.00)	(31.00)	(100.00)
DAVAI ASEEMA	Small	23902	12708	36610
		(65.29)	(34.71)	(100.00)
	Total	23231	11464	34695
		(66.96)	(33.04)	(100.00)
	Marginal	33129	18602	51731
		(64.04)	(35.96)	(100.00)
TEL ANCANA	Small	50265	22377	72642
ILLANGANA		(69.20)	(30.80)	(100.00)
	Total	41185	20377	61562
	10101	(66.90)	(33.10)	(100.00)
	Marginal	34145	17128	51273
	Marginai	(66.59)	(33.41)	(100.00)
Total	Small	42331	19486	61817
10(a)	Sman	(68.48)	(31.52)	(100.00)
	Total	37888	18206	56094
	10101	(67.54)	(32.46)	(100.00)

Source: Primary Data

## **RETURNS FROM FARMING**

Per acre returns from cultivation among different farm holdings region- wise are analyzed by calculating the following concepts of returns viz. gross return, farm business income, family labour income, net income and farm investment income.

### **Gross Income**

The data pertaining to per acre gross returns from the cultivation of all crops by region and farming category wise are given in Table 4. It is observed from the Table that per acre gross returns are high in Coastal Andhra region (Rs.57, 064/-) which is higher by 60.45 per cent and 9 per cent than that of Rayalaseema (Rs.27, 674/-) and Telangana regions (Rs.52, 633/-), respectively. Further, the data reveals that the gross returns per acre constantly are higher among the marginal and small farmers in Coastal Andhra farm households than that of Telangana and Rayalaseema regions. A positive relationship is observed between farm size and gross returns among the farm households of three regions. This leads to conclusion that the marginal and small farmers face constrains like inefficient management of farms.

### **Farm Business Income**

Farm business income represents returns to the farmers from land, family labour, interest on fixed capital and management. It can be obtained by deducting the paid-out costs i.e., Cost A1 or Cost A2 as the case may be from gross returns per acre. Region-wise farm business incomes on all crops in cultivation by different farm sizes are shown in Table 4. From the Table, it is observed that the farm business income is high in Coastal Andhra farm households (Rs. 10, 009/-) followed byTelangana region(Rs.8714/-) and Rayalaseema region(Rs. 3428/-). The intra-size group analysis clearly reveals that farm business income is increasing with the farm size in both Coastal Andhra and Rayalaseema. It is found that there is an inverse relationship between farm size with farm business income in Telangana region farm households

### **Family Labour Income**

Family labour income gives the return to the family labour and management of the crop enterprise and can be obtained by deducting Cost B. Region-wise family labour income by size-wise has been computed and presented in the Table 4. From the Table, it can be observed that the family labour is negative in all the three regions. The farmers in the study area did not get even the family labour income from the cultivation.

### Net Income

Net income indicates profit or loss from farm business. It is residual of gross income after deducting total Cost C from it. Per acre net return or loss is presented in Table 4. From the Table it can be observed that per acre net return is found to be negative among marginal and small farmers in the three regions, where there is net loss of Rs. -7, 788/- in Coastal Andhra region farmers; Rs. -7, 021/- in Telangana region and Rs.-8, 930/- in Rayalaseema region. This has led to the conclusion that cultivation is not at all economical in the three regions. In the absence of alternative livelihood sources, farmers cultivate the land even at negative returns.

### Farm Investment Income

The farm investment income represents the income remaining with the farmer for his investment which comprises of the rental value of owned land, interest on fixed capital and return to the management. The value of farm investment income for all the farming categories is presented in the Table 4. It can be observed that the farm investment income is found to be positive in all farming categories. Per acre farm investment income is higher in case of

Coastal Andhra (Rs. 4,827/-) when compared to Telangana (Rs. 401/-) and Rayalaseema region (Rs. 551/-). The per acre farm investment income is increasing with the farm-size except in Telangana region. This is in conformity with the economic theory. It is clearly observed from the foregoing analysis that the intensive use of modern inputs is rampant in Coastal Andhra cultivation. Higher per acre investment is popular in Coastal Andhra and Telangana when compared to Rayalaseema region. Mechanization has also altered the total costs structure, between operational and overhead costs and also between paid-out cost and imputed costs.

## Table 4: Region and Category-Wise per Acre Returns (All Crops)

<sup>(</sup>Rs.Per Acre)

Regions	Farming Category	AGRI CUL- TURAL INCOME	FARM BUSINESS INCOME	FAMILY LABOUR INCOME	NET IN- COME	FARM INVEST- MENT INCOME
COASTAL	Marginal	52350	8623	-2626	-8203	3258
ANDHRA	Small	64016	12054	-1888	-7176	7140
	Total	57064	10009	-2327	-7788	4827
RAYALA-	Marginal	25043	1701	-4711	-7565	-866
SEEMA	Small	30090	5015	-3104	-6521	1852
	Total	27674	3428	-3873	-7021	551
TELAN-	Marginal	43845	9304	-3105	-7886	4788
GANA	Small	62537	8050	-5034	-10106	3327
	Total	52633	8714	-4012	-8930	4101
Total	Marginal	43322	7327	-3256	-7951	2879
	Small	53749	8562	-3395	-8067	4220
	Total	48090	7891	-3320	-8004	3492

Source: Primary Data

## **Output-Input Ratios**

To estimate the returns per rupee of investment in cultivation, the output-input ratios have been calculated and presented in the Table 5. It can be observed from the Table that the output-input ratio is 0.968 in Coastal Andhra followed by 0.926 in Rayalaseema and 0.846 in Telangana. It can be observed that the return per rupee investment is lower among marginal farms followed by smaller farms in all the three regions. However, there is a positive relationship between the rate of returns and farm size. The low output-input ratio reflects the uneconomical crop production enterprise. These farm holdings have cultivated crops without any economic gain. Thus it leads to the conclusion that all the marginal and small farm households attain the negative returns on agriculture and have not received back even their investment cost in

most of the locations. From the foregoing analysis it can be concluded that the cultivation is associated with risk and uncertain yields. Consequently, gross income, farm business income, family labour income and net income are very low.

## Table 5: Region and Category-wise Output-Input Ratios (All Crops)

(Rs. Per Acre)

Regions	Farming category	OUTPUT-INPUT
	Marginal	0.963
COASTAL ANDHRA	Small	0.975
	Total	0.968
	Marginal	0.828
RAYALASEEMA	Small	0.863
	Total	0.846
	Marginal	0.925
TELANGANA	Small	0.926
	Total	0.926
	Marginal	0.920
Total	Small	0.925
	Total	0.922

Source: Primary Data

## CONCLUSION

After the analysis of the economics of cultivation, it is established that the intensive use of modern inputs in cultivation, and per acre investment by all cost concepts is high in Coastal Andhra region when compared with Telangana and Rayalaseema regions and intra-category analysis shows that it is high with small farmers in the three regions. Per acre expenditure on rental value of owned land is higher in Coastal Andhra region when compared with Telangama and Rayalaseema regions due to high cropping intensity and growth in plantation of commercial crops. It is also found that per acre expenditure is positive or directly related to farm size in the three regions.

The proportion of expenditure on fertilizer and pesticides to total cost is higher in Coastal Andhra region when compared to Telangana and Rayalaseema regions. In Coastal Andhra and Telangana regions, fertilizers and pesticides are used extensively for both traditional and commercial crops. Among these crops, more number of bags are utilized when compared to traditional crops. The analysis also shows a significant difference in the proportion of expenditure on hired labour to total cost in the three regions. Coastal Andhra and Telangana regions have spent major share on human labour as cotton and chilli are labour intensive crops,

when compared to jowar, groundnut and sunflower etc. The intra- size group comparison reveals that there is a direct relation between the proportion of expenditure on hired labour to total cost and the size of farm and an inverse relationship is found in family labour and farm size.

The proportion of paid- out cost to total costs is found to be high in Coastal Andhra region whereas it is lower in Rayalasema region. There is a direct relationship between farm size and proportion of input costs to total costs in all the regions. On the other hand, there is inverse relationship between farm size and proportion of input costs to total cost. The gross return per acre is constantly higher among the marginal and small farmers in Coastal Andhra than Telangana and Rayalaseema farm households. A positive relationship is observed between farm size and gross returns in the three regions which reflects that the marginal and small farmers face constrains and inefficient management of farms.

With respect to the farm business income, it has been found to be high for Coastal Andhra farm households. The intra- size group analysis clearly reveals that farm business income is increasing with the farm size in Coastal Andhra and Rayalaseem regions, where there is an inverse relationship between farm size with farm business income in Telangana region. Per acre family labour income is found to be negative in all size groups in the three regions and the rental value of own land and interest on fixed capital is found to be high in case of Coastal Andhra and Telangana regions.

Per acre net return is found to be negative for marginal and small farmers in the three regions, where the net loss is found to be more in Rayalaseema followed by Telangana and Coastal Andhra. It proves that the cultivation is uneconomic for these selected households. But tragically in the absence of alternative livelihood sources, the farmers cultivate their land even at negative returns. Per acre farm investment income is higher in Coastal Andhra when compared to Telangana and Rayalaseema regions. Per acre farm investment income is increasing with the farm size in the regions except in Telangana region. The output-input ratio of Coastal Andhra farm holdings is 0.968 followed by 0.926 in Rayalaseema and 0.846 in Telangana. It can be observed that the return per rupee investment is lower for marginal farm households followed by small farm households in all the three regions. Hence the paper conclude that the cultivation is associated with risk and uncertain yields. And hence, gross income, farm business income, family labour income and net income are very low.

The total cost of production of paddy per acre was found to be high in Coastal Andhra region followed by Telanagana and Rayalaseema. The cost of cultivation per acre has been increasing with the decreasing farm size and per acre expenditure of all modern inputs is found to be high for small farmers in the three regions.

There is a considerable difference in the use of other inputs like tractors and bullocks between the Coastal Andhra and Telangana region. In cotton cultivation, per acre expenditure on fertilizers, hired human labour, seeds and the use of tractor labour was found to be high in Telangana region whereas the expenditure on pesticides, rental value of owned and leased land was high in Coastal Andhra region. The total cost of cultivation was found to be high for marginal farmers in Coastal Andhra region. In case of Telangana, it was high among small farmers. In case of maize, the per acre expenditure of all modern inputs like seeds, fertilizers and pesticides was high in Coastal Andhra. The expenditure on hired labour was found to be high in Telangana region. The cost of cultivation was found to be high in Coastal Andhra region when compared with Telangana region. The reason for widespread agrarian distress is quite evident. Small farm holdings have become financially unviable for marginal and small farmers.

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## EMERGENCE OF RISKS IN ABSENCE OF 'PROPER' POLICY/PROGRAMMES : A CASE OF INDUSTRIAL DEVELOPMENT-INDUCED DISPLACEMENT IN HAJIRA VILLAGE OF SOUTH GUJARAT

Ankit Patel\*

### ABSTRACT

This paper argues that in absence of 'proper policy and packages', the 'quality of life' of the local people in Hajira village near Surat in South Gujarat has deteriorated notably after the industrialization. Industries have given least attention to the resettlement and rehabilitation aspect as a part of their project activity. Still, industrialists follow common practice of taking land, which is the permanent sources of livelihood for villagers, by giving cash compensation, often at low price insufficient to purchase alternative land in the vicinity area. Except few, majority of the local people have not benefited by the direct or indirect opportunities of employment that have emerged out of industrialisation. Out of frustration, the consumption of alcoholism has increased. Environmental problem has become worrisome. It has resulted in compounding health risk. Gender problem has also aggravated. Majority, especially the vulnerable groups perceive that they have become the 'victims of development', which often is reflected in the form of frequent protests/agitation. On the whole, people are very much dissatisfied and alienated with the present state of affair which calls for immediate attention of the policy maker and the concerned authorities for the 'sustainable development'. This calls for re-looking at the definition of 'affected people' and the 'Cash for Land' policy.

**Keywords:** Alcohol abuse, Carrot and Stick, Development Displacement, Gujarat Town Planning and Area Development Act of 1963, Halpati, SEBC Commission.

### INTRODUCTION

The present paper describes some of the emerging issues with regard to industrial development-induced displacement by taking a case of Hajira village near Surat in South Gujarat. This paper is based on the research work that the author has completed as part of M.Phil program. Fieldwork was done in the year 2012. Total 59 households i.e. 14% families

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of the village Hajira were taken as sample on proportionate basis of various groups such as farmers, animal rearers, fishermen, agricultural laborers, gender etc. The paper identifies total eleven issues interalia, issue of livelihood, landlessness, joblessness, scrap collection, migrant labor, fishermen, gender, inequality, environment and health, food insecurity and impoverishment/ marginalization.

The paper is divided into five sections. The first section is the Introduction. The second section describes the background of the study. The third section describes the industrial developments in Hajira area. The section gives the information about emerging issues of industrialisation in Hajira while the fourth section discusses details about the flaws in the present policy and programs of the R&R. The last i.e. fifth section gives concluding remarks.

### **BACKGROUND OF THE STUDY**

The Indian Constitution has given right to each and every citizen of India to earn their livelihood. Unfortunately this basic right is not fully granted in the case of development-induced displacement issues. The people who have been living under certain milieu involuntarily get displaced from their habitat in the name of the development. The government has right to acquire the private land of any person, for the lager public interest, of course, by following certain procedures and giving them compensation of home as well as the land. Studies (Vasudha et al. 2002, Patel 1994, Reddy 1994) have shown that the affected people are unable to get their alternative sources of the livelihood and that results in impoverished condition. In the wake of Liberalization, Privatization and Globalization (LPG), the problem of displacement of the local people has become common phenomenon. On the issue of the displacement, various agitations<sup>1</sup> have been going on in various parts of India. Although, the social scientists have yet to study this phenomenon in a big way, they are unable to answer many of such happenings. It has been observed that the studies<sup>2</sup> on the industrialisation displaced people are very less compared to the irrigation dam projects (Vasudha et al. 2002). To evolve the comprehensive policy and program, more and more empirical studies at the micro level are welcomed (D. Christ 2001). In this background, the present exercise has been undertaken.

## INDUSTRIAL DEVELOPMENT IN HAJIRA AREA

After introduction of the New Economic Policy (NEP) in 1991, greater emphasis has been given to the industries, particularly the massive ones. In terms of industrialisation, Gujarat can be said as one of the leading States throughout the country. Between 1981 and 2001 there emerged certain pockets<sup>3</sup> in Gujarat where industrial development took place impressively. One among them is the Hajira belt. Hajira witnessed phenomenal growth in terms of industrial activities, resulting in mammoth investment in a very strategic area. It was estimated that total capital investment of Rs.350, 000 million will be made in HADA area (2003).<sup>4</sup> This is expected to rise to over Rs.500, 000 million of investment in the near future (2025) and represents nearly a third of the industrial investment in Gujarat and a tenth of its economic output. Two SEZs are proposed in the HADA region. They are as follows: ESSAR Power SEZ for Gems & Jewelry and ESSAR Hajira SEZ. Hajira and Magdalla ports in the district provide logistic support to industrial operations in the state. The prominent industries, etc. Table 1 gives
the spatial spread of industries in the HADA area, while Figure 1 provides satellite image of the location of various industries in HADA.

Name of Village	Industries
Mora	NTPC, L&T, Reliance, ONGC
Damka	Kakrapar Irrigation Canal, Reliance
Bhatlai	Diamond Cutting Units (12 Nos.)
Suvali	L&T, Pipeline
Vansva	GIDC
Icchapor	GIDC
Magdalla	ONGC/Roads/IOC/CRPF
Bhatpor	CIDC/LPC Plant-Gas Terminal
Kawas	GIDC/KRIBHCO/ONGC/NTPC
Hajira INA	KRIBHCO/LNGTerminal/ESSAR Steel/ ESSAR Power
Magama	GIDC
Asarma	GIDC
Palanpor	GAIL
Pal	GIDC
Bhata	GIDC

Table 1: Spatial Spread of Industries in the HADA area

*Source:* Lobo Lancy and Shashikant (2009)



Figure 1:Satellite image of location of Industries in HADA area

(*Source*: CEPT, 2004)

Ankit Patel

Large scale industrialisation has taken away major portion of land in and around Hajira village. The lands were taken for various purposes such as for erection of plants, construction of roads, railway, warehouses, townships, ancillary units and other logistic purposes. The lands were taken through diverse methods that include acquisition, purchase, grabbing, encroachment, etc. Lobo Lancy and Shahi Kumar (2009) noted that total 5,267 hectares of land of 18 villages of HADA got affected directly and indirectly. Socio-economic profile of HADA area suggests that majority of the affected population belongs to the SEBC caste<sup>5</sup> and relatively of low educational background. They do not have much say in the State politics (Patel, Arjun 1994; Archrya, Akash 2000; Dharsani, Mahadeveiya 2012).

# INDUSTRIAL DEVELOPMENTS: SOME EMERGING ISSUES

# **Emerging issues of Industrialisation in Hajira**

In all, the study has identified eleven types of issues that have emerged due to the displacement that has occurred due to the industrialisation in Hajira. They are: issue of livelihood, landlessness, joblessness, scarp collection, migrant labor, fishermen, gender, inequality, environment and health, food insecurity and impoverishment/ marginalization.

## Issue of loss of livelihood

Prior to industrialization, the people of Hajira were earning their livelihood mainly form primary economic activity such as farming, fishing, agriculture labor work, animal husbandry, etc. Very few families were engaged in tertiary sector such as job in industry, contract work, shopkeeper/lari-galla/miscellaneous work. After industrialisation in and around Hajira area, the livelihood pattern has changed drastically. Due to the acquisition of land, they shifted from farming activity to non- farming activity. The traditional occupations changed with the advent of industrialisation in Hajira. Due to this, most families were compelled to abandon their traditional sources of living and forced them to adopt the new occupations that emerged in their vicinity areas. Table 2 indicates that more than 90 percent SFs who are agriculturists and agricultural laborers have stopped their traditional occupations after the arrival of industries. In case of animal husbandry and fishing, it has reduced to 68 and 33 percent respectively.

Occupation of the members	Before	After Industri-	Difference
of the SFs	Industrialisation	alisation	
Agriculture	43	1	-42 (-97.7)
Animal Husbandry	33	11	-22(-66.7)
Agricultural labor	43	4	-39(-90.7)
Fishing	21	15	-7 (-33.3)
Government Job	1	1	0
Jobs in Industry	0	33	+33 (+100)
Contract work	0	1	+1 (+100)
Scrap collection work	0	22	+22(+100)
Rental income	0	1	+1 (+100)
Unemployed	0	1	+1(+100)
Other*	6	15	+9(+60)

Table 2: Change in the Economic Activities of the SFs in Hajira

\* It includes services in Indian merchant navy, job in power loom, pension. jobs in Choriyasi dairy, driver, shop, lari-galla, house maid, vegetable selling, and insurance agent.

\*\* Multiple responses, the HoHs engaged in multiple economic activities.

They have shifted to the temporary job in industry, working as a contractor, drivers, peon, watchman/ security man, running tea-stall/shop/ Dhaba, income from renting house, scrap collection work, housekeeping work, working as maid servant, vegetable vendors, working as insurance agent, etc. Of course they are facing many difficulties in adjusting with the new occupation.

## **Issue of Landlessness**

The Household Census carried out by the author indicates that out of total 431 families in Hajira, 219 owed the land. Out of this land owing families, 173 (79 percent) have lost their land to the industries and related development. Majority of the farmers are small and marginal farmers in the costal belt. They were engaged in intensive farming<sup>6</sup> and earned their livelihood from the agriculture as primary occupation and animal husbandry as the supplementary occupation.

Data in Chart 1 reveals that 85 percent SFs lost land in the categories of 1 to 3 acres and 3.1 to 6 acres of land due to the industrial development. Out of total 34 SFs, 53 percent have become completely landless, whereas 47 percent have turned into small or the marginal farmers as they have lost 'partial' land. Thus, the farmers of Hajira who were small farmers have either become landless or turned into marginal farmers and that has resulted in creating severe impact on their livelihood situation.



Chart 1: Land Lost to industries in Hajira

Usually, the industries paid cash compensation only to those families who lost their land. The assumption was that with cash compensation, the land looser would purchase land elsewhere. But in reality, only a few of the families have purchased land. In majority of the cases the farmers who lost their land have spent cash compensation in unproductive manner. Of course there exist a few exceptions (Table 3). It has happened in many other cases (Patel 1994).

Compensation	Particulars	Numbers	Percentage
Use of Compensation	Purchased land in another area	3	9.4
	Built new house	16	50.0
	Fulfillment of Social ceremony such as marriage, death, child birth, etc	18	56.2
	Started new business	1	3.1
	Purchased Two/three/ Four wheeler	4	12.5
	Repayment of debt	3	9.4
	Any other**	12	37.5
	N* = 32		

Table 3: Use of Compensation money by the SFs of Hajira

\* Total 32 SFs have received compensation but they have used it for more than one purpose. Hence, Multiple Reponses.

\*\*Other includes Consumption, sickness expenses, domestic expenses, purchase of house, etc.

#### **Issue of Joblessness**

Prior to coming of industries in Hajira, people were engaged in the economic activity based on local milieu. Due to the acquisition of the land not only the farmers but also the interconnected groups such as share-croppers, <sup>7</sup> landless laborers, animal husbandry, fishermen, etc. have been affected in direct and indirect manner.

The Kolis and the Ahir were engaged in agriculture while the Halpatis (STs) engaged primarily as agriculture laborer and were partially involved in fishing activity. The fishermen were exclusively engaged in fishing activity. Women folk of Kolis, Machchis and Halpatis were also engaged in the economic activity along with their household chores. After the advent of industrialisation in Hajira, the employment structure has changed remarkably as the lands were acquired and seashore were also cordoned by port development activity. Agriculturists who were engaged in cultivation and lost their land have completely become unemployed. The lands which remain un-acquired also became unfit for cultivation due to the pollution by the industries. Earlier they were cultivating their land mainly with the help of their own family members.

Prior to industrialisation, agriculture labor work was one of the primary occupations, particularly of landless Halpatis<sup>8</sup> and subsidiary work of few Kolis. Majority of the Halpatis were earning their livelihood through agricultural labor work and occasionally fishing activity but now all these have become matter of past (Table 4 & 5).

Particulars	No. of SFs	Percentage
No	40	100.0
Yes	-	-
N	40	100

 Table 4: Calling Agriculture labor after Industrialisation in Hajira

Tabla 4	5. Natura	of change of	f work among	A griculturalists	after in	dustrialisation	in Haiira
Table .	5. Ivature	of change of	i work among	Agricultur allsts	alter m	luusti länsätion	ini majn a

Changes	Category	Response
Work days employment	Remained same	1(2.9)
	Decreased	34(97.1)
	Ν	35(100)
	Yes	35(100)
Wages	No	0
	Ν	35(100)
	Yes	33(94.3)
Stop work as Agriculture labor	No	2(3.4)
	Ν	35(100)
	Less than 2	15(45.4)
Members abandon the work	3 to 6	13(39.3)
	More than 6	5(15.1)
	Ν	33(100)

Of course, as indicated in Table 6, nearly 60 percent of SFs have got jobs in the industries but majority of them are on contract. Of course, it is different in terms of position, salary and the nature of jobs. More than 90 percent job holders are having temporary jobs. The Halpatis and Machhis have not benefited much out of the jobs in industries as they are illiterate and have not much influence. Women job holders are very negligible.<sup>9</sup> It is to be noted that the contract workers are not receiving full salary and the other benefits such as medical benefits, gratuity, provident fund, etc. Around 300+ temporary contract workers of NTPC located near Hajira were on strike during author's fieldwork.

Particulars	Category	Frequency	Percentage
Any of family	Yes	35	59.3
Member engaged in	No	24	40.7
job in industry	Ν	59	100
	20 to 30	15	42.8
	31 to 40	6	17.1
Age (in years)	41 to 50	12	34.3
	More than 51	2	5.7
	Ν	35	100
	Male	34	97.1
Gender	Female	1	2.9
	Ν	35	100
	1 to 7 Std	6	17.1
	8 to 10 Std	16	45.7
Education	11 to 12 Std	5	14.3
	Graduate	3	8.6
	Other (IIT, Diploma etc.)	5	14.3
	Ν	35	100
	Un-Skilled	13	37.1
	Engineer	3	8.6
	Safety Supervisor	1	2.9
	Driving work	3	8.6
	Electrician work	3	8.6
Skill they possessed	Fitter/ mechanical Technician	3	8.6
and work in the	Computer Operator	3	8.6
industry	Welder	2	5.7
	Crain Operator	1	2.9
	Technician	1	2.9
	ITI	1	2.9
	Fabrication	1	2.9
	N	35	100

Table 6: Profiles of the jobs in Industries of SFs in Hajira

Particulars	Category	Frequency	Percentage
	House keeping work	2	5.7
	Security work	2	5.7
	Industrial officer/ Engineer	3	8.6
	Safety Supervisor	3	8.6
	Driver	4	11.4
	Electrician	2	5.7
	Fitter	3	8.6
	Contractor	2	5.7
D :::	Helper	2	5.7
Position	Store Assistant	3	8.6
	Crain operator	1	2.9
	D. P. Operator	2	5.7
	Meter Reading	1	2.9
	Power Operator	1	2.9
	Peon	1	2.9
	Fabrication Dept.	1	2.9
	Computer Operator	1	2.9
	Cutting Worker	1	2.9
	N	35	100
	Less than one year back	5	14.3
Year of job	1 to 2 years back	7	20.0
(in years)	2 to 6 years back	7	20.0
	More than 6 years back	16	45.7
	N	35	100
	Temporary	30	85.7
Status of job	Permanent	5	14.3
	N	35	100
Cat isk through	Himself/ herself	30	85.7
Got job through	Received as affected person	5	14.3
	N	35	100
	Based on the work done (contract)	6	17.1
	1000 to 5000	11	31.4
Monthly Salary	5000 to 10, 000	13	37.1
(III KS.)	10, 000 to 20, 000	3	8.6
	More than 20, 000	2	5.7
	N	35	100

Due to the reduction of the income from farming and animal husbandry, few local have started a small shop also locally named *larri-galla* as an alternative source of earning. Few of the SFs of the Hajira village have started a small grocery shop.

# Issue of Scrap collection work

Scrap collection work is another area which 36 percent SFs of Hajira have adopted. This occupation is generally adopted by the Halpati, Machhi and few Kolis, particularly by the women having poor economic background but it is not without problems (Table 7). The male members consider this work as derogatory<sup>10</sup> and hence they do not like to do such work, in spite of their severe necessities. The women go for scrap collection in a group of three to four. This activity was found to be injurious to the health and proved hazardous for the life<sup>11</sup>. In spite of the hazardousness<sup>12</sup> of this activity many women, particularly from the poor sections adopted this occupation because of absence of other alternative occupations.

Particular	Category	Frequency	Percentage
	Yes	21	35.6
SFs engaged with scrap collection	No	38	64.4
WOIK	Ν	59	100
Average family member per household engaged in scrap collection work.	1.42		
	Last four month	4	19.0
	Four month to 1 yr	1	4.8
Time period of members engaged	1 yr to 2 yrs	6	28.6
with the scrap collection work	2 yrs to 4 yrs	5	23.8
	More than 4 yrs	5	23.8
	Ν	21	100
	Bricks	3	6
	Iron Liquid	19	38
	Small piece of Iron	15	30
Types of Item one gets in scrap	Copper	3	6
collection work $N = 21*$	Chamkin	5	10
	Dhatu	3	6
	Wrought iron	2	4
	Ν	50	100

Table 7: Information related to scrap collection activity of SFs in Hajira

Number of work days in a year in	Uncertain	8	38.1
	2 month	4	19.0
	3 to 4 month	3	14.3
scrap work	4 to 6 month	5	23.8
	More than 6 month	1	4.8
	N	21	100
	100 to 1000	6	28.6
	1000 to 5000	11	52.4
Income in last 1 year in scrap work $(\mathbf{P}_{\alpha})$	5000 to 10000	2	9.5
(KS.)	More than 10000	0	0
	Uncertain	2	9.5
	Ν	21	100
	Yes	20	95.2
Facing any problems in scrap	No	1	4.8
Concetion work	N	21	100

\* Multiple responses.

## **Issue of Migrant Labour**

Issue of migrant labor has emerged in the aftermath of industrialisation in Hajira. Due to the industrialisation, more than 10, 000 people have migrated to this area from the States other than Gujarat. There are some advantages and also some disadvantages due to the influx of the migrant labor in the Hajira and neighboring villages. They live in the HADA area. The local people who have vacated land in their homestead land have built up Kholis and started giving it to the migrants and earning some rent. Few are earning handsome money out of it. The people are very much scared due to the influx of the migrant laborers. Few people have decided not to give the house on rent to the migrant labor in the main land of the village. They do not know much about the migrants. There are few incidents that have occurred in which the company employee from outside State have fled from these area by eloping with the local girl. The women folk hesitate to move particularly in the evening and at the noon time. Usually the contractor prefers the migrant worker instead of the local workers. It was commonly heard that the local workers are not habituated with the hard work. Bargaining power of locals has reduced due to the coming of the migrants. Now local people started feeling that one or the other day, they would have to vacate from their village. They felt isolated. They are also marginalized in terms of political position too as the non-Gujaratis are becoming member of the village after completing five years of stay in the village. Some have started believing that the Sarpanch of the village would not be going to be elected from the local village but from the non-local people. The filthiness has also increased due to the arrival of the migrants in

the village in large numbers. Other nuances like gambling, prostitutions, theft, alcoholism has also increased in the village due to the migrant labours. People in the neighbouring village have started avoiding giving their daughter in marriage to locals of village Hajira due to such nuisance.

# **Issue of Fishermen**

Before the industrialization, some of the SFs of Machhis, Halpatis and Kolis of Hajira were engaged in fishing in Hajira. The data shows that nearly 58 percent of total fishermen families who were engaged in fishing activity before industrialisation have abandoned fishing occupation after the industrialization in Hajira. All the fishermen who were engaged in fishing told that the quantity of the fish catch had reduced (Table 8). It had happened mainly due to the pollution by the chemicals, dragging / filling activities and noise pollution in sea (Table 8). Certain type of fishes<sup>13</sup> were no longer available, quantity of fishes in catch has also reduced after the industrialization. It has also impacted negatively to their earning and the numbers of work days (Table 8). Nearly 87 percent fishermen told that their fishing instruments remained ideal. It is to be noted that the data gathered from the Fisheries Department also indicates that the fish catch had reduced in the Hajira area. It also caused impact over the nutrition intake of the non-vegetarian consumers in the village.

Fishing Activity	Response	Frequency	Percentage
	Yes	26	44.0
before industrialization	No	33	56.0
before industrialization	N	59	100
	Yes	15	57.7
SF's Abandon fishing	No	11	42.3
	Ν	26	100
	Yes	26	100.0
Reduction in the quantity of	Reduced 25-50%	2	7.7
fish catch	Reduced more than 50%	24	92.3
	Ν	26	100
	Yes	26	100.0
Reduction in income from	Reduced 25-50%	2	7.7
fish sale	Reduced more than 50%	24	92.3
	N	26	100
Reduction in work days	Yes	26	100.0
	Reduced 25-50%	2	7.7
from fish catch	Reduced more than 50%	24	92.3
	N	26	100

Table 8: Fishing Activities among the SFs of Hajira

# **Issue of Gender**

Majority of the women in the village Hajira are from the semi-backward or the backward communities and they are playing very crucial role in maintenance and governance of the family. Unlike the women folk who belong to the upper caste, the lower castes women are not fully dependent upon their men folk for their survival. Majority of the women of the backward section are found working in one or the other economic activities. Fisherwomen were found helping in selling out the fish apart from their day to day household chores.

In Hajira village, the women belong to various communities like Koli, Ahir, Machi and Halpati. In village Hajira it is found that in all spheres of economic activity like agriculture, fishing, vegetable selling, agriculture labour work, scrap collection work and other work; women play important and essential role. It is also found that in Choryashi Taluka, women play important role in decision making in the family. It is found that in Hajira, many families survive through women income where male member are unemployed. It is also observed that many women have become widow due to the bad habit of drinking by their husband. It is also found that female member are bold, courageous, hardworking and sometimes do don the responsibilities of male member. The literacy rates of female of Choryashi Taluka is bit low but in practical life female are very active in decision making.

## **Issue of inequality**

It was observed that due to the industrialization, inequality has got sharpened. Lot of contract works have emerged due to arrival of industries in Hajira belt. Generally those person/s got contracts who were politically influential, educated, financially stable, having managerial skills to take out the works from others. The contract works varies from time to time. It was told that there were about 50 types of  $contract^{14}$  (as informed by the local people). The amount of contract varies from one to another contract. But majority of them are above Rs.10 lakh. Generally, local people are engaged in the contract work related to housekeeping, maintenance, civil work, transport, horticulture, electricity, canteen, etc. It was found that the influential and those who could afford to invest money took the contracts. The poor people cannot even think of undertaking such contractual work. Giving contract to the local person has also big political advantage. Those who got such contract work usually remained supportive of such industries as they get personally benefited by this development. The industries usually give contract work to the politically influential local people and used this as technique to keep them under obligation<sup>15</sup> of the company, so that they cannot oppose the injustices made to the local people.<sup>16</sup> Thus on one hand, a small section of the village people have benefited and improved their economic condition but at the same time sizable population of Hajira village have deteriorated in their economic condition. Some have purchased auto -rickshaw and Maruti van for ferrying the passengers from one place to another.

# Issue of Environment and health

The environment issue has also emerged due to the industrialization in Hajira. Adverse environmental impact could be seen in many fronts; such as on the health of people, land, water, crop, fish, animals, birds, fauna, air, noise etc. The ESSAR industry is located very nearby to the village Hajira. The industry constantly releases the flyash and smoke in the air. The iron particles constantly are emitted and it has caused severe impact on the health of the people. People are suffering from various diseases; such as lung cancer, bronchitis, cold, cough, fever, etc. Many people have said in their interviews that the greenery of the Hajira has totally been lost after the arrival of the industries in Hajira. Earlier people used to come to Hajira for the change of the air and for longevity but now, it is said, if one has to die early they should visit Hajira. People are also suffering from poor eye sight. The natural vegetation has disappeared.

One respondent said, "Many people of Hajira area are now suffering from dangerous diseases like cancer, HIV and other diseases. Earlier we did not find disease like TB, diabetes, and blood pressure but now we find such patient in many houses." Another respondent said, "People of Hajira are living in Danger Zone'. Citing the reasons of the spread of cancer, he stated that the industrial production is primarily based on coal and it constantly emits carbon monoxide, flyash, silicon etc. Constant iron particles are also released into air that causes many health related problems. The SFs also alleged that the problem of health and hygiene have aggravated after the influx of migrant population.

## **Issue of Food Insecurity**

Due to the loss of the land, the farmers who used to sell the grains and vegetables have started buying these items from the open market. It has so happened that after growth of industries in Hajira, the animal breeders who used to sell milk to the village milk co-operative society, as once sellers, now they themselves have started purchasing milk. "*Earlier milk was going to Sumul dairy from the village, now the milk is coming to village from Sumul dairy*", thanks to industrialisation", an old man reported.

Citing the example of the Halpati laborers, a SF stated, that earlier, when they were engaged in agricultural labor work they got not only wages but also other items like vegetables, milk, curd, butter milk etc. free of cost. Prior to industrialization of this area, the Halpatis felt secured as they had protection from the farmers. Today the farmers themselves are in trouble and so they can no longer give assurance of protection to the others.

## Issue of Impoverishment / Marginalization

The poor planning, implementation of the rehabilitation and resettlement program were the main reasons for the devastation of PAFs of Hajira after the industrialization. The programmes that the industries have initiated were not adequate to cater to the aspirations and to solve the problems of various strata of the Hajira village. Many people of Hajira faced displacement forcibly and that too without the adequate support from the industries as well as the government, and hence they were forced to resettle on their own. Most of the affected families were unable to regain their earlier economic status that they were enjoying prior to the industrialization. Most of the industries lack proper resettlement and rehabilitation policy and the programs and they have initiated only 'ad-hoc' programs without the participation of the people at the grassroots level, therefore, most of the programs have remained on paper. Even after lapse of 20 to 25 years of their displacement, many people of Hajira are still struggling hard for accommodating themselves successfully in the new situation.

The above mentioned description reveals the fact that due to advent of industrialization in Hajira area, the condition of the farmers, cattle rearers, agricultural laborers, fishermen and women has deteriorated to a large extent. Many of them have been displaced from their traditional means of livelihood. The traditional life supporting arrangement they have evolved over generations have destabilized due to the development process. On average, the people of Hajira were found to be unhappy and pressed against this development. In order to express their grievances there were many occasions in which they have come on the road. It is also observed that only medium and poor families are living in Hajira, the rest have migrated to Surat for the livelihood. It is also said by villagers that Hajira has become the "Old Age Home" in which only older people are living while new generation are likely to migrate from the village. These development processes not only change the culture but also affect the composition of family, reaction with neighbor and relation among family member. After opening of industrial units, the unity among village member has also deteriorated. In absence of proper work, the male folk have turned towards alcoholism. In some families, women are the only bread winner by doing scrap collection work and working as "housemaid" in township.

In the whole process, the State has remained tilted towards the industrialists. People are generally left to find the solutions of their problems on their own. Industrialists woo the affluent section of the rural society and try to get their work done by playing petty politics with the local groups. At present, simultaneously two worlds exist side by side; one the world of industrialist and their employees, another is of local village people. The former is full of facilities while the latter lacks basic amenities & dignity of life in their condition. On the whole, people are very much dissatisfied and alienated with the present state of affair which calls for immediate attention of the policy maker and the concerned authorities for the 'sustainable development'.

#### **CONCLUDING REMARKS**

The paper concludes that though in terms of investment and import-export, the industrial development remained attractive in Hajira area but in terms of social, human and environmental aspect it has remained far behind. This has happened mainly because the development still is seen in terms of mere 'economic growth'. Due to industrialization, local people have been affected adversely. In absence of proper policy and packages, the 'quality of life' of the local people has deteriorated notably after the industrialisation. Industries have given least attention to the resettlement and rehabilitation(R&R) aspect as a part of their project activity. Still, industrialists follow common practice of taking land, by giving cash compensation, which often is too low to purchase alternative land in the vicinity area. Policy of '*Cash for Land*' has miserably failed in regaining their earlier standard of living for majority of the families.

It can be said from the above description, that the process of development has not remained smooth but proved painful to many, particularly for the vulnerable group. Our exercise shows that majority of the affected population have not only suffered in terms of the economic condition but they have paid price in terms of their culture, identity, way of life, food habits, market linkages, social relationship, power relations, traditional occupation, living standard, value system, morals, beliefs, customs, festivals, aspirations and socio-cultural ties. It is often proclaimed that one ought to contribute for the progress of the State in the nation building process, but now those who are negatively affected by the development have started raising the question: "Why should only they suffer?" Development process itself creates feeling of insecurity, alienation, threat against their human right, threat for the living (home), threat for future generation. People all over India are showing their displeasures towards the industries on the issues of R&R. It can be said that the sustainable development can not take place by keeping the affected people under constant unrest. It is also the moral duty of the State as well as the corporate sector to rehabilitate those who are impacted adversely by the setting up of industries. The affected people can also be considered as one of the important stakeholders of development. It is further deserved that cash compensation does not prevent the impoverishment of the affected people. Compensation is in itself not enough to restore and improve the livelihood disrupted by displacement.

# **ENDNOTES**

- EPW has published details of numbers of such protests from time to time. For instances in Singur and Nandigram, Polavaram Project, Dantewada, Tata Motors in Singur, TISCO Project, Mining 'Development', and MNCs [see: Guha (2007), Rao (2006), Patnaik (2007), Mishra (2006), Punwani (2007), Chandra (2008), Sarangi(1996, 2004), etc.]
- 2. For instances Vasudha *et al.*(2002), Reddy(1994) and Ray and Sashi (2011) have given few references of such studies.
- 3. Large scale industrial development took place in the places like Dholera, Hajira, Ankleshwar, Vapi, Mundra, Vadodara etc.
- 4. It was constituted in 1985 under Gujarat Town Planning and Area Development Act of 1963 for planned industrial development of area under its jurisdiction. Nine villages Hajira, Sunvali, Rajgari, Mora, Bhatali, Damka, Vansva, Kavas and Limla spread over 86 sq. km. come under HADA's jurisdiction. HADA region comprises 14.5 percent area of Choryasi Taluka of Surat district and 17.2 percent of the total rural area of the Taluka. The land is mainly saline and marshy. The terrain is undulating, with chain of sand dunes and drifting sands, making agriculture less productive.
- 5. SEBC are the castes who are backward in terms of social, economic and educational backwardness other than the SCs and STs. SEBC Commission has identified 82 caste as SEBC caste in Gujarat. Thereafter some more castes were added in the list.
- 6. Usually they grew the vegetable as these were cash crop and thereby earned the money for day to day consumption and through such kinds of farming more family members got the employment. Nearby Surat market gives them good opportunity for this kind of farming. (For more details see: Gupta, Dipankar, 1979).
- 7. Halpati popularly known as *Dubals* i.e. weak, are the tribal who specially were brought to the plains for doing the agricultural labor work. Noted sociologist, Jan Breman has extensively written on the exploitative condition of the Halpatis by their *Dhaniyami*, i.e.; their master. (For details see: Breman J. 1974).

- 8. In Hajira only one lady, a daughter of the present Sarpanch is working in ESSAR as computer operator. No other lady was found working in industry or in the office.
- 9. In cities those who lives in slum are the poorest of the poor. They are often engaged in rag picking activity.
- 10. Recently one woman had died as she was burnt by the iron part, which was very hot. Some of the chemicals are dangerous to their health. Moreover, they have to sift out the scrap and hence during their work much dust goes into their body through breathing.
- 11. Recently, daughter in-law of one of the retired school teacher was burned to such an extent and finally died while searching the scrap. This news has appeared for few days in the local dailies but after that nothing has happened.
- 12. Among many fishes lost, we have listed few. They are: Ramcha, Chiliya, Modar, Levta, Boi, Karachla, Bumla, Gingha, Dahangda, Palava, Poplet, Khut, Singada, Varkhla, Gal, etc.
- 13. It includes housekeeping contract, transport contract, canteen contract, horticulture contract etc.
- 14. There are few cases in which the company has punished the person who opposed the industries and took the side of the local people. Thus contract with the local people is used as *'Carrot and stick'* by the industrialists.
- 15. The local MLA and the influential persons were aware about the problems faced by the local people, but they did not open mouth. Hardly they had raised this issue in the Assembly or in the meeting with the District Collector or at other appropriate level.

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# CHANGING TRENDS OF SOME BIO-PHYSICO-CHEMICAL CHARACTERISTICS OF SAGARDIGHI OF COOCH BEHAR, WEST BENGAL, INDIA

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#### ABSTRACT

Present work was designed to study the changing trends of some important bio-physicochemical characteristics of Sagardighi of Cooch Behar, West Bengal, India. To evaluate the water quality of the lake, bio-physico-chemical parameters (tested by West Bengal Pollution Control Board, Siliguri laboratory) were studied on the monthly basis for a period of five years between June 2011 to May 2016. There were seven physical parameters, interalia, Temperature, pH, Total Dissolved Solid (TDS), Total Suspended Solid (TSS), Total Fixed Solids (TFS), Turbidity, and Electrical Conductivity (EC); thirteen chemical parameters, interalia, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Alkalinity (TA), calcium, magnesium, chloride, sulphate, sodium, phosphate, nitrate-N, potassium, Total Hardness (TH) and two bacteriological parameters, Total Coliform(TC) and Fecal Coliform(FC). The present work provides baseline information on changing trends of bio-physico-chemical status of Sagardighi. This would facilitate sustainable management and conservation of ecosystem of this lake. The data obtained from this study reveals that the bio-physico-chemical parameters of Sagardighi of Cooch Behar are comparatively in moderate condition but almost all the parameters are prone to cross the critical pollution level, if necessary action is not taken in time.

**Keywords:** Bacteriological Parameters, Changing Trends, Chemical Parameters, Physical Parameters, Sagardighi.

#### INTRODUCTION

Ponds are useful wetlands located in and around human settlement. Ponds are generally semi-natural ecosystems constructed by man. The ponds are subjected to a range of physical,

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chemical and biological problems caused by human activities and climate change due to which a major concern has aroused as it can diminish their aesthetic beauty, recreational value, water quality and habitat suitability. Most of the ponds or lakes, especially near residential, commercial and administrative areas are polluted because of anthropogenic activities. The physical and chemical characteristics of water are important parameters as they directly or indirectly affect its quality and consequently its suitability for the distribution and production of fish and other aquatic animals (Swingle 1969).

Increased anthropogenic activities in and around the water bodies damage the aquatic ecosystems and ultimately the physico-chemical properties of water (Upadhyay *et al.* 2010). It is well established that domestic sewage and industrial effluents falling into natural water bodies change the water quality and lead to eutrophication (Shaw *et al.* 1991). The monitoring of physico-chemical parameters of a water body is vital for both long term and short term study (Wood 1995). Good water quality resources depends on a large number of physico-chemical parameters and the magnitude and source of any pollution load; and to assess that, monitoring of these parameters are essential (Reddi *et al.* 1993).

# MATERIALS AND METHODS

# **Description of Study Area**

Sagardighi has been selected for study. It is the most important freshwater body which is situated in the heart of Cooch Behar town. It extends between 26°19'12"N to 26°19'21"N and 89°26'21"E to 89°26'28"E and the total surface area of this lake is 14.60 hectare. The lake was excavated by Maharaja Harendra Narayan in 1807 AD. It attracts various migratory



Figure 1: Locational Map of Sagardighi.

birds during the winter season. Among all ponds in Cooch Behar town the most spectacular is Sagardighi, with grand structures arrayed all around it. These buildings, built mostly between 1880 to 1920, are now offices of the district administration like Office of the District Magistrate, Administrative Building of North Bengal State Transport Corporation, BSNL Office on the West; Office of the Superintendent of Police, District Library, Municipality Building on the South, Office of the BLRO, Sate Bank of India (Cooch Behar Main Branch) and numerous other on the east and RTO office, Foreigner's enrollment office, District Court in the north. Although this lake was excavated for drinking water supply control, now it is used for bathing, swimming, washing clothes, fishing, morning and evening walk around the lake, resting or gossiping place, boating etc.

# **Collection of Water Parameters Data:**

The study of Cooch Behar Lake or Sagardighi was conducted using secondary data of five year duration between June 2011 to May 2016 of West Bengal Pollution Control Board, Siliguri Laboratory, Siliguri in Darjeeling.

## **Statistical Analysis:**

Statistical analysis like mean, standard deviation and correlation coefficient, correlation matrix etc. and some graphical representation have been made using Microsoft Excel (Version Windows 2007), a computer based programmer for windows.

# **Preparation of maps:**

The locational map was prepared by using Google Earth, Global Mapper 2011 and Arc GIS v-9.3.

# **RESULTS AND DISCUSSION**

## **Physical Parameters:**

**Temperature:** It is one of the most important parameters for aquatic environment because it governs the physical, chemical and biological properties of water. The maximum water temperature (35°C) was recorded in September, 2011 and minimum (18°C) in January, 2013(Table 1). The mean temperature is gradually high from 28.58°C (2011-12) with SD 4.54 to 29.83°C (2015-16) with SD 3.59 in (Table 1 & 2).

**pH:** pH is an important parameter because it indicates more or less overall water environment. The intensity of acidity or alkalinity of water can be measured by taking the value of pH of water. Natural water is usually alkaline due to the presence of sufficient quantities of carbonate. Here, it ranged from 6.63 (July, 2011) to 9.54 (April, 2016) during 2011-16(Table 1). Sometime pH value exceeds the permissible limit i.e. 6.5 to 8.5.

**Total Dissolved Solid (TDS):** TDS consequently may have an influence on the acceptability of water in general. Water with a very low TDS concentration may be corrosive and corrosive water may lead to toxicity in water. The variation of TDS in water may occur due to ionic composition of water. The highest TDS (271 mg/l) was recorded in August, 2012 and lowest one was 22 mg/l in November 2011(Table 1).

**Total Suspended Solid (TSS):** The TSS is a direct measurement of the concentration of suspended material present in a water sample. TSS value varied due to ionic composition of water and the factors like rainfall and biota cause changes in their concentrations. The maximum TSS (158 mg/l) was recorded in October, 2013 and minimum (4 mg/l) in January, 2011 (Table 1).

**Total Fixed Solids (TFS):** Total Solids are dried, weighed, and then ignited at  $500 \pm 50^{\circ}$ C. The loss of weight by ignition at  $500 \pm 50^{\circ}$ C is a measure of the volatile solids, which are classed as organic material. The remaining solids are the total fixed solids, which are considered as inorganic (mineral) matter. In other word, the Total Solids associated with the mineral fraction are termed Total Fixed Solids (TFS). It ranged from 4 mg/l (June, 2015) to 160 mg/l (September, 2015) during 2011-16 (Table 1).

**Turbidity:** It is another important physical parameter which is responsible for scattering and absorption of light by water. As the turbidity obstructs light penetration, it limits production of phytoplankton growth, which in turn leads to a decrease in photosynthetic activity and depletion of oxygen content. The maximum turbidity (39.1/NUT) was recorded in May, 2013 and minimum (3.11/NUT) in February, 2016 (Table 1), whereas the permissible limit (BIS standard) of turbidity is 5/NUT.

**Electrical Conductivity (EC):** EC value is an index to represent the total concentrations of soluble salt in surface water. The highest EC (98.8  $\mu$ S/cm) was recorded in August, 2012 and lowest one was (42  $\mu$ S/cm) in November 2011(Table 1). EC showed a positive correlation with Total Alkalinity (r=0.686) (Table 2).

## **Chemical Parameters:**

**Dissolved Oxygen** (DO): DO indicate the health of the ecosystem and refers to the volume of oxygen present in water body. It is an important water quality parameter to be measured because it prevails over biological and physicochemical attributes of surrounding water. Oxygen enters into water by aerial diffusion and as a photosynthetic byproduct of aquatic plants and algae. The DO depends upon the temperature, salinity and pressure of water. The DO value indicates the degree of pollution in the water bodies (Gopalkrushna, 2011).It ranged from 5.2 mg/l in July 2011 to 9.9 mg/l in February, 2012 during 2011-16 (Table 1).

**Biochemical Oxygen Demand (BOD):** It is one of the most important components for the aquatic community. It is the amount of dissolved oxygen needed (i.e., demanded) by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period. The maximum BOD (7.1 mg/l) was recorded in May, 2012 and minimum (0.85 mg/l) in July, 2011(Table 1). The mean BOD is gradually low from 3.42 mg/l with SD 2.14 in 2011-12 to 2.28 mg/l with SD 0.72 in 2015-16(Table 1 & 2).

**Chemical Oxygen Demand (COD):** The oxygen required by the organic matters in water to be oxidized by a strong chemical oxidant which is known as Chemical Oxygen Demand (COD). Sometimes BOD cannot be determined accurately due to the presence of toxins and other such unfavorable conditions. Under such circumstances, COD plays an important role for assessment of organic matters in water. It ranged from 14.4 mg/l (October, 2011) to 78 mg/l

(July, 2011) during 2011-16 (Table 1), whereas the permissible limit (WHO standard) of COD is 10 mg/l. It showed a positive correlation with turbidity (r=0.647) (Table 2).

**Total Alkalinity (TA):** TA of water is an important parameter, which determines the amount of chemical needed to be added in water treatment. Alkalinity is an anionic phenomenon. The highest alkalinity value (68mg/l) was recorded in December 2012 and the lowest (15.2 mg/l) in March 2013. This shows a positive correlation with calcium (r=0.686, Table 1 and 2) and conductivity(r=0.748, Table 1 and 2).

**Calcium:** Calcium content is present in hard water as well as soft water. Calcium in wetland water is most essential for the growth of aquatic vegetation and lives. It ranged from 2.83mg/l (April, 2013, ) to 27.25 mg/l (August, 2015) during 2011-16 (Table 1).

**Magnesium:** It is an important chemical component of water. It is essential for the chlorophyll bearing bacteria, algae and plants. Magnesium concentration ranged from 0.54 mg/1 to 8.75mg/l.

**Chloride:** It is one of the major inorganic anions in water and waste water. Chloride content increases in water bodies due to organic matter decomposition. The important source of chloride in the water is the discharge of domestic and industrial sewage. Hence, the chloride concentration serves as an indicator of pollution by sewage disposal and industrial wastes. The maximum chloride (17.61mg/l) was recorded in November, 2016 and minimum (1.96 mg/l) in May, 2016 (Table 1).

**Sulphate:** Sulphate is naturally occurring anions in all kinds of natural water. Industrial waste and domestic sewage are responsible for increase of its concentrations in water. The tolerance limit of sulphate in water is 200 mg/1 while, excessive limit considered is 400mg/l. Sulphate concentration ranged from 0.055mg/l in January, 2011 to 16.33 mg/l in June, 2013

**Sodium**: Sodium content in water is essential chemical component. The maximum sodium (1 mg/l) was recorded in March, 2013 and minimum (6mg/l) in September, 2011 (Table 1).

**Phosphate:** In natural water, phosphorous occurs as phosphate. It is essential for the growth of organisms and act as nutrient that limits the primary productivity of water body that stimulates the growth of photosynthesis of aquatic micro and macro organisms. The maximum phosphate (0.587mg/l) concentration was recorded in July, 2014 and minimum (0.007 mg/l) in February, 2014 (Table 1).

**Nitrate-N:** Nitrate-N concentration enters fresh water through discharge of sewage, industrial wastes and runoff from agricultural fields, the concentration and rate of supply of nitrate in the land use practices of the surrounding watershed. In present study, Nitrate-N concentration ranged from 0.003 mg/1 to 0.68mg/l (Table 1).

**Potassium**: Potassium concentration is very low (<10 mg/l) in natural waters since rocks, which contain potassium, are relatively resistant to weathering. It is usually found in ionic form and the salts are highly soluble. Though found in small quantities it plays a vital role in the metabolism of fresh water environment (Ramachandra *et al.*, 2012). The maximum potassium (3 mg/l) was recorded in January, 2013 and minimum (0.78 mg/l) in September, 2013 (Table 1).

**Total Hardness (TH)**: Total Hardness normally indicates the total calcium and magnesium salts present in water along with some other polyvalent metals such as iron, aluminum, manganese etc. It determines the suitability of water for domestic, industrial and drinking purposes. The total hardness of the water body was in the range between 14.14 mg/l in June, 2011 to 84 mg/l in December, 2011(Table 1).Total Hardness showed a positive correlation with calcium (r=0.883, Table 1 and 2) and magnesium (r=0.698, Table 1 and 2).

## **Bacteriological Parameters**

Total Coliform and Fecal Coliform are the two bacteriological parameters considered here which indicate the presence of pathogens in water of the lake. The maximum Total Coliform (170000 MPN/100ml) was recorded in August, 2011 and minimum (1700 MPN/100ml) in April, 2013(Table 1). The maximum Fecal Coliform (27000 MPN/100ml) was recorded in August, 2011 and minimum (500 MPN/100ml) in April, 2013(Table 1), whereas the permissible limit of Total Coliform and Fecal Coliform is 500 MPN/100ml(CPCB standard) and 10-100 MPN/100ml(Malaysia standard) respectively. Total Coliform showed a positive correlation with Fecal Coliform (r=0.877) (Table 2).

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Vear					2011	,					2012					Standard
Parameters	Unit	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Range	Mean	Deviation
BOD	mg/l	3.35	0.85	1.5	3.6	1.1	1.7	3.2	4	2.2	5.5	6.9	7.1	0.85-7.1	3.42	2.14
Calcium	mg/l	4.12	6.59	6.6	4.9	5.6	9.6	19.2	7.2	6.4	4	7.69	~	4-19.2	7.49	4.03
Chloride	mg/l	2.99	2.94	2.99	4	6.6	6.6	4.86	6.8	5.83	4.89	4.89	3.91	2.94-6.8	4.78	1.45
COD	mg/l	30	78	33.6	17.2	14.4	24.96	39.6	40	58.41	43.68	55.44	45	14.4-78	40.02	18.10
Conductivity	μS/cm	50.6	57.3	48.9	46.7	47.7	51.8	49.3	51.4	58.3	57.5	99	60	46.7-66	53.79	5.92
Dissolved O <sub>2</sub> (DO)	mg/l	7.8	5.2	8.2	8.1	9.8	9.2	9.8	9.8	9.9	6	9.1	8.8	5.2-9.9	8.73	1.32
Fecal Coliform	MPN/ 100ml	22000	0006	27, 000	0006	22000	7000	11000	8000	8000	1300	1700	3000	1300- 27000	10750.00	8441.40
Magnesium	mg/l	0.98	1.96	0.99	1.45	4.37	1.94	8.75	1.46	4.37	1.73	3.88	2.3	0.98-8.75	2.85	2.23
Nitrate-N	mg/l	0.15	0.04	0.27	0.17	0.12	BDL	0.02	BDL	0.04	BDL	BDL	0.18	0.02-0.27	0.12	0.09
PH	Unit	7.25	6.63	7.01	7.94	6.93	7.24	7.63	7.31	6.95	7.92	6.66	7.89	6.63-7.94	7.28	0.47
Phosphate-P	mg/l	0.037	0.044	0.014	0.02	0.03	0.23	0.02	0.05	0.01	0.087	0.027	0.011	0.01-0.23	0.05	0.06
Potassium	mg/l	2	1	1	1	1	1	1	1	1	1	1	1	1-2	1.08	0.29
Sodium	mg/l	2.5	1.46	4.03	6	2.35	2.35	3.73	5.69	3.36	4.71	4.71	2.75	1.46-6	3.64	1.43
Sulphate	mg/l	0.055	0.16	NT	2.95	2.65	2.75	6.38	2.78	1.63	2.02	0.62	2.42	0.055-6.38	2.22	1.75
Temperature	°C	32	33	31	35	32	25	25	20	23	27	30	30	20-35	28.58	4.54
Total Alkalinity	mg/l	18	20	22	20	22	24	68	30	24	32	28.5	24.7	18-68	27.77	13.36
Total Coliform	MPN/ 100ml	70000	17000	1, 70, 000	$^{17,}_{000}$	50000	11000	14000	11000	13000	5000	2700	5000	2700- 170000	32141.67	47811.42
Total Dissolved Solids(TDS)	mg/l	154	36	30	36	40	22	26	84	46	83	54	64	22-154	56.25	37.02
Total Fixed Solids(TFS)	mg/l	16	8	10	10	30	6	10	40	26	30	22	16	6-40	18.67	10.83
Total Hardness as CaCO <sub>3</sub>	mg/l	14.14	24.24	20.2	18	32	32	84	24	34	16	32.69	28	14.14-84	29.94	18.36
Total Suspended Solids(TSS)	mg/l	48	42	18	38	28	4	9	4	92	30	16	142	4-142	39.00	40.70
Turbidity	NTU	17.4	28.6	7.11	8.57	17.2	10.2	13.9	9.25	22.4	12.5	19.6	10.7	7.11-28.6	14.79	6.44

Source: West Bengal Pollution Control Board. BDL= Below Detectable Level

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Year					2012						2013					Standard
Parameters	Unit	lun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Range	Mean	Deviation
BOD	mg/l	6.3	5.35	3.2	3.8	4.8	4.1	4.3	4.2	3.6	6.3	4.3	2.8	2.8-6.3	4.42	1.10
Calcium	mg/l	5.82	5.6	5.6	7.2	5.6	8	~	5.66	9.2	5.66	2.83	9.82	2.83-9.82	6.58	1.93
Chloride	mg/l	3.91	3.74	4.78	2.87	3.83	3.83	5.74	6.7	2.87	7.66	3.82	7.78	2.87-7.78	4.79	1.75
COD	mg/l	21.12	37.44	32.64	19.32	27.04	37.44	39.12	41.6	66.56	73	61	69	19.32-73	43.77	18.90
Conductivity	µs/cm	56	50	47	47	42	50	52	53	56	58	57	53	42-58	51.75	4.79
Dissolved O <sub>2</sub> (DO)	mg/l	8.6	8.6	6.4	6.5	8	8.3	8.2	8.9	8.8	8.6	7.9	7.6	6.4-8.9	8.03	0.83
Fecal Coliform	MPN/ 100ml	2300	1300	1100	3300	2700	1700	2100	2200	1300	1100	500	1400	500-3300	1750.00	790.28
Magnesium	mg/l	1.79	1.73	2.3	1.73	2.3	2.3	1.152	2.55	5.61	1.02	1.53	5.05	1.02-5.61	2.42	1.44
Nitrate-N	mg/l	0.1	0.01	0.008	0.01	0.007	0.01	BDL	BDL	BDL	0.01	0.006	0.01	0.006-0.1	0.02	0.03
рН	Unit	8.02	8	7.21	7.65	8.5	8.27	7.57	8.1	8.35	7.3	7.96	7.63	7.21-8.5	7.88	0.41
Phosphate-P	mg/l	0.026	0.021	0.019	0.021	0.034	0.049	0.063	0.058	0.075	0.061	0.083	0.062	0.019-0.083	0.05	0.02
Potassium	mg/l	1	<1.00	1	<1.00	1	<1.00	<1.00	3	1	<1.00		<1.00	1-3	1.40	0.89
Sodium	mg/l	4.71	3.36	2.75	2.35	2.75	1.88	2.85	5	2.38	1		1.13	1-5	2.74	1.27
Sulphate	mg/l	1.5	7.19	5	0.29	0.468	5.37	0.075	4.29	2.22	2.24	3.17	3.33	0.075-7.19	2.93	2.23
Temperature	ç	29	32	32	29	28	30	26	18	26	28	34	31	18-34	28.58	4.12
Total Alkalinity	mg/l	20.9	19	20.9	22.8	22.8	24.7	26.6	28.5	26.6	15.2	20.9	26.1	15.2-28.5	22.92	3.80
Total Coliform	MPN/ 100ml	8000	14000	8000	22000	17000	13000	17000	14000	8000	5000	1700	8000	1700-22000	11308.33	5818.07
Total Dissolved Solids(TDS)	mg/l	88	271	115	33	43	62	74	75	26	68	64	52	26-271	80.92	64.54
Total Fixed Solids(TFS)	mg/l	16	10	10	20	28	09	88	40	24	30	18	44	10-88	32.33	22.91
Total Hardness as CaCO <sub>3</sub>	mg/l	20.8	20	22	24	22	28	24	23.1	21.47	17.7	12.39	42.09	12.39-42.09	23.13	7.07
Total Suspended Solids(TSS)	mg/l	40	40	26	98	24	12	28	42	4	44	44	09	12-98	41.83	21.65
Turbidity	NTU	9.56	7.89	5.26	4.18	5.14	6.64	8.84	7.36	17.4	31.7	14.8	39.1	4.18-39.1	13.16	11.20
Source: West B	engal l	Pollutic	on Con	trol B	oard. B	DL= I	3elow J	Detecti	able Le	svel						

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Year					2013						2014					Standard
Parameters	Unit	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Range	Mean	Deviation
BOD	mg/l	2.2	3	3.1	3.6	2.4	1.9	2.1	3.4	3.4	2.8	1.8	4.5	1.8-4.5	2.85	0.81
Calcium	mg/l	5.6	6.4	8.8	13.6	7.2	6.4	7.2	6.4	7.2	8	9.6	12	5.6-13.6	8.20	2.44
Chloride	mg/l	6.84	10.76	10.53	8.81	2.94	3.91	6.85	4.89	5.87	4.87	7.83	15.65	2.94-15.65	7.48	3.55
COD	mg/l	53	28.52	15.84	46.72	49.28	31	26.88	24.84	42.32	31.2	36.48	49	15.84-53	36.26	11.70
Conductivity	μs/cm	51	56	50	53	50	51	51	53	56	70	74	85	50-85	58.33	11.52
Dissolved O <sub>2</sub> (DO)	mg/l	7.2	7.8	6.9	8.2	7.8	8.2	7.8	6.8	7.8	6.9	6.9	6.8	6.8-8.2	7.43	0.56
Fecal Coliform	MPN/ 100ml	2700	0006	8000	2200	2600	5000	2600	2200	2200	2100	1100	1700	1100-9000	3450.00	2540.76
Magnesium	mg/l	3.46	3.46	2.88	1.73	0.58	1.15	1.73	1.73	2.3	1.15	2.3	4.61	0.58-4.61	2.26	1.16
Nitrate-N	mg/l	0.008	0.02	0.008	0.05	0.02	0.007	0.007	0.02	0.008	0.005	0.19	0.68	0.005-0.68	0.09	0.19
Hq	Unit	7.35	7.16	7.2	7.32	7.28	7.38	7.2	7.22	7.23	7.13	7.22	7.58	7.13-7.58	7.27	0.12
Phosphate-P	mg/l	0.055	0.051	0.042	0.031	0.039	0.033	0.035	0.057	0.007	0.041	0.029	0.123	0.007-0.123	0.05	0.03
Potassium	mg/l	<1.0	<1.0	<1.00	0.78	<1.00	<1.00	1	1	1	1	2	1	0.78-2	1.11	0.40
Sodium	mg/l	1.813	2.86	2.35	4.43	<1.00	1.35	2.75	2.75	1.34	2.35	3.29	4.37	1.34-4.43	2.70	1.04
Sulphate	mg/l	16.33	2.54	3.49	1.41	0.74	1.74	1.82	0.75	0.92	0.94	0.79	0.45	0.45-16.33	2.66	4.39
Temperature	<sup>0</sup> C	30	31	34	35	28	26	26	22	24	30	29	30	22-35	28.75	3.82
Total Alkalinity	mg/l	20	24	24	28	24	24	26	18	22	42	36	30	18-42	26.50	6.78
Total Coliform	MPN/ 100ml	13000	16000	14000	8000	11000	11000	8000	6000	5000	0009	5000	7000	5000-16000	9166.67	3737.61
Total Dissolved Solids(TDS)	mg/l	63	92	90	65	82	64	78	48	75	75	111	47	47-111	74.17	18.43
Total Fixed Solids(TFS)	mg/l	68	32	16	16	32	16	22	12	54	20	16	30	12-68	27.83	17.17
Total Hardness as CaCO <sub>3</sub>	mg/l	26	28	32	40	20	20	24	22	26	24	32	46	20-46	28.33	7.99
Total Suspended Solids(TSS)	mg/l	42	54	88	78	158	42	24	16	44	44	22	146	16-158	63.17	46.57
Turbidity	NTU	13.8	10.4	5.24	3.46	3.65	3.75	4.34	6.28	4.27	6.12	5.61	22.3	3.46-22.3	7.44	5.60
Source: West B	engal F	ollutio	n Cont	rol Boa	ard. BI	JL = B(	elow D	etecta	ble Lev	vel						

Abdul Miraj & Sudip Kumar Bhattacharya

Table 1d: Monthly Fluctuation of Different Bio-Physico-Chemical Parameters in Sagardighi of Cooch Behar, West Bengal

Oct         Nov         Dec         Jan         Feb         Mar         Apr         May         Range         Mean         Deviation           266         2.2         2.4         2.6         1.6         3         1.8         2.4         1.6         3         1.8         2.48         0.77           391         7.83         6.85         4.99         7.83         4.89         16.75         1.11         10.42         5.92-12         9.53         2.08           391         7.83         6.85         4.99         7.83         4.89         16.75         7.11         3.66           44.16         88.7         18.3         2.4         11.10         11.21         10.42         5.92-12         3.51         10.80           44.16         7.85         6.83         4.90         16.7         4.89         7.11         10.80         10.80           174         7.4         8.7         7.2         6.8         8.2         7.44         5.512         3.371         10.80           1700         1400         1700         1300         1000-1000         10.65         1.279         1.279           1733         7.89         7.78 <td< th=""><th></th><th></th><th></th><th></th><th></th><th>2014</th><th></th><th></th><th></th><th></th><th></th><th>2015</th><th></th><th></th><th></th><th></th><th>Standard</th></td<>						2014						2015					Standard
2.66 $2.2$ $2.4$ $1.6$ $3.$ $1.8$ $2.4$ $1.6.4.5$ $2.48$ $0.77$ $8.4$ $6.72$ $5.92$ $11.2$ $12.1$ $11.6$ $11.21$ $10.42$ $5.92.12$ $9.53$ $2.08$ $3.91$ $6.87$ $4.99$ $7.83$ $4.89$ $1.675$ $4.89$ $3.91.16.75$ $7.11$ $3.66$ $4.416$ $28.56$ $18.32$ $2.4$ $4.128$ $3.316$ $3.744$ $55.12$ $8.32.55.12$ $3.371$ $10.80$ $600$ $71$ $62.7$ $65$ $8.2$ $7.47$ $7.99$ $68.8.7$ $7.49$ $5.66.78$ $1700$ $1400$ $2600$ $2700$ $1400$ $1700$ $1300-9000$ $262.607$ $2260.78$ $7.47$ $7.4$ $7.4$ $7.4$ $7.2$ $6.8.7$ $7.47$ $7.49$ $5.66.88$ $7.76$ $0.006$ $2700$ $1400$ $1700$ $1300-9000$ $262.607$ $2260.78$ $7.00$ $181$ $426$ $0.77$ $0.88$ $8.5$ $8.7$ $8.87$ $8.77$ $69.8.87$ $7.78$ $1700$ $1400$ $1700$ $1700$ $1700$ $1300-9000$ $262.607$ $260.78$ $7.33$ $7.89$ $7.75$ $7.49$ $8.8$ $8.5$ $8.77$ $8.87$ $8.77$ $8.96.8.8$ $7.33$ $7.89$ $7.78$ $0.07$ $0.07$ $0.07$ $0.07$ $0.07$ $1002$ $0.027$ $0.027$ $0.027$ $0.027$ $0.027$ $0.029$ $0.027$ $1111$	Unit Jun Jul Aug Sep	Jun Jul Aug Sep	Jul Aug Sep	Aug Sep	Sep		Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Range	Mean	Deviation
84         6.72         5.92         11.2         11.6         11.2         10.42         5.92-12         5.32         2.08           3.91         7.83         6.85         4.99         7.83         4.89         16.75         4.99         7.11         3.66           4.416         28.56         18.32         2.4         4.128         3.316         3.74         5.5.12         8.3.2-55.12         3.71         10.80           60         71         62.7         65         7.4         7.49         5.8.7         7.49         15.79           744         7.4         8.7         7.2         6.8         8.2         7.4         7.9         6.8.7         7.49         15.7           740         1400         2600         2700         1400         1700         1300-9000         265.00         260.78           730         181         426         058         170         1300-9000         265.00         256.078           730         180         170         1700         1700         1300-9000         265.00         250.78           730         600         773         27         27         27         27         27	mg/l 4.5 1.7 2.8 2.1	4.5 1.7 2.8 2.1	1.7 2.8 2.1	2.8 2.1	2.1		2.6	2.2	2.4	2.6	1.6	3	1.8	2.4	1.6-4.5	2.48	0.77
3.91 $7.83$ $6.85$ $4.90$ $7.83$ $4.80$ $16.73$ $4.80$ $16.77$ $12.70$ $31.6$ $37.44$ $55.12$ $13.2-55.12$ $33.71$ $10.80$ $4.416$ $8.8.7$ $6.2$ $6.3$ $1.2$ $6.5$ $1.2$ $6.5$ $1.2$ $6.5$ $1.2.79$ $10.80$ $600$ $71$ $6.27$ $6.5$ $1.2$ $6.8$ $8.2$ $7.44$ $55.12$ $8.37.42$ $22.078$ $7.46$ $8.77$ $7.20$ $1.200$ $1.000$ $1.000$ $1.000$ $1.000$ $1.000$ $26.5.00$ $226.78$ $1700$ $1400$ $2600$ $2700$ $1400$ $1700$ $1.000$ $1.000$ $26.5.00$ $226.78$ $1700$ $1400$ $2600$ $2700$ $1400$ $1700$ $1200$ $26.5.00$ $26.5.00$ $26.5.00$ $1700$ $2400$ $2700$ $1700$ $1700$ $1200$ $0002$ $0.02$ $0.02$ $1000$ $1001$ $0.001$ $0.001$ $0.002$ $0.025$ $0.025$ $0.025$ $0.026$ $110$ $110$ $110$ $110$ $110$ $110$ $110$ $110$ $0102$ $111$ $111$ $111$ $111$ $111$ $111$ $111$ $110$ $0002$ $10027$ $0026$ $0028$ $0027$ $0.029$ $0.025$ $0.026$ $0.027$ $111$ $111$ $111$ $111$ $111$ $111$ $1111$ $1101$ $111$ $0124$ $0026$ $0027$ $0.029$	mg/l 9.6 10.92 6.72 10.08	9.6 10.92 6.72 10.08	10.92 6.72 10.08	6.72 10.08	10.08	~	8.4	6.72	5.92	11.2	12	11.16	11.21	10.42	5.92-12	9.53	2.08
44.16 $8.36$ $8.32$ $24.$ $41.28$ $3.1.6$ $3.1.7$ $3.1.6$ $3.1.7$ $3.1.3$	mg/l 3.91 4.89 10.76 7.82	3.91 4.89 10.76 7.82	4.89 10.76 7.82	10.76 7.82	7.82		3.91	7.83	6.85	4.99	7.83	4.89	16.75	4.89	3.91-16.75	7.11	3.66
607162.7659298.860-98.872.1512.797.48.77.26.88.27.4796.8-8.77.490.551700140026002700140017001300-90002625.002260.783.021814.260.581.150.540.05130017002605.090.053.021814.260.581.150.540.050.050.050.057.337.897.757.567.498.88.76.96-8.87.780.607.337.897.757.567.498.88.76.96-8.87.780.607.337.897.757.567.498.88.76.96-8.80.050.057.337.897.757.760.0210.0210.0230.020.030.057.337.897.757.498.88.78.736.96-8.87.780.607.337.890.750.750.250.250.250.250.780.057.337.890.750.760.790.020.020.020.050.007.332.753.33.32.553.352.33.52.432.672.677.408.11.11.11.11.11.01.941.661.057.009.050.909.069.050.92<	mg/l 41 35.36 24 22.0	41 35.36 24 22.0	35.36 24 22.0	24 22.0	22.0	8	44.16	28.56	18.32	24	41.28	33.16	37.44	55.12	18.32-55.12	33.71	10.80
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1700 $1400$ $2600$ $2700$ $1400$ $1700$ $1300$ $1700$ $1300-9000$ $265.00$ $2260.78$ $3.02$ $1.81$ $4.26$ $0.58$ $1.15$ $0.54$ $0.96$ $4.32$ $0.54.4.32$ $2.22$ $1.34$ $0.09$ $0.006$ $NT$ $0.007$ $0.007$ $0.007$ $0.003$ $0.03$ $0.03$ $0.03$ $7.33$ $7.89$ $7.75$ $7.56$ $7.49$ $8.8$ $8.5$ $8.73$ $6.96.8.8$ $7.78$ $0.03$ $0.027$ $0.027$ $0.037$ $0.037$ $0.027$ $0.037$ $0.037$ $0.03$ $0.03$ $0.027$ $0.027$ $0.038$ $0.027$ $0.029$ $0.032$ $0.03-0.99$ $0.03$ $0.03$ $0.027$ $0.027$ $0.037$ $0.027$ $0.036$ $0.037$ $0.03$ $0.03$ $0.03$ $0.027$ $0.027$ $0.036$ $0.037$ $0.029$ $0.032$ $0.03-0.99$ $0.03$ $0.027$ $0.027$ $0.027$ $0.029$ $0.027$ $0.03-0.99$ $0.03$ $0.027$ $0.027$ $0.029$ $0.027$ $0.029$ $0.037$ $0.099$ $0.027$ $0.027$ $0.029$ $0.029$ $0.029$ $0.029$ $0.029$ $0.029$ $0.027$ $0.14-371$ $1.12$ $1.01$ $1.01$ $1.01$ $1.01$ $1.01$ $0.029$ $0.029$ $0.029$ $0.029$ $0.029$ $0.029$ $0.029$ $0.029$ $0.029$ $0.014$ $0.014$ $0.014$ $0.014-371$ <td>mg/l 6.8 7.4 7.5 7.2</td> <td>6.8 7.4 7.5 7.2</td> <td>7.4 7.5 7.2</td> <td>7.5 7.2</td> <td>7.2</td> <td></td> <td>7.4</td> <td>7.4</td> <td>8.7</td> <td>7.2</td> <td>6.8</td> <td>8.2</td> <td>7.4</td> <td>7.9</td> <td>6.8-8.7</td> <td>7.49</td> <td>0.55</td>	mg/l 6.8 7.4 7.5 7.2	6.8 7.4 7.5 7.2	7.4 7.5 7.2	7.5 7.2	7.2		7.4	7.4	8.7	7.2	6.8	8.2	7.4	7.9	6.8-8.7	7.49	0.55
3.021.81 $4.26$ 0.581.150.540.94NT0.0030.030.030.030.030.030.030.090.006NT0.0070.004NT0.0030.020.003-0.090.030.030.037.337.897.757.567.498.88.58.736.96-8.87.780.600.0270.0270.0260.0380.0270.0290.0250.0450.013-0.5870.090.171111111111110.003.710.141111111110.003.710.140.660.971.940.951.671.090.14-3.711.661.123.710.140.660.971.940.951.671.090.14-3.711.661.123.710.140.660.971.940.951.671.090.010.003.710.140.660.971.941.092.352.3362.862.673.710.140.160.972.922.83.22.4.332.9672.673.710.140.160.909000900090009000900090009000900090004.08.18.14.07.009000700080004000-14000803.332.67 <td>MPN/ 1300 1700 9000 500</td> <td>1300 1700 9000 500</td> <td>1700 9000 500</td> <td>9000 200</td> <td>500</td> <td>0</td> <td>1700</td> <td>1400</td> <td>2600</td> <td>2700</td> <td>1400</td> <td>1700</td> <td>1300</td> <td>1700</td> <td>1300-9000</td> <td>2625.00</td> <td>2260.78</td>	MPN/ 1300 1700 9000 500	1300 1700 9000 500	1700 9000 500	9000 200	500	0	1700	1400	2600	2700	1400	1700	1300	1700	1300-9000	2625.00	2260.78
0.09         0.006         NT         0.004         NT         0.003         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.03         0.021         0.03         0.03         0.027         0.03         0.03         0.027         0.03         0.03         0.027         0.03         0.03         0.027         0.03         0.03         0.021         0.03         0.043         0.043	mg/l 1.73 2.42 3.63 2.2	1.73 2.42 3.63 2.2	2.42 3.63 2.2	3.63 2.2	2.2	5	3.02	1.81	4.26	0.58	1.15	0.54	0.96	4.32	0.54-4.32	2.22	1.34
7.33 $7.89$ $7.75$ $7.46$ $7.49$ $8.8$ $8.5$ $8.73$ $6.96-8.8$ $7.78$ $0.60$ $0.027$ $0.026$ $0.038$ $0.027$ $0.029$ $0.025$ $0.045$ $0.013-0.587$ $0.09$ $0.17$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $0.027$ $0.025$ $0.025$ $0.045$ $0.013-0.587$ $0.09$ $0.17$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $0.00$ $3.71$ $0.14$ $0.66$ $0.97$ $1.94$ $0.95$ $1.67$ $1.09$ $0.14-3.71$ $1.00$ $0.00$ $3.71$ $0.14$ $0.66$ $0.97$ $1.94$ $0.95$ $1.67$ $1.09$ $0.10$ $0.00$ $2.8$ $2.9$ $2.7$ $2.4$ $2.9$ $2.33.6$ $2.33.6$ $2.88$ $0.40$ $2.8$ $2.9$ $2.7$ $2.4$ $2.9$ $2.67$ $2.67$ $2.8$ $2.9$ $2.7$ $2.4$ $2.9$ $2.67$ $2.67$ $2.8$ $2.9$ $2.7$ $2.4$ $3.2$ $2.4.33$ $2.9.67$ $2.67$ $2.8$ $2.9$ $2.7$ $2.4$ $2.9$ $2.9.67$ $2.67$ $2.8$ $2.9$ $2.9$ $2.9$ $2.8$ $2.9.67$ $2.67$ $2.8$ $2.9$ $2.9$ $2.9$ $2.9$ $2.67$ $2.67$ $2.9$ $2.9$ $2.9$ $2.9$ $2.9$ $2.9.67$ $2.67$ <t< td=""><td>mg/l 0.05 0.02 BDL NT</td><td>0.05 0.02 BDL NT</td><td>0.02 BDL NT</td><td>BDL NT</td><td>LΝ</td><td></td><td>0.09</td><td>0.006</td><td>NT</td><td>0.007</td><td>0.004</td><td>NT</td><td>0.003</td><td>0.02</td><td>0.003-0.09</td><td>0.03</td><td>0.03</td></t<>	mg/l 0.05 0.02 BDL NT	0.05 0.02 BDL NT	0.02 BDL NT	BDL NT	LΝ		0.09	0.006	NT	0.007	0.004	NT	0.003	0.02	0.003-0.09	0.03	0.03
0.027         0.027         0.026         0.038         0.027         0.028         0.038         0.027         0.038         0.038         0.027         0.039         0.037         0.039         0.037         0.039         0.037         0.039         0.037         0.039         0.030         0.030           1         1         1         1         1         1         1         1         1         100         0.00         0.00         0.00           3.71         0.14         0.66         0.97         1.94         0.95         1.67         1.09         0.14-3.71         1.66         1.12           3.71         0.14         0.66         0.97         1.94         0.95         1.67         1.09         0.14-3.71         1.66         1.12           2.8         2.9         2.7         2.4         0.95         1.67         1.92         2.67         2.67           2.8         2.9         2.7         2.4         2.9         2.4.3         3.8.13         4.02           4.00         5.00         7000         9000         8000         7000         803.33         260.71           4.4         84         3.1.5         2.4 <td< td=""><td>Unit 7.6 7.12 6.96 7.57</td><td>7.6 7.12 6.96 7.57</td><td>7.12 6.96 7.57</td><td>6.96 7.57</td><td>7.57</td><td></td><td>7.33</td><td>7.89</td><td>7.75</td><td>7.56</td><td>7.49</td><td>8.8</td><td>8.5</td><td>8.73</td><td>6.96-8.8</td><td>7.78</td><td>0.60</td></td<>	Unit 7.6 7.12 6.96 7.57	7.6 7.12 6.96 7.57	7.12 6.96 7.57	6.96 7.57	7.57		7.33	7.89	7.75	7.56	7.49	8.8	8.5	8.73	6.96-8.8	7.78	0.60
111111111100003 $3$ $2$ $3$ <t< td=""><td>mg/l 0.239 0.587 0.019 0.01</td><td>0.239 0.587 0.019 0.01</td><td>0.587 0.019 0.01</td><td>0.019 0.01</td><td>0.01</td><td>3</td><td>0.027</td><td>0.027</td><td>0.056</td><td>0.038</td><td>0.027</td><td>0.029</td><td>0.025</td><td>0.045</td><td>0.013-0.587</td><td>60.0</td><td>0.17</td></t<>	mg/l 0.239 0.587 0.019 0.01	0.239 0.587 0.019 0.01	0.587 0.019 0.01	0.019 0.01	0.01	3	0.027	0.027	0.056	0.038	0.027	0.029	0.025	0.045	0.013-0.587	60.0	0.17
3         2.75         3         3.36         3.36         3.35         2.35         2.88         0.40           3.71         0.14         0.66         0.97         1.94         0.95         1.67         1.09         0.14-3.71         1.66         1.12           28         29         27         24         29         28         32         32         24-33         29.67         2.67           40         31.5         38         36         34         40         42         44         31.544         38.13         402           400         5000         7000         9000         9000         7000         8000         400-14000         8033.3         26071           44         84         61         77         45         84         37-93         64.58         20.21           40         84         61         77         45         84         37-93         64.58         20.21           8         12         10         77         45         84         37-93         64.58         20.21           8         8         12         10         77         45         84         37-93         57-93         <	mg/l 1 1	1	1 1	1	-		1	1	1	1	-	-	1	BDL	1-1	1.00	0.00
3.71         0.14         0.66         0.97         1.94         0.95         1.67         1.09         0.14-3.71         1.66         1.12           28         29         27         24         29         28         32         32         24-33         29.67         2.67           400         31.5         38         36         34         40         42         44         31.5-44         38.13         4.02           400         5000         7000         9000         9000         7000         8000         9000         7000         803.33         260.71           44         84         61         37         45         84         37.93         60.71         36.071           44         84         61         77         45         84         37.93         50.071           8         12         10         77         45         84         37.93         50.21           8         12         10         77         45         84         37.93         5.021           16         79         6         6         6         6         6         5.021           8         12         10	mg/l 2.86 2 3	2.86 2 3	2.86 2 3	2 3	3		3	2.75	3	3	3.36	3	3.36	2.35	2-3.36	2.88	0.40
28         29         27         24         29         28         32         32         24-33         29.67         2.67         2.67           40         31.5         38         36         34         40         42         44         31.5-44         38.13         4.02           7000         5000         7000         9000         9000         7000         8000         4000-14000         8083.33         2609.71           44         84         61         77         45         84         37-93         64.58         20.21           8         84         61         77         45         84         37-93         64.58         20.21           8         12         10         77         45         84         37-93         64.58         20.21           31.5         23.1         29.6         30         30         37-93         64.58         20.21           16         8         8         12         10         77         45         23.1-44         18.33         56.71           31.5         23.1         29.6         30         30         23.1-44         31.03         5.51           16	mg/l 0.68 2.17 3.38 2.5	0.68 2.17 3.38 2.5	2.17 3.38 2.5	3.38 2.5	2.5		3.71	0.14	0.66	0.97	1.94	0.95	1.67	1.09	0.14-3.71	1.66	1.12
40         31.5         38         36         34         40         42         44         31.5-44         38.13         4.02           7000         5000         7000         9000         8000         7000         7000         803.33         2609.71           444         844         61         37         61         77         45         84         37-93         64.58         20.21           8         8         12         10         77         45         84         37-93         64.58         20.21           8         8         12         10         77         45         84         37-93         64.58         20.21           31.5         23.1         29.6         70         31.6         57.44         18.33         55.1           31.5         23.1         29.6         30         32         44         23.1-44         31.03         5.51           16         38         56         22         24         23.1-44         31.03         5.51           16         38         56         25         24         28         16.4         38.00         16.92           8.27         4.67 <t< td=""><td><sup>0</sup>C 32 32 33 30</td><td>32 32 33 30</td><td>32 33 30</td><td>33 30</td><td>30</td><td></td><td>28</td><td>29</td><td>27</td><td>24</td><td>29</td><td>28</td><td>32</td><td>32</td><td>24-33</td><td>29.67</td><td>2.67</td></t<>	<sup>0</sup> C 32 32 33 30	32 32 33 30	32 33 30	33 30	30		28	29	27	24	29	28	32	32	24-33	29.67	2.67
7000         5000         7000         9000         9000         9000         7000         8000-14000         8083.33         2609.71           44         84         61         37         61         77         45         84         37-93         64.58         20.21           8         84         61         37         61         77         45         84         37-93         64.58         20.21           8         8         12         10         77         65         68         6-68         17.40         18.33           31.5         23.1         29.6         30         344         31.03         5.51           16         38         56         24         23         144         31.03         5.51           16         38         56         24         23         144         31.03         5.51           16         38         56         24         25         16-64         38.00         16.92           8.27         4.67         8.76         7.07         5.21         14.1         7.42         291	mg/l 36 38 44 34	36 38 44 34	38 44 34	44 34	34		40	31.5	38	36	34	40	42	44	31.5-44	38.13	4.02
44         84         61         37         61         77         45         84         37-93         64.58         20.21           8         8         12         10         7         6         68         6-68         17.40         18.33           31.5         23.1         29.6         30         34         30         32         44         23.1-44         18.33           16         38         56         24         23.1-44         31.03         5.51           16         38         56         24         25         16-64         38.00         16.92           8.27         4.67         8.76         7.07         6.58         6.14         9.12         14.1         7.42         2.91	MPN/         8000         4000         14000         1100	8000 4000 14000 1100	4000 14000 1100	14000 1100	1100	0	7000	5000	7000	9000	8000	9000	7000	8000	4000-14000	8083.33	2609.71
8         12         10         5         6         68         6-68         17.40         18.33           31.5         23.1         29.6         30         34         30         32         44         23.1-44         31.03         5.51           16         38         56         22         24         28         64         25         16-64         38.00         16.92           8.27         4.67         8.76         7.07         6.58         6.14         9.12         14.1         3.44-14.1         7.42         2.91	mg/1 49 49 91 93	49 49 91 93	49 91 93	91 93	93		44	84	61	37	61	77	45	84	37-93	64.58	20.21
31.5         23.1         29.6         30         34         30         32         44         23.1-44         31.03         5.51           16         38         56         22         24         28         64         25         16-64         38.00         16.92           8.27         4.67         8.76         7.07         6.58         6.14         9.12         14.1         3.44-14.1         7.42         2.91	mg/l 18 20 14 10	18 20 14 10	20 14 10	14 10	10		8	8	12	10			6	68	6-68	17.40	18.33
16         38         56         22         24         28         64         25         16-64         38.00         16.92           8.27         4.67         8.76         7.07         6.58         6.14         9.12         14.1         3.44-14.1         7.42         2.91	mg/l 30 35.7 29.4 23.1	30 35.7 29.4 23.1	35.7 29.4 23.1	29.4 23.1	23.1		31.5	23.1	29.6	30	34	30	32	44	23.1-44	31.03	5.51
8.27         4.67         8.76         7.07         6.58         6.14         9.12         14.1         3.44-14.1         7.42         2.91	mg/l 24 57 46 56	24 57 46 56	57 46 56	46 56	56		16	38	56	22	24	28	64	25	16-64	38.00	16.92
	NTU 4.57 10.2 3.44 6.10	4.57 10.2 3.44 6.10	10.2 3.44 6.10	3.44 6.10	6.10	ý	8.27	4.67	8.76	7.07	6.58	6.14	9.12	14.1	3.44-14.1	7.42	2.91

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Abdul Miraj & Sudip Kumar Bhattacharya

Year					2015						2016					Standard
Parameters	Unit	Jun	lul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Range	Mean	Deviation
BOD	mg/l	2.4	1.7	2	2.5	2.8	3.9	3.1	1.7	1.6	2	2.3	1.4	1.4-3.9	2.28	0.72
Calcium	mg/l	9.62	12.83	27.25	10.42	16.03	15.23	16.83	11.22	12.02	15.23	10.42	12.02	9.62-27.25	14.09	4.79
Chloride	mg/l	6.84	10.76	4.89	13.69	7.83	17.61	13.69	12.72	9.78	9.78	2.93	1.96	1.96-17.61	9.37	4.71
COD	mg/l	46.8	19.76	25	33	22	27.84	34.56	31	23	39	60.48	62.4	19.76-62.4	35.40	14.37
Conductivity	μs/cm	86.6	87.18	86.6	79.81	87.74	77.12	68.89	66.97	73.42	84.51	85.19	80.1	66.97-87.74	80.34	7.32
Dissolved O <sub>2</sub> (DO)	mg/l	7.1	7.9	6.8	8	8.6	8.8	8.7	7.3	7	8	8.7	7.9	6.8-8.8	7.90	0.71
Fecal Coliform	MPN/ 100ml	2200	800	2200	2700	3300	14000	2600	2100	6000	1200	1100	800	800-14000	3250.00	3670.65
Magnesium	mg/l	3.84	0.56	2.8	4.48	6.16	1.73	5.18	5.76	1.73	5.18	4.03	5.18	0.56-6.16	3.89	1.80
Nitrate-N	mg/l	BDL	0.01	0.02	0.04	0.07	0.1	0.05	0.09	0.13	0.06	0.1	0.12	0.01-0.13	0.07	0.04
Hq	Unit	8.79	8.73	7.31	8.33	7.86	7.6	8.6	7.7	8.45	8.62	9.54	8.75	7.31-9.54	8.36	0.63
Phosphate-P	mg/l	0.139	0.029	0.027	0.089	0.114	0.083	0.184	0.023	0.055	0.047	0.12	0.015	0.015-0.184	0.08	0.05
Potassium	mg/l	2	2	1	1	1	BDL	BDL	2	1	2	BDL	BDL	1-2	1.50	0.53
Sodium	mg/l	3	5	3	3	3	BDL	1	4	3.36	3.36	3	5	1-5	3.34	1.10
Sulphate	mg/l	2.96	2.13	4.29	4.38	5.49	4.08	5.16	6.56	BDL	6.12	0.88	2.38	0.88-6.56	4.04	1.78
Temperature	°C	32	34	30	33	31	30	26	22	26	30	34	30	22-34	29.83	3.59
Total Alkalinity	mg/l	46	42	52	46	60	46	48	34	62	48	40	44	34-62	47.33	7.83
Total Coliform	MPN/ 100ml	11000	3000	5000	7000	5000	33000	7000	6000	17000	3300	2600	3300	2600-33000	8600.00	8702.25
Total Dissolved Solids(TDS)	mg/l	70	49	35	59	84	41	64	73	91	93	06	23	23-93	64.33	23.48
Total Fixed Solids(TFS)	mg/1	4	30	20	160	10	12	26		54	86	18	6	4-160	38.73	46.92
Total Hardness as CaCO <sub>3</sub>	mg/l	48	34	78	42	62	36	60	48	36	56	40	48	34-78	49.00	13.06
Total Suspended Solids(TSS)	mg/l	48	22	24	38	52	20	84	28	26	94	22	20	20-94	39.83	25.42
Turbidity	NTU	24.3	6.28	10.2	11.4	4.18	11.5	7.18	5.04	3.11	10.2	8.39	10.4	3.11-24.3	9.35	5.51
Source: West B	engal P	ollutio	n Con	trol Bc	ard. B	DL=]	Below	Detect	able L	evel						

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89

Table 2: C	Ort	elati	on N	latriy	x of B	io-Pl	hysice	0-Ch(	emica	ıl Pai	rame	ters (	of Sa	gardi	ghi o	f C00	ch Bo	ehar,	West	Ben	gal	
Рагатеters	BOD	muiolaD	Chloride	COD	Conductivity	(OC)20 b9vlossiC	Fecal Coliform	muisəngaM	V-ətertiN	Hq	Ч-ээвидголч	muissetoA	muiboZ	Sulphate	Temperature	yinilaylA latoT	Total Coliform	Total Dissolved Solids(TDS)	by the state of th	Total Hardness as CaCo3	Total Suspended Solids(TSS)	Turbidity
BOD	-	).273 -(	).142 (	0.148	-0.271	0.319	-0.212	0.120 (	0.122 0	.002 -	-0.075	-0.098	0.160	-0.082	-0.063	-0.318 -	-0.062 0	.208 0	T 000.	0.273 0	.151 0	.136
Calcium	-	0	.340 -	0.098	0.563	-0.049	-0.133	0.378 (	0.041 0	229 (	0.130	-0.023	0.043	0.172	0.029	0.748 -	-0.215 -	0.247 0	.029 0	.883 -	0.013 -	0.087
Chloride				0.219	0.440	-0.042	-0.014	0.166 (	.219 0	.084 (	0.047	0.142	0.013	0.184	0.040	0.339 -	-0.028 -1	0.030 0	.232 0	.305 0	.187 -	0.002
COD				_	0.069	0.025	-0.264	0.191	0.027 0	.063 (	0.034	0.011	-0.152	0.009	0.031	-0.158 -	-0.264 -	0.098 0	- 860.	0.009 0	.120 0	.647
Conductivity					-	-0.178	-0.303	0.247 (	0.189 0	.484 (	0.165	0.195	0.106	-0.054	0.259	0.686 -	-0.328 -	0.056 0	.121 0	.527 0	.038 0	0.028
Dissolved O <sub>2</sub> (DO)						_	0.229	0.269 -	0.012 0	.133 -	-0.023	-0.036	0.251	0.092	-0.295	0.027	).114 -	0.008 0	.075 0	.071 -	0.099 (	0.093
Fecal Coliform							_	0.024 (	).252 -	0.382 -	0.128	-0.042	0.011	-0.017	0.097	-0.131 (	- 778.0	0.067 -(	0.151 -	0.091 -	0.112 0	0.092
Magnesium									.142 0	171 (	D.057	0.057	-0.045	0.370	-0.057	0.448 -	-0.109	0.161 0	.151 0	) 869.	090.0	.277
Nitrate-N									ī	0.015 (	J.028	0.051	0.392	-0.155	0.082	-0.004 (	0.112	0.084 -(	0.073 0	081 0	322 0	0.167
Hq											0.019	0.297	0.157	0.057	0.107	0.404 -	-0.229 0	.060 0	.215 0	.232 -	0.035 -	0.113
Phosphate-P												0.067	-0.116	-0.010	0.088	0.143 -	-0.123 -	0.137 -(	0.006 0	0.125 0	.028 0	0.062
Potassium												-	0.218	0.257	-0.197	0.053 (	0.166 0	.348 0	.127 0	048 0	.011 0	.043
Sodium													-	-0.071	-0.062	0.128 -	-0.132	0.025 -(	0.102 0	.031 -	0.132 -	0.205
Sulphate														_	0.006	0.146 -	0.049 0	.152 0	.240 0	.286 -	0.085 0	001
Temperature															_	0.017	0 060.0	.127 -(	0.049 0	016 0	.141 0	.115
Total Alkalinity																-	-0.215	0.138 0	.093 0	.763 -	0.143 -	0.185
Total Coliform																	1	.164 -(	).040 -	0.198 -	0.034 0	0.127
Total Dissolved Solids(TDS)																		0	.033	0.232 0	- 090.	0.167
Total Fixed Solids(TFS)																			0	087 0	.030 0	090.0
Total Hardness as  CaCO <sub>3</sub>																					010	.074
Total Suspended Solids(TSS)																					0	.104
Turbidity	$\left  - \right $																					.000
(Values are show)	n a:	S T = 0	coeff	icient	t corre	elatio	(u															

90

# CONCLUSION

The bio-physico-chemical parameters of Sagardighi are within the tolerance limits except pH, COD, Turbidity, Total Coliform and Fecal Coliform. Among them, value of COD, Total Coliform and Fecal Coliform were always above permissible limit. Therefore, we generally say that the water quality of Sagardighi is moderately suitable for bathing and swimming as well as for the growth of aquatic fauna and flora. However, fluctuations in bio-physico-chemical parameters, if they continue, would result in imbalance in the ecosystem in long run. After detailed study of bio-physico-chemical data of Sagardighi for five years (2011-2016), it is revealed that water quality is comparatively in moderate condition but almost all the parameters are prone to cross their critical pollution level. Therefore an urgent effort must be taken to develop ecosystem-based management strategies with inputs from scientists, resource managers, policy makers, government and non-government organizations and environmentalist to save this heritage water-body.



Figure 2: Changing Trends of Different Physical Parameters (Yearly Mean) of Sagardighi of Cooch Behar, West Bengal (2011-16)



Figure 3: Changing Trends of Different Chemical Parameters (Yearly Mean) of Sagardighi of Cooch Behar, West Bengal (2011-16)



Figure 4: Changing Trends of Different Biological Parameters (Yearly Mean) of Sagardighi of Cooch Behar, West Bengal (2011-16)

Table 3: Changing Trends of Different Bio-Physio-chemical Parameters (Yearly
Mean) of Sagardighi of Cooch Behar, West Bengal (2011-16)

Deverators			Me	an			Standard
rarameters	Unit	2011-12	2012-13	2013-14	2014-15	2015-16	Deviation
BOD	mg/l	3.42	4.42	2.85	2.48	2.28	0.860755
Calcium	mg/l	7.49	6.58	8.2	9.53	14.09	2.949876
Chloride	mg/l	4.78	4.79	7.48	7.11	9.37	1.951904
COD	mg/l	40.02	43.77	36.26	33.71	35.4	4.044251
Conductivity	µs/cm	53.79	51.75	58.33	72.15	80.34	12.42199
Dissolved O <sub>2</sub> (DO)	mg/l	8.73	8.03	7.43	7.49	7.9	0.522858
Fecal Coliform	MPN/100ml	10750	1750	3450	2625	3250	3630.238
Magnesium	mg/l	2.85	2.42	2.26	2.22	3.89	0.695895
Nitrate-N	mg/l	0.12	0.02	0.09	0.03	0.07	0.041593
pН	Unit	7.28	7.88	7.27	7.78	8.36	0.456815
Phosphate-P	mg/l	0.05	0.05	0.05	0.09	0.08	0.019494
Potassium	mg/l	1.08	1.4	1.11	1	1.5	0.218449
Sodium	mg/l	3.64	2.74	2.7	2.88	3.34	0.412068
Sulphate	mg/l	2.22	2.93	2.66	1.66	4.04	0.889112
Temperature	<sup>0</sup> C	28.58	28.58	28.75	29.67	29.83	0.616336
Total Alkalinity	mg/l	27.77	22.92	26.5	38.13	47.33	10.02211
Total Coliform	MPN/100ml	32141.67	11308.33	9166.67	8083.33	8600	10293.15
Total Dissolved Solids(TDS)	mg/l	56.25	80.92	74.17	64.58	64.33	9.594407

Total Fixed Solids(TFS)	mg/l	18.67	32.33	27.83	17.4	38.73	9.058688
Total Hardness as CaCO <sub>3</sub>	mg/l	29.94	23.13	28.33	31.03	49	9.82244
Total Suspended Solids(TSS)	mg/l	39	41.83	63.17	38	39.83	10.60562
Turbidity	NTU	14.79	13.16	7.44	7.42	9.35	3.377465

# FUTURE SCOPE

On the basis of our present observation and detailed data base of important bio-physicochemical characteristics of Sagardighi of Cooch Behar, West Bengal, India, we feel that further time-series analysis of quality of water of this water body and a detailed study of these parameters should be conducted.

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# OPTIMIZING THE SUSTAINABILITY OF TOURIST INFRASTRUCTURE IN DAL LAKE WATERSHED OF KASHMIR HIMALAYAS

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### ABSTRACT

Tourism has assumed an overwhelming importance as a component of mountain economy around the world. Though the lowlands remained the major regions of industrial and urban concentration in the past, the mountain regions are now attracting major economic investments for hydro-power and communication routes and above all a number of mountain regions have experienced "tourist revolution" causing substantial economic, social and environmental changes. The current construction activities inherent in tourism infrastructure are associated with huge amount of waste. As the economy of the region continues to expand, there is growing need to explore the problems of sustainability associated with tourism infrastructure. Dal Lake Watershed has an area of 331 km<sup>2</sup> and lies between 34° 02'-34°13' N latitude & 74° 48'-75° 08' E longitude ensconced in the valley of Kashmir. The paper analyses the accommodation sector of Dal Lake Watershed. There are about 1268 accommodation units comprising of 227 hotels, 236 guest houses and 805 houseboats with a total capacity of 19,428 beds. The average bed capacity of hotels is much higher (50 beds per hotel) as compared to the average bed capacity of guest houses (16.19 beds per guest house) and the houseboats (5.2 beds per houseboat).

Keywords: Accommodation, Infrastructure, Dal Lake, Tourist, Watershed.

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## **INTRODUCTION**

The Kashmir Himalayas, a segment of western Himalayas have earned world reputation as a famous tourist hill resort. The natural landscape of Himalayas endowed with rich scenic resources like rolling mountains, pearling torrents, rivers, glaciers, lakes and varied flora and fauna have daunted tourists for long. The vast natural green carpets of upland pastures and meadows, dense forests, glistering mountain torrents and placid lakes have made the valley a dreamland, indeed the tourist's paradise. The heavy influx of tourism and the resultant expansion of tourist related infrastructure have resulted into undesirable change in the ecosystem of Dal Lake watershed.

Tourism infrastructure can be regarded as the physical elements that are designed and erected to cater for visitors. The strong link between tourism development and infrastructure has been theoretically established by a number of authors (Seetanah et al. 2011; Imikan & Ekpo 2012; Tampakis, Manolas & Tampakis 2012). Imikan and Ekpo (2012) classify tourism infrastructure in terms of water, transport, electricity, communication, and accommodation. They further noted that the accommodation factor includes buildings that serve as hotels and guest houses. Seetanah et al. (2011) went further to classify rental rooms as constituting a significant part of tourism accommodation infrastructure. It is important to note that buildings that serve as tourism infrastructure are not restricted to accommodation variants. Nina (1999) for example, claims that in Australia, important infrastructure projects for tourism development included Sydney Olympic Stadia, as well as convention and exhibition centres. This wider interpretation of the building and accommodation dimension of tourism infrastructure is the focus of this paper. It is considered to be fundamental to a tourist's overall impression of a destination. Singh and Singh (1986), Pandey and Kumar (1986), Byers (1987), Tuecker (1987), Dewan (1987), Kant (1998) are of the opinion that the environmental problems in the Himalaya are increasing because of growing population, economic changes like tourism, construction of roads, execution of river valley projects etc.

Dutta (1992) suggested that tourism activities in each season must be regulated and spread over the whole year, so that the pressure during summer and autumn is eased. Karan and Mather (1985), Chadha (1990), Forsyth (1991) and Savage (1993) have discussed tourism related environmental problems attributed to large number of visitors, use of fire wood, trekking and tourist related sewage and waste disposal. They are of the opinion that the income from the tourism and trekking rarely reaches the bulk of the local population, but they do receive the negative side effects like trailside litter and erosion. Tosun (2001) identified the main challenges to sustainable tourism development and concluded that environmental codes should be developed and enforced to protect unique and fragile natural resources and cultural heritage. Parizzi et al. (2001) concluded that the risk of water contamination has increased, caused by the increase of tourist activities.Ramanand Yadav (2002) revealed in his study that lakes are being used for tourists; it includes boating, fishing, swimming, rowing, picnicking and holiday cottages which create pollution. Yadav in his study of "Impact of Mountain Tourism on Himalayan Environment" mentioned that the huge influx of tourism has brought serious damage to the ecosystem of the Himalayan region, natural beauty and scenery.



Figure1:Dal Lake Watershed

Source: Generated from IRS P6 LISS-III, 2010

# **RESULTS AND DISCUSSIONS**

The development of tourism depends upon the development of an integrated infrastructure of highways, railways, airports, telecommunication, hotel accommodation, human resources and allied services. In Dal Lake watershed, there has been a marked increase in the availability of tourist accommodation infrastructure right from the beginning. A number of new hotels have been constructed and at the same time a sizeable number of residential housing structures have been converted into guest houses for tourist accommodation purposes. There has also been considerable expansion of the shopping facilities. The accessibility has improved both in terms of road development and availability of transport facilities.

# ACCOMMODATION - HOTELS, GUEST HOUSES AND HOUSEBOATS

Accommodation is basic requirement for tourists. Dal Lake watershed has a number of hotels, houseboats, restaurants and guest houses of various types which are used for accommodation purposes. The tariffs depend on the type of accommodation to be hired. The existing accommodation has the capacity to cater to the needs of accommodation as there are about 1268 accommodation units comprising of 227 hotels, 236 guest houses and 805 houseboats with a total capacity of 19,428 beds (Table 1).



Figure2: Hotels around Dal Lake

Source: Generated from Data obtained from Directorate of Tourism, Srinagar

Table 1	l: Numl	ber of Acco	mmodation	units at	Dal Lal	ke Watersh	ed, 2013
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Tumo	Hotel	Rooms				Beds	
Туре		Single	Double	Total	Average	Total	Average
Hotel	227	61	5675	5736	25	11411	50
Guest House	236	47	1888	1935	8.19	3823	16.19
Houseboats	805	0	2097	2097	2.6	4194	5.2
Total	1268	108	9660	9768	7.7	19, 428	15.32

Source: Directorate of Tourism, J&K, 2013



Figure3:Bed Strength in Accommodation Sector in Dal Lake Watershed, 2013
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There are 9768 rooms available for accommodation with 108 single bed rooms and 9660 double bed rooms with the total bed capacity of 19, 428. Hotels have 5736 rooms comprising of 61 single bed rooms and 5675 double bed rooms with the average of 25 rooms per hotel and guest houses have 1935 rooms comprising of 47 single bed rooms and 1888 double bed rooms with the average of 8.19 rooms per guest house while there are 805 houseboats with 2097 double bed rooms with the average of 2.6 rooms per houseboat (Table 1). The average bed capacity of hotels is much higher (50 beds per hotel) as compared to the average bed capacity of guest houses (16.19 beds per guest house) while for houseboats the average bed capacity is 5.2 (Table 1).



#### Figure 4: Guesthouses around Dal Lake

Source: Generated from Data obtained from Directorate of Tourism, Srinagar

Arif H Shah, Zahoor A Nengroo & M. Sultan Bhat

## ENERGY CONSUMPTION BY ACCOMMODATION SECTOR

The pattern and magnitude of energy consumption is varied among various categories of hotels, houseboats and guest houses. The average fuel wood consumption was estimated about 1345 kg/hotel/month and 850 kg/month for guest houses (Table 2). The guest houses are having LPG and kerosene consumption of 114 and 85 L/month respectively. The category-wise breakup of Hotels (Table 3) reveals that the average fuel wood consumption is highest in D category hotels while it is lowest in A category hotels. It varies from 2206 kg/hotel/month in D category hotels to 705 kg/hotel/month in A category hotels.

S. No	Category	LPG (Liters/ month)		Kerosene (Liters/ month)		Firewood (kg/ month)	
		Total	Average	Total	Average	Total	Average
1	Hotel	60609	267	41541	183	305769	1347
2	Guest house	26904	114	20060	85	200600	850
3	Houseboats	33810	42	16100	20	322000	400
Total Accommodation		121323	96	77701	61	828369	653

Table 2: Energy	<b>Consumption</b> in	n Accommodation	Sector at Dal	Lake Watershed, 2013
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Source: Sample Survey, 2013

The average LPG consumption is 96 L/month with the highest consumption in hotels where it amounts to 267 L/month and for the guest houses it is 114 L/month while for Houseboats it is 42 L/month. The LPG consumption sharply decreases from A category (465 L/month) to D category hotels (175 L/month) in the Dal lake area. Kerosene consumption is also highest in hotels (183 L/month) followed by guest houses (85 L/month) and Houseboats (20 L/month). Among the various categories of hotels, kerosene consumption decreases from A category (346) to C category hotels (126). Thus it is clear from the above discussion that Hotels lead in energy consumption (Table 2) of all the four types and among the hotels the energy hotel, where the kerosene consumption is more than that of C category hotel and fuel wood consumption decreases from D category to A category Hotels.



Figure 5: Energy consumption by Accommodation sector at Dal Lake Watershed, 2013

S. No	Hotel category	No. of Hotels	LPG (L/month)		Kerosene (L/month)		Firewood (kg/month)	
			Total	Average	Total	Average	Total	Average
1	Α	54	25107	465	18693	346	38240	708
2	В	65	17632	252	8723	136	53535	836
3	С	99	16120	178	12462	126	191933	1939
4	D	10	1750	175	1663	166	22061	2206
Total		227	60609	267	41541	183	305769	1347

 Table 3: Category wise Energy Consumption in Hotels at Dal LakeWatershed, 2013

Source: Sample Survey, 2013



Figure 6: Energy Consumption in Hotels at Dal Lake Watershed, 2013

S. No	Houseboat Category	No. of	LPG (L/month)		Kerosene (L/month)		Firewood (kg/month)	
		nouseboats	Total	Average	Total	Average	Total	al         Average           24         223           26         609
1	Deluxe	403	18543	46	9215	23	90024	223
2	Α	128	5574	44	2456	19	77836	608
3	В	86	3372	39	1892	22	58947	685
4	С	58	2161	37	1044	18	52521	906
5	D	130	4160	32	1493	11	42672	328
Total		805	33810	42	16100	20	322000	400

Table 4: Category-wise Energy Consumption in Houseboats at Dal Lake watershed, 2013

Source: Sample Survey, 2013

Arif H Shah, Zahoor A Nengroo & M. Sultan Bhat



Figure 7: Energy Consumption in Houseboats at Dal Lake Watershed, 2013

The analysis of the Table 4 reveals that the average LPG consumption in Houseboats is 42 L/month. The consumption decreases from Deluxe category to D category Houseboats. The highest consumption has been found in Deluxe category (46 L/month) and the lowest being found in D category at 32 L/month. The average kerosene consumption of Houseboats has been estimated to be 20 L/month, the highest kerosene consumption (23 L/month) being found in Deluxe category Houseboats followed by B category Houseboats (22 L/month) while the lowest consumption was witnessed by D category Houseboats at 11 L/month. The fuel wood consumption in Houseboats is highest in C category (906 kgs/month) followed by B category Houseboats at 223 kgs/month with the average fuel wood consumption of 400 kgs/month for houseboats.

## CONCLUSION

Tourism infrastructure is generally regarded as the physical element that is created or made to cater for visitors. There are about 1268 accommodation units comprising of 227 hotels, 236 guest houses and 805 houseboats with a total capacity 19428 beds. There are 9768 rooms available for accommodation with 108 single bed rooms and 9660 double bed rooms with the total bed capacity of 19428. Hotels have 5736 rooms comprising of 61 single bed rooms and 5675 double bed rooms with the average of 25 rooms per hotel and guest houses have 1935 rooms comprising of 47 single bed rooms and 1888 double bed rooms with the average of 8.19 rooms per guest house while there are 805 houseboats with 2097 double bed rooms with the average of 2.6 rooms per houseboat. The average bed capacity of hotels is much higher (50 beds per hotel) as compared to the average bed capacity of guest houses (16.19 beds per guest house) while for houseboats the average bed capacity is 5.2.

The way in which design and construction of tourism infrastructure, particularly buildings are currently carried out in Dal Lake Watershed tends to be haphazard, wasteful and largely unscientific. One major observation is that most tourism infrastructure in the region are not designed for ease of disassembly, thereby creating sustainability problems for designers and other stakeholders. The negative environmental impacts of wastages associated with such design and construction practices are substantial and this could exacerbate, considering the high rate of urbanization.

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Literature

# POETRY IS THE WISDOM OF NATURE

G. Mend-Ooyo\*

#### **EDITOR'S NOTE**

\***Dr. G. Mend-Ooyo** is a great contemporary Poet and Writer. Currently, he is the President of the Mongolian Academy of Culture and Poetry and Founder and Editor-in-chief of the GUNU magazine.

He was born and raised in a nomadic herding family, where his life consisted of the endless steppe, the blue sky and the stars, livestock, swift horses, the long-song, folk stories and camel caravans....He began writing poetry at thirteen, and has published poetry, essays and fiction.

Between 1990 and 1996, he was involved in the development of the "Mijid Chenrezig" complex, which united Mongolian history and culture. Mend-Ooyo is one of the foremost figures in Mongolia involved in the revival of traditional script, culture and artistic techniques, and in the study and protection of cultural heritage. Many commentators have pointed out that, in addition to clearly reflecting in his work the idea of safeguarding the earth and the natural world, Mend-Ooyo expresses with his gentle melodies, the exquisite riches of the Mongolian language and of the nomadic worldview. Mend-Ooyo's writings deal with the life of Mongolia's nomadic herders, their culture and cultural knowledge. His works has been translated into over fifty languages.

His novel Gegeenten (The Holy One) received "Golden Feather" Annual Award for Novel of the Year, Ulaanbaatar, Mongolia 2012. He received the Poet Laureate (with Golden Crown), highest poetry award from World Congress of Poets, Budapest, Hungary (2009) and has been awarded Grand Prize of the Mihai Eminescu International Academy, Romania (2014). In 2015, he received the Order of Chinggis Khaan, the highest honor of Mongolia, by the declaration of Mongolian President.

We are reproducing his address to the **37th World Congress of Poets** held between 16-22 August, 2017 in Mongolia, with his kind permission.

Keywords: B. Yavuuhulan (1929-1982), D. Natsagdorj (1906-1937), Danzanravjaa (1803-1856), Dinosaur, Grass, Kazeko Misuzuki (1903-1929), landscape, Li Bai (701-762), melody, Omar Khayyam (1043-1131), Rabindranath Tagore (1861-1941), rhythm, Shambhala, Walt Whitman (1819-1892), *Veda*.

#### INTRODUCTION

#### **POETRY** !

Poetry is a powerful and magical jewel which causes the earth's waves of intuition, wisdom and infinite awareness to shine forth. Throughout human history, the world in which we live is the life-essence of the world, and this world exists in the precious richness of poetry, supported by the people's oral culture and by the most superior qualities of the mind. Human have used the precious storehouse of poetry without concern for higher or lower or for rich or poor, and the people, their rulers and their lineages, have taken control and exploited the precious storehouse of mineral riches and gold and silver and precious metals. A mind which is miserly, restricted and neurotic about such things cannot exist within the storehouse of poetry, where a generous mind alone can dwell.

#### Poets!

Today, our human civilization is encountering a great test. The world, our mother, is losing ever more of her offspring, many of her rivers and her mountain ridges are being polluted and becoming dry, fresh water is growing scarce, and the plants and vegetation and animals are being destroyed, the richness of the earth is being exhausted. Every day we hear about natural disasters such as tornados, earthquakes, landslides and storms, fires and droughts and increased desertification. We have begun to make plans and consider settling on other planets, considering how quickly the polar ice-cap is melting, how water levels are rising. The extent to which our life is pervaded by scientific and technological research means that we will grow ever more. Used to the simplistic fantasy of replacing what we have ourselves been given, we will use up the opportunities we have, and we will quickly lose the ability to see that we are under the control of the computer programs and machines which we ourselves have created. Today in many parts of the world there exists the threat of nuclear war, oppression and slavery, hunger and destitution. The human mind is being overshadowed by the darkness of fear and hatred, greed, the trade in human beings, drug abuse, lies and slanderous words, uncharitable thoughts, and the abandonment of traditions and customs. Love and compassion, which are at the root of human civilization, are being drowned by technology, and are dying out.

In fact, at this time, where are the poets' voices, where are they needed?

I want to repeat a line from a poem by M.Tsedendorj(1932-1982), one of the most gifted Mongolian poets of the twentieth century:

#### Poets! How are we to save the world?

The voice of poets, who are the messengers of language and culture, needs to be communicated, for it expresses the heart and mind which beat through the veins of the natural world, pulsating at a single frequency, and it expresses the intuition which is the wisdom of the earth.

The early understanding of Mongolians was that human beings were created from Heaven and Earth, with Heaven as their father and Earth as their mother. In this way, the air and the wind, the clouds and the rain, the hills and mountains, the waters and the springs, the rocks and the stones, and the grasses and the vegetation - all has wisdom through being part of a living system. Pleasure and suffering and happiness and anger and frustration - the mind expresses it all.

Here is one verse from the *Vedas* of ancient India, written by poets who were among the first of our human civilization:

"As the aeons pass, all things perish, but they remain absorbed into a single quality; When the new aeon begins, they are brought about once more by the power of mind."

The living idea in this poem, written five thousand years ago, has not grown old. As the French philosopher and writer Blaise Pascal (1623-1662) said, "**Man is thoughtful vegetation.**" The twentieth century Mongolian poet O.Dashbalbar (1957-1999) wrote, "**My life is in the grasses, withered to white by the wind.**" The unity of the wisdom of nature and human beings has been expressed throughout time. And here I want to return to a story which I heard in my childhood:

"When humans were first created, light shone from their bodies, each ate from the fruits of their own trees, and they lived without wanting for anything. One person had a strange idea and, thinking the fruit of another's tree might taste better, extinguished his own light and stole some fruit. The light did not shine again. With every bad action, the humans' lights were extinguished. Thus it was that humans ended up without light."

This story warns us that the mistake of desiring more than the love of our mother, the *Earth*, brings to us again the danger that we might cover the planet in darkness. Mongolian nomads recite poetry in the form of prayers and praises dedicated to the hills and mountains, and the waters and springs of the land through which they move, they are grateful to the gentle rain, the beautiful rainbows and the vegetation which express love and compassion, they dig up the soil, they feel anger at the destruction of the trees and the plants, and the slaughter of animals, they look with sadness upon the changes in the natural world, the droughts and other natural disasters, and they continue to act carefully and attentively towards their own homeland.

The nineteenth century poet, educator and monk Danzanravjaa (1803-1856), who was born among the nomadic people of the Gobi, was especially adept at revealing the intuitive wisdom of the natural world. His choices of the location for his monasteries and schools were made quite specifically, and in this precise location, which embodied the wisdom of previous aeons in the dinosaur bones and petrified trees, in what remained from when this area had been the ocean bottom, and in the lava which preserved traces of the fires which had swirled through prehistory, Danzanravjaa established his principal monastery at Hamarin Hiid, and blessed this place, which is today called *Shambhala*, with the great power of enlightened knowledge. The people of the Gobi say that Danzanravjaa rested in the meditative practise of the Kalachakra here, and that he opened the power point in the earth at Shambhala through the power of his meditation, and his students believed that in the future they themselves would come to *Shambhala* through their own wisdom. One of the scholars who tried to find the land of *Shambhala*, Nicholas Roerich(1874-1947), wrote that there had been one man who possessed a secret key to it, and it is possible that he was referring to Danzanravjaa. Danzanravjaa himself had written,

"The body is not the body. It is a bright empty rainbow. Language is not language. It is a deep melody of enlightenment..."

He realized that the wisdom expressed through these words remains preserved in the natural intelligence absorbed into mountains and the waters, in the rocks and the stones, and that the waves of meaning would later flow forth.

In the fall of 1621, Prince Tsogt Taiji, a poet who lived two centuries before Danzanravjaa, went into the mountains to the north of Tsetserleg, where his adjutant, greatly moved by one particular poem, committed it to memory. Three years later, the adjutant DaichinHia and Güen Baatar had it carved onto one of the so-called "Black Stones" at Duut. Almost four hundred years later, music of this poem is still being sounded in the wind and rain. Poetry is absorbed into nature, rocks and stones safeguard the verses through their own melody, and it sounds over hundreds and hundreds of years. What more can be said, except that it is amazing how nature and human wisdom safeguard one another.

At the end of the nineteenth century, the Gobi suffered many years of drought. The poet Gelegbalsan wrote an incantation, "*A Request for Rain from the Sky*," and it is said that when many of the local people gathered together to recite the poem, kneeling and quite felt the source of a dried-up spring, soon clouds gathered in the hazy sky and a rain fell and so ended the drought. The frequency of the words of power which came from the mind of those who recited the poem awoken the awareness which cared for the earth, and we should realize that it was through the desire and movement of many people's minds that the rain fell. In particular, the melody which is poetry's rhythm governs the inner vessel, and the words which absorb the excitation of the spirits constitute the power, the waves which magically charge both the natural world and wisdom.

Eight years ago, on a sweltering day in autumn 2009, many poets came together in the city of Uliastai to celebrate the 80th anniversary of the birth of the famous Mongolian poet B.Yavuuhulan (1929-1982) and held a poetry festival in the square in front of the regional theater. When they recited his poem, "*I Shall Bring a Downpour*," the poets knew that it had been they who had brought down the rain amid the sunshine.

The epic singers who carry the great heritage of Mongolian poetry sometimes recite an epic by heart, letting it bloom over the course of an entire month. Epic singers are paperless books, herding livestock in their homeland, expressing a rhythm with the landscape, awakening an ancient awareness. In the richness of the minds of these epic singers, story-tellers, poets and writers, these wordsmiths of successive generations have preserved the linguistic heritage of the people, they are loaded up with the breadth of melody, and they shine a timeless wisdom out into the future. The wisdom is expressed in words and formed with music and rhythm,

#### Journal of Indian Research

and preserved in the wisdom of the years, and in its awakening shine waves of meaning. The unusual ability to sense the universe's waves of information is a quality of human nature. Such a sensing is an especially direct path of life experienced by poets, who are predestined to experience it.

"When the clear river flows, quite gentle and utterly silent, the moon shines within it, quietly speaking a lover's tale."

This antenna which hears the lover's tale from the moon on the water is the great twentieth century poet and writer D.Natsagdorj (1906-1937). In his poem "*The Star*," written when he was twenty years old, he asks the planet Mars, "*Is he there or not, who was standing at your feet*?" and fifty years later, another great Mongolian poet, D.Nyamsüren (1947-2002) lay on the lonely steppe of Dariganga and, with a poet's curiosity, listened with one ear to the roots of the grasses, and with the other to the sky:

"There's an insect sitting on the tip of the root, playing a music which truly I don't know. As much as the song is melodious, it is ordinary like the rain and the earth, the song of trees desiring rain. But in my other ear, there's a strange clarity, the tune of Mongolian speaking. I heard this, and frequently, you heard it. I hear, beyond the door of the world, humans talking with the stars..."

The feeling of poets that they would make a connection with our relations on other planets has become reality through twenty-first century astronomy. Scholars who investigate earth-like planets on which we might live have begun to whisper together. For humans with great abilities, waiting for signs from space, and studying all the previous scientific information on the world's environment and phenomenology, there is every possibility that such a planet exists.

At such a time, when the law of the world is that the isolated interior spaces of the minds of human beings are like vessels full of information, from the viewpoint of the poets', which is to reveal things clearly, further discussion is needed.

As the Persian poet Omar Khayyam (1043-1131) wrote,

"Every rosebush which withers

has grown from the ashes of a most beautiful woman.

Every blade of grass, on which I step today,

has come forth from the heart which yesterday was beating."

G. Mend-Ooyo

In the "Song of Myself" in "Leaves of Grass," by the American poet Walt Whitman (1819-1892), he writes of the grasses, "O I perceive after all so many uttering tongues." Just as Omar Khayyam in the eleventh century saw how human lives are preserved in the grasses, so Whitman eight centuries later heard the grasses' "uttering tongues." And in one of his most famous short poems, Nyamsüren wrote of the shifting relationship between the grass and human beings:

"Now, I am stepping on the grass. And later, the grass will grow over me."

It is in listening to the history of the blades of grass, in discovering the loveliness which dwells in the blades of grass, in absorbing the wisdom of the blades of grass and moving into the future that poets find their value. The Bengali poet and Nobel Laureate Rabindranath Tagore (1861-1941) wrote:

"Roots are branches penetrating the earth. Branches are roots struggling towards the sky."

If we look with the capacity of the breadth of space, there is no difference between upwards and downwards, between root and branch. In the poet's inner space, there also exists such a perspective.

Five thousand years ago, it is said, the poetry of the *Vedas* came from superior wisdom expressed through the human soul. The T'ang dynasty poet Li Bai (701-762), who was said to be connected with Heaven, came to the earth, and when he had finished singing his poetry he returned indeed to Heaven. It is not so amazing that, Samuel Taylor Coleridge journeyed in his dream to the capital of the Mongol Yuan dynasty and seen the palace of Xanadu existing four centuries before he was born; and had then written "*Kubla Khan*." When George d'Anthès shot the nineteenth century Russian poet Alexander Pushkin, Pushkin's heart did not stop, rather it beat in the wisdom of the world. At much the same time, Danzanravjaa did not come to the end of his life through drinking alcohol laced with poison, rather he entered the door of *Shambhala*, which he himself had opened, and became an Immortal. During the 1920s, the twenty-six year old Japanese poet Kazeko Misuzuki (1903-1929), composed her final poem about her wonder at the clarity of the night-time moon, and on the manuscript of this poem which she left to her younger sister, she wrote:

"The bee within the flowers, the flower within the enclosure the enclosure within the land, the land within the city, the city within Japan, Japan within the world, the world within the Buddha, and so, and so the Buddha is small within the bee... What can we do, then, to save the world, which exists with all things?"

Through the perfect magical power of poetry, let all of us poets shine a brighter light upon the shadowy parts of the human world! Let us listen to the wisdom of nature, and help to bring peace to our planet through opening up the nature of the human mind to others. From my own poem:

"The song which the lips repeat the mountains repeat. The song which the mountains have repeated encompasses the world. May All Songs and All Poetry Encompass the World!"

# **BOOK REVIEW**

# Review by Neeta M. Khandpekar\*

# QUALITATIVE RESEARCH FOR SOCIAL SCIENCES AUTHOR: Marilyn Lichtman SAGE, USA, 2014, pp. 418 Price: US \$ 60

The Book under review is a precious gem for scholars interested in pursuing qualitative research in the field of social sciences. This book tries to show how many disciplines of social sciences have been using some kind of qualitative research as a complement to quantitative research fitting into the larger domain of social science. The author, a retired Professor of educational research and evaluation from Virginia Tech shares her new ideas and ways of doing things. Since many of her students came from varied social sciences disciplines, the book has many diverse and new examples covering social sciences from almost a new point of view. The book has fourteen chapters in all, concluding with Epilogue, Glossary and Index.

It begins with Introduction wherein the author stresses on the use of qualitative research (QR) for inquiring into a variety of new ways for asking and answering questions about the world in which we live. QR can be used in many innovative ways. Researchers can take advantage of access to news events as these are happening and as these become available through YouTube, Facebook and other Apps. Others use technology such as smart phones or tablets as an alternative way of collecting data. In this process, insight into newer ideas as what to study and how to study appear almost daily. It also highlights how QR fits into realm of journalism, urban studies, social work or behavioral sciences as well as other areas. The second chapter focuses on the researcher adopting self-reflective mode to collect data. For example going to the field by leaving the classroom. Formulation of research questions has also been tabulated (p. 29). Interesting examples appear on recently published research topics like use of fictional narratives in social and educational research, live experiences of students doing phenomenology etc. Chapter Three systematically explores Ethical Issues in Qualitative Research beginning with ethical behavior and ethical conduct. Illustrations of misconduct, concerns of qualitative researchers involved in the study of vulnerable groups

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makes reading interesting. Chapter Four covers conceptualization approaches towards research. The combination between Quantitative Research (QN) and Qualitative Research (QR) has been explained in some depth. 'Purpose' in the research approach is deemed to be significant for example, use of Purpose to describe a phenomenon, explain a culture, explain a case, search for an emerging theory, understand a lived experience or take action to change an established system. Chapter Five includes five popular approaches to QR namely Ethnography, Grounded theory, Phenomenology, Case Study, with a unique table shown (p.126), and narrative. A detailed examination of common approaches for examining history and meaning, distinguishing features together with special issues have been highlighted. Examples from the field, blogs and beyond and words of caution find their place in this chapter.

Chapter Six deals with additional research approaches which are incredibly diverse, for example, QR with aesthetic concerns and techniques of narrative fiction. Two common forms namely poetry-based research, in which data are used for original poetry, and ethno-drama, which combines ethnography with theatrical writing and performance have been included. Also use of Auto-ethnography exploring personal experiences of life has been explained. A relevant table (p.153) shows comparison of research approaches. Pragmatic ways of combining information gained in qualitative and quantitative ways has been explained. How to select a particular research approach has also been highlighted. Chapter Seven is on Planning and conceptualizing a Qualitative Research Study. Perspectives from researchers working in different social science disciplines covering a range of locations in order to think out-ofbox is included in this chapter. Use of photographs and figures has made this chapter more appealing. Chapter Eight covers advances in social media, internet technology and hardware demonstrating enormous creativity in use of technology. The digital age brings instant news making us to witness the events in fraction of seconds before our eves. The author tries to explain how this technology can be harnessed in order to understand the world and make it safer place for all to live in freedom and security. The digital age thus brings information in vastly different ways. Use of popular social networking sites is discussed. Chapter Nine briefly presents reviews of research literature. Critical steps in conducting a review like identifying a topic, to determine search terms, search for information, to select relevant information, review critically, modify your topic, keep track of things are included in the explanation.

Qualitative reviewing is one of the basic technique researchers have used to gather data. Chapter Ten is hence entitled Interviewing. Individual interviewing as one of the most powerful tools available to the qualitative researcher has been discussed. A table showing questioning strategies like elaboration, probing, using stimuli, neutrality, single question, wait time and other specific areas of concern makes it stimulating read. The next chapter stresses upon gathering data, focus- group interviewing, online interviewing, observations, using visuals/images, using media and technology and using written material. A note of caution on the issues with each of these methods to be considered by researchers is highlighted. There is a scope of unlimited possibilities that may have to be considered by the researcher before planning to gather data. Chapter Twelve deals with drawing meaning from the data. This is explained with figures of the 3 Cs of Data Analysis: Codes, Categories and Concepts. It is further stated that some of the approaches are specific while others are general. Chapter

Thirteen on communicating your ideas discuss about a writer's engagement with a reader. This is something special. The reader stays with it- even into the wee hours of the night. It is more than just the story that grabs the reader. It is the way the story is told. Qualitative researchers have been experimenting with alternative ways of presenting information.

The final chapter is on judging the research process and product. A chart shows key issues with evaluating qualitative research prior to 1990 (p. 378). In the Epilogue, the author elaborates how between 1990-2000, 2000-2010, 2011 and beyond, shows remarkable difference in research approaches. While prior to 1990 objectivity, reliability and internal validity was evaluated but now the importance lies in diverse views, different types of validity and self–criticism. Summary, check you, key discussions and useful references have been included at the end of each chapter.

This entire book is welcome as a piece of significant addition to scholarly writing on QR giving a fresh insight to the scholars who want to pursue serious research in field of social science.

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