

ISSN 2250-2866

Volume 14

Number 1 & 2

January-December 2015



# RAJIV GANDHI UNIVERSITY RESEARCH JOURNAL

**RAJIV GANDHI UNIVERSITY**

Rono Hills, Doimukh-791112, Arunachal Pradesh

Ph: +91 360 2277253 Fax: +91 360 2277317 | Email: [editorrgurj@gmail.com](mailto:editorrgurj@gmail.com)

**Rajiv Gandhi University Research Journal****Editorial Board**

|                            |        |
|----------------------------|--------|
| Prof. R. K. Singh          | Editor |
| Dr. Nani Bath              | Member |
| Dr. (Ms.) Vandana Upadhyay | Member |
| Dr. Hui Tag                | Member |
| Ms. Bompri Riba            | Member |
| Dr. Pankaj Kumar           | Member |

**EDITORIAL ADVISORY COMMITTEE**

|                          |   |
|--------------------------|---|
| Prof. Atul Sarma         | Visiting Professor, Institute for Human Development, NIDM Building, IIPA Campus, Indraprastha Estate, New Delhi 110002  |
| Prof. K.K. Misra         | Director, Indira Gandhi Rashtriya Manav Sangrahalaya Shamla Hills, Bhopal 462013  |
| Prof. Udayon Misra       | Former Professor and Head of Department of English, Dibrugarh University, Dibrugarh, Assam  |
| Prof. Amitav Kundu       | Centre for the Study of Regional Development, Jawaharlal Nehru University, New Delhi 110067   |
| Prof. Valerian Rodrigues | Centre for Political Studies, School of Social Sciences, Jawaharlal Nehru University, New Delhi 110067  |
| Prof. Pramod K. Yadav    | School of Life Sciences, Jawaharlal Nehru University, New Delhi 110067  |
| Prof. Birinder Pal Singh | Professor, Department of Sociology & Social Anthropology, Punjabi University, Patiala 147002  |
| Prof. Aditya Mukherjee   | Centre for Historical Studies, School of Social Sciences; Director, Jawaharlal Nehru Institute of Advanced Study, Jawaharlal Nehru University, New Delhi 110067 |
| Prof. Virginius Xaxa     | Director, Tata Institute of Social Sciences, Guwahati, Assam  |
| Prof. P.K. Biswas        | Indian Institute of Forest Management, Nehru Nagar, Bhopal 462003, India  |
| Prof. Damodar Suar       | Department of Humanities and Social Sciences, IIT Kharagpur 721 302   |
| Prof. Nandini Sundar     | Department of Sociology, Delhi School of Economics, University of Delhi, New Delhi 110007   |
| Prof. Subhadra M. Channa | Department of Anthropology, University of Delhi, New Delhi 110007   |
| Prof. V. Dhulsi Birundha | Dept of Environmental Economics, School of Economics, Madurai Kamaraj University, Madurai 625021, Tamil Nadu  |
| Dr. Stephen Morey        | Australian Research Council Future Fellow, Research Centre for Linguistic Typology, La Trobe University, Au.  |
| Dr. Shambhu Pada Kundu   | Department of Physics, Ramakrishna Mission Vivekananda Centenary College, Rahara, Kolkata 700118  |

**Rajiv Gandhi University Research Journal****Contents**

| Articles  | Pages   |
|---|---------|
| 1. Emergence of Civil Society and the Right-Based Approach to Development in India<br>Samanta Sahu .....                                  | 1-12    |
| 2. Status of Tea Plantation in North-East India: A Review<br>Reter Potom<br>Gibji Nimasow .....   | 13-29   |
| 3. The Galo of Arunachal Pradesh: A Brief Ethnographical Profile<br>Mima Bam .....  | 30-40   |
| 4. Study Habits of Senior Secondary Learners of Lower Dibang Valley district of Arunachal Pradesh<br>Trachi Tayeng<br>Sumin Prakash ..... | 41-53   |
| 5. Advancement in cultivation techniques of oyster mushrooms<br>Asha Pertin .....   | 54-73   |
| 6. Growth of Micro Enterprises in Arunachal Pradesh<br>Ashok Sharma<br>R. C. Parida .....   | 74-83   |
| 7. Trends in Women Work Participation Rate in Arunachal Pradesh : A District Level Analysis<br>D. B. Gurung .....                         | 84-98   |
| 8. Magical Hands: Rendezvous with a Buddhist Medicine Man (Tawang, Arunachal Pradesh, India)<br>Tajen Dabi .....                          | 99-109  |
| 9. Women Right Awareness among the B.Ed. Trainees of Arunachal<br>Vivek Singh<br>Tangkheso Tamai .....                                    | 110-121 |
| 10. A Study of Urban Informal Sector Workers in Urban Tezpur of Assam<br>Biman Kumar Nath .....   | 122-133 |
| 11. CRITICAL REVIEW<br>Dr. Joram Yalam Nabam .....  | 134-137 |
| 12. Feminism and Hindi Literature<br>Dr. Joram Yalam Nabam .....  | 138-141 |

## Emergence of Civil Society and the Right-Based Approach to Development in India

Samanta Sahu<sup>✉</sup>

Received on 30 August 2015

Accepted on 03 November 2015

### Abstract

*The State-centric model of development had its own accesses, with the dominance of State institutions pervading the lives of people and in excluding them from decision-making process. This gave wide scope for corruption and the nexus between political effectiveness and the industrial elites widened. This in turn led to various social movements in the subsequent decades, which questioned the legitimacy of the State institution's ability to implement policies. They perceived the inability of the people to inappropriately the benefits of development as a failure of the State to fulfill the aspirations of the people. At this backdrop there has been an ever increasing demand from the bottom level of the society for a better deal in access to basic necessities. There has been greater realization of a right based approach in the new millennium towards fulfillment of people's basic necessities. When the State is abdicating from its welfare functions, people have started demanding for their basic rights spiritedly. All this become possible owing to an active and vibrant civil society. It educated the people, mobilized them, and brought awareness regarding their rights through vigorous information dissemination. Through continuous protests, campaigns, rallies, news distribution through modern information and communication technologies, the civil society is putting enormous pressure on the State to deliver basic*

---

<sup>✉</sup> Department of Political Science, Rajiv Gandhi University, Itanagar 791112, Arunachal Pradesh  
Email: samantasahu@gmail.com



*services to its people. The paper is an attempt to argue that the emergence of an active and vibrant civil society in the development discourse in India has strengthened the movement for right-based approach towards the fulfilment of basic necessities.*

**Key words :** *Civil Society, Right-based Approach, Right to Development*

The closing decades of 19th century are particularly significant for two important socio-political reasons. One, the emergence of social movements around the developing world along with it a consciousness of individual's right and freedom. The second most important incident is the collapse of communism and the end of violent competition between two diverse sets of value system. The beginning of 20<sup>th</sup> century, staged upon movements for individual's basic rights as a continuous process in the developing nations around the world including India. The individual's struggle for access to resources and basic rights began to be debated and strengthened on the face of neo-liberal policies. Such policies are like free market economy, privatization, liberalization and de-regulation which have been used as political conditionality by the donor agencies for giving aid to third world countries as part of the post war development agenda (Leftwich, 2000). It is pointed out in several independent studies that the implementation of these sets of policies in the countries of the south, has led to the poorer section getting sidelined from the development process (Stiglitz, 2000). Things have become worse as they are systematically deprived from accessing resources. Consequently, the demand for the inclusion of underprivileged regarding their access to resources and involvement in the decision-making process has strengthened. In India the process is much faster than in other countries of the south owing to the existence of a vibrant constitutional democracy. The democratic State which reflected the aspirations of freedom of its people from colonial subjugation, manifested it through the Constitution with guaranteed fundamental rights which made people sovereign in deciding who and what they need. On the face of such legal entitlements, the Indian State assumed responsibility in ensuring those rights through various plans and programmes so as to reduce inequalities and discrimination amongst the people and brought a number of development strategies to accelerate economic growth and human development.

However, contrary to it after several decades of independence, the development strategies adopted by the Indian State is realized to be insufficient. While the nexus between the policy making body, policy implementation body and the influential section of the society appropriated the benefits of devel-

opment, the poor continued to suffer even though policies are stated to be pro poor. In the name of development, poor faced the crisis of poverty, deprivation, displacement, migration and underdevelopment. Basic social services such as provision of drinking water, food security and livelihoods opportunities are shrinking for them in a globalised world.

### **The Right Based Approach to Development**

Towards the closing years of 20th century slowly moments for access to basic resources and the consequent role of State in fulfilling them emerged. The new century brought development strategies with a right based approach to development stating that rights belong to the citizen bestowed by the State. The right based approach to development, in the present scenario, emerged due to the inaction and failure of the State in protecting citizen's basic rights. State fails when it is constituted with weak institutions, weak governing mechanism or governance system and when it fails to provide basic services to its citizens. When those institutions and officials cease to function, the political power that had been channeled through such structures finds alternative, less ordered, means of expression. A failed state is therefore one that maintains few or no functioning state institutions. It can no longer assure security and has lost its legitimacy (Zartman 1995: 5). The approach expects the State to play the fundamental role as the protector and promoter of those rights. The approach is based on the principles that individual rights are shaped through continuous struggle from the bottom considers citizens as beneficiaries as well as the participant in the development process from which they are deprived off. Since individuals are deprived of basic goods and services like food, water, shelter the right based approach identifies them as a matter of the right and not just basic necessities. In this context, the people are to be empowered so that they could demand the State for the fulfillment of their basic entitlements as a legal right. In the process, the role of mediating agencies, such as the civil society has been lauded.

The right based approach to development is particularly significant as it pressurizes the State and its action while giving the citizens legal entitlement to access services from the State. It expects the State to maintain transparency, accountability, equity and non discrimination in distribution of resources. With the emergence of rights based approach to development, several issues started to be seen from a right's perspective in India. Consequently, the government in India took upon itself to legitimize this evolving trend of development as a matter of right. And thus several laws have been enacted in the past decade



thereby giving legal backing to it. For instance, the Right to Information Act, the Right to Food Act, the Right to Education Act, and Right to Work etc. were enacted by the Parliament of India making them legal entitlements for the citizen.

### **Emergence of Civil Society**

Since the past two decades there is a renewed concern on the role of civil society in the development discourse. Its role suddenly has become prominent and debated during this period on the face of State withdrawal and a market led development. Civil society typically constitutes the space between the State and the market where people associate themselves aside from the market and autonomous of the State. Civil Society is viewed as a separate realm between the household and the state, or as an autonomous 'third' sphere, different from the State and market. Civil society is the place where individuals could come to self awareness and self confidence (Tester 1992: 9). Specifically, this refers to the diverse citizens' associations, voluntary associations, charities, non-profit foundations and non-governmental organisations that unite to promote causes or issues of mutual interest and to influence decision-making processes.

The emphasis on Civil Society Organisations (CSOs) is significant as it is the oldest organisation in grounding people and bringing an autonomous space for collective action and significantly acts as a counter to State power. It is due to CSOs, people affirmed the strength of collective action, carved out a space which enabled them to discuss issues concerning them and fight for their basic rights. Thus, civil society organisations are regarded as effective means to channel aid for development and filling the gap opened by the rolling back of the State in delivering services and fruits of development directly to the poor. In addition civil society is viewed as an effective watchdog of curbing authoritarian tendencies of the democratic state (Putnam 1993).

The argument for a strong civil society in India emerged primarily due to the failure of the State in delivering a minimum basic standard of life to its people. Corruption and the unholy business-politician-bureaucracy nexus that emerged consequently rendered the State-led development ineffective. As a result State was weakened with growing corruption and mismanagement in fulfilling the demands of the people. Consequently the disgruntled feeling among the citizenry and people in general made way for a strong civil society which aspired to bring participatory development. This was also seen as an effective

means by which stake holders could influence and share control over development initiatives and resources which affect them (The World Bank 1994: 2). It is also noted that public well being and security can be strengthened while strengthening civil society. Some argues that it is due to a vibrant civil society, individual or group is able to participate legitimately in the decisions of a given society about their 'entitlement' bringing accountability and participation. In this process, people become active participants of the process which enable them to act to maintain access to vital resources (Appadurai 1984). Consequently civil society could be able to strengthen the organizational capacity of the poor and deprived sections in realization of their rights within the policy processes. Indeed, in situations where the State has proved consistently unresponsive to the needs of its citizens, it is through the collective action of citizens that made State responsive.

### **Role of Civil Society and Right Based Approach to Development**

Right to development seeks the intervention of the State and its institutions in protecting the basic rights and better living conditions for all (Dev 2008). Among these, right to food and safe drinking water got momentum due to the growing vulnerability of people in accessing it. Although mass famine has been controlled, millions of Indians continues to suffer from water shortages, chronic undernourishment and severe malnutrition, especially women and children and people of lower-caste and class. There is still high prevalence of hunger and starvation deaths in part of Orissa, Rajasthan, Madhya Pradesh and so on (Currie 2002).

The right to food has been identified as the most important right for the realization of the right to development as without food human development is impossible. Right to food is not only a basic human right but also a basic human need. The issue of malnutrition and starvation related deaths became prominent in the development discourse in India with a sustained campaign by the Peoples Union of Civil Liberties (PUCL), a Rajasthan based NGO. Subsequently, the campaign galvanized into a nationwide campaign to make food as a legal entitlement while enlarging the ambit of Article 21 - Right to Life in the Indian Constitution. The ruling of the Supreme Court of India formally led to the access of food as a matter of right.

The Court gave utmost importance on the Public Interest Litigation (PIL) petition highlighting questions of public importance. The outcome of one such PIL is an interim Supreme Court order directing States to implement

eight different centrally-sponsored schemes on food security including implementation of cooked meals in all government and government-assisted schools. The other programmes are; targeted public distribution system, the Antyodaya Anna Yojana, Annapurna Yojana, Integrated Child Development Services, National Family benefit Scheme, National Maternity Benefit Scheme and the National Old Age Pension Scheme.

In brief, the interventions of the court had three major impacts. These are like it converted the benefits of the eight nutrition-related schemes as mentioned above into legal entitlements. Secondly, it directed all state governments to begin providing a cooked midday meal for all children in government-assisted schools; and it directed the state and central governments to adopt specific measures to ensure public awareness and transparency of these schemes/programmes.

Over the last decade, civil society intervened with the support of the judiciary in India for protecting citizen's basic rights. For instance, the Food First Information and Action Network (FIAN), Right to Food Campaign, MKSS (Mazdoor Kisan Shakti Sangathan), NANDI Foundation, MV Foundation, PUCL, are certain NGOs fighting for food of the citizen and have been involved in promoting the right to food and denouncing violations in different regions of India. Not only this, the Right to Food Campaign has held public hearings in Orissa, Madhya Pradesh, Jharkand, Maharashtra, Rajasthan and Delhi while creating awareness and putting pressure on the State to take appropriate measures. Additionally, a wide range of national networking has developed and is working on many issues related to food security and human rights. The "Right to Food Campaign" is an informal network of organisations and individuals committed to the realisation of the right to food in India.

More recently the Right to Food Campaign, a coalition of different organizations, has started to work together after the success of the public-interest litigation brought by the PUCL, using legal strategies as well as broader social mobilization strategies to call for public action to fight starvation and chronic hunger.

Civil society's participation in the effective implementation of the food is quite evident in the state of Tamil Nadu. Civil society groups have succeeded in expanding the domain of policy-making and implementation. Tamil Nadu's MDM Scheme has been shaped and developed into a very successful scheme

due to the presence of a vibrant civil society and a much more learned citizenry.

In this context the role of civil society is also laudable when one looks at the provision of drinking water in India. It is argued that provisioning of safe drinking water is not just a basic need but a basic fundamental human right to protect the right to livelihood and development of the human being. Failure to provide adequate access to drinking water on the part of the State in India in the recent years has led to several moments through out the country. There have been conflicts between the State and the individual, individual and the market regarding the basic access to water, at times leading to violence. While at one end, the State institutions are not able to supply the populace with adequate quality and quantity of water, at the other end the market mechanism are given a free hand to exploit the resources. While there has been several cases reported on this count still the provision of safe drinking water eludes the poorer section of the people.

Even though State policies advocate for drinking water for all and to substantiate this several programmes have been initiated with enormous funds, the benefits of it have not reached the poor satisfactorily. While there are several important gaps in the policies that deprive millions of people of their basic right to drinking water, rich people appropriate the benefits subsidized water. All this happens even after the Supreme Court of India interpreted in several cases, safe drinking water is a fundamental right under Article-21 (Right to Life) of the Indian Constitution. The Supreme Court of India in 1980 invoked Article 21 of the constitution which guarantees right to life and hence to water and environment and thereby restores people's natural right to good quality water. In a recent case in Andhra Pradesh in 2000, the Supreme Court declared drinking water as a fundamental right under Article-21 of the Constitution.

There are several cases where active civil society participation has brought awareness among the people of their right to water. In Rajasthan, the role of Tarun Bhagat Sangh an NGO fighting for the cause of communitisation of water resources and water bodies can be commended. It has now set an example in the entire country for community water management for sustainable development. In another case in Plachimada, Kerala several groups are fighting for their basic rights which led the judiciary to act on behalf of the community. In Hyderabad, Andhra Pradesh, a not for profit group Forum

for Better Hyderabad is working for better water service delivery to the people in the city and regularly conduct public hearings to address the grievances of the people. In contrast, the role of NGOs and civil society organizations is poorly defined and at times non-existent in several developmental programmes. But there are several cases where the community based organizations have shown tremendous success. Different Community Based Organizations (CBOs) and their success in mobilizing people's participation, like Shradha in Himachal Pradesh, Service Centre in West Bengal, are at the helm of people's participation in water resource management for sustainable use to the future (Agarwal and Narain 1997).

Similar engagement on the part of the civil society is also seen in the context of right to work, right to information and the right to education in India. While several community based organisations are pressurising the state and its agencies to deliver goods and services to the people many others are actually engaged in delivery of services to the people. Therefore, the very existence of an active civil society has brought awareness and strengthened the movement for a right based approach to development in India and it has given an altogether different meaning to right to development in India in the present context.

### Conclusion

The role of civil society in the present context is indispensable and laudable especially when the State mechanisms become more and more repressive. Public pressure through public hearings is effective in asserting the right to development. The civil society significantly has the capacity to organize innovative programmes for ensuring the right to development of the poor at different level. While playing the role of a pressure group, civil society organisations pressurise the government in fulfilling certain obligation based on the principles of accountability, transparency and participation at the time of implementation of the rights. The civil society organizations also are engaged in mobilization, capacity building and advocacy at different levels. In addition, civil society organizations also create awareness about various schemes and keep a watch over its implementation so as to exert pressure on the State institutions to perform and deliver services to the people. In a larger sense it can sensitize the nation as a whole about the prevalent issues in development generating a mass opinion to develop strategies to come out of lack of development as is done by the Right to Food Campaign. Further it must play a greater role in recognizing that the primary responsibility for

ensuring services to the people lies with the national and local governments. However, what is really needed is an institutional mechanism where the civil society in certain way is also involved in planning, executing, monitoring and evaluating relevant public policies and programmes for the betterment of the people. But there is still a long way to go in order to make the populace aware of their rights and entitlements and to strengthen the moment for the right based approach to development in India.

### Notes:

1. The distinction between the State and the Civil Society emerged as a separate entity during Anglo-American period, where the State was seen as an impersonal institution which required complete obedience from its subjects who live in the society. But with the development of the civilization and entry of modernisation, modern State emerged which has supreme authority to control its societies. Gradually with the State dominance, civil society came under the purview of the State authority and therefore lost its significance and independence aftermath. Further civil society is not perceived as a sphere of life distinct from The State. The concept of property created conflict as well as the center of State domination over the society. Tocqueville had conceptualized civil society as a buffer which protects the individual against the state and in the process it creates a sphere of rights and rule of law which is guaranteed by the state. Civil society constantly stands outside the structures of state hegemony and interrogate them (Chandhoke: 36).

But the revival of a vibrant civil society came to the forefront with the happening of the French Revolution and the American Revolution which brought out the natural rights of the man and popular sovereignty as fundamental constitutional principle. The two famous revolution brought the civil society back as people collectively went against the unlawful government and restricted the unlimited power of the State. State power was curtailed for the prosperity of the society and the State is considered as a necessary evil and civil society an unqualified good. The legitimate State is considered as nothing more than a delegation of power for the common benefit of the society (Thomas Paine). It is the State which spreads violence and barbarism but whereas society tries to self regulate its population through legitimate powers. However, for nowhere in the history of civil society has it been conceptualized as an alternative to or as independent of State. For De Tocqueville civil society limits the State, for Hegel civil society is a necessary stage in the formation of the State, for Marx civil society is the source of power of the State and for Gramsci



civil society is the space where the State constructs its hegemony in alliance with the dominant classes. Not only are the State and civil society a precondition for other, but the logic of one constitutes the other.

Aristotle wrote, "Men journey together with a view to particular advantage, and by way of providing some particular thing needed for the purposes of life, and similarly the political association seems to have come together originally, and to continue in existence, for the sake of the general advantages it brings." Harold Laski took it for granted that "associations exist to fulfill purposes which a group of men have in common." He emphasized that organisations exist to achieve purposes or interests which "a group of men have in common", and Aristotle had a similar notion in mind when he argued that political associations are created and maintained because of the 'general disadvantages'. R.M. MacIver also made this point explicitly when he said that "every organisation presupposes an interest which its members all share." The provision of public or collective goods is the fundamental function of organisations generally. A State is first of all an organisation that provides public goods for its citizens; and other types of organisations similarly provide collective goods for their members. And just State cannot support itself by voluntary contributions, or by selling its basic services on the market.

2. The term 'entitlement' has been used by Amartya Sen to refer to people's ability to command food through legal means available in society', including food obtained from their own household production, from trade and exchange, food bought with wages from paid employment, and food provided directly by the State. Source: Amartya Sen, *Poverty and Famines: an Essays on Entitlement and Deprivation*, Clarendon Press, Oxford, 1981, p 1 ff.
- 3 In the urban slums, people are not given land tenure and hence become illegal settlers and are not supplied with drinking water. There are instances where, individuals have to pay a high fee as connection costs. When they cannot pay they are not connected to the supply system.
4. For further details pl. refer to C. Ramchandraiah, "Right to Drinking Water in India", Working Paper No 56, CESS, Hyderabad, May 2004.
5. For further details pl. see, Vishwa Ballabh, "Governance Issues in Water Sector", accessed from internet on 02.01.2008, <http://www.irma.ac.in/silver/themepaper/BALLABH.pdf>.

## References:

- A. Gouldner, *The two Marxism: contradictions and anomalies in the development of theory*, Macmillan, London, 1980.
- Appadurai, Arjun, 'How Moral is South Asia's Economy? A Review Article', *Journal of Asian Studies*, XLIII, (3), May 1984.
- Ballabh, Vishwa, "Governance Issues in Water Sector", accessed from internet on 02.01.2008, <http://www.irma.ac.in/silver/themepaper/BALLABH.pdf>.
- Basu, Amrita and Atul Kohli (ed.), *Community Conflicts and the State in India*, Oxford University Press, Delhi, 1998.
- Chandhoke, Neera, *State and Civil Society: Explorations in Political Theory*, Sage Publications, New Delhi, 1995.
- Currie, Bob, *The Politics of Hunger in India: A Study of Democracy, Governance and Kalahandi's Poverty*, Macmillan India Ltd, Delhi, 2002.
- Dev, S. Mahendra, *Inclusive Growth in India: Agriculture, Poverty and Human Development*, Oxford University Press, New Delhi, 2008.
- Kaviraj, Sudipta and Sunil Khilnani, *Civil Society: History and Possibilities*, Cambridge University Press, 2001.
- Keith Tester, *Civil Society*, Routledge, London, 1992.
- Leftwich, Adrian, *States of Development*, Polity press, Cambridge, 2000.
- Marks, Stephen P., *The Right to Development: A Primer*, Centre for Development and Human Rights, Sage Publications, New Delhi, 2004.
- Mooij, Jos, "Dilemmas of Food Policy: About Institutional Contradictions and Vested Interest", *Economic and Political Weekly*, Vol-XXXIV, No-52, December 25, 1999.
- Mooji, Jos, *Food Policy and the Indian States: The PDS in South India*, New Delhi: Oxford University Press, New Delhi, 1999.
- Nirmal, Chiranjivi J., *Human Rights in India: Historical, Social and Political Perspectives*, Oxford University Press, New Delhi, 1999.
- Olson, Mancur, *The Logic of Collective Action: Public Goods and the Theory of Groups*, Harvard University Press, Cambridge, 1965.
- Oommen, T.K, Nation, *Civil Society and Social Movements: Essays in Political Sociology*, Sage Publications, New Delhi, 2004, pp. 184-85.
- Ostrom, E., *Governing the Commons: Evolution of Institutions for Collective Action*, Cambridge University Press, Cambridge, 1990.
- Ramchandraiah, C, "Right to Drinking Water in India", Working Paper No 56, CESS, Hyderabad, May 2004.
- Reeve, H. A, De Tocqueville, *Democracy in America*, Wordsworth, Ware, 1998.
- Reichert, Elisabeth, *Social work and Human Rights: A Foundation for Policy and Practice*, Rawat Publications, Jaipur, 2003.

- Rousseau, J.J., *The Social Contract* (1762) translated by Christopher Betts, Oxford University Press, Oxford, 1994.
- Runge, C. Ford, Benjamin Senauer, Philip G Pardey, Mark W Rosegrant, *Ending Hunger in our Lifetime: Food Security and Globalisation*, the Johns Hopkins University Press, Baltimore, 2003.
- Saxena, N. C. (2002). 'First Report to the Supreme Court'. Summary available at: [www.righttofoodindia.org/links/sc1summary.html](http://www.righttofoodindia.org/links/sc1summary.html).
- Shah, Ghanshyam, *Protest Movements in Two Indian States: A Study of Gujrat and Bihar Movements*, Ajanta Publishers, Delhi, 1977.
- Zartman, William, (Ed.), *Collapsed States: the Disintegration and Restoration of Legitimate Authority*, Boulder, Lynne Rienner, 1995.

\*\*\*

## Status of Tea Plantation in North-East India: A Review

Reter Potom<sup>✉</sup>  
Gibji Nimasow

Received on 01 August 2015

Accepted on 03 November 2015

### Abstract

*Tea is an important natural and popular beverage favored by at least half of the world's population. The present paper attempts to review the total area and production of tea in North-East India during the last few decades. The records of Tea Board of India reveals increasing trend of area and production in most of the states of the region. Arunachal Pradesh, Assam, Meghalaya and Tripura registered increase in total area and production from 2003 to 2007 whereas Manipur, Mizoram, Nagaland and Sikkim showed either static or decline in both area and production. The paper also throws light on the need of Integrated Pest Management to control pests and diseases for better quality production of tea.*

**Key Words :** Tea Plantation, area and production, North-East India

### Introduction

Tea is one of the most popular beverages and an important commercial and perennial medicinal crop spread over many areas of the world. The plant belongs to the Theaceae family. There are two major varieties of Tea - *Camellia sinensis* var. *sinensis*, and Assam tea, *Camellia sinensis* var. *assamica*. The native mainland of *Camellia sinensis* are China, South and Southeast Asia but nowadays this variety is also cultivated in other tropical and sub-tropical regions of the world. Globally, tea is cultivated in 36,91,938

<sup>✉</sup> Department of Geography, Rajiv Gandhi University, Itanagar 791112, Arunachal Pradesh  
Email: gibji26@yahoo.co.in

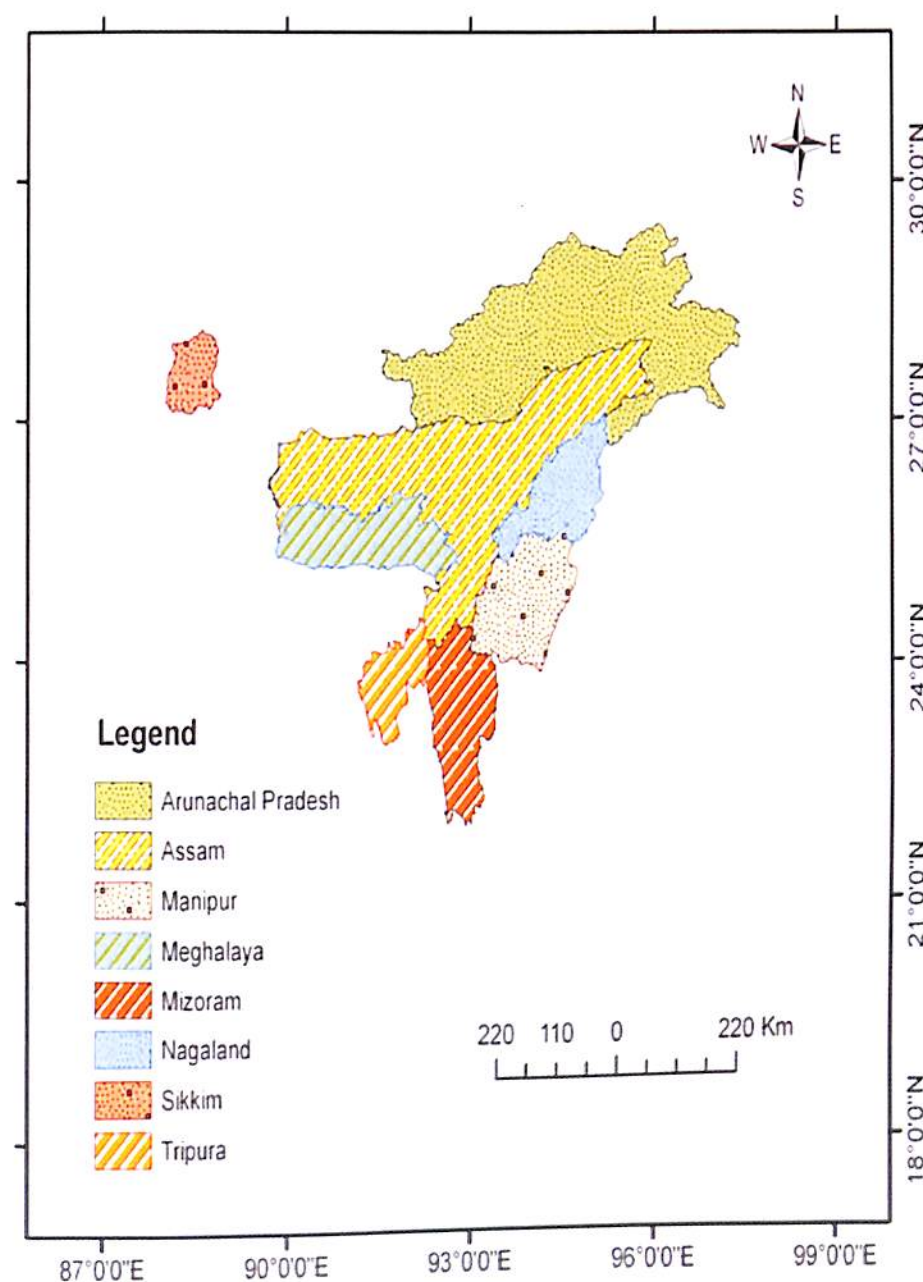
hectares with an annual production of 4,067 million kg. Majority of the tea producing countries are located in the continent of Asia. China, India, Sri Lanka, Kenya and Indonesia are the major five producers which accounts for 77% of world production and 80% global exports. African tea growing countries are located mostly around the tropical regions where Kenya, Malawi, Rwanda, Tanzania and Uganda are major producers. Apart from these regions, some quantities of tea are also produced in South America (Argentina, Brazil and others), the Middle East countries (Iran and Turkey) and the CIS (Russia and Georgia).

In the early 1820's, the British East India Company began large-scale production of tea in Assam, traditionally brewed by the Singpho tribe. Lord William Bentinck appointed a Committee to explore the possibility of tea cultivation in India. The committee headed by a British botanist Dr. N. Wallich made proposals for tea cultivation and directed that G. J. Gordon should visit China to obtain more information about the cultivation of tea. In 1835, the secretary of the Committee dispatched tea seeds from China. The Government experimented with the Chinese tea seed at Sadiya area in North-East India. Later, another experimental tea garden was established at Chabua (Upper Assam) with indigenous seeds of Assam in 1837. In 1840, the Assam Tea Company began the commercial plantation of tea in the region, operated by indenturing of the local inhabitants. Beginning in the 1850's the tea industry rapidly expanded, occupying vast tracts of land for tea plantations (Taher and Ahmed, 2001). By the turn of the century, Assam became one of the leading tea producing regions in the world. India has about 375 thousand hectares under tea crop.

Tea is mainly grown in 16 Indian States, which include Assam, West Bengal, Tamil Nadu and Kerala that accounts for about 96% of the total tea production. Other regions which are associated with small share are Karnataka, Tripura, Uttarakhand, Himachal Pradesh, Arunachal Pradesh, Manipur, Sikkim, Nagaland, Meghalaya, Mizoram, Bihar and Orissa (Nizara, 2013). Among the tea growing regions, the Brahmaputra basin is the largest one in area as well as production. The 2001 figures of Indian tea export shows a total of 164.19 million kg. The main countries to which the tea is exported are CIS countries - 77.46 million kg, UK - 15.41 million kg, UAE - 19.65 million kg, Iraq - 14.14 million kg, Poland - 7.59 million kg and the USA - 5.35 million kg (North East Enquirer, 2002).

### Tea plantation in North East India

North East India consists of 8 states of the country namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura (Figure 1). Tea in North East India is produced in the flat and alluvial lands on





either side of the Brahmaputra River and in the region south of Assam hills. Tea plantation has a wide adaptability and cultivated in between 24° to 27° N latitudes and 88° to 95° E longitudes (Chakraborty and Srivastav, 1977).

There are over 3,000 varieties of tea with their own specific characteristics. The flavour of tea depends on the important characteristics like where the tea is grown, the climate, soil conditions and how the tea is processed. The Tea planters recognize three varieties, China, Assam and Indo-China, and hybrids between them all. Within the Assam variety, five types are recognized, such as the light and the dark-leaved Assam, the Manipuri, the Burmese and the Lushai. It is believed that one tea bush continues to produce for a minimum of 50 years (Commings and Sampanvejsobha, 2008). North Eastern states of India have 308 major tea estates and 1, 232 small. The common tea plant (*Camellia sinensis* (L.) O. Kurtze) grown in North-East India is essentially a cross pollinated crop with its three races: *Camellia sinensis* (L.) or the China tea plant, a big shrub, *Camellia assamica* (Masters) or the Assam tea plant, a small tree, *Camellia assamica* sub sp. *lasiocalyx* (Planch MS) or the Cambodian type, a small fastigiata tree (Wight, 1962; Barua, 1963 and Bezbaruah, 1971).

The subtropical climate of North East India is extremely favorable to the cultivation of many plantation crops viz. tea, coffee, rubber, etc. In the district of Darjeeling, tea is planted on hill slopes up to a height of 2000 meters above mean sea level (MSL), while in flat valleys of Assam at elevations ranging from few to about 200 m MSL (Chakraborty and Srivastav, 1977). The tea plant requires warmth conditions and rainfall so as to stand against the ordeal of plucking of young leaves. The plant requires high average annual temperature of more than 25° C, the range of temperature for growth and productivity of tea must be optimum, abundant rainfall of 150-250 cm per year is required. Warm summers and frequent rains promote rapid leaf reproduction and increase the annual pickings. The area should be gently rolling so as to prevent water logging. The soil should be rich in iron-oxide, potash, phosphate and humus and it should be acidic (Guha and Chatteraj, 2001; Leong and Morgan, 1982; Taher and Ahmed, 2001). The annual rainfall in North East India is unevenly distributed. The distribution of rainfall matters a lot for sustained high yield of tea throughout the season.

### Area and Production of Tea

Northeastern states produce around 54% of India's total tea production with

Assam alone contributing 51% of India's total and about one-sixth of the tea produced in the world (Saikia et al., 2013). The North Eastern States account for 55% of area under tea and the region has 2.8 lakh hectares under tea plantations producing more than 455 million kilograms of tea every year. Assam and Tripura are the traditional tea growing states. Assam alone accounts for 2.7 lakh hectares of tea area and 480 million kg of production. The second largest producer is Tripura with 8, 200 hectares under tea and producing 7.5 million kg. The production of tea in other states include Arunachal Pradesh - 2.34 million kg, Nagaland - 0.20 million kg, Sikkim - 0.16 million kg, Manipur - 0.11 million kg, Meghalaya - 0.10 million kg and Mizoram - 0.07 million kg (Table 1).

| State | Arunachal Pradesh |            | Assam    |            | Manipur |            | Meghalaya |            | Mizoram |            | Nagaland |            | Sikkim |            | Tripura |            |
|-------|-------------------|------------|----------|------------|---------|------------|-----------|------------|---------|------------|----------|------------|--------|------------|---------|------------|
| Year  | Area              | Production | Area     | Production | Area    | Production | Area      | Production | Area    | Production | Area     | Production | Area   | Production | Area    | Production |
| 2003  | 1,129             | 1,745      | 2,71,589 | 4,34,759   | 1,319   | 119        | 252       | 81         | 750     | 78         | 1,888    | 195        | 195    | 107        | 8,268   | 8,577      |
| 2004  | 1,729             | 2,219      | 2,71,768 | 4,35,649   | 1,319   | 110        | 252       | 99         | 750     | 72         | 1,888    | 190        | 195    | 150        | 8,268   | 7,168      |
| 2005  | 1,719             | 2,634      | 3,00,502 | 4,87,487   | 1,319   | 108        | 252       | 99         | 650     | 73         | 1,888    | 190        | 195    | 157        | 8,710   | 7,515      |
| 2006  | 1,719             | 3,748      | 3,11,822 | 5,02,041   | 1,319   | 110        | 252       | 139        | 650     | 75         | 1,888    | 191        | 195    | 167        | 8,710   | 7,128      |
| 2007  | 2,570             | 5,842      | 3,21,319 | 5,11,885   | 1,319   | 110        | 564       | 259        | 650     | 75         | 1,888    | 191        | 194    | 82         | 8,952   | 7,856      |

Source : Tea board of India, Guwahati

### Arunachal Pradesh

Arunachal Pradesh is the fifth largest tea growing state in India. There is a wide scope of tea cultivation due to suitable physiographic and favorable climatic conditions in the districts of Lohit, East Siang, West Siang, Upper Siang, Tirap, Changlang, Lower Dibang Valley and some parts of Papumpare and Upper Subansiri. The suitability of land with rich soil conditions leads to high productivity of both chemical and organic tea in Arunachal Pradesh. According to the Tea Board India (Itanagar Office) there are 69 registered Tea gardens covering 3,357.67 hectares of plantation area of which 37 are registered big tea gardens with an area of 3,154.72 hectares and the rest are registered Small Tea gardens (Table 2). The production of tea in the state was 5,842 thousand kg with an average yield of 2,273 kg/ha in the year 2007. The state is ranked third in the total production of tea in the region. Tea is mostly grown in the foothills of the state bordering the state of Assam.

Arunachal Pradesh Forest Corporation Ltd. acted as the nodal agency and had received substantial grants from the Tea Board for development of nurseries and also loans and subsidies. Mouling Tea - an organic orthodox tea from Upper Siang district fetched Rs.73, 000 a kg at the grand charity auction held at Guwahati (The Arunachal Times, 2013). Unlike Assam, it requires a clearance from ministry of environment and forest to set up a tea garden in Arunachal Pradesh as such the registered tea growers are much less. The Tea Research Association is trying to help the tea growers of Arunachal with scientific approach and help from Tocklai to produce flavoured tea like Darjeeling, if not better (The Telegraph, 2013).

**Table 2 : Registered Tea Estates of Arunachal Pradesh and their Area (ha)**

|    | Name of the Tea Estate | Name of the owner | District    | Area   |
|----|------------------------|-------------------|-------------|--------|
| 1  | Green Hill T.E         | Dature Miuli      |             | 91.55  |
| 2  | Roing T.E 1            |                   | Lower       | 50.00  |
| 3  | Roing T.E 2            | Mukut Mithi       | Dibang      | 35.00  |
| 4  | Roing T.E 3            |                   | Valley      | 14.00  |
| 5  | Roing T.E 4            |                   |             | 20.00  |
| 6  | Dibang T.E             | Mrs. Among Tayeng |             | 26.48  |
| 7  | Teli T.E               | T.C.Teli          |             | 47.00  |
| 8  | K.T.G                  | KabakTakam        | Papumpare   | 5.35   |
| 9  | Ronie T.E              | Lechi Legi        |             | 5.50   |
| 10 | K.K.K.K T.P            | Yadam Marde       | Upper       | 9.81   |
| 11 | Karpa Marde T.P        | Karpa Marde       | Subansiri   | 9.63   |
| 12 | Deki T.E               | Gegong Apang      | Upper Siang | 44.00  |
| 13 | Siru Rijo Tea Garden   | TugoGangkak       | West Siang  | 110.00 |
| 14 | Jeyi Tea Garden        | YikarYomcha       |             | 25.00  |
| 15 | Donyi Polo Tea Estate  | Gegong Apang      | East Siang  | 420.00 |
| 16 | Shantivan T.E          | Omak Apang        |             | 90.00  |
| 17 | Semina T.P             | Semina Mein       |             | 7.36   |
| 18 | Tewa T.P               | Tewa Mein         |             | 10.00  |
| 19 | TingwaT.E              | Rajindra Namchoom |             | 50.00  |
| 20 | Mantaw Tea Product     | Mahana Mantaw     |             | 52.00  |
| 21 | Kunseng T.E            | Narani Mein       |             | 29.90  |

|    | Name of the Tea Estate     | Name of the owner   | District  | Area   |
|----|----------------------------|---------------------|-----------|--------|
| 22 | Anulashagun T.E            | Rajindra Namchoom   | Lohit     | 48.00  |
| 23 | Chongkham -I T.E           | Mehao Namchoom      |           | 64.00  |
| 24 | Woiseli T.E                | -                   |           | 45.00  |
| 25 | Jaminso T.E I              | Jaminso Kri         |           | 53.30  |
| 26 | Jaminso T.E II             |                     |           | 53.30  |
| 27 | Kri T.E                    | Kariko Kri          |           | 80.00  |
| 28 | Arun. Pradesh Forest Corp. | Cooperative Society |           | 73.00  |
| 29 | Manyu T.E                  | Sossey Manyu        |           | 240.00 |
| 30 | Lalung T.E                 | Rajindra Namchoom   | Changlang | 50.00  |
| 31 | Evershine T.E              | Sindulam Singphoo   |           | 41.60  |
| 32 | Thingdan T.E               | Thingap Taiju       |           | 50.00  |
| 33 | Ang T.E                    | Wanglong Rajkumar   | Tirap     | 200.00 |
| 34 | Lowangcha T.E- I           | Wangman Lowangcha   |           | 50.00  |
| 35 | Lowangcha T.E- II          |                     |           | 30.00  |
| 36 | Moithak Moidan T.E         | Pinkam Moidan       |           | 12.00  |
| 37 | Toto T.E                   | Wanglin Lowangdong  |           | 20.00  |
| 38 | Borduria                   | Lowangcha Wanglet   |           | 50.00  |

Source : Tea Board of India, Guwahati

### Assam

Assam is world famous for its quality of tea as well as the natural beauty of the tea plantation areas. Assam is the largest producer of tea in India which supplies about 53% of the total production. Its share in the region is about 96.8% of area under tea plantation and 98% of production. The total production of tea in 2014 was 523.79 million kg (Table3) and the productivity was about 1,850 kg/ha. The soil is fertile and plenty of rain ensures best conditions for the tea plant which makes the Assam tea plant and its hybrids to yield a strong, rich, coppery red cup of tea. As of today, Assam tea has maintained its international reputation and commands significant share in the world tea market. The tea industries also provides average daily employment to more than six lakh persons in the state which is around 50% of the total average daily number of labor employed in the country. According to the Tea Board of India, there are 52, 000 small tea growers in Assam at the end of March,

2009 out of which 3,767 were registered with the Tea Board of India. The small tea growers cover around 65,000 hectares and produce more than 100 million tonnes of tea leaf annually. These small tea growers produced 14,185 lakh kilograms of green tea during the year 2007-08. Most of the small tea gardens in the state are confined to upper Assam. Dibrugarh accounts for 30% of the total tea gardens followed by Tinsukia 22%, Jorhat 13%, Golaghat 12%, Sivasagar 11% and rest of the 12% by the other districts. The state has 527 estate factories, 197 Bought Leaf Tea Factories, a Cooperative and an Instant tea factory. The Bought Leaf Tea Factories are those factories which do not have the plantation of their own and depends on the supply of green leaf from the Small Tea Growers for making made tea and managed by private ownership. Co-operative Factories (CPFs) refers to those factories which are joint effort by the Small Tea Growers in one hand and the state government on the other. Instant Tea Factory manufactures the powder tea or instant tea. The average productivity is around 1800 kg made tea per hectare and spread over 27 districts of Assam. Some of the major tea estates are Ambika, Gogaidubi, Jamirah, Amguri, Williamson Tea Estate, tea estates of Tata Group of Companies, Talap and many more.

**Table 3 : Month-wise Tea production of Assam, 2012-2014 (in million kg)**

| Year         | 2012          |              |               | 2013          |              |               | 2014          |              |               |
|--------------|---------------|--------------|---------------|---------------|--------------|---------------|---------------|--------------|---------------|
| Months       | Assam Valley  | Cachar       | Assam         | Assam Valley  | Cachar       | Assam         | Assam Valley  | Cachar       | Assam         |
| Jan          | 0.20          | 0.22         | 0.42          | 0.41          | 0.39         | 0.80          | 1.09          | 0.42         | 1.51          |
| Feb          | 0.10          | 0.03         | 0.13          | 0.11          | 0.02         | 0.13          | 0.40          | 0.05         | 0.45          |
| Mar          | 10.52         | 1.22         | 11.74         | 8.62          | 0.76         | 9.38          | 14.70         | 0.83         | 15.53         |
| Apr          | 32.26         | 3.79         | 36.05         | 40.28         | 2.18         | 42.46         | 22.76         | 2.57         | 25.33         |
| May          | 49.50         | 4.14         | 53.64         | 43.59         | 3.92         | 47.51         | 38.66         | 3.55         | 42.21         |
| Jun          | 67.04         | 5.70         | 72.74         | 69.98         | 4.58         | 74.56         | 64.47         | 5.90         | 70.37         |
| Jul          | 70.45         | 6.84         | 77.29         | 87.88         | 6.83         | 94.71         | 85.38         | 6.28         | 91.66         |
| Aug          | 84.93         | 7.51         | 92.44         | 87.22         | 7.73         | 94.95         | 86.88         | 8.10         | 94.98         |
| Sep          | 80.81         | 7.69         | 88.50         | 82.46         | 6.27         | 88.73         | 81.44         | 8.10         | 89.54         |
| Oct          | 68.50         | 7.12         | 75.62         | 85.20         | 7.56         | 92.76         | 84.60         | 7.61         | 92.21         |
| Nov          | 53.45         | 5.59         | 59.04         | 50.38         | 4.91         | 55.29         | --            | --           | --            |
| Dec          | 19.49         | 3.02         | 22.51         | 17.85         | 2.74         | 20.59         | --            | --           | --            |
| <b>Total</b> | <b>537.25</b> | <b>52.87</b> | <b>590.12</b> | <b>573.98</b> | <b>47.89</b> | <b>621.87</b> | <b>480.38</b> | <b>43.41</b> | <b>523.79</b> |

Source : Tea Board of India

## Manipur

In Manipur, tea is grown in the districts of Senapati, Tamenglong, Ukhrul and Jiribam. Talui is the first place to experiment tea plantation in the State. The Tea Board assisted the Manipur Plantation Crops Corporation Ltd. in 1982 and about 233.03 hectares has been brought under tea. The Tea Board bestow financial assistance for setting up of tea nurseries and latterly a number of NGOs have been promoting small farmers to take up tea plantations. About 484 small tea growers covering an area of 1,362.61 hectares have so far been registered under the Tea board with total production of 0.11 million kg per year. Recently, the green tea of Manipur particularly the *Cymbopogon citrates* tea commonly known as CC tea has become global attraction as traders from Europe, UAE and the US are demanding the green tea. The Imphal based SuiGeneris Inc. launched its caffeine-free, high nutrition content tea in the state market on August 21, 2011 by a local entrepreneur Ragesh Keisham, who is also the chairman and managing director of the firm. The firm is currently marketing 30,000 packets, containing 200 grams granule each (The Times of India, 2012).

## Meghalaya

Suitable climate and soil have prompted many farmers in Meghalaya to take up developing tea gardens and are reaping it rich from the proverbial 'Two leaves-n-a-bud' (The Hindu, 2010). The Experimental Tea Centres at Umsning in Ri-Bhoi District (2.5 ha), Riangdoin West Khasi Hills District (2.0 ha) and Thebronggiri in West Garo Hills District (1.6 ha) were established in 1976-77 with the support of Tea Board of India. Later in 1978 the planting was carried out with materials brought from Assam and Darjeeling. Planting materials are supplied free of cost to the farmers to cultivate small holdings of 2.0 hectares per family. In order to supply good planting materials of varieties approved by the Tea Board, the Agriculture Department established a Tea Nursery at Umsning in Ri-Bhoi District and Rongram in West Garo Hills District in 1982-83. There are 69 tea growers covering an area of 577.86 hectares which are registered with Tea Board with a total production of 0.10 million kg per year. There are two factories, one located at Umsning in Ri-Bhoi district and the other at Rongram in West Garo Hills District. A tea processing factory has been installed at Barapani and another at Rongram. The state agricultural department, Government of Meghalaya provides seedlings of tea plants free of cost to encourage tea plantation in the State. The Department has introduced a package incentive scheme which includes (a) Cash



Subsidy of Rs 15,000/- per ha and (b) Supply of plant protection materials like insecticides, weedicides, fungicides, etc. at 50% subsidy. The In 2000-01, about 508 hectares have been brought under tea plantation in the State, producing about 8 lakh kg of green tea leaves involving around 530 tea growers (Government of Meghalaya, 2010).

### Mizoram

According to Confederation of Indian Small Tea Growers Association (CISTA) tea plantation in Mizoram was started around 1998 in Biate and Kawnpui. The Government of Mizoram supported tea cultivation in Biate village by providing seedlings. Although the tea gardens are presently in an abandoned state, the plants need immediate pruning. Though there were mini tea factories in Biate and Kawnpui, they have been closed down for unknown reasons. These two areas need immediate attention from the government for pruning the existing plants and setting up processing facilities for made tea. During 2009-10, the Government of Mizoram through its Industry department provided seedlings to STGs. The STGs of five villages namely Baktawng, Khawzawl, Bungthuam, Saipum and Saiphai has about 300 STGs with four hectares each. Presently about 1500 STGs are cultivating tea in Mizoram, besides Biate and Kawnpui. In 2011, the nodal agency for tea development scheme in Mizoram was shifted to the horticulture department and it was included in the new land use policy (NLUP), which is the State Government's flagship programme. So far there are 9 Tea Estates in Mizoram registered under Tea Board covering an area of 391 hectares with a total production of 0.07 million kg annually. There are 697 registered small tea growers covering an area of 1,934.34 hectares. Processing is done using traditional methods and the products marketed locally. There are over 75 year old plantations at Biate and Ngopa extending over an area of about 140 hectares. The State Govt. launched Tea Development Schemes in 1992-93 and targeted 2000 hectares at Biate, Ngopa, Pawlrang, N.E. Bualpui, Khawdungsei, Tlungvel, Darlawng and Selling.

### Nagaland

Tea cultivation in Nagaland of late has become a reality and there is much enthusiasm among planters after various studies revealed that the land is suitable for quality tea production. In 2001, the State Government and Tea Board officials pointed out that tea cultivation can be a suitable alternative to jhum (slash and burn) cultivation in Nagaland and the abandoned jhum land can

be transformed into eco-friendly tea plantations. As per statistics available with the State Agriculture Department, about 324 hectares of land in Mon and 121 hectares in Mokokchung district have been brought under tea cultivation and the per hectare production of tea in some estates in Nagaland were more than that in Assam. However, there is only one tea factory in the State located in Mokokchung district, where the factory is fed by plantations of small tea growers of neighbouring districts like Zunheboto and Wokha besides Mokokchung, while the major bulk of the green leaf are exported to Assam at a low price. Efforts are being made to bring all potential areas under tea plantation so that enough green leaf can be produced to make it viable for setting a factory under Private Public Partnership (PPP) mode. Tea nurseries have been raised on PPP basis in four districts of Mokokchung, Wokha, Dimapur and Kohima with a target of 1 lakh saplings each (GOI-UNDP Project Report, 2009). In Nagaland tea is grown in seven districts of Kohima, Zunheboto, Mokokchung, Mon, Phek, Tuensang and Dimapur. The small scale tea cultivation has been taken up as an alternative to jhum cultivation. Nagaland today (2000) is having 72 tea gardens with a total area of 1,214 hectares and with increase in both area and production since then. In 2007, the area under tea cultivation was 1,898 hectares and production 191 thousand kg annually. The Tea Board has given registration to 2,753 small farmers covering an area of 19,264.36 hectares which produces about 0.20 million kg of tea annually.

### Sikkim

Sikkim is a mountainous State in the eastern Himalayas located between Bhutan in the east and Nepal in the west and between Tibetan part in China in the north and Darjeeling district of West Bengal in the south. It covers an area of 7096 sq. km. Tea is one of the major cash crops of the State and its tea has been getting high price in the market. Tea cultivation has also contributed to soil conservation of the hill slopes of the State. At present the total area under tea plantation is 296 hectares with a total production of 0.16 million kg per year. Tea cultivation in Sikkim is a recent phenomenon. In 1960 the Government of Sikkim attempted to introduce tea industry on experimental basis with 8 hectares in Kewzing area of South Sikkim to accommodate Tibetan refugees of third world countries. But, due to many reasons the tea garden was abandoned in 1966. The government put efforts and established Temi Tea Estate in 1969 with an estimated area of 437 acres of land on experimental basis. Temi tea estate covers an area of 177 hectares and its

annual tea production is on an average about 100 tonnes annually. During 1997-98 the production figure of Temi Tea garden reached 1,16,000 kg, which is the highest record ever achieved till date. During the year total revenue of Rs. 2.18 crores was credited to the State exchequer. The garden received All India Quality Award from the Tea Board of India for two consecutive years, i.e., 1994 and 1995. The single orthodox variety of black tea of this garden is very rich in flavour and has high export potential, which is only partially tapped so far. To its credit, Temi Tea fetches one of the highest prices at the Kolkata Tea Auction. Unlike the tea gardens in other States of India where they are controlled by the Tea Board of India, which also provides subsidized loans for new plants, replantation, and construction of factory, Temi is a State enterprise. Hence, the State government funds all activities of the tea plantation, salaries and wages as per the rates fixed by the State (Mishra and Poti, 2012). The tea estate produced 1,12,000 kg of orthodox variety of tea having its own brand named Kanchendzonga and Solja in the year 2001 (Sharma, 2003). To increase tea production capabilities Sang-Martam Tea Growers Cooperative Society was established in 1998 under the assistance of Temi Tea Board. Tea production in the estate has switched over from conventional method to organic method in 2005 as organic products fetch higher returns in international markets. The chemical fertilizers used in the past have been replaced by bio-fertilizers like cattle manure, neem cakes and vermi-compost manure. The quality of tea is comparable to Darjeeling tea being a contiguous State. There is a good scope for production of specialty tea but the major constraint is the availability of land.

### Tripura

The first tea garden of Tripura was Heeracheera Tea Estate of Kailashahar Division in 1917 in the reign of the then Maharaja Birendra Kishore Manikya Bahadur (Das, 2014). Tripura is categorized as a traditional tea-growing State with about 58 Tea Estates and 4,350 small tea growers, producing about 7.5 million kg of tea every year. This makes Tripura the 5th largest, among the 14 tea-producing States, after Assam, West Bengal, Tamil Nadu and Kerala. There is considerable scope to increase the productivity and area under tea plantation (Government of Tripura, 2015). The tea gardens are spread over 8,200 hectares in the districts of Dholai, South, North and West Tripura. There are about 1,500 registered small tea growers and 11 workers cooperative gardens, 2 workers cooperative gardens have their own tea factories. Durgabari Tea Estate Workers Cooperative Society Ltd. is one of

the best managed cooperatives with remarkable achievements in the State. The State produces good quality of tea with its ideal climate, topography and soil. In Tripura, Bought Leaf Factories (BLFs) get better price than estate factories. Some of the tea estates of Tripura also produce the non-toxic "Bio-tea" that has tremendous demand in the international market. The Tripura State government is currently attempting to increase the net tea production in the State. The fine blend of the tea leaves is what makes the Tripura tea special and augments its demand in the Indian as well as the international market (Panda and Sarkar, 2015). A couple of well-known tea estates, namely the Fatikcherra Tea Estate and the Ludhah Tea Estate have broadened their horizons to venture into the production of organic tea.

### Pest and disease management

The plantation areas depending upon the climatic condition has its own pests and diseases. It is known that more than one thousand species of arthropod pests and nearly 400 pathogens attack tea all over India. In India 300 species of insects and mites and 58 pathogenic fungi are recorded from Tea (Source: Upasi Tea Research Foundation). *Helopeltis the ivora*, Red Spider mite and looper caterpillar are the major threat to the tea plantation in North East India (Roy, *et al.*, 2009 and Das, 1965). Tea mosquito bug, *Helopeltis the ivora* Waterhouse (Family: Miridae) is one of the most destructive polyphagous sucking pests of tea in North Eastern states of India including Assam and northern West Bengal because it attacks only the young shoots for feeding and egg laying that is the actual crop of tea (Roy *et al.*, 2008).

Red spider mite could be minimized through the correction of shade status, protecting the roadside bushes from dust by growing hedge, *Phlogacanthus thrysiflorus* (Titaphool), through prevention of migration of red spider mites from infested areas to un-infested areas, through stoppage of cattle trespasses inside the tea sections and improvement in drainage and nutrition status. *Dalbergia assamica* (Bormedelo) shade plants should be avoided in looper prone area (Gurusubramanian and Borthakur, 2005). It attacks or causes damage to tea plant throughout the year, attack is most severe during the months of May-September. Adult mosquito bugs are more active during the hot and sunny periods as compared to the cooler parts of the day (Chakraborty and Chakraborty, 2005). The looper caterpillar outbreak in tea garden in North East India might be as a result of deforestation and habitat loss leads to agro-climatic change in this region (Antony *et al.*,

2012). Crop growth and its productivity are a reflection of soil quality, any degradation of the soil can be expected to adversely affect the stability of crop system. Tea is one of the most popular beverages and the quality of tea leaf used in the manufacturing process is highly important and concentration of the micronutrients in tea soil and the tea leaf affect the tea quality (Kacar, 1984). Studies showed that nitrogenous fertilizers used in conventional tea cultivation such as ammonia sulphate, ammonium nitrate, ammonium sulphate nitrate, urea, calcium ammonium nitrate and ammonium chloride leads to acidity (Tee et al., 1987; Ma et al., 1990). In addition, continuous use of ammonium sulphate without the addition of lime (calcium carbonate) will reduce the soil pH (below 4.0) to level that is unsuitable for economic production of crops (Tisdale and Nelson, 1975).

Considering the importance of caffeine and polyphenols for tea quality and beneficial functions to human health, it is feasible that farming systems may be manipulated to produce tea that is rich in these compounds. Restricted use of pesticides and integrated pest management is emphasized so that the indigenous predators, parasites and pathogens that exist in tea ecosystem could be preserved for sustainable crop protection (Borthakur et al., 2005) and also gives inkling for their better use under IPM program ensuring a healthier pesticide-free tea beverage from North East India (Das et al., 2005).

## Conclusion

The status of tea cultivation in North-east India, in terms of area, production, average yield and management reveals the significance of the region in global tea market. The region has the advantage of suitable physical conditions and performing better in the production of tea in the country. Major share of the countries tea production comes from this region since many decades. The region has the potential of leading the country towards achieving the target of becoming first rank in the tea production of the world provided certain constraints in tea plantation prevailing in the region are taken care of. The region is mostly mountainous with lesser cultivable land that has led to the rapid growth of small tea growers. These small tea growers have been reported to produce good quality organic tea with medicinal values. Therefore, special focus, training and encouragement to such farmers may increase the quality tea production of the country. Small Tea Cultivation can help to preserve eco-friendly relation with nature as the tea growers have to plant valuable shade tree in the garden to balance the prevailing environment (Kakati, 2011). Small tea enterprises are playing a major role in

reduction of poverty and generation of employment more effectively than their large counterparts in many developing and under developed countries (Mwaura and Muku, 2007). Therefore, more research on various aspects of tea plantation improvement and assistance and encouragement to the farmers are highly essential for the growth of tea industry in the region.

## Acknowledgements

The authors are thankful to the owners, managers, labourers and the public in general for providing relevant information of tea plantation in the area. First author also extend thanks to the Department of Geography, Rajiv Gandhi University for providing necessary support for carrying out this work which is a part of her study for Doctoral degree.

## References

- A GOI-UNDP Project Report, (2009). *Livelihood and employment opportunities in Nagaland - Sectoral issues: A thematic report*. <http://www.nagaland.gov.in/Nagaland/Report/LIVELIHOOD%20&%20EMPLOYMENT%20-%20A%20Thematic%20Report.pdf>.
- Antony, B., Sinu, P.A. and Rehman, A. (2012). *Looper Caterpillar Invasion in North East Indian Tea Agro-Ecosystem: Change of Weather and Habitat Loss May be Possible Causes?* Journal of Tea Science Research, 2(1):1-5.
- Barua, P.K (1963). *Classification of Tea plant*. Two and a Bud, 10: 3-11.
- Bezbaruah, H.P. (1971). "Cytological studies on the Theca and related Camellias". Ph. D. Thesis, Guwahati University, Guwahati, Assam.
- Borthakur, M., Sarmah, M., Rahman, A. and Gurusubramanian, G. (2005). *Seasonal population fluctuation of Stethorus gilvifrons and effects of conventional pesticides and some herbal extracts on its survival and feeding potential*. In: Proceedings of 34th Tocklai Conference - Strategies for Quality (Eds.: A.K. Barooah, M. Borthakur and J.N. Kalita). Tocklai Experimental Station, TRA, Jorhat, Assam, India. 332-339.
- Chakraborty, S. and Srivastava A.K. (1977). *Biochemical interpretation for the quality deterioration in rains tea*. Two and Bud, 24(2): 31-32.
- Chakraborty, U. and Chakraborty, N. (2005). *Impact of environmental factors on infestation of tea leaves by Helopeltis theivora, and associated changes in flavonoid flavor components and enzyme activities*. Phytoparasitica, 33(1): 88-96.
- Commins, T. and Sampanvejsobha, S. (2008). *Development of the tea industry in Thailand*. Asian Journal of Food and Agro-Industry, 1(1):1-16.



- Das, G. M. (1965). *Pest of tea in North East India and their control*. Memo No. 27, Tocklai Experimental Station, Tea Research Association, pp. 169 - 173.
- Das, S. 2014. *Changing cultural profile of a tea garden community: A case study of Mundas in Tripura*. International Journal of Innovative Research & Studies.3(8): 339-346
- Das, S., Sarker, M. and Mukhopadhyay, A. (2005). *Changing diversity of hymenoptera parasitoids from organically and conventionally managed tea ecosystem of North Bengal, India*. Journal of Environmental Biology, 26:505-509
- Government of Meghalaya, (2010). *Directorate of Agriculture, Plantation crops - Tea*. [http://www.megagriculture.gov.in/PUBLIC/crops/plantation\\_crops.aspx](http://www.megagriculture.gov.in/PUBLIC/crops/plantation_crops.aspx).
- Government of Tripura, (2015). *Department of Industries & Commerce, Tea* <http://www.industries.tripura.gov.in/tea>.
- Guha, J.L. and Chattoraj, P.R. (2001). *Economic Geography*. The World Press Pvt. Ltd. Calcutta.
- Gurusubramanian, G. and Borthakur, M. (2005). *Integrated management of tea pests*. In : *Field management in tea* (Eds.: A.K. Dutta, S.K. Baruah, N. Ahmed, A.K. Sarma and D. Burugohain). Assam Printing Works Private Limited, Tocklai Experimental Station, Jorhat, Assam, India. 159-172.
- Kacar, B. (1984). *Fertilization of tea plant*. General Directory of Tea Management, Cay-Kur Press, Ankara, 4: 356.
- Kakati, N. (2011). *Problems of Small Tea Growers in Assam with reference to Lakhimpur District*. Indian Journal of Applied Research, 1(3):48-49.
- Leong, G.C. and Morgan, G.C. (1982). *Human and Economic Geography*. Oxford University Press, New Delhi.
- Ma, W.C., Brussaard, L. and Ridder, J.A. (1990). *Long-term effects of nitrogenous fertilizers on grassland earthworms (Oligochaeta: Lumbricidae): Their relation to soil acidification*. Agriculture Ecosystem and Environment, 30(2): 71-80.
- Mishra, M. and Poti, S. 2012. *Post-reform Tea industry in Sikkim: A study of growth and challenges*. The NEHU Journal, 10(1): 94-100.
- Mwaura, F. and Muku, O. (2007). *"Tea Farming Enterprise contribution to small-holder's wellbeing in Kenya"*. AAAE Conference Proceedings. 303-313.
- Nizara, A. (2013). *Indian Tea Scenario*. International Journal of Scientific and Research Publication, 3(7):1-10.
- North East Enquirer, (2002). *Assam Tea Industry In Search of Lost Glory*. North East Enquirer, 1(13), June 7-21.
- Panda, B. K. and Sarkar, S., 2015. *Rubber Plantation vs. Tea Plantation: A Comparative Growth and Progress in Tripura*. The Science Probe, 3(1): 24-35.

- Roy, S., Mukhopadhyay, A. and Gurusubramanian, G. (2008). *Insecticide persistence and residual toxicity monitoring in tea mosquito bug, Helopeltistheivora Waterhouse* (Heteroptera: Hemiptera: Miridae) in Dooars, West Bengal. Resistance Pest Management Newsletter, 17(2): 9-15.
- Roy, S., Mukhopadhyay, A. and Gurusubramanian, G. (2009). *Population dynamics of tea mosquito bug (Helopeltistheivora Waterhouse, Heteroptera: Miridae) in the sub-Himalayan Dooars tea plantation and possible suggestion of their management strategies*, Current Biotica, 2(4): 414-428.
- Saikia, M., Bhowmik, R., Baruah, D., Dutta, B. J. and Baruah, D.C. (2013). *Prospect of bioenergy substitution in tea industries of North East India*. International Journal of Modern Engineering Research, 3(3): 1272-1278.
- Sharma, K. 2003. *Tea plantation workers in a Himalayan region*. Mittal Publications, New Delhi.
- Taher, M. and Ahmed, P. (2001). *Geography of North-East India*. Mani Manik Prakash, Guwahati, India.
- Tee, B.G., Dudas, J.M., Pawluk, S. and Harapiak, J.T. (1987). *Physical, chemical and micro-morphological effects of nitrogen fertilizers on Chernozemic soils*. Geoderma, 40(2): 177-192.
- The Arunachal Times, Dec.4, 2013. *"Mouling tea makes record at charity auction"*. Itanagar.
- The Hindu, May 23, 2010. *Suitable climate prompts Meghalaya farmers to take to tea plantation*. <http://www.thehindu.com/sci-tech/agriculture/suitable-climate-prompts-meghalaya-farmers-to-take-to-tea-plantation/article436222.ece>.
- The Telegraph, Sept. 13, 2013. *Whiff of Darjeeling tea in Arunachal*. [http://www.telegraphindia.com/1130913/jsp/northeast/story\\_17341310.jsp#.Vu0hVNJ95kg](http://www.telegraphindia.com/1130913/jsp/northeast/story_17341310.jsp#.Vu0hVNJ95kg).
- The Times of India, Dec.8, 2012. *High demand for Manipur green tea in global markets*. <http://timesofindia.indiatimes.com/city/guwahati/High-demand-for-Manipur-green-tea-in-global-markets/articleshow/17526406.cms>.
- Tisdale, S.L. and Nelson, W.L. (1975). *Soil Fertility and Fertilizers*. Second edition. Macmillan Publishing Co., New York.
- Wight, W. (1962). *Tea classification revised*. Current Science, 31: 298-99.

\*\*\*

## The Galo of Arunachal Pradesh: A Brief Ethnographical Profile

Mima Bam<sup>✉</sup>

Received on 30 August 2015

Accepted on 03 November 2015

### Abstract

*The Galo is a major tribe largely inhabiting in the central part of Arunachal Pradesh, bounded by the Mishmi Hill in the east and Subansiri district in the west. As per the popular traditions, it is believed that the ancestor of the Galo moved from Tibet and finally settled down at present homestead. Racially they belong to Palae-Mongoloid stock and speak a distinct language which is broadly classified under the Tibeto-Burman family. It is also maintained that the Galo descended from the Sisi (the Earth Mother), and after a few generations, the tribe said to have divided into a number of sub-tribes based on their forefather genealogies. The patrilineal and patrilocal system is the social structure of the Galo community. Namrumtum (family) is the unit in social structure of the community, father being the head of the family. There are two types of family systems found among the Galo, joint family and nuclear family. The joint family system was more prevalent earlier in the villages. Being a patriarchal society, the properties of a family is inherited by sons. Daughters are not given any immovable property but they get movable property such as tadok (bead), ornaments and other precious items which is regarded as property of a daughter from her parents. The paper attempts to describe the preliminary ethnographical outline and discusses about the social and cultural institutions of the Galo community of Arunachal Pradesh.*

**Keywords :** *Galo, Social and cultural institutions, Jimi, Kargu-Gamgi, Mopin, Nam-rumtum, Ponu, Siang, Sisi, Tadok.*

### I. INTRODUCTION

Arunachal Pradesh is the home of about 26 major tribes with a number of sub-tribes who still maintain the essence of their own traditional life. Being located in the northeast India, this mountainous state receives first ray of the sun in the country. It is a recognised region of the Indian subcontinent, mentioned in ancient classical literature such as the *Kalika-Purana* and the epic poems *Mahabharata* and *Ramayana*. It shares its border with the kingdom of Bhutan to the west, China to the north and east, Myanmar (Burma) and the Indian states of Nagaland to the south and southeast and Assam to the south and southwest. It was known as North East Frontier from 1914-1953 and North East Frontier Agency from 1954-1971 and later renamed as Arunachal Pradesh in 1972 and was given Union Territory status in the same year on January 20, 1972 which later became a full pledged state on February 20, 1987 with multi-lingual and multi-cultural identities of the indigenous people.

The Galo have distinct identity and cultural practices and are settled largely in the central part of Arunachal Pradesh. The majority of Galo are settled in West Siang District, the south-western part of East Siang District, the southern areas of Upper Subansiri District as well as in few places of Lower Dibang Valley and Changlang districts. However, approximately 82% of the Galo population are in the West Siang district. The Siang district is named after the mighty Siang river, and prior to 1914 the undivided Siang district was a part of the Lakhimpur district of present day Assam. According to 2011 census report, the total population of West Siang district is 112,272 while population density is 13 persons per square kilometre.

Like many other groups of the *Aabhu Thanyi* descendants, the Galo do not have their own script to record their past. Nevertheless, absence of the written record is amply substituted with the knowledge of social memory through the process of mnemonics device which are transmitted to the younger generation in the form of oral traditions. These traditions are contained with worthy of knowledge about the history and culture of the tribe. Such traditions are recited and sung by the *Nyubh* (priests) or elders of the society during the important social occasion and ceremonies in the forms of poems, folktales, folksongs, legends and myth stories. Within the community there are numbers of clans who maintain a distinct lineage or genealogy in villages. Most of the villages are named after the different clan names as phraphy orders.

<sup>✉</sup> Department of History, Rajiv Gandhi University, Itanagar 791112, Arunachal Pradesh  
Email: mima.bbam@gmail.com

## II. NOMENCLATURE FROM GALLONG TO 'GALO'

The word 'Galo' is a generic term used to denote a few number of sub-tribes which are homogeneity in culture and social practices with slight variation in their languages. The nomenclature of the tribe earlier being referred as 'Galong' was changed to 'Galo' because it was an Adiword and considered to be a distorted word by Galo tribe of West Siang district. It may be mentioned that till 2011, the word 'Galo' was erroneously recorded as 'Galong' in the Constitution of India. Thus, in order to change the word 'Galong' into 'Galo', a bill was introduced in the parliament on December 7, 2011 to amend the Part XVIII of the Order of 1950 (Scheduled Tribe) of the Constitution. Accordingly, the constitutional amendment act was passed by the parliament in which the word 'Galo' was substituted in place of the word 'Galong' on December 19, 2011 and on January 10, 2012; the President of India assented to amendment Act 2012. In order to mark this historic day, the 10th January was declared as Galo Day which is celebrated every year by the Tribe.

## III. ORIGIN AND MIGRATION

According to popular tradition current among the members of the community, maintains that the supreme cosmic authority *Jimi* was the creator of the universe from the nothingness. It is said that the creator *Jimi*, further created two important bodies, that is, the *Mrdo* (the sky) and the *Sichi* (the Earth). The tradition further maintains that from the union of the *Mrdo* and *Sichi*, the human race finally evolved. The first child of the *Mrdo* and *Sichi* was *Sibuk*, from where one descendant, *tusi* was born. From the *Tusi*, a son named, *Rimi* or *Thanyi* was born who was believed to be the first human being on this planet and hence, it was from *Thanyi* that the present day Galo tribe descended with numbers of sub-tribes like, the *Pailibos*, the *Bokars* and the *Ramo*. As there is no written records available to trace the origin and migration of the tribe, we are to largely rely on the oral traditions to reconstruct the history of the origin and migrations and also using inter-disciplinary data like, social anthropological works, the ethnographic studies and political institutions. Accordingly, as the tribes in the existing living memories could recite and narrate the origin and migrations almost near to the degree of accurate and precise. The following are the names of the important settlement where the great ancestors has lived and migrated such as from *Yomshi-Libu* to *Tade-Libu* and the *Manga* where it points out that the Galo came from the North side before settling in the present homestead. *Yomshi* is a combination of two words *Siyom* and *Ahi* where *Siyom* means the present river

which originates from the border of Tibet and *Ahi* stands for the origin of a river while *Libu* means gap in work. The compound meaning of the term indicates the origin of *Siyom* River near a gap or passes. The place, *Tade-Dege* is also located very close to it and *Manga* means the present Monigong. Thus, from this, we may have an idea that the Galocrossed the present Mac Mahon Line through Tunga Pass and moved downwards via *Tade-Dege* and present *Monigong*" (RibaTomo, 2003). The different clans of the Galo have their own form of traditions relating to migration. All the traditions as maintained by them clearly states that they have migrated to their present homestead from the north, which implies that this tribe migrated from Tibet. The exact location of their original home in Tibet or beyond that is still to be determined. In light of the above, it appears that the Galo might have migrated from the Tibet by following the routes of north-west and thereafter, moved further towards the south by taking recourse to the river Siang before they peopled the present territory.

## SOCIAL ORGANISATIONS

A social institution is a complex, integrated set of social norms organized around the preservation of a basic societal value. A social institution consists of a group of people who have come together for a common purpose. Most of the works of the social anthropologists are usually found to concentrate on the society, a community and culture, as a basic premise of their interpretation. As a matter of fact, in the recent past it is observed that such water tight compartment studies is being questioned and new paradigm shift of understanding the human kind activities through a trans-disciplinary approach has taken place to explain the social organisations practiced by the pre-literate society.

The Galo are divided into several clans based on their lineage on the orders of their forefather. As a customary law and tribe's practices, it is considered that the Galo maintains the tribe endogamy and tribe exogamy. A rupture of a clan is a major offence. Among the Galo, both nuclear and joint family systems are present. A nuclear family comprises husband, wife and their children in a single house. This social unit, the immediate or elementary family is the basis of all types of family group among the Galo people. On the other hand, a joint family may be composed of parents, their children and the children's spouses and offspring as well as domestic helper with their wives and children in one household having their fields, granary and hearth in common. However, household jobs are divided between the members of the family

according to age and sex. The Galo practiced patriarchal order where the father is the head of the family and the sons inherit the property. The Galo also maintain some kind of primogenitive law where elder son has the right over the major share of property after the death of his father whereas daughters are given a small quantity of bride wealth in the form of valuable beads and few brass plates during her marriage.

The pattern of relationships with kinsfolk or relatives outside the immediate family is very extensive. It is far more important too. Their entire social organisation is underlies by the kinship system. It is one of the basic factors in determining basic rules. The individuals is surrounded and supported by relatives from birth to old age. In their society, people trace their lives of ancestry through the father's line of the family i.e., patrilineal or father's line. Surnames are always inherited from the father. Not all the members of a lineage live together. A daughter normally marries and lives with her husband and his family. If a man dies without any sons but daughters only, then his brothers would get the whole property. If deceased person has no brothers, the property, especially in the form of the land, would go to the clan. If there is no daughter in the family then the *Tadoks* or precious stone necklaces are shared by the sons. The name giving ceremony among the Galo is called *aaoneminmennam*. The first syllable of the name of the children is always formed of the second syllable of the father's name.

The houses of the Galo are generally raised on struts of bamboo or wood at a height of four to twelve feet from the ground. The floors and walls are made of split bamboos tied with cane and plank. The roof is thatched with leaves or straw. Usually there are two doors and no windows in houses. One of the established traditions that the Galo follow while entering the house is that the male and female have separate ladders to enter their houses. Usually the right side ladder is for the male while the left side ladder is for female. If by mistake, a woman uses the men's ladder, she faces a harsh criticism and scolding from the elders of the family. In such cases, it is believed that men would not get any animal in hunting or fish in river.

The land under cultivation in Galo society is generally owned by individual. The areas for fishing and hunting are either owned by individual or by the village in common. Rice is the major grain crop and staple food. Other important crops are maize, millets, wheat, barley, pulses, mustard, potato, sugarcane, ginger, chilli etc. Important household activities include, weaving and basketry.

Marriage by custom is a social system. The family members are emotionally, spiritually, morally, socially and legally bound together by dint of marriage. The marriage system of the Galo is invariable. The practice of monogamy, polyandry and polygyny are still prevailing in their society although the practice is not so vibrant. The Galo had a sort of polyandry which was unknown elsewhere. The reason was the high bride-price which was dissuasive to marriage and thus it was not possible for each of the brothers in a family to have a wife. Generally, the eldest brother used to be married and the bride-price was being paid commonly by the whole family. According to the polyandrous customs of the Galo, a wife brought to a family by a brother belongs to other brothers as well. However, the brother who married her by performing all the required ceremonies is recognised as the actual husband. There is no strict age limit for marriage. It mostly depends upon the parents to decide at what age they would like to get their children married. In olden days, a system of marriage called *nephnyida* (pre-delivery marriage negotiation) was prevalent where the marriage proposal between two parents is finalised when the baby is in the womb of mother (Riba Tomo, 2003).

Cross cousin marriage (marriage of a daughter of the Mother's brother with daughter of father's sister) is permissible, but even then, the rituals are to be performed. The Galo marriage is a highly expensive and time taking process which can cover at least three to five years between the betrothal and the actual marriage. During this intervening period, several rituals, exchange visits, exchange of gifts take place. Certain bride-price is to be given from the groom's side to the girl's parents. This bride-wealth consists of *hobe* (*Bos frontalis*), pigs, and big and small brass bowls. Irrespective of whatever has been given from the groom's side, the bride's parents have also to give something in return. The bride-wealth is given before the marriage. The custom of the bride-price-giving cattle or other goods at marriage in exchange for the wife have emphasized consideration of economic factors as stabilizers of family relation.

The wives are usually from other lineages because marriage within a given lineage is forbidden in the Galo system. A widow is expected to marry the brother of her husband, in some cases, a widower is expected to marry the sister of his wife. Such marriages are favoured because they maintain the relationship between the families of husband and wife. The bride wealth is often so high that a man cannot afford to pay it without the help of the members of his lineage. Although the bride is paid, she is not a chattel. She can-



not be resold and her social status remains high after marriage. Hobe are shared not only among the immediate family but also among the bride's uncles and aunts. Her half-brother and half-uncles are given a generous share to emphasise that the marriage is not just the concern of the immediate family.

Two types of marriage ceremonies are in vogue among the Galo. These are *Dtey Nyime* and *Damey Nyime*. Generally in *Dtey Nyime*, a large number of sacrifices of hobe and pigs are involved, whereas in *Damey Nyime*, a relatively simplified form of marriage and generally performed among the common families of the society, all institutionalised norms and conditions of marriage take place. The difference between these two is that, in *Damey Nyime* marriage, a less number of *hobe* (is sacrificed. In all cases of divorce, the children's custody remains under his male parent. Thus, it is to be admitted that divorce cases, whatsoever be the number, are there in the Galo society in spite of bride price and devoutness involved in a marriage. Of all the sexual relations, incest is the most dreaded and its horror is deep rooted in their mind. It is believed to bring supernatural punishment to the whole clan and the village. It is considered against the social laws. Surrogate is also not favoured in their society.

## V. DEATH AND FUNERAL CUSTOMS

Among the Galo if a person falls sick or even dies despite of *nyibo's* efforts, then it is believed that this untimely death of a man is a result of his disobedience to the divine order. It is also believed that spirits may bring illness if their share of offerings is due and may even cause death if not appeased. They are therefore needed to be appeased in order to avert evil.

Like other tribes, the Galo also practice burial system. A new ladder of bamboo is made for carrying down the corpse from the house. A three feet long grave is dug in the grave yard. After cutting the bamboo ropes and mat, the corpse is placed inside with the head towards the west. An egg is placed in the right hand and one of the nails of right hand is cut and thrown outside. Then, the grave is covered with the dugout soil. A small hut is erected over it which is called *nyi-bu*. The most favourite belongings of the dead person are also buried with his body. All members who attend the burial ceremony go back to the house through the same door and then the newly made ladder is thrown away.

Spirits however are not ignored and according to the status of the family either a hobe (*Bos frontalis*) or a pig is sacrificed.

The festivals of the Galo are mostly associated with fertility rites. These are characterised by the dances, musical recitals, jovial sports, animal sacrifices, eating and drinking. Prominent among these are the *Mopin*, *Mari*, *Nyo-Jir*, *Ampir*, *Modh* and *Amo Mamanam*. The most important among these is the *Mopin*. It is celebrated with religious fervour and gaiety par taking by all walks of people irrespective of caste, creed, birth and religion. It lasts for two to three days and is marked by feasting, dancing and drinking. During this festival, as per the omen predicted, the animals like the hobe (*Bos frontalis*), fowls, pigs and chickens are sacrificed in order to ward off the natural calamities, diseases, effects of evil spirits and for good harvest, health, wealth and prosperity. In the *Mopin* festival, the Goddess of welfare, peace, wealth, prosperity and wisdom is propitiated in grand celebration. The *Popir* dance is the most important dance during the festival.

## VI. PASTIME AND TRADITIONAL DANCE

Invariably the Galo people are by temperament good singers and dancers. The Galo life is full of folk dances and songs. In spite of all hurdles in their way of life, the people of this area have preserved most of their ancient art and culture since prehistoric age till today. One such living example of their art and culture is the existence of folk dances, folk songs and folk music. Folk songs are called *Nyitom*. The song recited among the audience, narrates the legends and myths of the tribes which are largely related to the moral philosophy and traditional values of the society. There are two types of dances, the religious dance and *Ponu*. The religious dances are *popirunam*, *nyidanunam*, *nyidapariknam*, *nyohohonam*, *pajuknam*, *nyoganunam* etc. Each of these folk dances has its own distinct nature, style of presentation, dressing manner in dances, different forms of songs and various kinds of external and internal elements. The *Ponu* is their traditional dance, which is also religious in character. A group of girls dance in a circle holding each other by stretching their hands over each other's shoulders while the leader, usually a man called the *Miri*, dances and sings in the centre, holding aloft and shaking a sword like musical instrument called '*Yoksha*'. Dances are also organized on specific social and religious occasions. There is no special dancing costume, but it is important for the girls to be uniformly dressed.

## VII. TRADITIONAL RELIGIOUS INSTITUTION

The Galo have a cosmogony, a theogony and a corresponding speculative mythology. Religion among the Galo finds expression in their material cul-

ture, behaviour and value systems, moral and ethics that they follow. In the Galo society, religion is acquired by them as a member of the society in part through conscious instruction and through imitation. Generally the people never question about the principles of their religion, but rather accept them as self-understood. Religious symbols of the Galo, like myths, ritual behaviours and sacred images and objects, are endowed with meaning and thus common values are communicated. Thus it helps in maintaining culture and its institutions and also makes it possible to pass on its basic values to new generation.

In Galo society, religion is not simply meant for the spiritual atonement of the man but also helping the man to combat nature for his day-to-day existence, i.e., it largely serves the pragmatic needs of the man.

*On role of religion Marx says "Religion is the sign of the oppressed creature, the heart of a heartless world, just as it is the spirit of a spiritless situation. It is the opium of the people".*

The Galo have a firm belief upon the dependence of human beings on supernatural powers, most of who are thought of in anthropomorphic terms. It refers to the existence of powers beyond human power, and outside the regular processes of the nature. They are believed to be aware of human actions; they hear man's words uttered in prayers, notice man's ritual observances, receive offerings and sacrifice. It is believed that the supernatural power will be inclined to maintain the welfare of the people if he approves the behaviour of the human. It is also believed that the spirits of cultivation fields and granary are the most influential, so, the offerings are made to them frequently. *Pirku Pirte*, *Liku-Lite*, and *Pinku-Pinte* are the most powerful among them. The main spirits living in the house are *Chute-Gante* and *Ite-Botte*. *Jeru-Poru*, *Lipe-Pompe* and *Kiru-Ramro* are the water spirits. They play an important role in the economic life of the Galo. *Pomte-Sarte*, *Bute-Kamdu* etc., are the spirits of the jungle. Their function is to watch the village and forecast about would be misfortune.

According to the Galo myth, *Jimi* is the creator of the Universe including the *Medo* (the sky) and *Sichi* (the earth). Out of the union of the *Medo* and *Sichi*, all things and beings on the earth and in the sky including the *Donyi* (the Sun) and *Polo* (the Moon) were born. *Donyi Polo* comes next to *jimi* in the Galo pantheon and is very popular. In *Donyi-poloism*, there are many gods and spirits associated with the different aspects of human life. *Donyi*

*Polo* is the ultimate truth and refuge for ultimate solace in the Galo society. It is significant to note that they have been seeking justice, truth and ultimate solace from *Donyi Polo* in their practical life. The Galo believe that all the scion of Abotani must follow the *Donyi-Poloism* in order to preserve their own autochthonous religious belief system and customs. According to them, *Donyi Polo* religion is the mother of all modern religions in the world.

The *Donyi-Polo* religion has been institutionalised by various like-minded intellectuals of the state. The oral literature is basis of this religion. In the Galo community, the *Kargu-Gamgi* movement is a total revolution that not only rejuvenates the past glory of the Galo tribe but also ensures promotion, protection and preservation of the Galo language, Galo culture and *Donyi Polo* faith, besides upholding their own traditional values for their prosperity. The *kargu-gamgi* is a standardisation with some kind of religious practices. A *Gamgi* is a general name for a temple of the *Donyi Poloist* faith.

## VIII. CONCLUSION

With the passage of time, many changes have taken place in the social structure of the Galo. In this process of change, various observations are coming to the fore. The Galo society which was known for its family solidarity is experiencing a flux due to growing urban patterned nuclear family. It can be considered as a phenomenal change in the attributes of the Galo society. Such changes are also evident with considerable bearings on the kinship system. During the earlier days approximately, about ninety percent of the Galo children learnt their own language by listening to their surrounding and could speak proficiently but now a days, due to the modern education and way of living, it is not the same situations as it was in the past. Earlier, the Galo had a sort of polyandry, according to which, a wife brought to a family by a brother belongs to other brothers as well. However, the brother who married her by performing all the required ceremonies is recognised as the actual husband. But with the passage of time, the polyandry practice is on the verge of decline. Now, the Galo people do not support this practice and they have started neglecting it to a great extent. Indigenous religious traditions persist in most of the Galo areas where in an institutionalized form of *Donyi-Poloism* called as, '*Kargu-Gamgi*' has developed where indigenous religious traditions are re-interpreted. Traditionally, the Galo practiced shifting cultivation. However, wet rice and terraced cultivation has now been introduced by the Government officials under Integrated Rice Development Programme (IRDP). Thus, the Galo society in present world is heading towards a paradigm shift

due to increasing exposure to the arena and development and related changes that is bringing a substantial transition in their economic, socio-cultural and life style patterns.

Thus, in the light of the foregoing discussion, it is worthwhile to summarise that the Galo tribe is having a distinct cultural institution and customary practices which has been inherited from their great mythical ancestors *Aabho Thanyi*.

### References

- Aier, Lima Sasai (2009). *Encyclopaedia of Arunachal Pradesh*, Vol -2: (New Delhi: Anmol Publication) p.308.
- Dutta Choudhury, S. (1994). *Gazetteer of India Arunachal Pradesh East Siang & West Siang Districts*: (Shillong: Gazetteers Department Government of Arunachal Pradesh) p. 91.
- Firth, Raymond (1961). *Elements of Social Organization*: (London: Watts & CO, 39 Parker Street) p.22.
- Furer-Haimendorf, C.V. (1962). *The Apatanis and their Neighbours: A primitive civilization of the Eastern Himalayas* (London: Routledge & Kegan Paul) p.131.
- Furer-Haimendorf, C.V. (1982). *Highlanders of Arunachal Pradesh*: (U.P: Vikas Publishing House Pvt. Ltd.) p.128.
- Grewal, Dalvinder Singh (1997). *Tribes of Arunachal Pradesh: Identity, Culture and Language*: (Delhi: South Asia Publications) p.184.
- Jha, S.D. (1985). *The Wealth of Arunachal Pradesh*: (Delhi: Mittal Publications) p. 97.
- Nath, J. (2005): *Cultural Heritage of Tribal Societies (The Adis)*: (New Delhi: Omsons Publications) P. 65.
- Nyori, Tai (1993). *History and Culture of the Adis*: (New Delhi: Omsons Publications) pp. 205-206.
- Riba, Tomo (2013). *Shifting Cultivation and Tribal Culture of Tribes of Arunachal Pradesh, India*: (Bangladesh: Rubi Enterprise) p. 1.
- Riba, Tomo (2003). *The Tribals and their Changing Environment: a case study of the Galos of West Siang District, Arunachal Pradesh*: (Itanagar: Himalayan Publications) p. 1.
- Srivastava, L.R.N (1988). *The Gallongs*, (Itanagar: Director of Research), p.84.

## Study Habits of Senior Secondary Learners of Lower Dibang Valley district of Arunachal Pradesh

Trachi Tayeng<sup>✉</sup>  
Sumin Prakash

Received on 09 December 2015,

Accepted on 25 December 2015

### Abstract

*Education is fundamental to development and growth of individuals. It is for both acquisition of knowledge and experiences as well as development of skills, habits, and attitudes, which helps in development of the personality. Education is determined by many factors one of which is study habits of learners. Study habit is the routine maintained by students besides their school hours, which helps them to improve their academic achievement. The present study investigated the study habits of senior secondary learners, studying in Government and Private schools of Lower Dibang Valley of Arunachal Pradesh. The study was conducted on a sample of 100 students, randomly selected from 05 Government and Private Schools of Lower Dibang Valley of Arunachal Pradesh, using survey method. Study Habit Inventory, constructed by Dr. Mukhopadhyay and Dr. D. N. Sansanwal was adopted for data collection. Findings of the study reported that; (i) there was no significant difference in the study habits of senior secondary learners, studying in Government and Private schools, (ii) there was no significant difference in the study habits of Male and Female senior secondary learners, but (iii) there was significant difference in the study habits of Rural and Urban senior secondary learners of Lower Dibang Valley district of Arunachal Pradesh.*

<sup>✉</sup> Department of Education, Rajiv Gandhi University, Itanagar 791112, Arunachal Pradesh  
Email: suminprakash@gmail.com

**Key Words :** *Study habits, Academic achievement, Education and Senior Secondary learners.*

### Introduction

Education is fundamental to development and growth. It is a dynamic strength for social revolution, improvement and development. Crow and crow (1954) stated that, "Education is the dynamic force in the life of every individual influencing his physical, mental, emotional, social and ethical development." Education is the process of behaviour modification through learning experience. It makes an individual civilized, cultured and contributes to the growth and development of the society. Thus, education means both acquisition of knowledge and experiences as well as development of skills, habits, and attitudes, which helps in development of the personality.

### Meaning of Study Habits

Study habit is the routine maintained by students besides the school hours, which helps them to improve their academic achievement. Crede and Kuneel (2008) defines, "study habits as study routines, including, but not restricted to, frequency of studying sessions, review of materials, self testing, rehearsal of learners materials and studying in a conducive environment." The term study habit implies the permanent method of studying. Study habits are defined as techniques like summarizing, note taking, outlining or locating and collecting information which learners are engaged in to assist themselves in efficiently learning the information at hand. Study habits are habitual practices and activities that help the learners in learning process which are unknown or partially known to individuals for collection of information, acquiring more knowledge about the specific thing, acquiring some skills and details about the information which clears the doubt of the learners. According to Good's dictionary of education, "study habit is the tendency of pupil to study when the opportunities are given, the pupil's way of studying whether systematic and unsystematic, efficient or inefficient."

Study habits are features of dynamic personality. A proper study habits enables an individual's for good performance in the academic field and form the base of academic achievement of students which in future is helpful for their jobs especially in teaching profession and for leisure time management. Performance of the learners depends upon the study habits. Study habits are different for each student. Regular studies are believed to result into good academic records and irregular study habits may result in poor academic

records. Srivastava (1967) points out for good academic success, good study habits and attitudes are important. Study habits play an important role in the life of all human beings who are 'being educated' or are 'educated' as it helps in updating of the information to both the teacher and the learners. As present society is competition oriented and everyone is running behind the success. This success can be ensuring only through good study habits which help in acquisitions of skills and study behavior of an individual.

Study habits are also a kind of skill. There are many skills, which are helpful in development of good study habits i.e. note making, survey, question, review, recite, reading and recalling etc. Students should establish the study materials in well planned and systematic. Some skills according to Bernard Chibnall are as: (i) Organization of study time, (ii) Understanding the demand of their course, (iii) Use of various sources of information, (iv) Reading skills, note taking, (v) Revision skills and exam techniques, and (vi) Memory in study.

### Factors affecting study habits

- (i) **Study attitudes:** Learning takes place only when one is interested in the subject and enjoys studying it. Every student has their own attitude towards study. One not only studies to pass examinations, but also to gain knowledge, improve language, and develop good study habits. If learning experience is pleasant, his attitude will be positive and if it is unpleasant and there is lack of motivation for study, he naturally will lose interest and avoid it.
- (ii) **Providing suitable climate for intellectual, emotional and physical development:** The schools should provide homely attachment to the students so that they are able to develop physically, intellectually and emotionally. There should be friendly interactions and interpersonal relationship between the teachers and the students. The cordial relationship would boost up the teaching-learning process to be effective.
- (iii) **Personality of the teacher:** Teacher can influence the attitude of learners towards mastery of subject. If learner dislike particular subject, teacher should try to motivate the learner and can develop positive attitude towards it. In this way, learners get emotional and mental attachment towards the subject through motivation and encouragement of the teacher. Affection of the students towards teachers gradually increases the interest of the students for the particular subject.



- (iv) **Environment of study:** There should be conducive space for study, where students can concentrate on the subject matter without any distraction. When students reach their place of study they should get to work on it immediately. The place should be sound with study materials and other equipments required for study. Whenever they feel to have some break, should be allowed to go and get mentally relaxed to begin with again.
- (v) **Time devoted for study:** Experts have recommended that higher secondary learners should study for at least 4-5 hours a day. They should maintain their daily routine to avoid too much stress during examination period. Prolonged hours of study may also reduce the concentration of student so they need to maintain a specific time and duration of study to grab maximum information from the materials they study.
- (vi) **Using dictionary:** Dictionary is very useful material for getting exact meaning of the words. Meaning of the words must be understood before a learner can interpret any passage correctly. Therefore, if dictionary habits if developed early, the individual in his latter life can save time, energy and perhaps getting embarrassment. The students, who use dictionaries regularly, improve their vocabulary and improve their language.
- (vii) **Note taking:** These are variable aids for effective study. Notes help one to learn, to remember, to review for the examination and save time. Note taking is a healthy method of study to memorize important points of study. It is very helpful during examinations to go through a glance. Note taken in the classroom while teacher dictates, help students to improve their listening skills and concentration in the classroom.

### Review of related Literature

Aluede and Onolehemhen (2001), in their study on "The effect of study habit counseling on academic performance" of 108 senior secondary school students of English Language belonging to Kumen Christ secondary school, Uromi, Edo state, Nigeria. The findings of the study revealed that counseling students for good study habits could improve their academic performance.

Naemullah, B., Ahmed, A., Ghazal, S. & Muhammad, R. conducted a study entitled "A Comparative study of the study habits of the students from formal and non-formal systems of Education in Pakistan." The study was done

on 500 samples drawn from the Bahawalpur region of the Allama Iqbal Open University by using a forty-item questionnaire consisting of seven clusters, viz. Time management, Class attendance & participation, General study strategies, Exam preparation, Goal setting & motivation, Textbook reading and Note taking. The study concluded that Students of formal system were significantly better on time management, exam preparation and note taking and students of non-formal system of education were significantly better on class attendance & participation, general study strategies, goal setting & motivation and textbook reading than the students of formal system.

Crede and Kuncel (2008) found that non-cognitive factors like study habits, skill and study motivation among other attitudinal constructs accounted for incremental variance in academic performance beyond standardized tests and previous grades.

Christian (1983) conducted a study on study habits of standard X students in relation to motivation and found that pupils who were highly motivated had better study habits than pupils who were less motivated.

Duncan and Duncan (1934) found that inadequate study habits resulted in poor scholarship which in turn, decreased student's interest and motivation.

Ghulam Mustafa, (2013) in his study entitled "Study behavior, Study Habits, Achievement Motivations of University Students and Study Advisory Services" concluded that all these factors are connected with each other and help them to continue their study with positive motivation.

Edoh, G. I. Osa & Alutu, A. N. G. (2012) in their study entitled "A survey of Students Study Habits in Selected Secondary Schools: Implication for counselling" examined the usefulness of imbibing study habits among students as a means of enhancing their academic performance.

Iqbal and Shezadi (2001) in their research on "Study habits of female students of the university" concluded that female students of all departments lack good study habits as well effective study skills.

Mendezabal, M. J. N. (2013) in their study entitled "Study Habits and Attitudes: The Road to Academic Success." Results of the study showed that, generally the participants had favourable study habits, exhibited favourable attitudes towards teacher's classroom behaviour and methods, and performed well in the examinations. The study further showed that students who have more favourable study habits and attitudes obtained better rating in the examinations.



Park (1974), found in an informal survey that many students consider being alone in a quiet room during study, as their most important aid to learning.

Chaudhary, A. S., (2013) in his study entitled "Study Habits of Higher Secondary School Students in Relation to their Academic Achievement" on a sample of 80 higher secondary school students. The study revealed that there was significantly positive correlation between study habits and academic achievement.

Chinna (1985) conducted a study on "Study Habits in relation to over and under achievement in English" and conducted that over-achievers in English had significantly better study habits as compared to under-achievers.

Dinesh (2003) in his investigation on 300 students of IX class selected randomly from government and private senior secondary schools of Chandigarh (science stream= 86, arts stream= 125 and commerce stream=89) concluded that study habits of science and arts stream students differ significantly.

Ehtesham, A., on his study "A Correlation Study of Academic Achievement and Study Habits: Issues and Concerns" concluded that academic performance of students having good and poor study habits differ significantly and good study habits result in high academic achievement.

Chand, S., (2013) in his study on "Study Habits of secondary School Students in relation to type of school and type of family" on a sample of 200 secondary school students concluded that Secondary school students studying in government schools are significantly better on home environment and planning of work and subjects than students studying in private schools.

Parua, R. K. & Archana, in their study entitled "Study Habits of secondary School Students in relation to their Scholastic Achievement" on a sample comprised of 100 secondary school students concluded that there was significant positive correlation between study habits and scholastic achievements as a whole and dimensions wise. Further, there was significant difference between high and low scholastic achievement students on study habits in general.

Gudaganavar, V. N. & Halayannavar, B. R., (2014) in their study entitled "Influence of Study Habits of Academic Performance of Higher Primary School Students" on a sample of 250 higher primary students concluded that; (i) There was no association between boys and girls on study habits, (ii) Boys and girls differed significantly on two dimensions of reading, note taking and

preparation for examination, (iii) There was significant association between study habits and academic achievement of girls, (iv) There was no significant difference between study habits and academic achievement of boys.

Jain, (1975) found that bright achievers were characterized by better study habits and high achievement motivation than the dull achievers.

Kaur (2005) investigated the study habits of male and female adolescents belonging to arts and science streams. The investigation revealed that study habits of students belonging to urban and rural areas does not differ significantly however, significant difference was found in the study habits of male and female as well as arts and science stream adolescents.

Pachaiyappan, P. & Prabu, T. (2014) in their study entitled "Study Habits of Higher Secondary Biology students: An analysis" conducted on a sample of randomly selected 200 students using Study Habits Inventory (SHI), constructed and standardized by Gopal Rao, concluded that Study Habits of; (i) urban higher secondary school students was higher than that of their rural counterparts, (ii) females students was higher than their male counterparts, (iii) private higher secondary school students was higher than that of government school students.

Sud & Sujata (2006) conducted a study on academic performance in relation to self-handicapping, test anxiety and study habits of high school children (N=200) from government senior secondary school of Himachal Pradesh. The results revealed that boys were poorer in study habits than girls were.

Sharma (1971) compared the study habits of 65 Gurukula and 65 non-Gurukula students and concluded study habits of Gurukula and non-Gurukula students were not significantly different at any level of significance.

Sheikh, M. U. D., & Jahan, Q., (2012) in their study on "Study Habits of Higher Secondary School Students of Working and Non-Working Mothers" with a sample of 100 secondary school students (25 male students of working mothers, 25 female students of working mothers, 25 male students of non-working mothers & 25 female students of non-working mothers) in the age group of 16 to 18 years, belonging to different localities and randomly selected from different educational institutions of district Pulwama, Jammu & Kashmir revealed that; (i) there was no significant difference between the adolescent students of WMs and NWMs on the measure of com-



prehension, study sets, interaction, drilling, recording and language dimensions of study habits, (ii) there was significant difference between the study habits of students of working and non-working mothers on the measures of concentration, task orientation and supports, (iii) regarding their total study habits, higher secondary school students of working mothers had significantly better study habits than those of non-working mothers, (iv) further the study revealed that female students of WMs had significantly better study habits followed by male students of WMs and male students of NWMs. Study Habit Inventory (SHI) constructed by Mukhopadhyaya, M. & Sansanwal, D.N was used for the above study.

Singla (2007) conducted her study on a sample of 200 boys and girls studying in 10+1 class in the senior secondary schools of Chandigarh in order to compare their study habits. There was no significant difference in the study habits of students studying in Arts and Commerce streams. Similarly, the study habits of boys and girls were not significantly different.

Singh, H. A. (1984) in his survey on the study habits of high, middle and low achiever adolescents in relation to their sex, intelligence and socio-economic status revealed that; (i) study habits were significantly related to their academic achievements. High achiever adolescents had significantly better study habits than middle achievers, (ii) study habits of adolescents' boys and girls were significantly different at different levels of academic achievement that is at high, middle, and low, (iii) there was no significant difference between the intelligence of adolescent's boys and girls in relation to study habits of either of the adolescent's status.

### Need of the study

Studies reveal that academic achievement is related to study habits. Higher achievers had better study habits than others. Learners differ from each other on the basis of their study habits. Study habits are related to the motivation level of learners and in many of the cases vary according to gender, stream of study; Science and Arts, type of education; Formal and Non-formal, habitat of learners; Rural and Urban etc. Education in Arunachal Pradesh varies due to factors like, beliefs of parents, illiteracy, socio-economic, cultural, and linguistic factors and accordingly study habits are likely to vary. Keeping in mind all these factors in mind and non-availability of study in Arunachal Pradesh, the need to take-up this study was felt.

### Statement of the Problem

The problem of the present study has been stated as follow:

'Study habits of Senior Secondary Learners of Lower Dibang Valley District of Arunachal Pradesh'

### Objectives of the Study

The study is designed with the following objectives :

1. To study the study habits of senior secondary learners of government and private schools
2. To study the study habits of male and female senior secondary learners
3. To study the study habits of rural and urban senior secondary learners

### Hypotheses of the Study

The hypotheses are stated as under:

H01. There is no significant difference between the study habits of senior secondary learners of government and private schools.

H02. There is no significant difference between the study habits of male and female senior secondary learners.

H03. There is no significant difference between the study habits of rural and urban senior secondary learners.

### Materials and Methods

The descriptive survey method was used in the study. The present study attempts to give an overview and highlight the present status of study habits in the senior secondary learners of Lower Dibang Valley District of Arunachal Pradesh.

### Population of the Study

The population of the present study consisted of all the Senior Secondary Learners, studying in Government and Private schools of Lower Dibang Valley district of Arunachal Pradesh.

### Sample of the Study

The study was conducted on a sample of 100 Senior Secondary School

Learners, 50 male and 50 female students studying in Government and Private Schools located in rural as well as urban areas of Lower Dibang Valley district of Arunachal Pradesh. The sample was selected randomly from 05 purposively selected Government and Private Schools.

### Tool used

The Study Habit Inventory (SHI) constructed by Dr. Mukhopadhyay and Dr. D. N Sansanwal was used for collection of the data in this study. The tool consisted of 09 dimensions, viz. Comprehension, Concentration, Task Orientation, Study sets, Interaction, Drilling, Support, Recording, and Language.

### Statistical techniques used

In the study various statistical measures such as Mean, SD and t-test were used.

### Results and Discussion

Data collected through above mentioned inventory were analyzed in terms of Mean, Standard deviation, and t-test. The results have been presented in the tables.

**Hypothesis 1 :** There is no significant difference between the study habits of senior secondary learners of government and private schools.

It was found that the mean scores of Senior Secondary Learners of Government (N=60) and Private (N=40) schools were 220.34 and 221.00 respectively. The calculated t-value comes to be 0.13, which was found to be non-significant (Table t-value = 1.98 at 0.05 level of significance). Hence, null hypothesis was accepted. That means there is no significant difference between overall study habits of SSLs of Government and Private Senior Secondary Schools.

**Hypothesis 2 :** There is no significant difference between the study habits of male and female senior secondary learners.

It was found that the mean scores of Male (N=50) and Female (N=50) Senior Secondary Learners were 219.7 and 220.7 respectively. The calculated t-value comes to be 0.19 (Table t-value = 1.98 at 0.05 level of significance), which was found to be non-significant. Hence, null hypothesis was accepted.

That means there is no significant difference between overall study habits of Male and Female Senior Secondary Learners.

**Hypothesis 3** There is no significant difference between the study habits of rural and urban senior secondary learners.

It was found that the mean scores of Rural (N=40) and Urban Senior Secondary Learners (N=60) were 208 and 230 respectively. The calculated t-value comes to be 4.32 (Table t-value = 1.98 at 0.05 level of significance), which was found to be significant. Hence, null hypothesis was rejected. That means there is significant difference between overall study habits of Rural and Urban Senior Secondary Learners. Urban SSLs were found to have better study habits than their rural counterparts.

**Table 1 :** Mean, SD and t-value of study habits of senior secondary learners of government and private schools.

| Groups     | N  | Mean   | SD    | t- value | Remarks         |
|------------|----|--------|-------|----------|-----------------|
| Government | 60 | 220.34 | 29.46 | 0.13     | Not significant |
| Private    | 40 | 221.00 | 23.91 |          |                 |

**Table 2 :** Mean, SD and t-value of study habits of Male and Female senior secondary learners.

| Groups | N  | Mean  | SD    | t- value | Remarks         |
|--------|----|-------|-------|----------|-----------------|
| Male   | 50 | 219.7 | 26.16 | 0.19     | Not significant |
| Female | 50 | 220.7 | 25.19 |          |                 |

**Table 3 :** Mean, SD and t-value of study habits of Rural and Urban senior secondary learners.

| Groups | N  | Mean | SD    | t- value | Remarks     |
|--------|----|------|-------|----------|-------------|
| Rural  | 40 | 208  | 28.26 | 4.32     | Significant |
| Urban  | 60 | 230  | 19.01 |          |             |



## Conclusion

There is no difference in Study habits of senior secondary learners studying in Government and Private schools, as well as in Male and Female senior secondary learners of Lower Dibang Valley district. It may be due to similar curriculum followed in both types of schools as well less availability of trained teachers. Similarly, gender of learners is not related to their study habits as they showed similar study habits but study habits of Rural and urban senior secondary students differ significantly. This difference may be attributed to different learning, socio-economical, and home environment of the learners that vary significantly in rural and urban locality.

## References

- Aluede and Onolemhemen (2001). *Effect of study habits counseling on the academic performance of secondary schools students in English language*. Journal of Educational Research. Ext-38(3). Pp. 17-26.
- Anwar, E., *A correlation study of academic achievement and study habits: issues and concerns*. Excellence International Journal of Education and Research. ISSN 2322-0146. Vol-1, Issue-2.
- Chand, S. (2013). *Study Habits of Secondary Students in relation to types of Schools and Type of family*. International Journal of Social Science and Inter Disciplinary Research. ISSN 2277-3630. Vol-2 (7).
- Chaudhari, A. N. (2013). *Study Habits of Higher Secondary School Students in Relation to their Academic Achievement*. International journal of Research in Humanities and Social Sciences. ISSN: 2320-771X. Vol-1, Issue-3.
- Chauhan, S.S. and Singh, H (1985). *Study Habits of children in relation to sex and economic status*. Journal of Educational Research & Extension, Vol-22. No-I.
- Chinna, A. K. (1985). *Study Habits in Relation to Over and Under Achievement in English*. M. Ed. Dissertation. Punjab University, Chandigarh.
- Crede, M., and Kuneel N. R. (2008). *Study Habit, skills and attitudes: the third pillar supporting collegiate academic performance, perspectives on psychological science*, 3, pp. 425-453.
- Devi, N. (2001). *Study Habits of selected early adolescents*. Research Highlights. Vol.11, pp. 2-80.
- Dinesh, (2003). *Study Habits of Science, Arts and Commerce Students at different Levels of Intelligence*. M. Ed. Dissertation. Punjab University, Chandigarh.

- Edoh, G. I. Osa and Alutu, A. N. G (2012). *A survey of students study Habits in Selected Secondary Schools: implication for counselling*. Current research journal of social sciences. ISSN: 2041-3246. Vol-4, Issue-3. Pp. 228-234.
- Ghulam, M. (2013). *Study behavior, study habits, achievement motivation of university students and study advisory services*. Literacy information and Computer Education Journal. Vol-4, Issue-1.
- Gudaganavar, N. V. and Halayannavar, R. B. (2014). *Influence of Study habits on Academic Performance of Higher Primary School Students*. International Journal of Science and Research. ISSN (online): 2319-7064. Vol-3, Issue-2.
- Kumar, S. (2015). *Study Habits of Undergraduate Students*. International journal of Education and Information Studies. ISSN 2277-3169. Vol-5, No.-1. pp. 17-24.
- Lamar, R. (2014). *Study Habits of Higher Secondary Students of Shillong in Mathematics*. Journal of Research & Method in Education. e-ISSN 2320-7388, p-ISSN: 2320-737X Vol-4, Issue 2, pp. 36-38.
- Mace, C. A. (2002). *The Psychology of study*. Penguin Book Ltd., Middlesex, USA.
- Mendezabal, M. J. N. (2013). *Study Habits and Attitudes: The road to Academic Success*. International Journal of applied research and studies. ISSN: 2278-9480. Vol-2, Issue-4.
- Pachaiyappan, P and Prabu, T. (2014). *Study Habits of Higher Secondary Biology Students- An Analysis*. Indian journal of applied research. ISSN 2249-555X, Vol-4, Issue-6.
- Sharma, R. N. and Sharma, R. (2007). *Guidance and Counselling in India*. New Delhi: Atlantic Publishers & Distribution (P) Ltd.
- Sheikh, M. D. and Jahan, Q. (2012). *Study Habits of Higher Secondary School Students of Working and Non- working Mothers*. ISSN 2222-1735 (paper) & 2222-288X (online). Vol-3, No-13.
- Singh, H. A. (1984). *A survey of the study habits of high-middle & low-middle achiever adolescence in relation to their sex, intelligence & socio-economic status*.
- Sud, A. and Sujata (2006). *Academic performance in relation to self-handicapping, test anxiety and study habits of high school children*. Psychological Studies - University of Calicut., 51(4), pp. 304-309.

\*\*\*

## Advancement in cultivation techniques of oyster mushrooms

Asha Pertin<sup>✉</sup>

### Abstract

*Oyster mushrooms (genus Pleurotus) are one among the most popular edible mushrooms due to their favourable nutritional and medicinal properties, vigorous growth and undemanding cultivation conditions. This review focuses on refinement of techniques for oyster mushroom cultivation over existing methods of cultivation with emphasis on methods of spawn production, spawn rate, substrate selection and its pre-treatment. It also briefly highlights the various other significant factors like pH, relative humidity, temperature, luminosity and bagging system that affect yield of oyster mushrooms.*

### Introduction

Mushrooms are considered food for healthy life due to their excellent nutritional and medicinal values. They have very good taste, aroma and texture and provide high-quality protein, all essential vitamins and minerals. Being fibrous in nature with low lipid and sugar contents, they are a recommended food for diabetes and heart patients. They also produce a variety of metabolites exhibiting wide-spectrum biological activities including antimicrobial, haematological, antioxidant, anti-inflammatory, hepatoprotective, antitumour, and immunomodulator (Wasser, 2002; Quimio, 1980).

Being lignocellulose degraders, mushrooms are artificially cultivated on a large variety of agricultural and forest wastes (Jain and Vyas, 2003). They are also exploited for production of wide range of extracellular enzymes to degrade

lignin, cellulose and hemicellulose into soluble substances which are taken up by its mycelia (Morais et al., 2002). These benefits, particularly the culinary, nutritional and health benefits have led to a continuous growth in domestic and international market of mushrooms (Beetz and Kustidia, 2004). Mushroom cultivation is considered as an effective way of alleviating poverty in developing countries (Masarirambi et al., 2011). The cultivation of edible mushrooms has become an attractive economic alternative over past few years, mainly due to increase in its demand and market value (Chang, 2006).

All over the world, only about 36 species of mushrooms are cultivated. Production wise, button mushroom (*Agaricus* spp.) is the market leader followed by oyster mushrooms (*Pleurotus* spp.) and shitake mushroom (*Lentinula* sp.) (Royse, 2014). Oyster mushrooms naturally grow on the dead logs, wood stumps, decaying organic matters and tree trunks in temperate and tropical forests, where a moderate rainfall occurs throughout the year providing a high relative humidity (>90%) and a moderate range of temperature between 10°-30°C. Their fruit bodies are distinctly shelly or oyster shaped with different shades of white, cream, grey, yellow, pink or light brown depending upon the species. An attractive feature of oyster mushrooms is that they are very easy for artificial cultivation and can utilize a large variety of lignocellulosic agricultural waste biomass transforming them into a high quality human food (Quimio, 1978; Bano and Rajarathanam, 1982; Jain and Vyas, 2003). Due to low cost production technology, excellent flavour and taste and rich nutritional and medicinal properties (Somashekar et al., 2010; Mahmood et al., 2011), they are very popular among farmers and consumers and have become the second largest commercially cultivated mushroom in the world. An increase in yield of *Pleurotus* spp. may be attributed to adoption of their cultivation by many people in rural areas because of their rapid mycelial growth, cheap production techniques and wide choice of species for cultivation under different climatic conditions (Quimio et al., 1990). Different species of *Pleurotus* can grow well in variable temperature conditions; hence they are ideally suited for cultivation throughout the year in various regions of tropical country like India (Ahmed et al., 2009). It can also grow and utilize various kinds of substrate materials than any other mushrooms (Cohen et al., 2002).

In order to enhance the productivity and reliability of oyster mushroom production, suitable protocols need to be selected based by refining the available protocols developed from preceding research on mushroom cultivation.

<sup>✉</sup> Department of Botany, Rajiv Gandhi University, Rono Hills, Doimukh 791112, Arunachal Pradesh.  
Email : ashapertin@ymail.com

Selection and refinement of protocols depends on prevailing environmental conditions in a particular geographic region, the species of oyster mushrooms selected for cultivation and types of lignocellulosic material available in the region. Further, for maximizing the yield, mushroom cultivation needs to be cautiously performed in the most sterile conditions to avoid any kind of contamination and disease.

### General method of oyster mushroom cultivation

Oyster mushroom culture involves several different operations, each of which must be carefully performed. The first stage is to obtain a pure mycelium of the specific mushroom strain. A pure culture of a particular species in the form of vegetative mycelia is then used for the preparation of spawn (mushroom seeds) on whole wheat grains or some other suitable materials in polypropylene bags or glass bottles. Different grains like millets, wheat, rice, barley, rye and sorghum are now commonly used as base materials for spawn production (Quimioet al., 1990). The success of mushroom production depends in great part on the quality of the spawn, which must be prepared under sterile conditions to diminish contamination of the substrate. A number of studies have been done to improve and develop new techniques for the production of spawn (Holtz and McCulloch, 1999; Friel and McLoughlin, 2000; Muthukrishnan et al., 2000).

### Substrate for oyster mushroom cultivation

A variety of lignocellulosic substrates have been used for oyster mushroom cultivation such as cereal straws, sugarcane bagasse, banana pseudostem, peanut shells and saw dusts have been used to cultivate *Pleurotus* (Das and Mukherjee, 2007; Rani et al., 2008). Substrate selection depends upon its availability in a particular geographic region and its cost. Dried paddy straw is commonly used in India. Substrate is cut into small pieces and then it is either steam pasteurized at 60 - 70°C for 6 - 8 hours or chemically sterilized by soaking overnight in a solution mixture of formalin-carbendazim (Bavistin). The later method requires lesser amounts of energy and labour and is also suitable for large scale mushroom cultivation (Upadhyay, 2011). Thereafter, the excess moisture is drained out by spreading the sterilized substrates on a tarpaulin sheet under the shade for 2 hours keeping the moisture content of the substrate approx. 65-70%.

### Inoculation of substrates and incubation for mycelial proliferation

Substrates are filled in polythene bags and inoculated with freshly prepared,

two weeks old grain spawn @ 3-5%. Tightly closed inoculated substrate bags are kept in complete darkness inside mushroom house allowing the mycelia of the *Pleurotus* to spread from the grain spawn and grow fully on the substrate. It takes 15-20 days time. The ambient temperature is maintained between of 15°-25°C depending upon the species of *Pleurotus* being cultivated and a relative humidity between 80-90% by spraying water inside the mushroom house.

### Harvesting of mushroom

Fully colonized bags are thereafter peeled opened or cut with small longitudinal incisor and arranged on shelves at a distance of about 30 cm apart for formation of fruit bodies. Three to four days after opening of the bags, mushroom primordia begin to appear and mature mushrooms become ready for harvesting in subsequent 2-3 days. Daily watering is needed to maintain adequate relative humidity and temperature in the bed as well as mushroom house during cropping. Natural or artificial light is required for 3 hours daily to the colonized bags for proper cropping. Mature fruit body are harvested from each bag either daily or at an interval of 3-5 days. The total yield of mushroom per 100 g dry weight of substrate represents the Biological efficiency (BE) and a yield with 70%BE is considered good and profitable.

The technology of large scale mushroom production is a recent innovation and the establishment of laboratories for research on mushroom growing and the use of pure spawn culture resulted in rapid and increased production of mushrooms worldwide (Flegg et al., 1985).

### A brief review on each step of mushroom cultivation with research refinement

The general method of Oyster mushroom cultivation is well known to the common growers. But, enhancing the general protocols with more selective and refined methods can further enhance the yield of mushroom. The major practical steps of mushroom cultivation are: (a) selection of an acceptable mushroom species; (b) Obtaining a good quality mushroom culture; (c) development of active spawn; (d) preparation of selective substrate/compost; (e) care of mycelial (spawn) running; (f) management of fruiting/mushroom development; and (g) harvesting of mushrooms carefully (Chang and Chiu, 1992; Chang, 1998). Mushroom yield and BE are directly related to strain, growth conditions, and substrate nutrition (Upadhyay et al., 2002).

**1. Strain selection :** The strain used in the culture is crucial for success in

mushroom production and marketing. A strain with a high ability to invade the substrate and to fruit minimizes the time of incubation and enhances productivity. Outstanding growth of mycelium is a vital factor in mushroom cultivation, therefore, a healthy and competent strain of any mushroom species is always preferred for the future culture.

**2. Spawn production :** Clean whole grains are generally taken for spawn production. The grains are pre-wetted by boiling in water for 20-30 min (Jainand Vyas, 2005). The duration of boiling time may vary for different substrates or grains, making sure that it's soft enough for the easy colonization of mycelium and maintaining it intact. The choice of grains and amount of additives used has been reported differently. Stoller (1962) preferred rye grain and cottonseed meal for spawn production and advised the use of 6g of gypsum and 1.5g chalk per pound of grain to avoid sectoring and clumping of grains. Stamets (1993) also recommended rye grain for spawn production and used 1g of gypsum per 200g rye grain. Munjal (1973) recommended the use of sorghum grains whereas Hu and Lin (1972) used grain hull powder for making granular spawn. Kumar et al. (1975) reported that sorghum grains have better growth of mycelium after mixing 2% gypsum and 6%  $\text{CaCO}_3$  with the boiled sorghum grains. Sawdust can also be used for spawn production. Sawdust spawn is generally prepared according to Quimio et al. (1990). It has been found that the spawn run rate of smaller grains was higher than the larger grains. However, larger grains have a greater food reserve (Elliot, 1985) and can sustain the mycelium for longer periods of time during stress (Fritsche, 1988). Thus, different types of spawn may influence productivity and growth. Several studies have been done to improve and develop new techniques for the production of spawn (Royse, 2003). According to Mandeel et al. (2005), biological efficiency is highly affected by the quality of the spawn of the cultivated mushroom strain. Failure to achieve a satisfactory harvest may often be traced to unsatisfactory spawn used (Chang, 2009).

Excess moisture in spawn substrate has been seen to inhibit mycelial growth within the substrate. It has been observed that where the excess water sets at the bottom of the substrate, the mycelia colonizes the substrate just to the level of the water. A higher contamination rate by bacteria has also been observed when there is excess moisture. Various reports (Golueke, 1992; Tiquia et al., 1996) state that while moisture content below 30% decreases microbial activity causing microorganisms to become dormant, moisture content above 65% causes oxygen depletion and nutrient loss through leaching.

Hence, a moisture content ranging between 30-40% would be appropriate when cereal grains such as sorghum and millet are being used as substrate for spawn production.

**3. Spawn rate :** Increasing spawning rate shortens mycelial colonization time, primordia formation, and the time to first crop of mushroom (Yang et al., 2013). Yield increases may be due to several factors. First, the increased level of nutrient available in the higher spawn rates would provide more energy for mycelial growth and development. Second, more inoculum points, available from increased spawn levels, would provide faster substrate colonization and thus, more rapid completion of the production cycle. Finally, a more-rapid spawn run would reduce the time non-colonized substrate is exposed to competitors such as weed moulds and bacteria. Use of optimum spawn and supplement rates would lower the cost of production of *Pleurotus* spp. mushrooms and should ultimately lower the cost to consumers. The increased level of nutrient available in spawn at higher rates would provide more energy for mycelial growth and development (Royse et al., 2004).

**4. Substrate :** Mushroom substrate may be defined as a kind of lignocellulosic material which supports the growth, development and fruiting of mushroom (Chang and Miles, 1988). According to them, nutrient content of substrate affects the growth and formation of the substrate affect mycelium growth, mushroom quality and crop yield of this value-added bio-transformation process (Kues and Liu, 2000; Philippoussis et al., 2001, 2003; Baldrian and Valaskova, 2008). Substrate mixture of oyster mushroom should supply specific nutrients required for oyster mushroom cultivation.

Poppe (2000) reported that there are about 200 kinds of waste in which edible mushrooms can be produced. Various agricultural wastes rich in cellulose are being used as substrates for cultivation. Among them, paddy straw is a better substrate for *Pleurotus* cultivation (Sangeetha and Theradimani, 2007; Bano and Shrivastava, 1962; Jandaik and Kapoor, 1974; Khanna and Garcha, 1982). There is an enormous amount of waste in the agro-industry and the wood industry. Only using 25% of the yearly volume of burned cereal straws in the world could result in a mushroom yield of 317 million metric tons (317 billion kg) of fresh mushrooms per year (Chang and Miles, 1989). Among the substrates, saw dust gave the lowest mycelium running rate which might be due to presence of different kinds of polyphenolic substances in them (Wang, 1982) and low content of cellulose (Gohl, 1993). Quimio and



Sardsud (1981) reported similar results, whereby the optimum days to complete mycelium running in spawn bags ranged 21 days to 24 days on different substrates. The appreciable days to complete mycelium running of oyster mushroom on different substrates might be due to variation in their chemical composition and C: N ratio as reported by Zadrazil (1978.)

An ideal substrate should contain enough nitrogen and carbohydrate for rapid mushroom growth (Oei, 1996; Ayodele and Okhuoya, 2007). The low yield on a substrate may result due to carbon to nitrogen imbalance (Oei, 1996).

**5. Substrate size :** Structure and size of substrates allow different materials to be available for microbial degradation (Pandey, 2003). Suitable fragment size of the substrates is also essential factor but without compromising with the optimum air space to be present inside the prepared bags after substrates packaging for a healthier gaseous exchange that may otherwise hamper the mycelia growth and substrate colonization. Small pieces of substrate also facilitate hydration and ensure mycelium colonization. Even the enzymatic action on the substrate depends upon its size which is determined by the physical properties of the materials including the crystalline or amorphous nature, accessible and surface area, porosity and mainly particle size (Knapp and Howell, 1980; Viniegra-González et al., 2003; Rodriguez and Sanroman, 2005). Hence, mechanical separation of any substrate can be useful for cultivation (Zadrazil and Puniya, 1995). The effect of particle size on growth and product formation has been studied by different workers (Roukas, 1994; Reddy et al., 2003).

**6. Pretreatment :** To minimise contamination, substrates normally require varying degrees of pretreatment in order to promote growth of the mushroom mycelia and together with a maximum exclusion of other microorganisms (Chang, 2008; Oseni et al., 2012). Various techniques are used to prepare substrate for the cultivation of *Pleurotus* mushrooms (Gernl et al., 2001; Villa-Cruz et al., 1999). Steam pasteurization has been the standard practice (Stamets and Chilton, 1983). Sterilization is an important step for mushroom cultivation that includes hot water, autoclave, formalin and bavitin treatment techniques (Hussain et al., 2002). However, many researchers contradict to the sterilization methods. Sanchez (2010) reported that substrate used for the oyster mushroom cultivation do not require sterilisation, but only pasteurisation, which is less expensive to diminish the damages produced by different pathogens (bacteria, moulds or insect pests) on mushroom

room development and yield. The disinfection method should destroy only the competitive fungi and not the useful microorganisms. These useful microorganisms do not compete with mushroom mycelia but they disturb the development of competitive microorganisms. Quimio et al. (1990) observed that substrate sterilisation is not ideal since both beneficial and harmful organisms in the substrate are killed. From this point of view, it is better to use for disinfection pasteurization rather than sterilization. Disinfection can be done in different thermal conditions with water at different temperatures, with hot steam or chemicals. However, the temperatures and duration recommended for pasteurization of substrate vary very much. Oseni et al. (2012) recommended pasteurisation of bagasse at 60°C for 3 hours despite its low yield and biological efficiency compared to autoclaving as a viable and promising technique of substrate pre-treatment that can be adopted to produce a good yield of oyster mushroom in most rural areas as where autoclave sterilisation may not be feasible. Similarly, sterilisation of substrates is not an easy job for the cultivation of mushroom and the right sterilisation time and temperature depend on the possible pathogens in a given substrate material (Kwon and Sik Kim, 2004).

Composting has also been successfully applied in the preparation of a substrate selective for *Pleurotus* spp. with 70% biological efficiency (Villa-Cruz et al., 1999). A short 3-5 day fermentation period, depending on environmental temperatures, results in higher biological efficiencies than with a non-fermentative temperatures (Martinez-Carrera et al., 1985). Zadrazil and Kurtzman composted substrate (1982) and Quimio et al. (1990) recommended composting of sawdust to be used as substrate. Composting of sawdust is done by mixing 1% each of urea and CaCO<sub>3</sub>. The mixture is made thoroughly wet with water and then piled up to 1m high. The heap is covered with plastic to avoid loss of water. During composting, the heap is turned every week over a period of 30-40 days. At the end of this period, the sawdust mixture becomes soft without any unpleasant smell. When the sawdust compost is ready, 20% rice bran is added.

Another method of sterilization is the chemical method. Chemical sterilization of substrate has been reported as the most effective method of substrate preparation (Vijay and Sohi, 1987) that not only checks fungal competitor moulds but also provides higher biological efficiency in *Pleurotus* cultivation. Usually in this method, agricultural wastes are chopped into 1-2cm pieces and soaked in water with formalin (100ml/100L water) and bavitin (0.1%)

for 1-2 days. Jain (2005) recommended treatment of chopped straw substrates in water containing 75 ppm bavistin + 500 ppm formaldehyde for 18 hours for preventing mould infestation due to various other competitive fungi. Excess water is then drained and substrates is dried in shed to retain 65-70% moisture content and then allowed to cool down for about 1 hour. Therefore, different researchers have different conclusion for different methods of pretreatment and in each case the average biological efficiency was variable and significantly different among the substrate pre-treatments.

**7. Supplementation :** The growth of *Pleurotus* on lignocellulosic materials depends largely upon Carbon: Nitrogen ratio in the substrate, therefore, addition of nitrogen to depleted substrate may enhance the yield performance of mushroom species (Aziziet al., 1990; Gupta and Vijay, 1991; Estrada et al., 2009). The need for substrate supplementation is to complement the nutrient requirement of the fungi in terms of both organic (Carbon and Nitrogen) and inorganic components. Although, both carbon concentration and C: N ratio in the substrate have significant effect on fungal growth, C : N ratio has been shown to be more influential than carbon concentration (Gao et al., 2007). Supplementation with nitrogen source increases the biomass, productivity and nutritional value of mushrooms as well (Curvetto et al., 2002; Buswell et al., 1995; Shashirekha et al., 2005). Various authors have reported an increase in mushroom yield on supplementation of substrates with protein rich, carbohydrate rich or oil-rich substances like wheat bran, rice bran, maize waste water, soybean meal, cotton seed hull, wheat bran, rice bran, alfalfa meal, bagasse, or corn gluten meal (Lara et al., 2002; Wang et al., 2001; Rodriguez and Royse, 2007; Loss et al., 2009; Moonmoon et al., 2011). A critical point in the preparation of the substrate is the adjustment of nitrogen content, since both the too low or too high level of nitrogen results in decrease productivity of mushroom. The danger of supplementation is the emergence of various moulds (e.g. *Trichoderma* spp., *Penicillium* spp. etc.) on the blocks and later on the fruiting bodies.

Though, supplementation enhance oyster mushroom production, however, the supplement ratio should not be high due to the possibility of yield reduction (Fanadzo et al., 2010), contamination possibility (Yildiz et al., 2002), and increase in the bed temperature, and possibility of mycelium killing (Upadhyay et al., 2002). The supplements or additives supply extra nitrogen and/or easily degradable carbohydrates to increase mushroom yields and hasten the production process (Royse, 2002).

**8. Bagging system :** The cultivation of *Pleurotus* spp. has been tested in different bagging systems like trays, cylindrical containers, wooden or polystyrene racks, blocks and plastic bags (Quimio et al., 1990). Cultivation in plastic bags has been reported to yield more harvest than other types such as pottery, plastic trays, and polyester net with less contamination level (Mandeel et al., 2005; Zadrazil and Kurtzman, 1982). In addition to good pasteurization results, plastic bags are preferable because they retain the relative humidity within the substrate during spawn running time, thus, preventing them from drying as compared to other methods. The internal temperature of the bags are expected to be higher than the ambient ones, thus, increasing the pasteurization level of the substrates, and improving the spawn running, yield, and giving contamination-free media. The bag system is mainly used in Europe and China (Rodriguez and Royse, 2008). Polypropylene or polyethylene bags (0.5-3.0 kg substrate/bag) are used as cultivation containers. The bottle system is used by many growers in Japan, South Korea, and China and in some modern production facilities in the U.S. and Canada. The bottle system is advantageous since it is highly mechanized in addition to the bottles being autoclavable, re-usable, and easy to handle (Rodriguez and Royse, 2005).

**9. Water availability :** Water availability in substrate and surrounding environment plays a major role in the fungal growth. It is equally important factor affecting fruiting body formation (Kuesand Liu, 2000). For mushroom formation, the fungus requires a considerable amount of water, due to the high content of water in mushrooms (Tewari, 1986). Wang et al. (2001) showed an increase in biological efficiency and mycelia extension of *P. ostreatus* with the increase in moisture content of substrate with an optimum level at 70% moisture.

**10. Effect of pore size in substrate bags :** The pore size made in the substrate bags should be made in such a way that it does not affect the moisture level and air exchanges. Tesfaw et al. (2015) studied the effect of pore size in punctured plastic bags on substrate's aeration, contamination and moisture loss. Substrate in plastic bags with pin holes and 16.18 mm<sup>2</sup> holes were well colonized by *P. ostreatus*. However, the yield was lower in bags with 16.18 mm<sup>2</sup>. On plastic bag with 28.16 mm<sup>2</sup> areas around the holes were not colonized and it was contaminated by moulds. He concluded that inability to colonize might be due to great loss of moisture since the hole was large enough.

**11. pH of substrate :** Mushroom mycelia obtain nutrients from substrate at specific level of pH (Sarker et al., 2007). Rapid mycelial growth of mushroom (*Pleurotus sajor-caju*) takes place at pH 6.4-7.8 (Iqbal and Shah, 1989). Lime is used in cultivation of mushroom to enhance the pH of substrate. The treatment with 2% lime showed best results regarding number of days to complete mycelial growth and yield of mushroom (Khan et al., 2004). Too much quantity of lime reduces nutrients uptake ability of fungi and mycelial growth of mushroom. The use of an alkaline medium to reduce competition of microorganisms has been previously suggested (Stolz and Grabbe, 1991), and it was found that an alkaline pH had a greater effect on the mycelial growth of common contaminating deuteromycetes than it did on *P. ostreatus* itself.

**12. Mushroom house :** The house of cropping room is one of the most important factors for determining the quality and yield of mushroom. The most important consideration is keeping eye on preventing possible pests and pathogens and understanding the relation between temperature, humidity and air exchanges. Room conditions including temperature, humidity and air movement are correlated. Providing good conditions for mushroom growing can lead to a higher yield of mushrooms. Temperature (25-35°C) and humidity (70-85%) should be maintained by spraying water twice a day on walls and floor. Water should not be allowed to clogged and remain stagnant, which may later be the breeding place for infestants. Therefore, the floor of mushroom house should be cemented in inclined way so that the frequent watering from the crops is completely let out.

**13. Temperature, Relative humidity and Luminosity :** Temperature and lighting control are an essential part of the process of cultivating mushrooms. Major ecological factors that affect stalk height, stalk diameter and cap size in mushroom are temperature, humidity, fresh air and compact material (AMGA, 2004). Temperature must always be kept near to 25°C during the incubation period with a relative humidity of 85 to 95% and 12 hours of natural or artificial light (250 lux). It is also very important to have some ventilation in the house to achieve good results. Oei (1991) reported that temperatures for mushroom formation varied from 10 to 20°C for *P. ostreatus*, from 18 to 30°C for *P. sajor-caju* and from 15 to 25°C for *P. sapidus*. It was also indicated that *P. ostreatus*, which is called as *Pleurotus* for winter months, grows well at temperatures from 12 to 20°C while *P. sajor-caju* showed rapid growth at 25°C as well as tolerating higher temperatures. Neelam et al. (2013)

indicated that the optimum temperature for mycelium growth of oyster mushroom *P. florida* was 25-30°C. Kashangura (2008) and Choi et al. (2003) demonstrated that the mycelium growth and fruiting formation of oyster mushroom species were affected by temperature and they could grow at high temperature as summer season in tropical regions. Studies on the effect of temperature on days to first harvest in *Pleurotus* species showed that days to first harvest varied from 25 to 80 days depending on temperature (Negi and Gupta, 1995). Okwujiako (2001) investigated influence of light on the vegetative growth and fruit body formation of *P. sajor-caju* and found that light inhibited vegetative growth, but it was necessary for the production of fruiting bodies in vitro, and incubation on rice straw, there was no stimulation effect of light on fruiting body initiation for mycelium less than 5 days old. Datta and Chakraborty (2002) found that darkness favoured the spawn run in *P. sajor-caju* and during fructification phase, 5 lux light for 12 h followed by darkness for 12 h was optimum.

### Conclusion

Mushroom cultivation is one of the most efficient and economically viable biotechnological ways of conversion of lignocellulosic waste materials into high quality protein food and this will naturally open up new job opportunities especially in rural areas. The culture system, in controlled conditions, allows obtaining mushrooms, all year long, with shorter production cycles, larger productivity and better quality of the product. Many researchers have highlighted the effect of strain used in the culture, its spawn quality, spawning rate, type of substrate, type of substrate supplementing materials used, bagging system, substrate size, pore size of substrate bag, aeration, pretreatment given to the substrate for sterilization prior to spawning, pH of substrate and relative humidity, temperature and light inside of cropping room or mushroom house on biomass, productivity and nutritional value of mushrooms.

Different cultivation methods and different factors affecting oyster mushroom cultivation should be given proper attention by the growers and they should adopt a proper cultivation method to help offset the increased risks associated with oyster mushroom production as per their need and at the same time limiting the error. In order to enhance the productivity and reliability of oyster mushroom production, future research should also focus on genetic, nutritional, and pest-limiting factors that influence efficient production.

## Reference

- Ahmad, S. A., Kadam, J. A., Mane, V.P., Patil, S. S. and Baig, M. M. V. (2009). *Biological efficiency and nutritional contents of Pleurotus florida cultivated on different agro-wastes*. Nature and Science 7: 44-48.
- AMGA, (2004). *The Australian Mushroom Growers Association (AMGA)*. Locked Bag 3, 2 Forbes St, Windsor, NSW Australia. p: 2756.
- Ayodele, S. M. and Akpaja, E. O. (2007). *Yield evaluation of Lentinus squarosulus (Mont) Sing. On selected sawdust of economic tree species supplemented with 20% oil palm fruit fibres*. Asian Journal of Plant Science 6: 1098-1102.
- Azizi, K. A., Shamla, T.R. and Sreekantiah, K. R. (1990). *Cultivation of Pleurotus sajor-caju on certain agro-wastes and utilization of the residues for cellulose and D- xylanase production*. Mushroom Journal for the Tropic 10: 21-26.
- Baldrian, P. and Valaskova, V. (2008). *Degradation of cellulose by basidiomycetous fungi*. FEMS Microbiology Reviews 32: 501-521.
- Bano, Z. and Srivastava, H. C. (1962). *Studies in the cultivation of Pleurotus sp. on paddy straw*. Food Science 12: 363-368.
- Bano, Z. and Rajarathanam, S. (1982). *Pleurotus mushrooms as a nutritious food*. In: *Tropical mushrooms - Biological Nature and cultivation methods*, (Eds. Chang S. T. and Quimio, T. H.). The Chinese University Press, Hongkong. pp. 363-382.
- Beetz, A. and Kustidia, M. (2004). *Mushroom Cultivation and Marketing*. ATTRA Publication # IP 087.
- Bhatti, M. A., Mir, F. A. and Siddiq, M. (1987). *Effect of different bedding materials on relative yield of oyster mushroom in the successive flushes*. Pakistan Journal of Agriculture Research 8: 256-259.
- Buswell, J. A., Cai, Y. J. and Chang, S. T. (1995). *Effect of nutrient nitrogen and manganese on manganese-peroxidase and laccase production of Lentinula (Lentinus) edodes*. FEMS Microbiology Letter 128: 81-88.
- Chang, S. T. (1998). *Development of novel agro science industries based on bioconversion technology*. In: Chou, C. H. and Shao, K. T. (Eds). *Frontiers in Biology: The Challenges of Biodiversity*. pp. 217-222.
- Chang, S. T. (2006). *The world mushroom industry: Trends and technological development*. International Journal of Medicinal Mushrooms 8: 297-314.
- Chang, S. T. and Chiu, S. W. (1992). *Mushroom production - An economic measure in maintenance of food security*. In: *Biotechnology: Economic and Social Aspects*. (Eds. DaSilva, E. J., Ratledge, C. and Sasson, A.). Cambridge University Press, New York. pp. 110-141.
- Chang, S.T. and Miles, P. G. (1989). *Edible Mushrooms and their Cultivation, 1st edition*, ERC Press, Boca Raton, Florida USA. p. 345.
- Choi, I. Y., Joung, G. T., Ryu, J., Choi, J. S. and Choi, Y. G. (2003). *Physiological characteristics of green mold (Trichoderma spp.) isolated from oyster mushroom (Pleurotus spp.)*. Mycobiology 31:139-44.
- Cohen, R., Persky, L. and Hadar, Y. (2002). *Biotechnological applications and potential of wood-degrading mushrooms of the genus Pleurotus*. Applied Microbiology and Biotechnology 58: 582-594.
- Curvetto, N. R., Figlas, D., Devalis, R. J. and Delmastro, S. E. (2002). *Growth and productivity of different Pleurotus ostreatus strains on sunflower seed hulls substrate supplemented with N-NH 4+ and/or Mn (II)*. Bioresource Technology 84: 171-176.
- Das, N. and Mukherjee, M. (2007). *Cultivation of Pleurotus ostreatus on weed plants*. Bioresource Technology 98: 2723-2726.
- Datta, S. and Chakraborty, D. K. (2002). *Effect of light on spawn run and fructification of different cultivated mushrooms*. Environment and Ecology 20: 573- 575.
- Elliot, T. J. (1985). *Spawn - making and Spawns*. In: *The Biology and Technology of the Cultivated Mushrooms*, (Eds. Flegg, P. B., Spencer, D. M. and Wood, D. A.). John Wiley and Sons Ltd. pp.131-139.
- Estrada, A. E. R., Jimenez-Gasco, M. D. and Royse, D. J. (2009). *Improvement of yield of Pleurotus eryngii by substrate supplementation and use of a casing overlay*. Bioresource and Biotechnology 100: 5270-5276.
- Fanadzo, M., Zireva, D. T., Dube, E. and Mashingaidze, A. B. (2010). *Evaluation of various substrates and supplements for biological efficiency of Pleurotus sajor-caju and Pleurotus ostreatus*. African Journal of Biotechnology 9: 2756-2761.
- Flegg, P. B., Spencer, D. M. and Wood, D. A. (1985). *The Biology and Technology of the Cultivated Mushroom*. John Wiley and Sons, Dorchester, UK.
- Friel, M. T. and McLoughlin, A. J. (2000). *Production of a liquid inoculum spawn of Agaricus bisporus*. Biotechnology Letters 22:351-354.
- Fritsche, G. (1988). *Spawn: properties and preparation*. In: *The Cultivation of Mushrooms*. (Ed. van Griensven, L. J. L. D.), Darlington Mushroom Laboratories, Sussex. pp. 1-99.
- Gao, L., Sun, M. H., Liu, X. Z. and Che, Y. S. (2007). *Effects of carbon concentration and carbon to nitrogen ratio on the growth and sporulation of several biocontrol fungi*. Mycological Research 111:87-92.
- Geml, J., Labuschagne, P. and Royse, D. J. (2001). *Oyster mushroom production on three continents: An overview of cultivation in Hungary, South Africa and the United States*. Mushroom News 49:4-13.
- Gohl, G. (1993). *Tropical Feeds*. Published by Food and Agriculture Organization of United Nation.

- Golueke, C. G. (1992). *Bacteriology of composting*. Biocycle 33: 55-57.
- Gupta, Y. and Vijay, B. (1991). *Post composting supplementation in Agaricus bisporus under seasonal growing conditions*. 13 th International Congress of ISMS held at Dublin, Ireland.
- Holtz, R. A. and McCulloch, M. (1999). *Process for production of mushroom inoculum*. US Patent 5934012.
- Hussain, M., Khan, S. M., Khan, S. M. and Chohan, M. A. (2002). *Effect of different sterilization methods on the production of oyster mushroom (Pleurotus ostreatus) on different substrates*. In: *Integrated plant disease management*. Proceeding of 3 rd National Conference of Plant Pathology, NARC, Islamabad: 1-3 Oct. 2001, pp. 159-160.
- Iqbal, M. and Shah, A. A. (1989). *Effect of CaCO<sub>3</sub> on substrate of Pleurotus sajor-caju*. Sarhad Journal of Agriculture 5: 359-61.
- Jain, A. K. (2005). *Thesis on Cultivation technology of Pleurotus spp. with special reference to marketing potential in Sagar region*. pp. 65-81.
- Jain, A. K. and Vyas, D. (2003). *Cultivation of three Pleurotus spp. on different substrates*. Journal of Basic and Applied Mycology 2: 88-89.
- Jain, A. K. and Vyas, D. (2005). *Comparative study on the yield of three Pleurotus sp. grown in several lignocelluloses byproducts*. Journal of Basic and Applied Mycology 4: 155-157.
- Jandaik, C. L. (1974). *Artificial cultivation of Pleurotus sajor-caju*. Mushroom Journal 2: 405.
- Kashangura, C. (2008). *Optimisation of the growth conditions and genetic characterisation of Pleurotus species [dissertation]*. Department of Biological Sciences, Faculty of Science, University of Zimbabwe, Harare.
- Khan, N. A., Khan, S. M. and Ashraf, M. (2004). *Bio-Conversion of rice husk into Pleurotus ostreatus*. Pakistan Journal of Phytology 16(1): 9-12.
- Khanna, P. and Garcha, H. S. (1982). *Utilization of paddy straw for cultivation of Pleurotus species*. Mushroom Newsletter for Tropics. 2(1): 5-9.
- Knapp, J. S. and Howell, J. A. (1980). *Solid substrate fermentation*. In: *Topics in enzyme and Fermentation Biotechnology*, vol. 4. Ellis Horwood Ltd., Chichester, England. pp. 85-143.
- Kues, U. and Liu, Y. (2000). *Fruiting body production in basidiomycetes*. Applied Microbiology and Biotechnology 54: 141-152.
- Kumar, S., Seth, P. K. and Munjal, R. L. (1975). *Studies on quantities of gypsum and calcium carbonate singly and in combination of spawn production of Agaricus bisporus*. Indian Journal of Mushroom 1: 27.
- Kwon, H. and Sik Kim, B., (2004). *Mushroom Growers' Handbook: Shiitake Cultivation*, p: 260. Mushroomworld, Korea.

- Lara, M., Arias, A. and Villasenor, L. (2002). *Cultivation of Pleurotus ostreatus and Pleurotus pulmonarius on spent brewer's grain and tequila maguey bagasse*. Mushroom Biology and Mushroom Products. pp. 323-330.
- Loss, E., Royer, A. R., Barreto-Rodrigues, M. and Barana, A. C. (2009). *Use of maize wastewater for the cultivation of the Pleurotus spp. mushroom and optimization of its biological efficiency*. Journal of Hazardous Materials 166: 1522-1525.
- Khan, S. M., Nawaz, A., Malik, W., Javed, N., Yasmin, T., Rehman, M., Qayyum, A., Iqbal, Q., Ahmad, T. and Ali Khan, A. (2011). *Morphological and molecular characterization of Oyster mushroom (Pleurotus spp.)*. African Journal of Mycology and Biotechnology 10: 2638-2643.
- Mandeel, Q. A., Al-Laith, A. A. and Mohamed, S. A. (2005). *Cultivation of oyster mushroom (Pleurotus sp.) on various lignocellulosic wastes*. World Journal of Microbiology and Biotechnology 21: 601-607.
- Martnez-Carrera, D., Guzman, G. and Soto, C. (1985). *The effect of fermentation of coffee pulp in the cultivation of Pleurotus ostreatus in Mexico*. Mushroom Newsletter for the Tropics 6: 21-28.
- Moonmoon, M., Shelly, N. J., Khan, M. A., Uddin, M. N., Hossain, K., Tania, M. and Ahmed, S. (2011). *Effects of different levels of wheat bran, rice bran and maize powder supplementation with saw dust on the production of shiitake mushroom (Lentinus edodes (Berk.) Singer)*. Saudi Journal of Biological Sciences 18: 323-332.
- Morais, H., Ramos, C., Matos, N., Forgacs, E., Cserhati, T., Almeida, V., Oliveria, J., Darwish, Y. and Illes, Z. (2002). *Liquid Chromatographic and electrophoretic characterization of extracellular-glucosidase of Pleurotus ostreatus grown in organic waste*. Journal of chromatography 770: 111-119.
- Munjal, R. L. (1973). *Production of quality spawn of Agaricus bisporus and Volvariella spp.* Indian Mushroom Journal 1: 1-4.
- Muthukrishnan, N., Venugopal, M. S. and Janarthanan, R. (2000). *Recycling spent larval food of Corcyra cephalonica Stainton for preparing spawn and sporophore of Pleurotus sajor-caju (Fr.) Singer*. World Journal of Microbiology and Biotechnology 16: 265-270.
- Neelam, S., Chennupati, S. and Singh, S. (2013). *Comparative studies on growth parameters and physio-chemical analysis of Pleurotus ostreatus and Pleurotus florida*. Asian Journal of Plant Science and Research 3: 163-169.
- Negi, P. S. and Gupta, R. C. (1995). *Cannabis sativa (Bhang) leaves a suitable substrate to cultivate Pleurotus sajor-caju*. Indian Journal of Mycology and Plant Pathology 25: 304-305.
- Oei, P. (1991). *Cultivation on fer-*



- mented substrate. Manual on mushroom cultivation. Tool Publications. 249, Netherlands.
- Oei, P. (1996). *Mushroom cultivation with special emphasis on appropriate techniques for developing countries*, 2nd edition, Backhuys, Amsterdam, The Netherlands. pp. 111-122.
- Okwujako, A. (2001). *Influence of light on the vegetative growth and fruit body formation of Pleurotus sajor-caju (Fr.) Singer*. Global Journal of Pure and Applied Science 7: 235-240.
- Oseni, T. O., Dlamini, S. O., Earnshaw, D. M. and Masarirambi, M. T. (2012). *Effect of substrate pre-treatment methods on oyster mushroom (Pleurotus ostreatus) production*. International Journal of Agriculture and Biology 14: 251-255.
- Pandey, A. (2003). Solid-State Fermentation. Biochemistry Engineering Journal 13: 81-84.
- Philippoussis, A., Diamantopoulou, P. and Zervakis, G. (2003). *Correlation of the properties of several lignocellulosic substrates to the crop performance of the shiitake mushroom Lentinula edodes*. World Journal Microbiology and Biotechnology 19: 551-557.
- Philippoussis, A., Zervakis, G. and Diamantopoulou, P. (2001). *Bioconversion of lignocellulosic wastes through the cultivation of the edible mushrooms Agrocybeaegerita, Volvariella volvacea and Pleurotus spp.* World Journal Microbiology and Biotechnology 17: 191-200.
- Poppe, J. (2000). *Use of the agricultural waste materials in the cultivation of mushrooms*. Mushroom Science 15: 3-23.
- Quimio, J. H. (1978). *Introducing Pleurotus flabellatus for your dinner table*. Mushroom Journal 68: 282-283.
- Quimio, T. H. and Sardud, U. (1981). *Nutritional requirements of Pleurotus ostreatus (Fr.)*. Philippine Agriculturist 64(1): 79-89.
- Quimio, T. H. (1980). *Survey and culture of edible ones*, In: *Cultivation of edible mushroom in tropics*, UNESCO, Regional workshop, Manila.
- Quimio, T. H., Chang, S. T. and Royse, D. J. (1990). *Technical Guidelines for Mushroom Growing in the Tropics*, FAO, Plant Production and Protection paper No 106. Rome, Italy 154.
- Rani, P., Kalyani, N. and Prathiba, K. (2008). *Evaluation of lignocellulosic wastes for production of edible mushrooms*. Applied Biochemistry and Biotechnology 151: 151-159.
- Reddy, G. V., RavindraBabu, P., Komaraiah, P., Roy, K. R. R. M. and Kothari, I. L. (2003). *Utilization of banana waste for the production of lignolytic and cellulolytic enzymes by solid substrate fermentation using two Pleurotus species (P. Ostreatus and P. sajor-caju)*. Process Biochemistry 38: 1457-1462.
- Rodriguez, A. E. and Royse, D. J. (2005). *Cultivation of Pleurotus eryngii in bottles*. Mushroom News 53: 10-19.

- Rodriguez, A. E. and Royse, D. J. (2007). *Yield, size and bacterial blotch resistance of Pleurotus eryngii grown on cottonseed hulls/oak sawdust supplemented with manganese, copper and whole ground soybean*. Bioresource Technology 98: 1898-1906.
- Rodriguez, A. E. and Royse, D. J. (2008). *Pleurotus eryngii and Pleurotus nebrodensis from the wild to the commercial production*. Mushroom News 56: 4-11.
- Rodriguez, C. S. and Sanroman, M. A. (2005). *Application of solid-state fermentation to ligninolytic enzyme production*. Biochemical Engineering Journal 22: 211-219.
- Roukas, T. (1994). *Solid-state fermentation of carob pods for ethanol production*. Applied Microbiology Technology 41: 296-301.
- Royse, D. J. (2002). *Influence of spawn rate and commercial delayed release nutrient levels on Pleurotus cornucopiae (oyster mushroom) yield, size and time of production*. Applied Microbiology and Biotechnology 58: 527-531.
- Royse, D. J., Rhodes, T. W., Ohga, S. and Sanchez, J. E. (2004). *Yield, mushroom size and time to production of Pleurotus cornucopiae (oyster mushroom) grown on switch grass substrate spawned and supplemented at various rates*. Bioresource Technology 91: 85-91.
- Royse, D. J. (2003). *Cultivation of oyster mushrooms*. College of Agricultural Sciences, Agricultural Research and Cooperative Extension. The Pennsylvania State University, University Park, Pennsylvania. pp. 1-11.
- Royse, D. J. (2014). *A global perspective on the high five: Agaricus, Pleurotus, Lentinula, Auricularia and Flammulina*. In: Proceedings of the 8th ICMBP, 2014, New Delhi.
- Sanchez, C. (2010). *Cultivation of Pleurotus ostreatus and other edible mushrooms*. Applied Microbiology and Biotechnology 85: 1321-1337.
- Sangeetha, A. and Theradimani, M. (2007). *Evaluation of different plant waste for the cultivation of different plant wastes for the cultivation of Oyster Mushroom (Pleurotus citrinopileatus)*. Mushroom Research 16: 9-11.
- Sarker, N. C., Hossain, M. M., Sultana, N., Mian, H. and Amin, S. R. (2007). *Performance of different substrates on the growth and yield of Pleurotus ostreatus (Jacquin ex Fr.) Kummer*. Bangladesh Journal of Mushroom 1 (2): 9-20.
- Shashirekha, M. N., Rajarathnam, S. and Bano, Z. (2005). *Effects of supplementing rice straw growth substrate with cotton seed on the analytical characteristics of the mushroom, Pleurotus florida (Block & Tsao)*. Food Chemistry 92: 255-259.
- Somashekar, R., Reddy, R. and Vedamurthy, A. B. (2010). *Cultivation of Oyster mushroom (Pleurotus florida) on paddy straw by delayed spawn inoculation*. The Bioscan 5: 167-168.

- Stamets, P. (1993). *Cultivation of Morels mushroom*. *Journal of Wild Mushrooming* 11: 9-15.
- Stamets, P. and Chilton, J. S. (1983). *The Mushroom Cultivator: A practical guide to growing mushrooms at home*. Agarikon Press, Olympia, Washington.
- Stoller, B. B. (1962). *Some practical aspects of making mushroom spawn*. *Mushroom Science* 5:170-184.
- Stolzner, S. and Grabbe, K. (1991). *Mechanisms of substrate selectivity in the cultivation of edible fungi*. In: Maher, M. J. (Ed.) *Mushroom Science* 13. *Science and Cultivation of Edible Fungi*. Balkema, Rotterdam, pp. 141-146.
- Tesfaw, A., Tadesse, A. and Kiros, G. (2015). *Optimization of oyster (Pleurotus ostreatus) mushroom cultivation using locally available substrates and materials in Debre Berhan, Ethiopia*. *Journal of Applied Biology and Biotechnology* 3 (1): 15-20.
- Tewari, R. P. (1986). *Mushroom cultivation*. *Extension Bulletin*. Indian Institute of Horticulture Research. Bangalore. India. 8: 36.
- Tiquia, S. M., Tam, N. F. Y. and Hodgkiss, I. J. (1996). *Microbial activities during composting of spent pig-manure sawdust litter at different moisture contents*. *Bioresource Technology* 55: 201-206.
- Upadhyay, R. C., Verma, R. N., Singh, S. K. and Yadav, M. C. (2002). *Effect of organic nitrogen supplementation in Pleurotus spp.* In: Sanchez, J. E., Huerta, G., Martiel, E. (Eds.). *Mushroom Biology and Mushroom products*. Impresos Jupiter, Cuernavaca. pp. 225-232.
- Upadhyay, R. C. (2011). *Economics of oyster mushroom cultivation*. In: Manjit, S., Vijay, B., Kamal, S., and Wakchaure, G. C. (Eds.), *Mushrooms cultivation, marketing and consumption*. Indian Council of Agricultural Research. pp.139-144.
- Vijay, B. and Sohi, H. S. (1987). *Cultivation of oyster mushroom Pleurotus sajor-caju on chemically sterilized wheat straw*. *Mushroom Journal of Tropics* 7:65-75.
- Villa-Cruz, V., Huerta-Palacios, G. and Sanchez-Vazquez, J. E. (1999). *Fermentation of a mixture of corn-cobs and coffee pulp for the cultivation of Pleurotus ostreatus*. *Micologia Neotropical Aplicada* 12: 67-74.
- Viniegra-Gonzalez, G., Favela-Torres, E., Aguilar, C. N., Romero-Gomez, S., Diaz-Godinez, G. and Augur, C. (2003). *Advantages of fungal enzyme production in solid state over liquid fermentation systems*. *Biotechnology Engineering Journal* 13: 157-167.
- Wang, C. W. (1982). *Cellulolytic enzymes of Volvariella volvacea*. In: Chang, S. T. and Quimio, T. H. (Eds.). *Tropical Mushrooms, Biological Nature and Cultivation Methods*. The Chinese University Press. Hong Kong. pp. 493.

- Wang, D., Sakoda, A. and Suzuki, M. (2001). *Biological efficiency and nutritional value of Pleurotus ostreatus cultivated on spent beer grain*. *Bioresource Technology* 78:293-300.
- Wasser, S. P. (2002). *Medicinal mushrooms as a source of antitumour and immune stimulating polysaccharides*. *Applied Microbiology and Biotechnology* 60: 258-274.
- Yang, W., Guo, F. and Wan, Z. (2013). *Yield and size of oyster mushroom grown on rice/wheat straw basal substrate supplemented with cotton seed hull*. *Saudi Journal of Biological Science* 20: 333-338.
- Yildiz, S., Yildiz, U. C., Gezer, E. D. and Temiz, A. (2002). *Some lignocellulosic wastes used as raw material in cultivation of the Pleurotus ostreatus culture mushroom*. *Process Biochemistry* 38: 301-306.
- Zadrazil, F. (1978). *Cultivation of Pleurotus*. In: Chang, S. T. and Hayes, W. A. (Eds.). *Biology and cultivation of edible mushrooms*. Academic Press, New York. pp. 521-527.
- Zadrazil, F. and Kurtzman, J. R. (1982). *The Biology of Pleurotus cultivation in the tropics*. In: Chang, S. T. and Quimio, T. H. (Eds.). *Tropical Mushrooms, Biological Nature and Cultivation Methods*. The Chinese University Press. Hong Kong. pp. 493.
- Zadrazil, F. and Puniya, A. K. (1995). *Studies on the effect of particle size on solid-state fermentation of sugarcane bagasse into animal feed using white-rot fungi*. *Bioresource technology* 54: 85-87.

\*\*\*

Hence, micro enterprises is separately defined under the act and this separate identification of micro enterprises is a measure that will help in planning policies which are most specific and significant to their development and growth. Since, the present study is about micro enterprises in MSME sector after MEME Act, the study therefore involves examining the growth rate of micro enterprises in Arunachal Pradesh. This will help in indicating whether the growth rate of micro entrepreneurship in Arunachal Pradesh is up to satisfactory level or not. Higher growth rate of micro enterprises generally mean more local participation, a better regional transformation and effective contribution towards economic development.

### Micro Enterprises in Arunachal Pradesh

Arunachal Pradesh is located at the extreme North Eastern tip of India. The state enjoys abundant of natural resources and favourable climatic condition for industrial production. In addition, because of agriculture dominated economy and evergreen forestry, the state can be a hotspot for entrepreneurial process. However, despite of these valuable resources Arunachal Pradesh still remain industrially backward region. The most of the resources remain idle without proper utilisation. The resources like hydropower, tourism, biodiversity, etc. are also not properly promoted. The economy of Arunachal Pradesh is still dominated by agriculture in most of the districts. There were hardly promotional measures for entrepreneurship development in the state as industrialisation started very lately in the state. In recent time period, some enterprises were found to emerge in the state. These enterprises started engaging themselves in various kinds of manufacturing and service activities. Today micro enterprises of Arunachal Pradesh are not just about cane and bamboo, or wool and knitting. Now time has change, socio-economic attitude is also changing and with it there is change in economic activity. Micro enterprises are not confined to traditional sector only rather they have started venturing in to other non-traditional sectors as well. This changing pattern of micro enterprises is reflected by many contemporary studies which is also apparent in case of Arunachal Pradesh.

### Review of Literature

Sukamal Deb (2013) conducted a study on "Traditional Industries: It's Impact in Socio-Economic Development of Monpa in Arunachal Pradesh," with an object to explore the present scenario of traditional and village industries and their impact on the socio economic development of Tawang and West

Kameng district of Arunachal Pradesh. The study found that there is an ample scope of entrepreneurship in the district as most of the people of the study area are engaged in certain kind of artisan activity.

Anamika Singh and R.K Singh (2008) made a study on the "Gekong-Galonng- traditional weaving technology of Adi Tribes of Arunachal Pradesh" and found that the wisdom of Adi women in weaving and conservation of cultural diversity attached with traditional livelihood. The study found that there is an ample scope and potential of weaving and handicrafts technology in Arunachal Pradesh as well as in North-eastern region.

O. Moyong (2007) studied on "Role of DICs for the Development of SSI in East, West and Upper Siang District of Arunachal Pradesh" had depicted that development of SSIs in the state is much below the desired level in comparison to other states of the country. Similarly, D. Chobin (2002) in his study "Problems and Prospects of Industrial Development in Arunachal Pradesh: A Case Study of Lower Subansiri and Papumpare District" found out that in spite of government support the local industries did not grow to a large scale.

M. C. Behera and H. Mantaw's (1998) studied on "Growth of Entrepreneurship in Arunachal Pradesh- Problems and Prospects: A study with reference to Khamti Tribe" was aimed at identifying entrepreneurship development among the Khamti community of Lohit district of Arunachal Pradesh. Their main finding was that the entrepreneurial activities among the Khamtis are confined in few families.

### Objectives of the Study

To find out the growth rate of micro enterprises in Arunachal Pradesh after MSME Act, 2006.

To find out the preference sector of micro enterprises in Arunachal Pradesh after MSME Act, 2006.

### Hypothesis of the Study

H0: There is no significant year wise difference between the growth rate of micro enterprise in Arunachal Pradesh after enactment of MSME act 2006.

### Methodology

The study is analytical in nature and is based on secondary data. The data of micro enterprises after MSME Act, 2006 were collected from Director-

ate of Industries, Govt. of Arunachal Pradesh, Itanagar. Since, the study is about micro enterprises of Arunachal Pradesh, the micro enterprises registered under DICs of the state are taken up. Though there are various aspects underlying to the micro enterprises, the study is concentrated on the growth rate and preference sector (manufacturing or service) of micro enterprises in Arunachal Pradesh over a period of time.

### Period of the Study

Micro enterprises which are registered from 2008 to 2013 are taken for the study. Further, the study was conducted in the month of September 2014.

### Tools of Analysis

The data obtained are analysed and interpreted with the help of growth rate method. The respective formulas of the statistical tools that are used for interpretation of the data are presented in a tabular form.

| Method      | Formula   |
|-------------|---|
| Growth Rate | $\text{Year wise Growth Rate :}$ $= \frac{\text{Current Year Enterprise} - \text{Previous Year Enterprises}}{\text{Previous Year Enterprises}} \times 100$  |
|             | $\text{Average Annual Growth Rate :}$ $= \frac{\frac{\text{No. of enterprises at the current year} - \text{No. of enterprises at the beginning year}}{\text{No. of enterprises at the beginning year}}}{\text{Number of Years}} \times 100$ |

### Findings & Analysis

For the study micro enterprises registered under respective DICs of each districts of Arunachal Pradesh are taken up and their growth rates and preference sectors (manufacturing or service) are examined.

Table 1 and 2 of the study represents the growth rate and preference sectors (manufacturing or service) of micro enterprises of Arunachal Pradesh.

It is found from table 1 that the highest growth rate of micro enterprises in Arunachal Pradesh is in the year 2009-10. The state had shown very less growth rate since the enactment of MSME Act, 2006 and year 2011-12 has been recorded as the year with lowest growth rate. The latest record of micro enterprises shows slight increase in the number of micro enterprises in the state.

It is also found from table 2 that the micro enterprises of Arunachal Pradesh are involved in manufacturing sector than service sector. Manufacturing sector occupies 92.49 percent while services sector occupies 7.51 percent of the total micro enterprises of Arunachal Pradesh. This shows that micro enterprises of the region are engaged in manufacturing of different kinds of products.

Hence, from table 1 and 2 it is found that after MSME Act, 2006 the number of micro enterprises keeps on declining every year except for the year 2012-13 which shows an increase in the number of micro enterprises for the first time in the state after MSME Act. And those micro enterprises are engaged more in manufacturing sector.

**Table 1 : Growth rate of Micro Enterprises in Arunachal Pradesh**

| Parameters               | Year    |         |         |         |         | Total |
|--------------------------|---------|---------|---------|---------|---------|-------|
|                          | 2008-09 | 2009-10 | 2010-11 | 2011-12 | 2012-13 |       |
| No. of Micro Enterprises | 92      | 59      | 34      | 10      | 18      | 213   |
| Cumulative Nos.          | 92      | 151     | 185     | 195     | 213     |       |
| Growth Rate (%)          | --      | 64.13   | 22.51   | 5.41    | 9.23    |       |

Source : Directorate of Industries, Govt. of Arunachal Pradesh, Itanagar.

**Table 2 : Preference Sector (manufacturing or service) of micro enterprises in Arunachal Pradesh**

| Year           | Manufacturing | Service | Total  |
|----------------|---------------|---------|--------|
| 2008 - 09      | 85            | 7       | 92     |
| 2009 - 10      | 56            | 3       | 59     |
| 2010 - 11      | 31            | 3       | 34     |
| 2011 - 12      | 8             | 2       | 10     |
| 2012 - 13      | 17            | 1       | 18     |
| Total          | 197           | 16      | 213    |
| Percentage (%) | 92.49         | 7.51    | 100.00 |



Source : Directorate of Industries, Govt. of Arunachal Pradesh, Itanagar.

### Hypothesis Testing

Table 3 shows that the year wise growth of number of micro enterprises in the state. However, for the purpose of testing the hypothesis whether growth rate is same in all the districts of Arunachal Pradesh, a comparative statement about their annual growth rate is presented in table 4.

**Table 3 : District wise distribution of Micro enterprises in Arunachal Pradesh**

| Districts           | Year      |           |           |           |           | Total      |
|---------------------|-----------|-----------|-----------|-----------|-----------|------------|
|                     | 2008-09   | 2009-10   | 2010-11   | 2011-12   | 2012-13   |            |
| Anjaw               | 0         | 0         | 0         | 0         | 0         | 0          |
| Longding            | 0         | 0         | 0         | 0         | 0         | 0          |
| Changlang           | 3         | 3         | 0         | 1         | 3         | 10         |
| Dibang Valley       | 0         | 0         | 0         | 0         | 0         | 0          |
| East Kameng         | 0         | 0         | 0         | 0         | 0         | 0          |
| East Siang          | 5         | 14        | 4         | 2         | 2         | 27         |
| KurungKumey         | 4         | 0         | 1         | 0         | 0         | 5          |
| West Kameng         | 9         | 3         | 2         | 1         | 1         | 16         |
| West Siang          | 0         | 0         | 0         | 0         | 0         | 0          |
| Lohit               | 30        | 15        | 19        | 0         | 3         | 67         |
| Lower Dibang Valley | 3         | 4         | 0         | 0         | 0         | 7          |
| Lower Subansiri     | 6         | 4         | 3         | 0         | 1         | 14         |
| Upper Subansiri     | 2         | 2         | 5         | 2         | 2         | 13         |
| Upper Siang         | 5         | 0         | 0         | 0         | 0         | 5          |
| Papumpare           | 15        | 14        | 0         | 3         | 5         | 37         |
| Tawang              | 8         | 0         | 0         | 0         | 1         | 9          |
| Tirap               | 2         | 0         | 0         | 1         | 0         | 3          |
| <b>Total</b>        | <b>92</b> | <b>59</b> | <b>34</b> | <b>10</b> | <b>18</b> | <b>213</b> |

Source : Directorate of Industries, Govt. of Arunachal Pradesh, Itanagar.

**Table 4 : District-wise comparative presentation of average annual growth rate of micro enterprises in Arunachal Pradesh.**

| Districts           | Cumulative No. of Micro Enterprises |            |            |            |            | Average Annual Growth Rate (%)* |
|---------------------|-------------------------------------|------------|------------|------------|------------|---------------------------------|
|                     | 2008-09                             | 2009-10    | 2010-11    | 2011-12    | 2012-13    |                                 |
| Anjaw               | 0                                   | 0          | 0          | 0          | 0          | 0.00                            |
| Longding            | 0                                   | 0          | 0          | 0          | 0          | 0.00                            |
| Changlang           | 3                                   | 6          | 6          | 7          | 10         | 46.67                           |
| Dibang Valley       | 0                                   | 0          | 0          | 0          | 0          | 0.00                            |
| East Kameng         | 0                                   | 0          | 0          | 0          | 0          | 0.00                            |
| East Siang          | 5                                   | 19         | 23         | 25         | 27         | 88.00                           |
| KurungKumey         | 4                                   | 4          | 5          | 5          | 5          | 5.00                            |
| West Kameng         | 9                                   | 12         | 14         | 15         | 16         | 15.55                           |
| West Siang          | 0                                   | 0          | 0          | 0          | 0          | 0.00                            |
| Lohit               | 30                                  | 45         | 64         | 64         | 67         | 24.67                           |
| Lower Dibang Valley | 3                                   | 7          | 7          | 7          | 7          | 26.67                           |
| Lower Subansiri     | 6                                   | 10         | 13         | 13         | 14         | 26.67                           |
| Upper Subansiri     | 2                                   | 4          | 9          | 11         | 13         | 110.00                          |
| Upper Siang         | 5                                   | 5          | 5          | 5          | 5          | 0.00                            |
| Papumpare           | 15                                  | 29         | 29         | 32         | 37         | 29.33                           |
| Tawang              | 8                                   | 8          | 8          | 8          | 9          | 2.50                            |
| Tirap               | 2                                   | 2          | 2          | 3          | 3          | 10.00                           |
| <b>Total</b>        | <b>92</b>                           | <b>151</b> | <b>185</b> | <b>195</b> | <b>213</b> | <b>213</b>                      |

\* 2008-09 as a base year

Source: Directorate of Industries, Govt. of Arunachal Pradesh, Itanagar.

From table 4 it can be seen that the average annual growth rate of micro enterprises in various districts varies from one another. However, annual growth rate of lower Subansiri and Lower Dibang Valley is similar. Since, most of the districts of Arunachal Pradesh are having different average annual growth rate of micro enterprises, hence the null hypothesis is rejected. Therefore, it can be concluded that there is year wise difference in the growth rate of micro enterprises in the different district of Arunachal Pradesh.

## Conclusion

Micro enterprises are crucial to removal of regional disparity and bringing equitable economic growth. Mostly micro enterprises deal with the local resources including human resources and operate effectively facing the constraints within regional boundaries. Micro enterprises in fact are a significant tool in case of geographically disadvantageous and industrially backward regions.

From the present study it can be seen that there are significant difference in the growth of micro enterprises in different districts of Arunachal Pradesh. There is high concentration of micro enterprises in Lohit district, although the district is having 24.67 percent of growth rate just after enactment of MSME Act, 2006. The latest record shows very less growth of micro enterprises in the state. It can also be seen that the majority of micro enterprises in the region prefers to be engaged in manufacturing of products rather than providing services.

Thus, it can be concluded from the study that micro enterprises of Arunachal Pradesh are mostly engaged in manufacturing of different kinds of products and are showing negligible growth recently.

## Limitations of the Study:

Though there are a number of parameters that can be studied under micro enterprises, the study is limited to finding out the growth rate of micro enterprises in Arunachal Pradesh.

## Reference

- Behera, M.C. & Mantaw, H. (1998). Growth of Entrepreneurship in Arunachal Pradesh- Problems and Prospects: A study with reference to Khamti Tribe In Dutta Ray B. & Baishya P. (Ed.). *Sociological Constraints to Industrial Development in North East India*. Concept Publishing Company, New Delhi.
- Chobin, D. (2002). *Problems and Prospects of Industrial Development in Arunachal Pradesh : A Case Study of Lower Subansiri and Papumpare District Ph. Dthesis submitted to Department of Economics*. Arunachal University, Itanagar (Unpublished).
- Kumar, N.B.K & Sardar, G. (2012). Micro, Small and Medium Enterprises in the 21st Century. *Zenith International Journal of Business Economics & Management Research*. Vol. 2 (5): 23-38.
- Moyong, O. (2007). *Role of DICs for the Development of SSI in East, West*

- and Upper Siang District of Arunachal Pradesh* - Department of Commerce, Rajiv Gandhi University, Itanagar (Unpublished).
- Paramasivan, C. & Selvan, M.P. (2013). Progress and Performance of Micro, Small and Medium Enterprises in India - *International Journal of Management and Development Studies*. Vol. 2 (4): 11-16.
- Das, Rinku & Ashim Kumar Das. (2011). Industrial Cluster: An Approach for Rural Development in North East India. *International Journal of Trade, Economics and Finance*. Vol. 2 (2): 161-165.
- Roy, Amith. (2013). Micro-finance and its inter-state disparities in North-East India. *The Echo*, Vol. 1 (4): 77-92.
- Statistical Abstract of Arunachal Pradesh*. (2012). Directorate of Economics & Statistics. Govt. of Arunachal Pradesh, Itanagar.
- Subramanyam, P. & Reddy B. R. (2012). Micro, Small and Medium Enterprises in India-An Overview. *VSRD International Journal of Business and Management Research*. Vol. 2 (1): 532-539.
- Deb, Sukamal. (2013). Traditional Industries: It's Impact in Socio-Economic Development of Monpa in Arunachal Pradesh. *Journal of Global Economy*. Vol. 9 (4): 263-274.
- Singh, A. & Singh, R. K. (2008). Gekong-Galonng- Traditional Weaving Technology of Adi Tribes of Arunachal Pradesh. *Indian Journal of Traditional Knowledge*. Vol. 7(1): 87-92.
- 4th Census MSMEs. (2011). *Final Report : Fourth All India Census of Micro Small and Medium Enterprises*. New Delhi: Development Commissioner, MSME.
- Websites :-**  
[www.databank.nedfi.com/content/arunachal.....](http://www.databank.nedfi.com/content/arunachal.....) accessed on 17-05-2014, 08:40  
[www.mdoner.gov.in/.../arunachal\\_pradesh...](http://www.mdoner.gov.in/.../arunachal_pradesh...) accessed on 17-05-2014, 08:15  
 \*\*\*

## Trends in Women Work Participation Rate in Arunachal Pradesh : A District Level Analysis

D. B. Gurung

Received on 28 May 2015

Accepted on 21 August 2015

### Abstract

*Evidence from NSS study reveals a decline in female work participation in India. Due to rapid changes in the economy over the period of time it is difficult to explain the declining trend in the female WPR. The present study aims at investigating district level women's work participation in Arunachal Pradesh based on data from various population census. Over the various census periods the State has witnessed a decline in WPR and a wide gap between the works participation rate of males and females.*

**Key Words :** Work participation Rate and Women's Work

### 1. Introduction

The contribution of women's work in the economy in one form or other is inevitable. Most of the work performed by them are either not accounted or documented in official statistics. Being a developing country, Indian economy is agrarian in nature, as more than 70% of the population are engaged in this occupation. Rural women have been intensively involved in agriculture and its allied fields. They are the backbone of the agricultural workforce, but worldwide their hard work has mostly been unpaid. They perform numerous labour intensive jobs such as weeding, hoeing, grass cutting, picking and also collect woods from jungles which are being used as a major source of fuel for cooking, therefore in their own way contributing to the household

<sup>[1]</sup> Department of Economics, Rajiv Gandhi University, Arunachal Pradesh.

food security. Additionally, women are traditionally responsible for the daily household chores (e.g., cooking, fetching water, and looking after children).

Women's work participation in different economic activities is very low as compared to that of their male counterpart. They face various types of discrimination in various fields, including education and consequently land up in low paying job. Growth of rural non-farm sector in rural areas has affected women workers in an indirect way. Though the percentage of women is higher than that of men in employer, helper and casual labour category in agriculture sector, this pattern is altered in non-agriculture sector. The percentage is higher in own account worker and casual labour category, which implies that the growth of rural non-farm sector has not benefitted women as much as men (Singh and Mishra, 2013).

A study based on NSS data for the last 25 years found that, India has the lowest Labour force participation rate of women in the world more particularly the urban women. Due to poverty in the rural areas, the participation of women in LFPR in rural areas is higher than the urban areas. Further education also plays an important role, which adds 0.6 percent points to participation rate (Bhalla and Kaur). Women participation in labour force decreased after 1994 and the disparity between male and female also widened, followed by an improvement in 2004-05. In rural India the participation of women in workforce is high compared to that of urban areas due to low involvement in attending the schooling and high demand of women labour in the agriculture sector. Further it is also observed that there is high participation of women in workforce among the Schedule Caste and Schedule tribe and other low caste category people. On the other hand, women from well-off family and upper classes involve themselves in unpaid or domestic work at the home front (Kumari and Pandey, 2012).

Mahapatro (Mahapatro, 2013) in his study emphasises that a declining trend of women participation in workforce found that negative impact of recent economic changes and changing pattern of employment limited the opportunities for women in the labour market. Further, technological changes have also played an important role to restrict the poorly educated women and job creation in the formal sector, lags far behind, the rise of labour participation of new entrant in the market. Even lack of social and economic development of the region has also had a negative impact on female work participation.

In the Northeast region, agriculture continues to occupy a predominant place in the livelihood option of majority of the people and a very high percentage of its working population is engaged in agriculture. The topography of the region is such that more than 70% of total geographical area is covered by hills. Except for the small river valleys, shifting cultivation (known as Jhum in North-East India) is the common practice of agricultural production in these hills.

In Northeast India Female Work participation rate is high compared to the rest of India. The region is hilly, except in few pockets of Assam and Tripura, and it is inhabited predominately by tribal population. Except for the state of Assam, Manipur and Tripura, the FWPR in NER states are higher than all India average and they also have low levels of gender disparities in terms of work participation. High FWPR can be explained partially by the fact that community-based organisations of subsistence production require a high level of women's labour (Das, 2013).

## II. Data Source and Methods

The study is based on the secondary data mainly from the various reports of the Census, as well as reports from Statistical Profile on Women Labour and Labour Bureau Ministry of labour & Employment, Government of India. The paper is organised in the following way, section I deals with Introduction, followed by the data source, section III highlights the trends in work participation rate in India during the various census periods, while section IV deals with the female work participation in the northeast region, followed by the work participation rate in Arunachal Pradesh, finally conclusion has been placed in the last section.

## III. Trends in Work Participation Rate in India: An Analysis

The trends in Work Participation (WPR) in India from the census report of 1971 to 2011 is shown in the table 1

**Table 1 : Work participation rate by sex in India (1971-2011)**

| Year | Total/Urban/Rural | Persons | Male  | Female |
|------|-------------------|---------|-------|--------|
| 1    | 2                 | 3       | 4     | 5      |
| 1971 | Total             | 33.08   | 52.61 | 12.11  |
|      | Rural             | 34.03   | 53.62 | 13.42  |
|      | Urban             | 29.34   | 48.82 | 6.68   |

| Year | Total/Urban/Rural | Persons | Male  | Female |
|------|-------------------|---------|-------|--------|
| 1    | 2                 | 3       | 4     | 5      |
| 1981 | Total             | 36.70   | 52.62 | 19.67  |
|      | Rural             | 38.79   | 53.77 | 23.06  |
|      | Urban             | 29.99   | 49.06 | 8.31   |
| 1991 | Total             | 37.50   | 51.61 | 22.27  |
|      | Rural             | 40.09   | 52.58 | 26.79  |
|      | Urban             | 30.16   | 48.92 | 9.19   |
| 2001 | Total             | 39.10   | 51.68 | 25.63  |
|      | Rural             | 41.75   | 52.11 | 30.79  |
|      | Urban             | 32.25   | 50.60 | 11.88  |
| 2011 | Total             | 39.80   | 53.30 | 25.50  |
|      | Rural             | 41.8    | 53.0  | 30.0   |
|      | Urban             | 35.3    | 53.8  | 15.4   |

Source : Statistical Profile on Women Labour of various years; Labour Bureau Ministry of Labour & Employment, Government of India, Chandigarh/Shimla

The above table clearly shows the work participation rate (WPR) for the various years across location and sex in India. Female Work Participation Rate (FWPR) is less than 15% during the 1971 census, whereas that of Male Work Participation Rate (MWPR) is more than 50%. By comparing the WPR on the basis of location, we observe that the rural female WPR is just double of the urban female WPR, which implies that in rural areas agriculture is the main occupation and females are contributing much more in this sector. In case of male both in rural and urban areas, the data reveals that their WPR is high in comparison to female during the same time period.

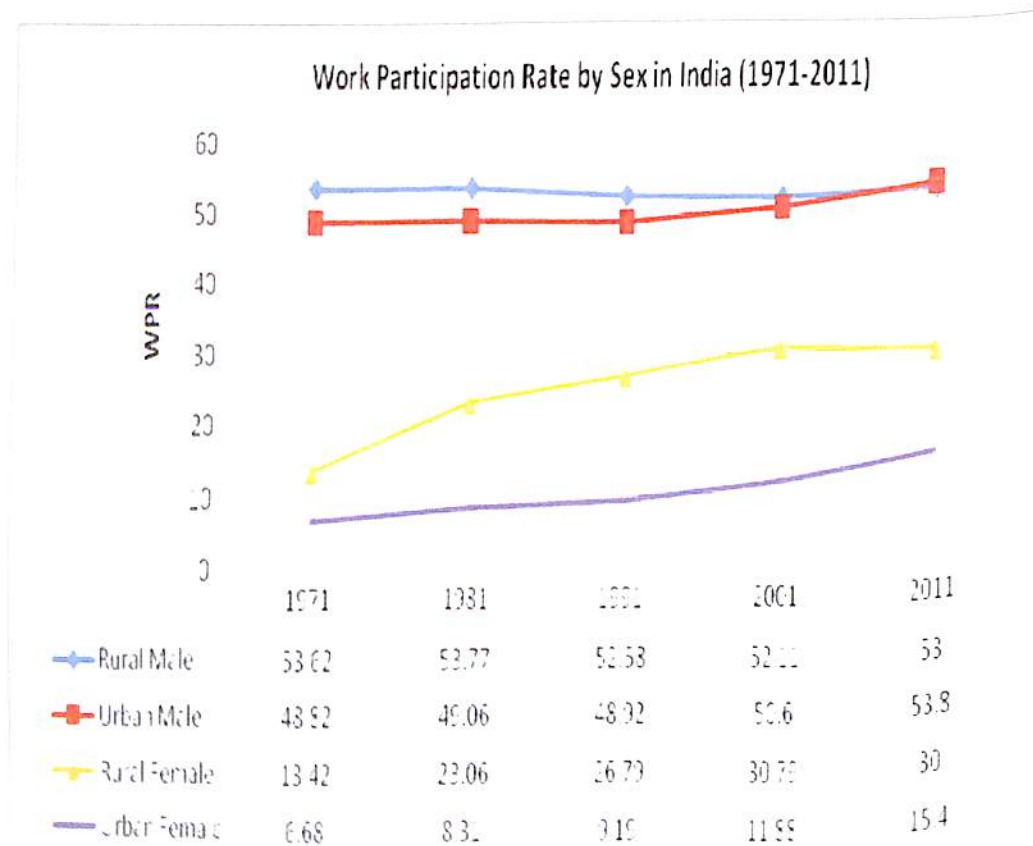
In 1981, the data shows that there is 10 percentage point increase in the FWPR in the rural area i.e., from 13.42 to 23.06% and also 2% increase in case of urban areas. The male WPR is more or less stagnant over the same period of time. In case of total figure, though there is increase in the WPR, but it is less than 5% point and even in the urban areas, it is more or less the same. In the year 1991, the Government of India undertook a drastic policy



change in order to overcome the crisis faced by the economy in the name of Economic Liberalization. So far as the 1991 census data is concerned, it reveals more or less the same picture as in case of male WPR during 1981, whereas there is negligible increase in the WPR both in case of rural and urban female.

Even after a decade of economic reforms, the figures of 2001 census show more or less the same picture as in case of 1991. There is hardly any increase in the WPR for male in case of both rural, urban and in the total figures. According to the 1991 census, the total WPR of male was 51.68, where as for rural it was 52.58 and for urban it was as low as 48.92%. It is to be noted that these figure are more or less same even in 2001, though there is less percentage point change in case of urban male WPR. While in 2001 the total male WPR was 51.68%, but in case of rural areas it was 52.11% and for urban areas it was slightly less at 50.60%. In case of female WPR, it was observed that there was some percentage point change but it was less than 5 percent in the decade.

Figure 1



Source : Statistical Profile on Women Labour of various years; Labour Bureau Ministry of Labour & Employment, Government of India, Chandigarh/Shimla

The data for 2011 presents a gloomy picture of the work participation rate. Even after two decades of economic reforms, the WPR indicates little or no improvement for both males and females. Whereas, the total male WPR stood at 53.3% while that of female WPR was as low as 25.5%. In case of urban areas it was 53.8% for males and 15.4% for females respectively, while on the other hand for rural areas it stood at 53.0% for males and 30.0% for females. It is to be noted that rural women still participate in the workforce more than double to that of urban females. However there is a 5 percentage point increase in the urban female WPR compared to that of previous census.

#### IV. Trends in Female Work Participation in North East India

The data of various census years in the table highlights the female WPR in North East India.

Table 2 : Female Work Participation Rate in North East India

| Sl.No | State/ Union Territories | Female Work Participation Rate |       |      |
|-------|--------------------------|--------------------------------|-------|------|
|       |                          | 1991                           | 2001  | 2011 |
| 1     | 2                        | 3                              | 4     | 5    |
| 1     | Arunachal Pradesh        | 37.5                           | 36.5  | 35.4 |
| 2     | Assam                    | 21.6                           | 20.7  | 22.5 |
| 3     | Manipur                  | 39.0                           | 39.0  | 38.6 |
| 4     | Meghalaya                | 34.9                           | 35.1  | 32.7 |
| 5     | Mizoram                  | 43.5                           | 47.5  | 36.2 |
| 6     | Nagaland                 | 38.0                           | 38.1  | 44.1 |
| 7     | Sikkim                   | 30.4                           | 38.6  | 39.6 |
| 8     | Tripura                  | 13.8                           | 21.1  | 23.6 |
| 9     | All India                | 22.27                          | 25.63 | 25.5 |

Source : Statistical Profile on Women Labour of various years, Labour Bureau Ministry of Labour & Employment, Government of India Chandigarh/Shimla



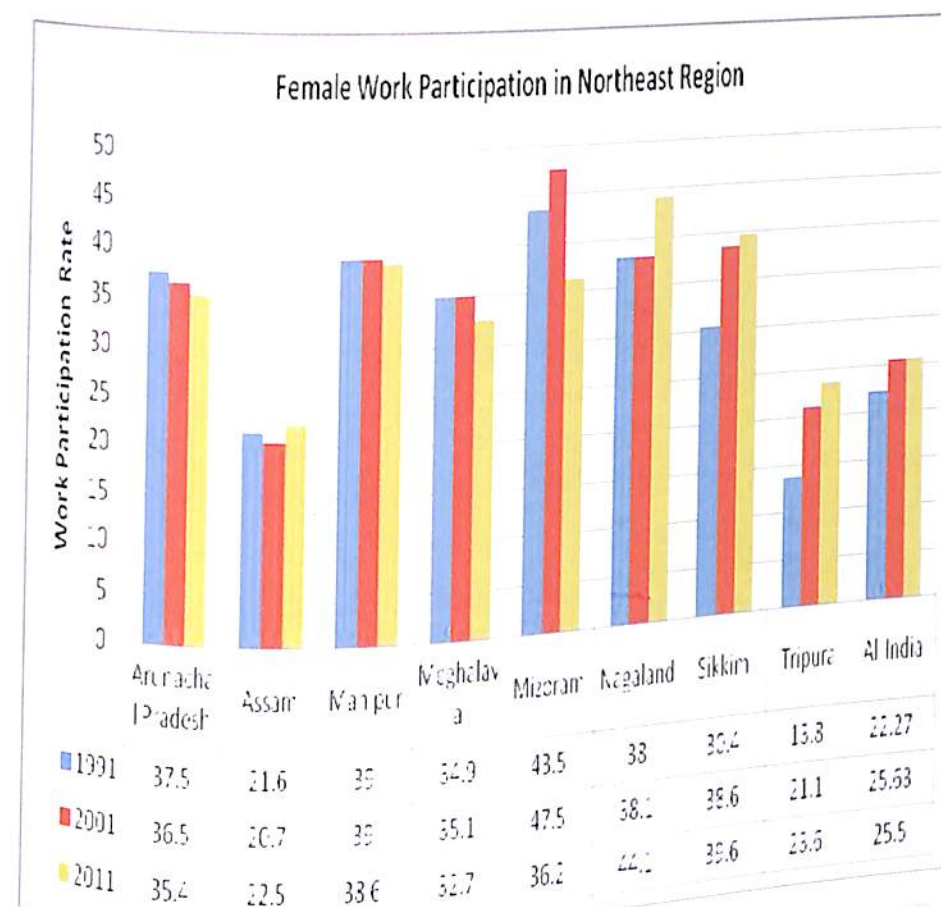
The female WPR in North East Region (NER) is high compared to rest of India. The region is predominantly inhabited by tribal population and many scholars in their studies have pointed out that in general tribal women do more physical work in forests and in agricultural fields than the tribal men (Gummadi, 2014a, b; Upadhyay, 2013). Though the general trend in the WPR for female shows a declining trend, but in the NER, some States like Nagaland, Tripura and Sikkim show an increasing trend over the last three decade as shown in figure 2.

The state wise comparison of FWPR shows that except for Assam and Tripura, all other States in NER have higher FWPR compared to that of all India average during the year 1991. The State of Mizoram has the highest FWPR with 43.5%, followed by Manipur (39.0%), Nagaland (38.0%), and Arunachal Pradesh (37.5%). Tripura has the lowest FWPR (13.8%) during the same year. Even during 2001, Mizoram recorded the highest FWPR of 47.5% which is four percentage point higher compared to previous census period, followed by Manipur (39.0%), Sikkim (38.6%), Nagaland (38.1%), and Arunachal Pradesh (36.5%). It is to be noted that during 2001, only Assam and Tripura recorded the lowest FWPR compared to that of all India average. Though the figure of Tripura shows 8 percentage point increase over the last census of 1991 but in case of Assam it shows a fall of 1 percentage point in the FWPR during the same time period.

The census of 2011 shows some what a different picture compared to 1991 and 2001 data. Nagaland recorded the highest FWPR (44.1%) among all the north eastern states and registered an increase in 6 percentage point over the last census year; while on the other hand, the state of Sikkim recorded the second highest FWPR with 39.6% followed by Manipur with 38.6%. Further, the State of Mizoram registered a fall by 11 percentage points in its FWPR, though the state of Assam showed an improvement of 2 percentage point increase over the last census year. During 2011, the FWPR of Assam and Tripura were below the national average of 25.5%.

The above, figure 2 clearly reflects that the State of Arunachal Pradesh and Manipur have a declining trend in FWPR, whereas Assam, Meghalaya and Mizoram show a fluctuating trend during the same time period.

Figure 2



Source : Statistical Profile on Women Labour of various years, Labour Bureau Ministry of Labour & Employment, Government of India Chandigarh/Shimla

#### V. Work Participation Rate in Arunachal Pradesh: A Districts Level analysis

Arunachal Pradesh is predominately a hilly state. Agriculture and animal husbandry is the main occupation in the rural areas. Women in the rural areas contribute immensely to agriculture especially in "Jhum" cultivation. The system of Jhum cultivation or shifting cultivation is widely prevalent in the State and it is one of the important means of livelihood. In fact the system of Jhumming is closely associated with the culture and tradition of the tribes of Arunachal Pradesh (Murtem et.al, 2008).

The district level work participation rate (WPR) of Arunachal Pradesh for

various years is shown in table 3. In 1991, the total WPR in Arunachal Pradesh stood at 46.24%. At a disaggregate level, the district of Tawang has the highest WPR both in case of male (61.71%) and female (48.38%). The second highest WPR is observed in Upper Siang (52.41%), followed by Tirap (51.79%), and East Kameng (50.77%). The district of Papumpare has the lowest WPR with 40.22% during the same time period. As far as the male and female WPR is concerned, after Tawang (61.71%) the district of Upper Siang has the second highest male WPR, followed by Dibang Valley (56.11%) and West Kameng (55.88%). For female WPR, Tawang has the highest participation rate with 48.38% followed by East Kameng (47.43%), Tirap (47.08%) and Lower Subansiri (42.78%). The lowest male WPR is observed in the East Siang (49.94%) and in case of female WPR it is Papumpare district which has the lowest with 26.31% during 1991.

In the year 2001, the total WPR in Arunachal Pradesh stood at 43.97%, which was 2 percentage point lower compared to 1991 data. The districts level analysis shows that Tawang has the highest WPR (56.3%) followed by Upper Siang (51.3%) and Tirap (48.84%), while on the other hand the district of Papumpare (36.32%) has the lowest WPR in the State. In case of male WPR, Tawang has the highest (64.55%), followed by West Kameng (58.4%) and Upper Siang (57.34%). For female also, it is observed that the district of Tawang has the highest FWPR (45.71%), followed by Tirap (43.23%) and Lower Subansiri (44.5%). So far as the State level figure for male and female WPR is concerned it is 50.69 and 36.45% respectively during 2011.

**Table 3 : District Level Work Participation Rate (Rural + Urban) of Arunachal Pradesh: 1991-2011**

| Districts       | 1991  |       |        | 2001  |       |        | 2011  |       |        |
|-----------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|
|                 | Total | Male  | Female | Total | Male  | Female | Total | Male  | Female |
| 1               | 2     | 3     | 4      | 5     | 6     | 7      | 8     | 9     | 10     |
| Tawang          | 55.61 | 61.71 | 48.38  | 56.31 | 64.55 | 45.71  | 57.15 | 67.08 | 43.25  |
| West Kameng     | 44.08 | 55.88 | 29.72  | 46.09 | 58.40 | 29.69  | 50.62 | 61.34 | 37.52  |
| East Kameng     | 50.77 | 53.98 | 47.43  | 45.42 | 48.63 | 42.76  | 40.30 | 42.36 | 38.30  |
| Papum Pare      | 40.22 | 51.78 | 26.31  | 36.32 | 46.71 | 24.79  | 37.25 | 46.27 | 28.05  |
| Upper Subansiri | 47.38 | 51.37 | 42.78  | 40.22 | 44.17 | 36.12  | 39.99 | 42.86 | 37.11  |
| West Siang East | 43.14 | 50.20 | 35.05  | 41.30 | 47.07 | 34.95  | 43.80 | 50.12 | 37.00  |

| Districts        | 1991  |       |        | 2001  |       |        | 2011  |       |        |
|------------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|
|                  | Total | Male  | Female | Total | Male  | Female | Total | Male  | Female |
| 1                | 2     | 3     | 4      | 5     | 6     | 7      | 8     | 9     | 10     |
| Siang            | 41.24 | 49.94 | 31.31  | 38.45 | 45.41 | 31.01  | 40.54 | 47.07 | 33.87  |
| Upper Siang      | 52.41 | 58.64 | 44.83  | 51.30 | 57.34 | 44.17  | 49.95 | 53.31 | 46.18  |
| Changlang        | 45.53 | 53.15 | 36.70  | 47.88 | 52.82 | 42.43  | 42.48 | 51.11 | 33.16  |
| Tirap            | 51.79 | 55.85 | 47.08  | 48.84 | 52.13 | 45.23  | 44.80 | 47.82 | 41.61  |
| Lower Subansiri  | 50.12 | 53.21 | 46.88  | 46.08 | 47.63 | 44.50  | 36.37 | 41.44 | 31.23  |
| Kurung Kumey     | NA    | NA    | NA     | NA    | NA    | NA     | 41.32 | 40.67 | 41.95  |
| Dibang Valley    | 45.77 | 56.11 | 32.65  | 44.31 | 52.53 | 34.51  | 44.42 | 50.48 | 36.96  |
| L/ Dibang Valley | NA    | NA    | NA     | NA    | NA    | NA     | 41.28 | 50.27 | 31.60  |
| Lohit            | 44.12 | 55.31 | 30.09  | 42.04 | 51.38 | 31.16  | 41.82 | 51.05 | 31.70  |
| Anjaw            |       |       |        |       |       |        | 49.61 | 54.09 | 44.28  |
| Arun. Pradesh    | 46.24 | 53.76 | 37.49  | 43.97 | 50.69 | 36.45  | 42.47 | 49.06 | 35.44  |

Note : NA (Not available)

Source : Upadhyay and Mishra (2005), Arunachal Pradesh HDR (2005) and for 2011 WPR: Author's own calculation from Census 2011 data

In 2011, the total work participation in Arunachal Pradesh was 42.47%, and the male WPR was 49.06% which was much higher than the female WPR (35.44%). The disaggregate district level data shows that Tawang has the highest WPR with 57.15% followed by West Kameng (50.62%) and Upper Siang (49.95%), while, the district of Lower Subansiri has the lowest WPR with 36.37%. In case of male WPR, Tawang has the highest participation rate with 67.08%, followed by West Kameng (61.34%) and Anjaw (54.09%), while the lowest male WPR is observed in Kurung Kumey (40.67%) district. Female WPR figure shows that Upper Siang has the highest participation rate with 46.18%, followed by Anjaw with 44.28%, and Tawang with 43.25%. The lowest participation rate for female is observed in Papumpare district (28.05%).

Rural Work Participation Rate in Arunachal Pradesh : A Districts level analysis  
The rural work participation rate at the district level in Arunachal Pradesh is shown in the table : 4 for the various census years.

**Table 4 : Rural Work Participation Rate in Arunachal Pradesh during the census 1991-2011**

| Districts       | 1991  |      |        | 2001  |      |        | 2011  |      |        |
|-----------------|-------|------|--------|-------|------|--------|-------|------|--------|
|                 | Total | Male | Female | Total | Male | Female | Total | Male | Female |
| 1               | 2     | 3    | 4      | 5     | 6    | 7      | 8     | 9    | 10     |
| Tawang          | 55.6  | 61.7 | 48.4   | 58.6  | 65.7 | 49.4   | 52.8  | 59.2 | 45.5   |
| West Kameng     | 44.8  | 56.1 | 31.2   | 47.3  | 59.4 | 31.0   | 52.7  | 63.1 | 39.7   |
| East Kameng     | 50.8  | 54.0 | 47.4   | 49.5  | 50.1 | 48.9   | 43.2  | 43.0 | 43.5   |
| Papum Pare      | 43.6  | 50.7 | 35.2   | 36.5  | 43.5 | 29.0   | 37.5  | 44.4 | 30.5   |
| Upper Subansiri | 47.4  | 51.4 | 42.8   | 44.0  | 44.7 | 43.2   | 41.7  | 42.9 | 40.5   |
| West Siang      | 44.2  | 49.6 | 38.3   | 42.5  | 45.6 | 39.2   | 46.0  | 49.8 | 42.0   |
| East Siang      | 42.9  | 49.4 | 35.7   | 41.1  | 45.2 | 36.7   | 43.9  | 47.5 | 40.2   |
| Upper Siang     | 52.4  | 58.6 | 48.8   | 51.3  | 57.3 | 44.2   | 51.8  | 54.0 | 49.4   |
| Changlang       | 45.5  | 53.2 | 36.7   | 49.2  | 52.8 | 45.2   | 43.1  | 50.2 | 35.7   |
| Tirap           | 52.8  | 55.3 | 50.1   | 51.2  | 51.5 | 50.9   | 46.9  | 46.6 | 47.2   |
| Lower Subansiri | 51.9  | 53.4 | 50.4   | 47.9  | 48.1 | 47.8   | 36.6  | 40.3 | 32.7   |
| Kurung Kumey    | NA    | NA   | NA     | NA    | NA   | NA     | 41.5  | 40.6 | 42.4   |
| Dibang Valley   | 47.9  | 57.2 | 36.3   | 46.7  | 53.4 | 38.9   | 47.0  | 52.2 | 40.6   |
| L/Dibang Valley | NA    | NA   | NA     | NA    | NA   | NA     | 43.3  | 50.1 | 36.2   |
| Lohit           | 46.0  | 54.9 | 35.3   | 44.5  | 52.1 | 35.7   | 44.1  | 51.1 | 36.4   |
| Anjaw           | NA    | NA   | NA     | NA    | NA   | NA     | 49.7  | 53.4 | 45.4   |
| Arun. Pradesh   | 47.7  | 53.7 | 40.9   | 46.5  | 51.1 | 41.3   | 44.1  | 48.5 | 39.5   |

Note : NA (Not available)

Source : Upadhyay and Mishra (2005), Arunachal Pradesh HDR (2005) and for 2011 WPR Authors own calculation from 2011 census data.

The census of 1991 reveals that total WPR in rural Arunachal Pradesh was 47.69. Among the districts Tawang has the highest WPR with 55.61 per cent followed by Tirap (52.82%) and Upper Siang (52.41%) while the lowest participation rate can be observed in East Siang (42.86%) district. During the same census period, the male and female WPR in rural Arunachal Pradesh reveals that, Tawang has the highest male WPR with 61.71% followed by Upper Siang (58.64%) and Dibang Valley (57.22%). In case of female WPR

Lower Subansiri has the highest participation rate with 50.38%, followed by Tirap (50.06%) and Upper Siang (48.83%). During the same time period, the State level figure for male and female WPR are 53.69 and 40.86% respectively.

The figures of 2001 census follow the same pattern as that of 1991. As regard to the total WPR, Tawang has the highest (58.63%) followed by Upper Siang (51.30%) and Tirap (51.19%). Even in case of male WPR Tawang is at the top with 65.74% followed by West Kameng (59.35%) and Upper Siang (57.34%). In case of female, Tirap has the highest participation rate with 50.87%, followed by Tawang (49.37%) and East Kameng (48.94%). For the state of Arunachal Pradesh as a whole, the overall WPR was 46.47%, while the male WPR was 51.13% and the female was as low as 41.33%. The data also reveals that Papumpare has the lowest WPR for male and female as well as total work participation rate.

The 2011 census data reveals some variation in WPR among the districts across the different categories. Whereas Tawang shows the highest participation rate in total with 52.8%, but for male WPR, it is West Kameng has the highest rate with 63.08% and for female it is Upper Siang with 49.37%. The lowest WPR in total as well as male WPR can be observed in Lower Subansiri with 36.57% and 40.34% respectively. The State level figure of rural Arunachal Pradesh shows that total WPR is 44.1%, whereas for male and female it is 48.5% and 39.5% respectively.

Over the three census period, it can be observed that the WPR in the State is gradually declining from 47.69% in 1991 to 44.10% during 2011. The same pattern is observed for the male WPR as it has declined from 53.69% in 1991 to 48.50% in 2011, though there is a 2 percentage point increase compared to 2001 data. In case of FWPR, fluctuations in the participation rate is observed, as it was 40.86% in 1991 and it increased to 41.33% during 2001 and again declined to 39.50% in 2011.

#### Urban Work Participation Rate in Arunachal Pradesh: A Districts level analysis

The census of 1991 shows that Tirap district has the highest urban WPR among all the districts in Arunachal Pradesh, followed by West Kameng (37.77%). So far as the urban male and female WPR is concerned, Tirap has the highest male WPR (61.78%) and West Kameng has the highest female WPR with 15.64%. In the same year, the urban total WPR for the state



stood at 36.39%, whereas the urban male and female WPR was 54.18 and 11.95% respectively (Table 5).

**Table 5 : District Level Urban Work Participation Rate in Arunachal Pradesh from 1991 to 2011**

| Districts       | 1991  |       |        | 2001  |       |        | 2011  |       |        |
|-----------------|-------|-------|--------|-------|-------|--------|-------|-------|--------|
|                 | Total | Male  | Female | Total | Male  | Female | Total | Male  | Female |
| 1               | 2     | 3     | 4      | 5     | 6     | 7      | 8     | 9     | 10     |
| Tawang          | NA    | NA    | NA     | 38.26 | 54.86 | 18.59  | 72.18 | 86.78 | 29.26  |
| West Kameng     | 37.77 | 54.36 | 15.64  | 33.96 | 48.15 | 17.26  | 41.75 | 53.49 | 28.83  |
| East Kameng     | NA    | NA    | NA     | 33.83 | 44.60 | 21.82  | 30.66 | 40.41 | 20.70  |
| Papum Pare      | 35.64 | 53.20 | 14.10  | 36.12 | 49.71 | 20.66  | 37.06 | 47.80 | 25.98  |
| Upper Subansiri | 35.36 | 52.15 | 13.02  | 30.80 | 42.94 | 17.11  | 31.00 | 42.51 | 18.73  |
| West Siang      | 37.06 | 53.27 | 12.25  | 36.63 | 52.64 | 15.98  | 36.25 | 51.28 | 18.62  |
| East Siang      | 34.90 | 51.96 | 12.10  | 30.59 | 45.93 | 13.30  | 31.86 | 45.94 | 17.47  |
| Upper Siang     | NA    | NA    | NA     | NA    | NA    | NA     | 41.76 | 50.33 | 32.68  |
| Changlang       | NA    | NA    | NA     | 36.17 | 53.20 | 14.13  | 38.10 | 56.69 | 14.95  |
| Tirap           | 40.42 | 61.78 | 8.81   | 35.80 | 55.49 | 11.49  | 35.61 | 52.60 | 14.95  |
| Lower Subansiri | NA    | NA    | NA     | 33.14 | 44.68 | 20.65  | 35.28 | 47.53 | 23.10  |
| Kurung Kumey    | NA    | NA    | NA     | NA    | NA    | NA     | 33.77 | 43.74 | 22.47  |
| Dibang Valley   | 34.95 | 50.76 | 11.74  | 33.18 | 48.80 | 12.68  | 38.38 | 46.50 | 28.37  |
| L/Dibang Valley | NA    | NA    | NA     | NA    | NA    | NA     | 33.58 | 50.86 | 13.90  |
| Lohit           | 37.21 | 56.65 | 8.28   | 31.16 | 48.15 | 10.45  | 34.05 | 50.93 | 14.91  |
| Anjaw           | NA    | NA    | NA     | NA    | NA    | NA     | 47.86 | 65.92 | 16.25  |
| Arun. Pradesh   | 36.39 | 54.18 | 11.95  | 34.16 | 48.99 | 16.69  | 36.97 | 50.91 | 21.31  |

Note : NA (Not available)

Source : Upadhyay and Mishra (2005), Arunachal Pradesh HDR (2005) and for 2011 WPR Authors own calculation from 2011 census data.

According to the 2001 census the total urban WPR in State was 34.16%, while the urban male WPR was 48.99% and female WPR was 16.69%. It should be noted that both the WPR in case of the state as a whole and the urban male WPR, showed a declining trend compared to the last census, whereas the urban female WPR showed an increase during the same period of time.

The 2011 data reveals that the urban WPR has improved compared to the 2001 data. The figure shows that the urban WPR is increasing across all section i.e, the total as well as the male and female figures. The State level figure as well as the male WPR shows 2 percentage point increase, whereas urban female WPR shows more than 4 percentage point increase during the same time period.

## VI. Conclusions

The study is an attempt to highlights the trends in Work Participation Rate in Arunachal Pradesh irrespective of locations and sex during the various census periods. Over the last three decades, covering the census from 1991 to 2011, it is observed that the total WPR in Arunachal Pradesh shows a declining trend among both males and females. The rural WPR also shows a declining trend during the same period of time, whereas in urban areas, the total and female WPR shows a gradual increase over the three census periods, but the male WPR shows some fluctuations. Though the male WPR shows an improvement in 2011 compared to 2001 census data.

## Acknowledgement

This article is a part of my PhD research work. I am thankful to my supervisor Dr. Vandana Upadhyay, Associate Professor for guidance.

## References

- Bhalla, S. S. and Kaur, R. 'Labour Force Participation of Women in India: Some facts, some queries' Asia Research Centre Working Paper 40, London School of Economics & Political Science
- Das, I. (2013). Status of Women: North Eastern Region of India versus India. International Journal of Scientific and Research Publications, 3 (1) : 1-8.
- Gummadi, N. (2014a). Work Participation of Tribal Women in India: A Development Perspective (Eds. Kumari, Reena and Aviral Pandey), Allen Publisher, Guwahati. pp. 21-58.
- Gummadi, N. (2014b). Work Participation of Tribal Women in India: A Development Perspective. IOSR Journal of Humanities and Social Science (IOSR-JHSS), 19(12): 35-38.
- GOAP (2005) Human Development Report of Arunachal Pradesh (2005), Government of Arunachal Pradesh.
- Kumari, Reena and Aviral Pandey (2012) 'Women's Work participation in labour Market in Contemporary India', Journal of Positive Practices 1/2012
- Mahapatro, Sandhya Rani (2013) 'Declining Trends in Female Labour Force

- Participation in India: Evidence from NSSO* MPRA Paper No. 44373, <http://mpa.ub.uni-muenchen.de/44373/>
- Murtem, G., G.N.Sinha and J. Dopum (2008) '*Jhumias View on Shifting Cultivation in Arunachal Pradesh*', Bulletin of Arunachal Forest Research, 24 (1&2) pp 35-40
- Singh, Udai Bhan and Nipendra Kishore Mishra (2013) '*Women Work Participation In Rural Uttar Pradesh: A Regional Analysis*', International Journal of Social Science & Interdisciplinary Research. *IJSSIR*, Vol. 2 (8),
- Statistical Profile on Women Labour, Various Years, Labour Bureau, Ministry of Labour & Employment, Government of India Chandigarh/Shimla.
- Upadhyay, Vandana and Deepak. K. Mishra (2005) '*A Situational Analysis of Women and girls in Arunachal Pradesh*', National Commission for Women, New Delhi.
- Upadhyay, Vandana (2013) *Work Participation and Time-Use Pattern of Women in Rural Arunachal Pradesh*, NLI Research Studies Series No. 108/2013, V.V. Giri National Labour Institute, Noida, 2013.

\*\*\*

## Magical Hands: Rendezvous with a Buddhist Medicine Man (Tawang, Arunachal Pradesh, India)

Tajen Dabi

Received on 18 June 2015

Accepted on 15 November 2015

### Abstract

Indigenous healing methods continue to be practiced along with modern biomedicine. Research on ethnomedicine world over suggests that in spite of unprecedented advancement in modern biomedicine healthcare system, the traditional healing systems are not entirely abandoned. There is a rich, but partly declining, culture of traditional healing methods being followed by different communities of Arunachal Pradesh. A part-performance of a local medicine man with a 'magical hand' is presented here.

**Keywords :** Indigenous medicine; medicine man; Tibetan medicine; Monpa; Arunachal Pradesh.

### Introduction

Indigenous healing methods continue to be practiced along with modern medicine. Research on ethnomedicine world over suggests that despite unprecedented advancement in the field of modern healthcare, traditional healing methods are not abandoned. We find a rich, but partly declining, culture of traditional healing systems being followed in different parts of Arunachal Pradesh. Based on an interview and documentation/participation I describe an ongoing healing routine of a lay Buddhist bone fracture expert in this ar-

Department of History, Rajiv Gandhi University, Rono Hills, Doimukh, Arunachal Pradesh- 791112  
e-mail: [tajen.dabi@rgu.ac.in](mailto:tajen.dabi@rgu.ac.in); [dabitajen@yahoo.in](mailto:dabitajen@yahoo.in)

ticle. I do not intend to depict the exercise in totality; I rather try to emphasize the continued relevance of indigenous healing systems through this short documentation and succinctly highlight the position of bone healers in the broad structure of Monpaethno medicine.

Monpas live in the western part (West Kameng and Tawang districts) of Arunachal Pradesh with Bhutan to their west and Tibet/China to the north. They follow lamaistic form of Buddhism. Though traces of pre-Buddhist cultural practice are reported frequently Buddhism plays a major role in their life. The traditional healing system of the Monpas therefore is intricately linked to Tibetan/Buddhist Medicine. For the same reason, I dispense with attempting a 'philosophy' or 'disease concept' in this article since the same has already been studied in ways presently I am not able to improve upon or critique.

The term Sowa-Rigpa ('science of healing') is being promoted to connote confusing labels like 'Tibetan medicine', 'Himalayan Medicine', 'Buddhist medicine', 'Amchisystem' referring to the same medical system (Thupten, 2013:142). The Tibetan medical science itself is enriched by "other non-Tibetan medical systems of Asia surrounding Tibet in every direction- Turkic, Persian, and Kashmiri regions to the west and northwest, Indian and Nepali region to the south, Chinese and Mongol regions to the east and northeast" (Garret, 2007: 382). An internationally cosmopolitan medical system (ibid), it has "greater percentage of difference than similarities" with the Ayurveda system of India (Thupten, ibid: 153). Both Garret and Thupten makes a point divergent from the one made by Walsh that the Tibetan system of anatomy and of medicine was derived from India (Walsh, 1910: 1218).

Traditional healing systems practiced in Arunachal Pradesh are being studied, directly or as a byproduct of another study, from three approaches. They are ethnomedicine, ethnobotany and studies on religious practices. While there is no standard academic classification of the cultures of Arunachal Pradesh, it is typical to divide it into respective 'zones' based on either geography or religious practice. I do not intend to ofertaxonomy on the same except to say that I follow the latter category when I identify the Monpa with 'Buddhist region'. In the days when British ruled India, Tawang and adjoining Monpa country was subject to the government of Lhasa, and paid regular tributes to that effect (Haimendorf, 1982:149).

### Methodology

A brief field work was carried out over a period of 5 days in April 2015 fo-

cusing on a single specialist, observing the healing routine and recording a few of the herbal medicines used. A patient being treated was also interviewed. This is not a detail documentation of such healing exercise, but is offered as a provisional representative of the rich universe of indigenous medicine and healing practice of the Monpas of western Arunachal Pradesh.

The actual identities of the interviewee and the interpreter are outlined on their consent. Fieldworks in social science and conclusions drawn out of it are less 'objective' than those of the sciences. There is more scope for employment of multiple methodologies and respective interpretations thereon. The intent and skill of the researcher, the extent of time she/he invests in the actual research/ fieldwork, the kind of information/mis-information the interviewee yields etc. matter a lot in shaping the content and the nature of the results/interpretations/ generalizations drawn out of the investigation.

Interviewing a shaman, local/ traditional healing expert is an intensely personal and subjective experience. Revealing their identity serves two purposes: it discourages deliberate mis-information being given by the interviewee when she/he have been priorly informed about the same, and also serves the purpose of due acknowledgement and archiving of their work, with their name, in research publications. Second, the scope for correction of mistakes arising out of mis-information/poor-comprehension by the researcher, or even adoption of a flawed methodology, if any and debates there on becomes easier when the subject of the original interview is known. This is particularly relevant, I argue, in the context of field/interview based research in ethnomedicine (and other related themes) in Arunachal Pradesh because the primary agent of traditional/indigenous medicine, both in shamanistic and monastic order, is an individual. The concept of illness is basically rooted in supernatural cosmology (Elwin, 1958: 256) but intricately linked to daily affairs of private and public life. Studying and interpreting these beliefs render possibilities of under-appreciation of the notional values the subject attaches to a particular symbol in the indigenous scheme of ailment-healing regime. A similar problem is high lighted by two local anthropologists: "Experiences in workshops, seminars and private discussions aptly reflect a common notion prevalent among some of the intellectuals that the study of ethnomedicines or discussions of such exotic beliefs and practices reflects an intellectual sterility or intellectual dwarfism of a researcher in contrast to those scholars who are limping with high profile theoretical jargons transplanted from western con-

text. Knowingly or unknowingly we divert much of our time and energy for proper digestion and to build up our mastery over those new paradigms" (Mibang, 2003:3). My presentation may therefore appear eccentric, but so long as it serves the interest of research I crave the patience of the editorial board and hopefully, the peer researchers and readers.

### The 'Magical Hands'

*May all patients be resuscitated just merely by seeing me.  
Never let my treatment go wrong.  
Whatever I may speak become a prediction.  
And may whatever I make transform into medicine.  
Whatever I give become effective like that of the sun and the moon.<sup>1</sup>*

Aba Nange Tsering (hereafter Aba or 'the expert'), 65 years, originally from Khortung village now resides in Changbu, a village that lies within the urban limits of the famous monastic town of Tawang in western Arunachal Pradesh bordering China/Tibet. He lives with his wife and has three sons and a daughter. Dressed in Thothung, most days of this regular built, forthcoming and lovely medicine man are spent consulting and treating patients, many coming to his home, others waiting to drive him to a bedridden one. Remuneration, if any, is voluntary on the part of the healed; Aba never expects or insists on it but at the same time does not refuse any present made in gratitude. I was told that he had been similarly interviewed by an American and a Taiwanese researcher earlier. The former had unsuccessfully tried to induce him to fly to the States and practice a lucrative healing and teaching career there. He was offered with all the arrangements (visa, travel expense etc) for the suggested undertaking with the only precondition being that he teach (reveal) his healing methods there. I was the first, he emphasized, Indian and from within his native state (Arunachal Pradesh) to interview him.

Experts like Aba have no formal link with the Gompa. The healing system he practices is not an inherited profession; it has to be learnt. His teacher was a "Tibetan Guruji" and he had completed his brief and informal apprenticeship with him during his teenage. That was in 1978 while he was still attending government school from where he was soon to drop out. It could not be clearly established whether the Guruji was actually from Tibet or the

1. To gain first-hand experience and in part to derive a personal benefit, I got the two week long upsetting pain in my left thumb finger examined. The expert identified it as a result of minor nerve dislocation and corrected it within a minute.

word 'Tibetan' merely referred to the practitioner of the system of indigenous medicine known by the same name prevalent in the region. The fact that he learnt his methods long back, that too informally and my own restricted nature of investigation restrain any further details from being presented here. He frequently visits the nearby PRAGYA office "to get more training" on medicinal plants. My translator Rinchin was categorical, to Aba's acknowledging smile, about the latter being much sought after, as was he respected, the entire town and the list of his grateful patients even included the top brass of army officials posted in the internationally disputed border town. Reputation often precedes the actual performance of an indigenous healer and there appeared to be a fit case to be studied.

The primary text used by the expert is a thin rectangular manuscript, of the shape Buddhist flags are made of, called Moh'. Written in Bhoti and carefully maintained, the antique looking 30 paged book serves as the service manual for the expert. Time and date of the start of an illness or accident leading to fracture; the physique and gender of the patient and such other information are vital inputs when consulting the almanac for choosing the best course of treatment. Checking the pulse in the wrist vein was another way of determining the course of treatment.

Aba was not forthcoming with revealing the syllabi of his learning or its methods. Practical knowledge of human anatomy and use of medicinal plants must have formed a core component of his brief education. It was extremely important for a practitioner to be filled with humility and sense of service and be far removed from any idea of arrogance or prejudice- both in personal conduct and when being approached for/offering treatment. The courtesy of treatment must even be extended to your enemy when called for, even free of cost. Anyone willing to imbibe and practice these (Buddhist) virtues becomes an eligible candidate to learn the skills of the profession; the master was expected to reciprocate the gesture and therefore not deny guidance. These are attributes similar to those underlined by Thupten (Thupten, ibid: 153) for a practitioner of Sowa-Rigpa.

Treatment of ailments like fractures, muscle sprain and the like are attended to by experts like Aba. The Gompas relegate such temporal affairs to traditional healers. No sacrificial rites are involved in the entire process. Specific prayers in the form of short utterance of words believed to induce healing often accompany the exercise. These have however no ritualistic significance.

Aba performs three categories of healing as shown below. Treatment of common fever is also included :

| No. | Ailment category      | Description of ailment                                       | Plant/ part of plant used                      | Method/ further explanation   |
|-----|-----------------------|--|--|---|
| 1   | Bone (Ruip') fracture | Any kind of bone fracture                                    | Local name: 'Syarma<br>Hindi name : Paplar     | Bark of the plant used as plaster   |
| 2   | Vein/Vessel (Chah')   | Any kind of vein dislocation or discomfort arising out of it | Local name : Nyulum<br>Assamese name: Titabati | A small plant; used to stop nose bleeding; helps blood clot. The leaves are boiled over a small metal cup, the extracts so remaining is used to massage the affected area.  |
| 3   | 'Meat'/ Muscle        | Any kind of muscle spasm; 'skin-rupture' in cold climates.   | Boiled rice                                    | Hot rice (immediately after being cooked) bundled into a towel, massage in the affected area.   |
| 4   | Common Illness        | Common cold; 'malaria' (?)                                   | Chilli   | A paste is made into which Churpi (preserved for at least 13 years) is added, which is then mixed in cooked rice in portions resembling in size a regular medicine tablet. One such tablet is taken thrice a day and the cure is claimed within a week of starting the medicine. Food taboo is observed during the course of treatment, for example, not-taking cold water. |

### Healing a Patient

Dondup Tsering, about 70 years is of slender built, fair and tall. He fell from the "frightening height" of a "very tall" pine tree while attempting to cut branches for firewood. His now relaxed wife conceded, to his solemn nod, that he

would not have survived the accident had he not fell from the tree in parts, slamming himself helplessly from one obstructing branch to the next below such that in the end his descend to the ground was 'soft'. Had he found a rock below instead of the loamy soil, she continued as I notice Dondup grin in a gesture of belated gratitude to gods, they would have merely assembled the wreckage of his physical constitution. So severe was the impact of the mishap that he could not move his body for a week, except for the limbs, from intense pain and had to be physically removed to the bathroom with great difficulty by two men for such daily urges of nature which no illness prevents.

He saw a doctor from the district hospital nearby for a couple of days without much relief and thereafter no delay was made in summoning the expertise of Aba, my expert. When I met Dondup it had already been a week under Aba's treatment. That is, the accident happened about two weeks prior to the time I got to record the proceedings of the healing. I was not shown any proof of the treatment Dondup had received from the hospital, which I avoided enquiring about to cross-check in good faith, but I reasonably presume that the medical tests must have confirmed severe muscle paroxysm and that his was indeed a debilitating mishap.

Aba was on his fifth visit to his patient when I accompanied him. The pain had mostly receded and Dondup was now able to get up on his own. The expert started a brief session of massage on his back and shoulder. I was pointed to a particular spot in the shoulder which Aba said still needs to heal; it was a problem of "severe muscle spasm". A brownish ointment, told me to be made of the yak's fat, locally called Pin was used for the massage. A short utterance of magical words concluded the kneading session; Aba checks the Moh, the almanac, and makes a prognosis for quick healing, depending on the condition of weather. The subsequent course of treatment for the disorder will be determined by the weather condition in days to come, with that followed for overcast weather understood to heal completely in two weeks from now and the one for clear weather making it much shorter. The day's consultation finished with this and Aba hurried back to attend to a lady who had dropped in just as he was leaving his home earlier to see Dondup. The visibly depressed woman had come to seek relief from the torments of persistent bad dreams she had been enduring in the dead of the long unending nights. The Moh will be consulted again and appropriate way suggested in mitigating the haunting experience.



- (c) Mr. RinchinNorbu, 35 years, Khitkar village, Tawang, my translator, for the love and friendship;
- (d) Mr. DondupTsering, about 70 years, Tawang for allowing me to record him being treated, and for the hospitality;
- (e) His Eminence, Guru Tulku Rinpoche, Abbot, GadenNamgyalLhatse (Tawang Monastery) for the interview and hospitality;
- (f) Wangdi Lama, 43 years, monk, Khinmey Monastery, Tawang;
- (g) Prof Tana Showren, Department of History, Rajiv Gandhi University for entrusting me with an unexpected but a pleasant students' field trip to Tawang which coincided with my research work; my travel expenses were made more economical;
- (h) Mr. BinliDoke, M.A. (History) IVth Semester for photographic assistance, and the entire students of M.A. (History) IVth Semester, 2014-15.

## References

- Baer, Hans A. (1982). "Towards a Systemic Typology of Black Folk Healers". In *Phylon* (1960-). Vol. 43, No. 4 (4th Qtr.), pp. 327-343.
- Choudhary, S. Dutta(ed). (1994). *Gazetteer of India: Arunachal Pradesh: East and West Siang Districts*. Itanagar: Government of Arunachal Pradesh.
- Elwin, Verrier. 1958. *Myths of the North-East Frontier of India*. Reprint 1999, New Delhi: MunshiramManoharlal.
- Foster, George M. (1976). "Disease Etiologies in Non-Western Medical Systems". In *American Anthropologists*, New Series, Vol. 78, No. 4, pp.773-782.
- Gangwar, A. K. and P. S. Ramakrishnan. (1990). "Ethnobiological Notes on Some Tribes of Arunachal Pradesh, Northeastern India". In *Economic Botany*, Vol. 44, No. 1, pp. 94-105.
- Garret, Frances. (2007). "Critical Methods in Tibetan Medical Histories". In *The Journal of Asian Studies*, Vol.66.No.2, pp.363-387.
- Goswami, Pranjiv, DudamSoki, Anju Jaishi, Moushami Das & Hirendra N Sharma. (2009). "Traditional healthcare practices among the Tagin tribes of Arunachal Pradesh". In *Indian Journal of Traditional Knowledge*, Vol 8(1), January, pp.127-130.
- Greene, Shane.(1998). "The Shaman's Needle: Development, Shamanic Agency, and Intermediality in Aguaruna Lands, Peru". In *American Ethnologist*, Vol.25, No. 4, pp.634-658.
- Haimendorf, Christoph von Furer. (1982). *Highlanders of Arunachal Pradesh*. New Delhi: Vikas Publishing House.

- Mibang, Tamo and S.K. Chaudhuri (eds.), *Ethnomedicines of the Tribes of Arunachal Pradesh*, Himalayan Publishers, New Delhi, 2003.
- Namsa, Nima D, Manabendra Mandal, SumpamTangjang and Subhash C Mandal. (2011). "Ethnobotany of the Monpa ethnic group at Arunachal Pradesh, India". In *Journal of Ethnobiology and Ethnomedicine*, 7:31, <http://www.ethnobiomed.com/content/7/1/31> (14 October 2011).
- Pant, Harsh Mani, Neelam Pant and J.S. Negi. (2011). "Study on Ethno-Medicinal practices and system of cure among the People of Rath Region of Garhwa Himalaya, Uttarakhand". In *Nature and Science*, Vol. 9(6), pp.81-84.
- Rooff, Becka.(1996/1997). "Healing Objects in Welsh Folk Medicine". In *Proceedings of the Harvard Celtic Colloquim*, Vol. 16/17, pp. 106-115
- Shankar, Rama and M.S. Rawat. (2008). *Medico-Ethno-Botany of Arunachal Pradesh*. Itanagar: Regional Research Institute, AYUSH.
- Sharma, HirendraNath. (2007). *Traditional Medicines of Arunachal Pradesh and Assam: Practice & Prospect*. Gauhati: Ashok Km Sharma.
- Smitha B. Nair. (2001). "Social History of Western Medical Practice in Travancore: an Enquiry into the administrative Process". In Deepak Kumar (ed) *Disease and Medicine in India: A Historical Overview*. New Delhi: Tulika. pp. 218-219
- Thupten (Shakya), Ngawang. (2013). "Sowa-Rigpa: Affordable and Effective Traditional System of Tibetan/Himalayan Medicine for the People of Arunachal Pradesh". In Hage Lasa, S.C. Nayak and Ngawang Thupten (Shakya) (eds.). *Tribal Development and Northeast India*. New Delhi: Adhyayan Publishers and Distributors. pp. 142-158.
- Waldram, James, B. (2000). "The Efficacy of Traditional Medicine: Current Theoretical and Methodological Issues". In *Medical Anthropology Quarterly*, New Series, Vol. 14, No. 4, Theme Issue: Ritual Healing in Navajo Society, pp. 603-625.
- Walsh, E.H.C. (1910). "Tibetan Anatomical System". In *Journal of the Royal Asiatic Society of Great Britain and Ireland*, (Oct.), pp. 1215-1245

\*\*\*

## Women Right Awareness among the B.Ed. Trainees of Arunachal

Vivek Singh<sup>✉</sup>  
Tangkheso Tamai

Received on 12 November 2015      Accepted on 15 December 2015

### Abstract

*Gender justice is important for any progressive and democratic society and women right awareness is necessary for such kind of society. The aim of the present study was to investigate the status of women rights awareness in B.Ed. Trainees of Arunachal Pradesh. The method of study was descriptive survey. For the study 280 B.Ed. students (87 Boys and 193 Girls) were chosen using random sampling procedure. Based on the survey from above mentioned population, researchers investigated the status of women rights awareness. A comparison was made on the status of women right based on personal and demographic variables. The study also highlights the status of women rights according to its various dimensions such as Educational, Legal and social. The result of the study was discussed in the light of socio-economic conditions of Arunachal Pradesh. At the end recommendations were given for improvements in condition of women right awareness.*

**Key Words :** Women Rights, B.Ed. Trainees, Arunachal Pradesh

### Introduction

Much like in any other country, the women rights in India has evolved out of

<sup>✉</sup> Department of Education, Rajiv Gandhi University, Rono Hills, Doimukh-791112, Arunachal Pradesh.  
Email: viv99singh@gmail.com

a continuing great effort between the status quoits and the progressive forces. While they have come a long way ahead in the last century, Indian women still continue to get fewer rights than the men, both in terms of quality and quantity. The term women's rights refers to the freedoms inherently possessed by women and girls of all ages, which may be institutionalized, ignored or suppressed by laws, customs, and behaviour in a particular society. The women rights are nationally accepted and constitutionally guaranteed to uplift the women through the constitutional goals of equality and social justice. God created human male and female equal. Neither of them superior to the other; nor inferior, he created them for a harmonious existence together. Therefore, the challenges that lie ahead cannot be met unless they are approached with a sense of humility and with a sense of togetherness. While some of them can be met exclusively by women, they can achieve more by pooling the resources of all.

The United Nation Organization (UNO) made a remarkable contribution for upliftment of the status of women at global level. The United Nations Commission on the status of women in its twenty fifth reports had recommended to all member states to establish national commission or similar bodies with a mandate to review estimate and recommend measures and priorities to ensure equality between men and women and the full integration of women in all spheres of national life. The government of India has established National commission for women in 1992.

The preamble to the Indian constitution contains various goals including "the equality of status and opportunity" to all citizens. This particular goal has been incorporated to give equal rights to the women and men in terms of the status as well as opportunity. In article 14, 15, and 16 of the Indian constitution, not only grant the gender equality but also empower the state to adopt measure of affirmative discrimination in favor of women. 73rd and 74th constitutional amendment 1992 provides reservation of seats for women in the Panchayat and in the municipality. On 26th October 2006, the protection of women from domestic violence Act, 2005 came into force to ensure more effective protection of the rights of women guaranteed under the constitution.

The ministry for women and child development was established as a department under the ministry of Human Resource and Development in the year 1985 to drive the holistic development of women and children in the country. In 2006 this department was given the status of a ministry with the power

to formulate plans, policies and programs, enacts/amends legislation, guiding and coordination the efforts of both government and non- governments organizations working in the fields of women and child development. The Arunachal Pradesh state commission for women Act, 2002 comes into force on 19th August, 2002 by receiving the assents of governor on 21st June, 2002. This Act provide for the constitution of a women's commission in the state of Arunachal Pradesh to improve the status of women and to enquire into unfair practices affecting women and for matters connected therewith or incidental thereto. They too organized legal awareness campaign, public hearing, and training on domestic violence, workshop and other women related activities and every year they celebrates international women's day.

The State government also realized for bringing up the holistic development of women, elimination of gender disparity in education is prerequisite and therefore launched various schemes/programmes or improves the educational condition of women. These include SarvaShikshaAbhiyan (SSA), National programmed for education of Girls at elementary level (NPEGEL) and Kasturba Gandhi Balika Vidyalaya (KGBV), NGO's etc. these all programmes help in bringing the gender gap and removed minimize the disparities in educational attainment.

It is admitted fact that a society can come to progress only when the women are educated and given equal rights. So education is very much important to bring up the awareness on women rights. The awareness of women rights is very much important in present modern day. So to give the awareness of women rights it is very much important to go for the analysis on awareness of women rights.

### Rationale of the Study

It is believe that every individual is born with talent potentials and education helps in its further development. Moreover, education is considered to be a process which contributes to the natural and harmonious development of man's innate powers. Obviously, the B.Ed. Trainees are the future teacher of nation. So their awareness towards women rights is very important and necessary. Kothari Commission (1964 - 66), very emphatically said- "Destiny of nation is being shaped in her classroom", hence the teachers are the leaders of the world and helpful in nation building. So there must be a good quality of women rights awareness among the future teachers. In this study the researchers have analyzed the status of women Rights awareness among the

B.Ed. Trainees of Arunachal Pradesh. Based on the above mentioned theoretical and empirical framework, the current study highlights the status of women right awareness in B.Ed. Trainees of Arunachal Pradesh.

### Objectives of the Study

- I. To compare the women Right Awareness among the Male and Female B.Ed. Trainees of Arunachal Pradesh.
- II. To compare the women Right Awareness among the Tribal and Non-Tribal B.Ed. Trainees of Arunachal Pradesh.
- III. To compare the women Right Awareness among the Private and Government College B.Ed. Trainees of Arunachal Pradesh.
- IV. To compare the women Right Awareness among the Urban and Rural B.Ed. Trainees of Arunachal Pradesh.
- V. To compare the women Right Awareness among the Science and Non-science subject B.Ed. Trainees of Arunachal Pradesh.
- VI. To analyze status of women right awareness based on its dimensions.

### The Hypotheses of the Study

As per the objectives of the study, the investigators have formulated the following null hypotheses:

- H01 : There is no significant difference in women Right Awareness between the Male and Female B.Ed. Trainees of Arunachal Pradesh.
- H02 : There is no significant difference in women Right Awareness between the Tribal and Non-Tribal B.Ed. Trainees of Arunachal Pradesh.
- H03 : There is no significant difference in women Right Awareness between the Private and Government College B.Ed. Trainees of Arunachal Pradesh.
- H04 : There is no significant difference in women Right Awareness between the Urban and Rural B.Ed. Trainees of Arunachal Pradesh.
- H05 : There is no significant difference in women Right Awareness between the Science and Non- Science B.Ed. Trainees of Arunachal Pradesh.

### Research Methodology

The present study could be called descriptive survey type of research where

an attempt has been made to study the level of women rights awareness in B.Ed. Trainees of Arunachal Pradesh.

### Population and Sample of the Study

Population of the study will be consisting of regular B.Ed. Teacher Trainees of Aunachal Pradesh. For the purpose of the study 7 B.Ed. colleges out of eight colleges were selected. B.Ed. student's strength in each college was 100 and researcher selected 40 samples from each college applying simple random sampling procedure. In this way 280 students were selected for the purpose of the study.

### Data Collection

The investigator wanted to administer a questionnaire to the sample to know the women Right Awareness among the B.Ed. Trainees of Arunachal Pradesh. For the purpose of the present study, the investigator has used the questionnaire as there is no ready questionnaire was available. Based on objectives of the study and with the help of previous research work, researcher has prepared women rights awareness Test.

### Preparation of Tool

The questionnaire for awareness test consisted of 40 questions and the responses were to be made in terms of closed ended form. Before using the questionnaire in the actual study the investigator conducted a pilot study on 50 students to ensure suitability of test. Based on the experience of pilot study some questions were modified by researcher. Out of 40 items of the test 14 items were from educational, 14 items from social and 12 items from legal dimensions of women right.

### Administration of Tools

The investigator visited all the B.Ed. College to administer the awareness tool. The investigator has administered the tool to find out the awareness on women rights. The researcher took every care so that the trainees do not find any difficulty in attempting the tools of the study. The test has been taken from the each student in order to get the perfect response from the students. Before the collecting the data the researcher has read out the instruction and gave some brief on the section of the questionnaire. Regarding the collection of the sample the researcher has given a stipulated time for the collection of the data.

### Scoring Procedure

Each item of Test is having 1 mark. One mark was given for positive answer and for wrong answer Zero (0) marks given. In this way the researcher has completed the scoring work of 280 copies of awareness test.

### Result

For the purpose of objective- I to V and testing of the formulated hypotheses, the following tables from 1 to 5 have been used for computing the results. The researchers analyzed the data variable wise to study the Women Right Awareness among the B.Ed. Trainees of Arunachal Pradesh, which have been put in the table respectively.

**Objective- I : To compare the Women Right Awareness among the Male and Female B.Ed. Trainees of Arunachal Pradesh.**

**H0 1-** There is no significant difference in women Right Awareness between the Male and Female B.Ed. Trainees of Arunachal Pradesh.

**Table-1 : Difference between Male and Female B.Ed. Trainees according to their Women Rights Awareness.**

| Group  | N   | Mean  | SD   | SEr  | SE <sub>D</sub> | Mean Difference | Df  | 't'-value | Table value |
|--------|-----|-------|------|------|-----------------|-----------------|-----|-----------|-------------|
| Male   | 87  | 21.45 | 6.07 | 0.65 | 0.77            | 0.12            | 278 | 0.16**    | 1.97        |
| Female | 193 | 21.34 | 5.93 | 0.43 |                 |                 |     |           |             |

\*\* Not significant at 0.5 level of probability.

Interpretation: Analysis of the above table reveals that, the null hypothesis,  $H_0: \mu_1 = \mu_2$ , could not be rejected because the observed 't' value (0.16) is less than the critical 't' value (1.97) with  $df = 87 + 193 - 2 = 278$ , at .05 levels. Hence, it may be interpreted that Males and Females B.Ed. Trainees do not differ significantly in the awareness on women rights. Thus both Male and Female have same or equal level of awareness on women rights.

**Objectives - II : To compare the women Right Awareness among the Tribal and Non-Tribal B.Ed. Trainees of Arunachal Pradesh.**

**H02 -** There is no significant difference in women Right Awareness between the Tribal and Non-Tribal B.Ed. Trainees of Arunachal Pradesh.

**Table-2: Difference between Tribal and Non-Tribal B.Ed. Trainees according to their Women Rights Awareness.**

| Group      | N   | Mean  | SD   | SEr  | SE <sub>D</sub> | Mean Difference | Df  | 't'-value | Table value |
|------------|-----|-------|------|------|-----------------|-----------------|-----|-----------|-------------|
| Tribal     | 232 | 21.22 | 5.93 | 0.39 | 0.95            | -0.88           | 278 | 0.93**    | 1.97        |
| Non-Tribal | 48  | 22.10 | 6.16 | 0.89 |                 |                 |     |           |             |

\*\* Not significant at 0.5 level of probability.

Interpretation: It is revealed from the table-2 that, the null hypothesis,  $H_0: \mu_1 = \mu_2$ , could not be rejected because the observed 't' value (.93) is less than the critical 't' value (1.97) of with  $df = 232 + 48 - 2 = 278$ , at .05 levels. Hence, the Tribal and Non-Tribal B.Ed. Trainees do not differ significantly in the awareness on women rights. Thus both Tribal and Non-Tribal B.Ed. Trainees have same or equal level of awareness on women rights.

**Objectives - III : To compare the women Right Awareness among the Private and Government College B.Ed. Trainees of Arunachal Pradesh.**

**H03 -** There is no significant difference in women Right Awareness between the Private and Government College B.Ed. Trainees of Arunachal Pradesh.

**Table - 3 : Difference between Private and Government B.Ed. Trainees according to their Women Rights Awareness.**

| Group         | N   | Mean  | SD   | SEr  | SE <sub>D</sub> | Mean Difference | Df  | 't'-value | Table value |
|---------------|-----|-------|------|------|-----------------|-----------------|-----|-----------|-------------|
| Pvt. College  | 232 | 20.93 | 5.76 | 0.37 | 0.98            | -2.95           | 278 | 2.99*     | 1.97        |
| Govt. College | 48  | 23.88 | 6.53 | 1.01 |                 |                 |     |           |             |

\* Significant at 0.5 level of probability.

Interpretation: Analysis of the above table reveals that, the null hypothesis  $H_0: \mu_1 = \mu_2$ , could be rejected because the observed 't' value (2.99) is more than the critical 't' value (1.97) with  $df = 232 + 48 - 2 = 278$ , at .05 levels. Hence,

the Private and Government B.Ed. College Trainees differ significantly in the awareness on women rights. Hence, it may be interpreted that Government College B.Ed. Trainees is having more women Right Awareness than Private College Trainees.

**Objectives - IV : To compare the women Right Awareness among the Urban and Rural B.Ed. Trainees of Arunachal Pradesh.**

**H04 -** There is no significant difference in women Right Awareness between the Urban and Rural B.Ed. Trainees of Arunachal Pradesh.

**Table-4: Difference between Urban and Rural B.Ed. Trainees according to their Women Rights Awareness.**

| Group | N   | Mean  | SD   | SEr  | SE <sub>D</sub> | Mean Difference | Df  | 't'-value | Table value |
|-------|-----|-------|------|------|-----------------|-----------------|-----|-----------|-------------|
| Urban | 156 | 20.92 | 5.76 | 0.46 | 0.72            | 1.02            | 278 | 1.42**    | 1.97        |
| Rural | 124 | 21.94 | 6.19 | 0.55 |                 |                 |     |           |             |

\*\* Not Significant at 0.5 level of probability.

Interpretation: Analysis of the above table reveals that, the null hypothesis,  $H_0: \mu_1 = \mu_2$ , could not be rejected because the observed 't' value (1.42) is less than the critical 't' value (1.97) with  $df = 156 + 124 - 2 = 278$ , at .05 levels. Hence, both the Urban and Rural B.Ed. Trainees do not differ significantly in the awareness on women rights. Thus both Urban and Rural B.Ed. Trainees have same or equal level of awareness on women rights.

**Objectives-V: To compare the Women Right Awareness among the Science and Non Science B.Ed. Trainees of Arunachal Pradesh.**

**H05 -** There is no significant difference in women Right Awareness between the Science and Non- Science B.Ed. Trainees of Arunachal Pradesh.

**Table - 5 : Difference between Science and Non- Science B.Ed. Trainees according to their Women Rights Awareness.**

| Group          | N   | Mean  | SD   | SEr  | SE <sub>D</sub> | Mean Difference | Df  | 't'-value | Table value |
|----------------|-----|-------|------|------|-----------------|-----------------|-----|-----------|-------------|
| Science        | 61  | 21.85 | 5.57 | 0.71 | 0.86            | 0.61            | 278 | 0.71**    | 1.97        |
| Social Science | 219 | 21.24 | 6.08 | 0.41 |                 |                 |     |           |             |



**\*\* Not Significant at 0.5 level of probability.**

**Interpretation:** The Table indicates that the mean scores of Science and Non-Science students are 21.85 and 21.24 respectively. Analysis of the above table reveals that, the null hypothesis,  $H_0: \mu_1 = \mu_2$ , could not be rejected because the observed 't' value (.71) is less than the critical 't' value with  $df = 61 + 219 - 2 = 278$ , at .05 levels. Hence, the Science and Non-Science B.Ed. Trainees do not differ significantly in the awareness on women rights. Thus both Science and Non-Science B.Ed. Trainees have same or equal level of awareness on women rights.

### Dimension wise Analysis

To find out the women right awareness on dimensional aspects (Education, Legal and Social dimensions) the researchers prepared the Awareness Test with above given three dimensions questions. The analysis was used to find out the different level of awareness on Education, Legal and Social dimensions. With this the researcher explored dimension wise awareness on women rights which is given in table-6.

**Table 6: Dimension wise difference in Women Rights Awareness among the B.Ed Trainees of Arunachal Pradesh.**

| Dimension | N   | Total Score | No of Question | Total Score/ No of Questions |
|-----------|-----|-------------|----------------|------------------------------|
| Education | 280 | 2592        | 14             | 185.14                       |
| Legal     | 280 | 1261        | 12             | 105.08                       |
| Social    | 280 | 2132        | 14             | 152.28                       |

**Interpretation** The above table highlights the status of women rights in the light of its various dimensions: Educational, social and legal. In order to find out the concentration, the Total Score is divided by Number of Questions. From the above concentrations, it is clear that the B.Ed. Trainees of Arunachal Pradesh are having high level of Awareness in Education Dimensions, lowest in legal dimension and medium in social dimension of women right.

### Summary and Discussion of the Study

Analysis the research state that there is no difference between Male and Female on women rights awareness. It may be due to equal educational opportunities for both male and female. The NGOs, social-media, society etc.

plays a vital role in providing awareness on women rights. Secondly, both Male and Female joining B.Ed. Course after their completion of Graduation, so they are having well awareness regarding women rights. There is no gender discrimination in education and in society.

The researcher found that there is no difference between Tribal and Non-Tribal on women rights awareness. It may be due to equal educational opportunity of Tribal and Non-Tribal. There is no discrimination between Tribal and Non-Tribal in education environment. The education, media and society etc. plays a vital role in awareness on women rights.

It was found that there is difference between Government and Private B.Ed. Trainees on women rights awareness. The achievement of Government B.Ed. Trainees is better than Private B.Ed. Trainees. In Government colleges there are much better opportunities to expose to the environment (e.g., workshop, seminar, symposium, conference, debate etc) than the Private Colleges. There is better facilities such as: Library, Qualified Educators etc. Private colleges have less opportunity for the Trainees to expose themselves in events like: workshop, seminar etc.

From the above Analysis the researcher finds that there is no difference between Urban and Rural on women rights awareness. It may be due to equal educational opportunity of Urban and Rural. There is a better educational facility in rural areas also. The Government schemes such as: SarvaShikshaAbhiyan (SSA), RastriyaMadhyamikShikshaAbhiyan (RMSA), NPGEL, NRHM etc. plays a vital role in development of rural education. The education, media and society etc. plays a vital role in awareness on women rights. Both Urban and Rural students join the B.Ed. Course after completion of Graduation.

The researcher found that there is no difference between Science and Non-Science on women rights awareness. It may be due to equal educational opportunity for both group. The education, media and society etc. plays a vital role in awareness on women rights.

### Educational Implication

Based on the findings of the study following Educational implications has been drawn :

1. This study will help and guide the concern teachers of women Studies in teaching the subject effectively inside and outside the classroom.

2. The study will help the different institutions of higher Education to identify the needy groups for organizing the various Awareness programs and activities on women rights.
3. The study will be helpful for policy makers and educational planner in various ways.
4. The study also implies that Private B.Ed. College Trainees need more awareness programs on women rights than Government College B.Ed. Trainees. Hence every attempt should be made by the B.Ed. College to see that Private College also takes interest.
5. The study will help in preparing curriculum and its suitable transaction..
6. Last but not the least Awareness on womenright is an important area of the study in the present context of rapid global context. Therefore, the present study is a great input in gearing up the women rights programs in State and country.

### Recommendationsof the Study

Gender justice is very important in the present democratic society and women right awareness is very necessary to insure a society based on gender equality. Now Gender sensitivity and women right awareness is necessary aspect of our Education system. Hence at the time of teacher education women right awareness should be given important place in theory as well as practice. So the study recommends that women right should be given importance place in B.Ed. program. Considering importance of Gender issues in B.Ed. curriculum, National Council for Teacher Education (NCTE) (in the new regulation 2014) accepted Gender as integral part of B.Ed. curriculum. Now in the new B.Ed. curriculum of Rajiv Gandhi University gender studies has been accepted as a separate paper. Therefore, all the Population of present study will be benefited because all the colleges are affiliated with the University and following the same curriculum.

Private colleges have less women right awareness than Government College that is Rajiv Gandhi University (RGU) Department of Education, so special focus should be given to promote awareness in private B.Ed. colleges through seminar and workshop. Some special kind of programs should be organized in collaboration with women study centre, RGU.

Study also found that women right Awareness on legal dimension is very less

than other two dimensions, somore focus should be given on legal dimensions of women right. In the new B.Ed. curriculum RGU legislative dimension were included specifically. This initiative can help in providing legal women right awareness in prospective teacher and masses of Arunachal Pradesh.

Women rights education program should be included in school, college curriculum. Teachers should conduct an essay competition, recitation, poetry narration in schools, Panchayat level and parent- teacher function.Co-curricular activities relating to the women rights should be included in the regular program.The Expert and qualified faculty should be appointed in all the Institutions for the awareness and imparting the knowledge in the state.

### References

1. Aggrawal, S.P and Aggarwal, J.C. (1996). *Second Historical Survey of women's Education in India of 1988-1994*. New Delhi; Concept Publishing Company.
2. Arunachal Pradesh State Commission for Women. (2011). *Annual Administrative Report of 2011-12*. Itanagar; Published by APSCW.
3. Baruah, S.L. (1992). *Status of Women in Assam*. New Delhi; Omsons Publications.
4. Chakraborty, K.S. and Das, R. (2007). *Human Development Experiences of North-East India*. New Delhi; Akansha Publishing House.
5. Chouhan, L. (2007). *Women and the Law*. New Delhi; Mittal Publications.
6. Krishna S. (2007). *Women's Livelihood Rights*. New Delhi; Sage Publication.
7. Mohanti, J. (2003). *Human Rights Education*. Deep publications, New Delhi.
8. Sheel, N. (1990). *Women and Development*. New Delhi; National Institute of Educational Planning and Administration.
9. Prasad,J. (2006). *Women Education and Gender justice: A Multi-Dimensional Approach*. New Delhi; Kanishka Publisher.
10. Shrivastava R. (2009). *International Encyclopaedia of Women Rights and Children Rights*. New Delhi; Anmol Publications Pvt. Ltd.
11. Sophia A. (2013). *Women and Development in Manipur-A case study of Meitei women of the valley*. Unpublished Ph.D. Thesis, Department of Economics, Manipur University, Imphal.
12. Trpathi, S.C., (2010). *Women and Criminal Law*. Allahabad, India; Central Law Publications.

## A Study of Urban Informal Sector Workers in Urban Tezpur of Assam

Biman Kumar Nath

Received on 18 August 2015

Accepted on 23 November 2015

### Abstract

*Indian labour market consist of a large quantum of informal sector labourers who are characterised by low level of organization, long working hours, absence of employer-employee contract and predominance of unskilled workers. It has spatial variations within the country where the city size and economic activities are changing rapidly. The rapid urbanization process in different corners of India fuelled the growth of informal sector which is also labeled as unorganized sector in development literature. Such a trend of urbanization is also reflected in small cities of Assam. Tezpur town is situated in the North bank of Brahmaputra Valley of Assam where economic activities and city size is changing fast. A survey is conducted among 246 workers in urban informal sector who work as self employed and are working in other's enterprises. The employment situation of the respondents both migrants and natives are vulnerable to a large extent. Moreover, their earnings and working conditions are far distant from formal sector workers. Therefore, an attempt is made to locate the earnings and working conditions of urban informal sector in Tezpur town of Assam.*

**Keywords :** Urban informal sector, job security, vulnerability, economic security etc

### Introduction

Indian states and major cities have witnessed rapid urbanization without any

proportionate improvement in urban infrastructure. This urbanization is not solely the result of industrialization. It can be attributed to urban bias in investment of capital, finance and allocation of productive resources. The level of urbanization has increased from 27.8 per cent in 2001 to 31.15 per cent in 2011. The same trend of the country is also visible to the states. For example, the growth of urbanization in Assam has increased from 12.9 to 14.8 per cent over the same period. However, the growth of decadal urban and rural population is 27.61 and 15.31 per cent respectively (Census, 2011). Consequently, demographic features of the urbanization process have resulted in a substantial increase in urban labour force. This increased labour force is not gainfully employed in terms of many aspects of social and economic securities. Thus, the growing labour force remains unemployed and underemployed who finally settle in the urban informal sector in variety of activities. The empirical scenario of urban labour market in Assam reflects the coexistence of a small, well-organised formal sector with a large informal sector although the pace of growth of Rural Non farm Sector (RNFS) is more rapid than that of their urban counterpart. But, the selected towns have got a growing momentum of urban informal sector labourers. The formal sector is characterized by relatively high earnings and attractive employment condition while the informal sector is characterized by low and volatile earnings. Research efforts in urban employment as well as labour market in the past have most often focused on the organized sector.

### Concept and Approaches

Informal sector emerged as an extensively researched topic prior to 1970s when it became a stylized fact that the informal or broadly unorganized sector, is often the most important employment opportunity in developing nations. The models of sectoral dualism advocated by Lewis (1954) and Fei and Ranis (1961, 1964) prove to be ineffective since the 1970s as far as broad based employment generation is concerned. Those classical theories assumed that informal sector would gradually disappear with the process of economic development. However, the contemporary evidence negates this truth and informal sector now acts as a potential candidate capable of creating widespread income and employment. The developing countries face problems of poverty and employment creation coupled with malnutrition, hunger, inequalities etc. There is limited scope for generating adequate formal sector employment. It is resulting in failure to keep pace with the continuously rising unemployment in last few decades. The process of informalization is a

transitory phenomenon which is expanded and diversified to many economic activities as the development process picks up momentum. The jobless growth introduced by Structural Adjustment Programme (SAP) sincerely compelled the private sector to squeeze their employability to maintain competitiveness and cost efficiency. This trend is observed in developing nations where informal sector sits in a permanent chair and employability is a debatable issue. However, the nature of informality does not coincide between developing and developed nations. In developing countries, it can be considered as a survival instrument or "employer of last resort" for the poor people where there are no alternative avenues available for them. On the other hand, the enterprises in the informal sector of the developed countries provide more autonomy, flexibility and freedom as compared to formal sector. The International Labour Organization (ILO) started the first employment mission to Kenya in 1972 and found that the traditional sector of Kenya included some profitable enterprises and marginal activities which they referred to as 'informal sector'. But the term informal sector was first coined by a social anthropologist Keith Hart (1973). While doing a research on labour market of Accra, Ghana, he found that there exist sections of labour force that cannot be fitted into the conventional category of the working class that is formal sector. Those are local day labourers who offered their services at certain places in the city. And Hart labeled them as 'informal sector' workers in contrast to the formal sector comprising regular wage-earning workers. Recognizing informal sector as a relative term, Bose (1978) examines that informal sector is exploited by formal sector and backwardness of informal sector is responsible for the stagnancy of formal sector. The informal sector is exploited by formal sector through marketing system by purchasing goods from informal sector at negligible prices and makes huge profit by selling at higher prices. Moreover, the informal sector is also at disadvantageous position in purchasing inputs at sky-high price from the black market. On the other hand, formal sector can get their inputs at controlled and subsidized price. This view is also supported by few scholars (Romatet, 1983; Harriss, 1982) by stating that subcontracting system is a medium of exploitation which usually prevails in the informal sector. But for the dynamic growth of both the sector, there is requirement of simultaneous development (Papola, 1981; ILO, 1972).

### Study Area and Sample Selection

Tezpur town is known for its mythological stories and cultural peculiarities. It is situated in the middle of Assam where people from both Upper and

Lower Assam reside since time immemorial. Many studies have been undertaken in Guwahati by scholars who are mostly confined to particular segment of informal sector workers like construction workers or milk producers (Saikia, 2009). The district is surrounded by Lakhimpur in the east, Darrang in the west, Bhutan and Arunachal Pradesh in the north and river Brahmaputra in the south. The entire district is divided into three subdivisions namely Tezpur, Biswanath Chariali and Gohpur with seven revenue circles and fourteen development blocks. Industrialization in Tezpur town has been slow in terms of product diversification. However, service sector is rapidly increasing in the sample area and thus growth of urban informal sector is observed in many economic activities.

### Objectives and Methodology

The following are the objectives of the Study :

1. To investigate the quality of employment in the informal sector in terms of earnings, working environment and different dimensions of 'decent work'.
2. To study the general socio-economic characteristics and conditions of the informal sector workers.

The study is mainly empirical in nature. It is primarily based on analysis of primary data with pre-tested questionnaires canvassed among 246 informal sector workers in Tezpur town of Assam. Workers are selected from each of the following activities: (i) Construction (ii) Rickshaw pulling (iii) Auto-repair and transport (iv) Hotel and restaurant (v) Petty trading and (vi) Domestic services and other informal sector activities. The sample is carefully chosen so as to give adequate representation to both male and female workers, as well as indigenous/local and migrant workers. The collected data are recorded in a statistical package and accordingly tabulations are made.

### Composition of Informal Sector in Urban Assam

National Sample Survey Organisation (NSSO) in India conducts surveys on informal sector workers and enterprises in various rounds based on its Employment and Unemployment Surveys (EUS). The latest report on informal sector and employment condition i.e. the 68th round gathers information of workers in the usual status category in the informal sector on per thousand basis. The composition of informal sector workers in various types of indus-



tries of NIC-2008 is presented in percentage terms in the diagram given below.

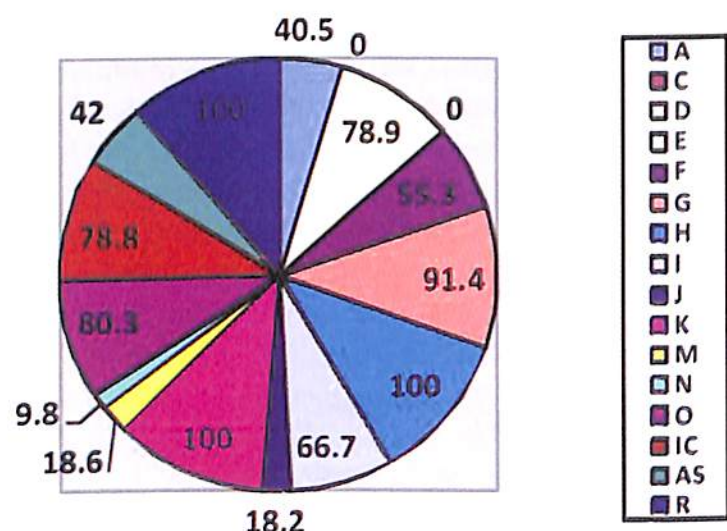


Figure-A: Percentage of Informal Sector Workers in Urban Assam

Note: A=AGEGC, C=Mining & Quarrying, D=Manufacturing, E=Electricity, Gas & Water Supply, F=Construction, G=Wholesale & Retail Trade, H=Hotels & Restaurants, I=Transport, Storage Communications, J=Financial Intermediation, K=Real Estate, Renting & Business activities, M=Education, N=Health & Social Work, O=Other Community, Social & Personal Services, AS=Administration & Support Service Activities, R=Arts, Entertainment & Recreation

However, in the agriculture sector, industry groups 011 (growing of non-perennial crops), 012 (growing of perennial crops), 013 (plant propagation) and 015 (mixed farming) of NIC - 2008 were excluded from the present survey. Thus, excluding the above groups, a part of the agricultural sector is examined and named as AGEGC sector i.e. agriculture excluding the above mentioned groups. Such figures are calculated on percentage basis for Urban Assam and depicted in the above figure A. The details of the figures are tabulated in annexure-I. As shown in the above figure, in three types of industries namely hotel and restaurants (H), real estate (K) and arts and entertainment (R), informal workers constitute hundred per cent in usual status category. This is followed by 91.4 per cent in wholesale and retail (G), 78.9 per cent in manufacturing (D), 78.8 per cent in information and communication (IC), 80.3 per cent in community and social services (O) and 66.7 per cent in transport, storage and communication (I) in urban Assam.

### The sample informal sector workers in Tezpur town: A brief socio-economic profile

The sample workers are surveyed in 25 different sub-locations of the town. Diverse communities having different castes reside in the town. However, field survey is made on those particular places where municipalities do exist so that they fall in the category of Urban Informal Sector. Among the 246 informal sector workers including self employed and working in others enterprises, highest participation is found among the OBC followed by General and SC communities. As a growing city with rapid urbanization, many economic activities are going on in Tezpur town including construction and petty trading. As the number of rental accommodations are less, hence workers tend to stay in rent houses which are far away from the main town.

Immigration in Assam is evident in many writings. It can be traced back to the opening up of capitalist economy in the post Ahom rule period when immigrants from many places of mainland India and also from East Pakistan settled in the state. Declining land-man ratio and poverty in the rural areas are two basic push factors of migration within the state which leads to increase in participation in the urban informal sector. Of the total workers, nearly 89 per cent reported that they are natives of the state (Table-B). However, in the lower circuit of Urban Informal Sector (UIS) like barbers and shoe makers, the predominance of migrant workers is very much visible (nearly 11 per cent) compared to that of other occupations.

Table: B

| Cross-tabulation of Migration and sex of the Respondent |                                 |           |       |
|---|---------------------------------|-----------|-------|
| Sex   | Are You a Migrant to this place |           | Total |
|   | Yes                             | No        |       |
| Male  | 26 (12%)                        | 176 (87%) | 202   |
| Female  | 1                               | 43        | 44    |
| Total   | 27 (11%)                        | 219 (89%) | 246   |

Source: Field Survey

### Vulnerability and Security

A significant share of the informal sector workers are deprived of benefits or



security, similar is the case of those who are engaged in informal employment in the formal sector. But, employment analysts argue that degree of vulnerability is higher in case of informal employment in the informal sector than that of informal employment in the formal sector. Many workers are sometimes physically abused either in the workplace or outside the workplace.

Table: C

## Physical Abuse at the Workplace of Sample Workers

| Have you ever been abused physically at your work place |        |          |           | Total |    |
|---|--------|----------|-----------|-------|----|
| Religion  |        | Yes      | No        | 191   |    |
|   | Hindu  | 48 (25%) | 143(74%)  |       |    |
|   | Muslim | 25 (55%) | 20 (44%)  |       | 45 |
|   | Others | 5 (50%)  | 5 (50%)   |       | 10 |
| Total   |        | 78 (31%) | 168 (69%) | 246   |    |

Source: Field Survey

Table-C shows that 31 per cent of the workers are physically abused at their workplace either by the employers or by the customers. Cross-religion figures indicate that 55 per cent of the Muslim workers are abused physically which is the highest followed by Hindu and other religions. But, the workers who use to work under an individual or in some household are found to be less abused than that of self-employed (Table-D). It was found that people who work under an individual or in a household do have some informal agreement in which both the parties benefit. On the other hand, self-employed people do not have such kind of agreement neither do they undergo physically abuse.

Table - D

## Physical abuse by-employer Employees in Informal sector

| Have you ever been abused physically at your work place |     |     |       |
|---|-----|-----|-------|
| Nature of Employer                                      | Yes | No  | Total |
| In a household  | 8   | 13  | 21    |
| By an individual  | -   | 14  | 14    |
| Self employed   | 58  | 153 | 211   |
| Total   | 66  | 180 | 246   |

Source : Field Survey

A large number of studies suggest variations in earnings of entrepreneurs across different activities in unorganised sector (Samal, 1989; Upadhyay, 2007). The earnings of the respondents are collected and recorded in SPSS by classifying into three categories of income. The result shows wide variation within the respondent's income. Of the total, 16 per cent and 56 per cent of the workers get income within 1000-2000 and 2000-5000 respectively. A meager 27 per cent reported that they earn more than Rs.5000/- per month from their source of livelihood (Table-E). Majority of the workers (56.09 per cent) are having gross monthly earning below Rs. 5000/-. Moreover, earning discrimination of the male workers and female workers is remarkable. As far as the informal sector is concerned it is found that a large number of female workers have low levels of earnings. The national or state level wage rate published in various reports shows wage discrimination between male and female workers. However, our study also reveals that the highest numbers of women workers earn in the lowest slab (1000-2000) of the income level (81.18 per cent). Secondly, only 18.18 per cent of the women workers earn more than Rs.2000/- which is the second highest slab. It is quite surprising that there are no female workers who earn more than Rs.5000/-. Thus, gender based wage rate discrimination is very pronounced in the study area.

Table- E

## Earnings of Sample Respondents in three Income Slabs

|        | Earning Slab Per Month |              |             | Total |
|--------|------------------------|--------------|-------------|-------|
|        | 1000- 2000             | 2000-5000    | 5000- 10000 |       |
| Male   | 4(1.98%)               | 130(64.35%)  | 68(33.67%)  | 202   |
| Female | 36(81.18%)             | 8(18.18%)    | NA          | 44    |
| Total  | 40(16.26%)             | 138 (56.09%) | 68(27.64%)  | 246   |

Source : Field Survey (Figures in the bracket indicates Row Percentage)

The public distribution System is always perceived to have a positive impact on the upliftment of vulnerable sections of the society. But, the identification of poor in UIS is still under consideration. The so called targeting of BPL population sometimes cannot reflect the relative vulnerability of UIS work-

ers. Probing questions on PDS to the surveyed workers yield the following results (Table-F).

**Table- F**

**Public Distribution System of the UIS workers in Sample area**

|        | Have you Purchased any item from the PDS in the last 30 days |              | Total |
|--------|--|--------------|-------|
|        | Yes  | No           |       |
| Male   | 64 (31.84%)  | 137 (68.15%) | 201   |
| Female | 5 (11.11%)   | 40 (88.89%)  | 45    |
| Total  | 69 (28.04%)  | 177 (71.96%) | 246   |

Source: Field Survey (Figures in the bracket indicates Row Percentage)

Most of the surveyed workers belong to distant places and are migrants from within the state. It is sometimes difficult for them to get any BPL or APL card in order to get benefits of PDS since most of the workers do have their own home in the district where they are working. Around 68 per cent of the male workers in the survey did not possess them and they could not get any benefit from the PDS either because they were migrants or they were not interested in the low quality of the food items. Of the total female workers, only 11 per cent availed the benefits. Hence, PDS in the study area is not able to achieve any success leading towards the betterment of the Urban Informal Sector workers.

The informal sector is generally viewed as consisting of small scale enterprises, but this is misleading as most of the participants in this sector function without a profit motive as their main aim is to generate employment and income for themselves and for their family members. However, some of them have crossed the barrier and evolved into small-scale enterprises with significant amounts of capital and skills with the primary motive of profit earning. The purpose of the study was to give an idea about the anatomy and functioning of the informal sector in urban areas. The sectoral distribution of the workers shown in Annexure-I reveals concentration of significant share of informal workers in Urban Assam over three rounds of NSS. In the industries like hotel and restaurants, arts and entertainment, real estate and wholesale and retail trading, the predominance of informal workers is found to be higher in urban areas of Assam as compared to others. On the other

hand, most of the workers engaged in the service sectors working as barbers, rickshaw pullers, thela pullers, helpers of mason, cobblers etc are mostly migrant and do stay in rented house in sub-human conditions. This lower circuit of UIS workers do not get the benefits of PDS since they are not entitled to get BPL card. However, they were found to send a bulk of their earnings to their family back home. Under such circumstances, identification of UIS workers in a holistic way can be suggested in lieu of BPL categorization.

**Concluding Remarks**

The informal sector as a whole suffers from number of structural deficiencies. Since already the sector is occupying a bulk of workforce, it needs to be developed which require utmost attention from the government. Of course, there are numerous common problems and characteristics between formal and informal sector. But, it is seen in many sub-national level studies that heterogeneity in informal sector does exist even within a state. Therefore, uniform policy prescription cannot be suggested. The overall development of Tezpur is very much required as it is one of the growing major towns of Assam. Higher labour market flexibility, higher employment generation with low capital, uses of family labour, like factors show its superiority over its formal counterpart. Thus, the development of livelihoods conditions of the workers is the need of the hour. Identification of UIS workers instead of BPL population should be given prominence by the national statistics. In such a situation, it may be possible to trickle down the policies exclusively to the actual beneficiaries.

## CRITICAL REVIEW

Dr. Joram Yalam Nabam\*

### "Aupniveshik Mansikta se Mukti : Siksha aur Sanskriti ki Rajneeti"

The book, Aupniveshik Mansikta se Mukti: Siksha aur Sanskriti ki Rajneeti (originally titled as Decolonizing the Mind), is a collection of essays by the famous Kenyan writer and novelist, Ngugi wa Thiong'o translated by Dr. Anand Swaroop Verma into Hindi. He has translated the book through which the Hindi-speaking populace can also be informed and encouraged by the great thoughts of the revolutionary Kenyan author.

This book contains essays on many relevant social and political topics. The core message in these essays is that there is deep connection between the Education, culture, language and politics. When a country is invaded and ruled by another nation with and alien culture and language, then it is not only political governance but also an effect upon the whole culture and traditions of the invaded nation. In such situation the seeds of revolt are sown, which mature into freedom struggle of the colonized nation.

The following topics are covered in this book-

Bhasa ka samrajyavad,

Nav aupniveshik rajya aur sanskriti ka charitra,

Samrajyavad aur kranti,

Naslvasi vichaardhaara,

Sahitya mein Naslwaad,

Rashtriya Sanskriti ke liye siksha,

School mein budhijiviyo ki bhumika aur Afriki sahitya ki bhasha.

There is no problem in learning or adopting any language of the world but the problem arises when a language influences the culture and tradition of the colonized (or recipient) nation. Language protects the culture and tradition of a nation but other languages influence this very language. This is a threat to the society because people slowly kill their own language and dialect which is a suicidal act. For example, in Arunachal Pradesh there is no language but only, so people adopted Hindi language and this language has penetrated so deep into the society that many tribes have forgotten their own native dialects. In dialects there is a sense of belongingness which carries the fragrance of one's soil. It is a feeling that keeps the speakers attached to the land.

The British colonial mentality is almost spread in the whole world, it is not only in the African nations but also in India and in the under developed nations. In contemporary studies it is seen that English is increasingly used in China also. The British has made the English as their weapon for colonialism. The local language and dialects are weakening in the African nations. The English language has indirectly influenced the cultural ideologies also. Not only in Africa, but also in the whole of South Asia, the English Language has made a deep-rooted presence. In India English is influencing the languages like Hindi, Bengali, Tamil, Marathi, and Gujarati in the same manner as British colonialism. Many people who do not understand English feel inferior and this creates the mentality of colonialism. The local language/dialects are weak in their own native places. Through English language a strong cultural influence has come into the society, which is compelling and creating a mindset that it is necessary to know English. This is a form of language slavery. In such a situation, what will be the form of literature for such countries under British colonialism, whether it is English writing or the literature works done in the local language of that country? The originality and beauty expressed by Ravindra Nath Tagore's writing in Bengali cannot be expressed with the same beauty in other languages. Every language has its own beauty and importance through which the beauty of truth is expressed. This brings uniqueness in literatures.

The Bhakt Poet of Hindi Goswami Tulsidas in the "Ram vana Gaman" section has explained beautifully the scene of going to Jungle in Awadhi dialect. Here Ram, Sita and Laxman go to the jungle bare feet while following their responsibilities and duty - Ram goes first, making foot prints and Sita follows him but never steps on the foot prints of Rama. Laxman follows both Rama and Sita and he also does not step on the foot prints of Rama and

\* Assistant Professor Department of Hindi, Rajiv Gandhi University, Rono Hills, Doimukh, Arunachal Pradesh  
Email : yalamnabam3@gmail.com

Sita but Laxman's footprints are on the left and right side of the other foot prints. This is because it is considered a sin in Hindu culture to step upon the foot prints of elderly and respectable people. It is important to know the important landmarks and footsteps left by our ancestors in the history of civilization and this can be known through language/dialect. That is why, modernity should not mean an escape from our ancestors but an addition to the knowledge we have gathered from them, which, in the long run, will prove beneficial for the growth of a society.

Language is the most precious and beautiful invention of mankind. The language system separates human beings from animals. Language governs the whole system in this world and connects people. Language also disciplines the society. This has made the world more beautiful and this is how language nurtures the society. One language unites a particular place or a country and it is important to have knowledge of the language to understand any society; an understanding which enables one to walk with the world.

Different geographical conditions and circumstances have given birth to many languages/dialects but to keep unity among mankind nature has given us equality of feelings and emotions. Through this, mankind is unified in being human, creating unity in diversity and capacity to accept the whole world as one home. This is not possible without language. The dialects are also the product of language. Dialects are a small form of language and that is why dialects create curiosity. Unfortunately today many dialects of the world are dying; through which we could give new things to the world. Obtaining political freedom only does not give freedom to the people. Ngugi's book depicts the struggle of the people of Kenya, but it is also the story of all third world countries, where British colonialism has given political freedom but the people of those countries still strive for salvation.

According to Ngugi wa Thiong'o, when we adopt a new language, particularly English, it is the beginning of the end of our own language/dialect because for him English is shown as a language of the victorious colonizer and it is praised too much. Any language can become a world language, which has the potential but it should be as per the freedom and equality of the citizens. The English language is propagated so as to suppress the local language and dialect of the British colonies. This is the reason why the uncritical adoption of English has become a matter of concern. When countries are given equal respect and freedom then we can see equality of the languages too. For this, we have to work leaving aside our differences. There

should be use of three languages like English, the language of that nation and the local language of a particular area. For this translation has to be encouraged. The languages of the five continents should be equally encouraged. No language should exploit any country, its nationality and the language of that country. A language which is universally accepted should be declared as the world language. This can be the English language also and it can take the form of world language, with the condition that the English-speaking nations do not use it as a tool for colonizing cultures and languages.

When we advocate for language and dialects, we should not turn the enemy of any national or international language, rather we should insist that while adopting other languages we should not suppress our own language and one who cannot strike this balance cannot respect the other language also. Language helps to grow our feeling and emotions but if it fails in it then what is the need of language?

### Reference

Thing'o, Ngugiwa, 2007, *Decolonizing the Mind: the Politics of Language in African Literature*.

\*\*\*



## Feminism and Hindi Literature

Dr. Joram Yalam Nabam<sup>\*</sup>

Today the thinking of the people is changing. The perceptions about women are slowly changing. "Change is the first condition of modernity". To ask questions and seek the answer is modernity; restricting the freedom of women in the name of faith is sort of strangulation. I believe that the society that encourages debate is progressive. One day Chanakya came to Pataliputra University for admission, than Guru had asked him:- "who are you?" than Chanakya replied: - "I came here to know this" then he got admission.

Who am I? What I want.....we all have the right to know this. When we leave such type of questions in society then the problems and perception starts. Those families, societies, husband/ wife and also in the relations where there is conversations, they are beautiful. Living together without conversations is like living with strangers, so it is important to sit together and face each other to understand the emotions.

It is only a perception that the women are to be protected by, father, brother, husband or son. Freedom is natural and by birth, when we control or suppress the freedom by our perceptions then we start looking for alternate ways to express our feeling. There are many women who express their pain through creativity. All says: - "Now the modern world has come". Is modernity only symbol of time? Are the facilities only called as modernity? "Modernity lies in the thought process"; for me, logical debate is the first requirement of modernity. The change of thought process is modernity and faith is identity of the past, because faith is accepted without knowing. Faith is alright to the extent when it is not used to suppress some one. The Hindu people say that Husband is God, nobody questioned this and also no one argued why wife is not a Goddess? Is there God? No debate or argument on this.

<sup>\*</sup> Assistant Professor Department of Hindi, Rajiv Gandhi University, Rono Hills, Doimukh, Arunachal Pradesh, Email : yalamnabam3@gmail.com

The son of king becomes king, no questions are asked on this. In 1857 the Mughal Emperor Bhadur shah Zafar did not want to fight but in the name of faith he was forcibly made the king. No body felt the need to question this; king was accepted as form of God.

When faith was prevalent there was no rationality but Budhha, Kabir, Jesus, Sarhappa etc rationalized the things. They sought logic and rationality in temple, masjid, church etc. Were not these enlightened people modern? Truth is always new, then what is the true meaning of modernity?

Earlier the women did not have right upon property but no women ever questioned this. When swami Vivekananda was appreciating the Indian culture in America, the audience, asked him, "why the Indian women do not have right upon property? Then Vivekanda replied: - "Women are great, they are mother, Goddess of wealth (Laxmi) why should they need property?" this is camouflaging the Indian tradition. Today the girl child looks after the old parents; In contrast it was seen the women who gave birth to male child were lucky. But education has brought to light that not having a male child is not a matter of prestige. Now, it is also not a matter of prestige if women decide to remain spinster.

In the book Women Writing in India edited by Shashi Tharoor and K Lalitha they spelt on writing by women in Hindi literature. The details of women writing from the olden days to modern days are given in this book. Probably "Thairee" (Buddhist Nun) is the first women writer. Who sang and wrote the Thairee stories.

A Thairee sang: - " I have become Thairee and because of this I escaped from falling". This means that they are liberated by becoming Thairee. She escaped from scolding and beating of her ugly and hunch backed husband, there was no other source to liberation for her other than by becoming a Nun. In the search of liberation she became a Nun and for the first time sang their desires and pain. After this no women writer evolved and their presence were as if lost. In fifteenth century Meera Bai came, she also represents the desire for Liberation. She had to do many things to find the lover whom she loved. She was madly in love for Krishna, people called her mad. The biggest hurdle to the freedom of women is the outlook and perception of the society. This perception had kept the women under the control of men. Meera Bai had challenged this perception of the society. But this did not change the mind set in the society because the society was based on faith. There were no questions at all and no rationality too.

Today in the entire world there is an atmosphere of slavery, may be it is between husband and wife, between countries or among the genders, these falls under the purview of Feminism. No struggle is born without a force. The fight of feminism had begun in the olden days and today it has globalized.

In a religion where women are not liberated and are dependent- that religion will never progress. Mahadevi Verma the great writer of Hindi Literature said:- "If you cannot comply with the responsibility of a husband then leave me, I will live in freedom". This was her independent calling. She lived her life on her terms. Her love songs were expressed indirectly. Themes of her poetry were, pain, never - ending wait and mysterious circumstances. Seeing the indirect expressions in her poetry, Acharya Ram Chandra shukla removed emotions directly. He asked how there could be love without seeing as it is unscientific and this is against truth but Shukla ji forgot that love can never be scientific, it is irrational, and debate on love is illogical because love itself is illogical. Mahadevi Verma raises her questions on a strong foundation.

In Hindi Literature, feminism starts after freedom with new stories. The earlier poems and stories had a given a particular form to women-that women are a symbol of sympathy, love and sacrifice. Woman is for family chores and sex, as if her blood is white. All such forms about women are manufactured and are devoid of truth. Such type, of women characters are found in Indian Literature as in the book "Soor Sagar" the Gopis say - "There is only heart and it has gone with Krishna". But here Krishna is entangled with many women and do Women have only one heart and males have many? It is a myth about women, and it is manufactured, idealistic, devoid of reality. When will we understand the psychology of women?

Writer Jainendra says "kaga sab tan khayio, chun chun khayio maas, do naina mat khayio, mohe piyu Milan ki aas" which means hey crow eat my whole body but don't eat my two eyes as, I see my love with this eyes. Jainendra also says the same thing which Soor Das says. The women have to be liberated from the myth against women formed by the writers and poet. We are human beings so why not talk about humanity?

Women have her own real being; she can open the sky of her mind. Her mistakes can also be forgiven. Earlier she was myth, ideological symbol created by society. Today the challenge is to this "myth".

Buddha went in search of truth leaving behind his wife Yashodhara and she was silent. But the modern Yashodhara asks:- "Is it necessary to sacrifice women to attain salvation? When marriage was not to be committed than why perform the marriage? One unknown poetess says:-

**" Tum akele dahleje k paar nahi jawoge iss bar  
Mai bhi dekhungi ki uss paar hai kya akhir  
Kyunki tum hare iss nirvana mey mai bhi shareek hu".**

The dream of women is liberation from the Buddha's era. Woman has to see herself by her own eye and leave seeing it through men. As long as women are suppressed in the society, it will be a joke to talk about equality. A new thinking is needed for which our thought process should be changed.

Today the definition of beauty is also changing, and it is constantly changing, for example people judge women as per their perception. A woman becomes good or bad based on one's perception. People even say who will like her or marry her? But she will be liked by those whom she is made for; whether she wears jeans or shorts! Here is a small story written by Swayam Prakash, where Ashok and Renu are a loving husband and wife. In the match of cricket the wife defeats the husband. The husband who treated his wife equally, left on scooter leaving behind his wife after getting defeated thrice. The story ends here but the true story starts from here only. This is the beginning. I mean to say -it is not necessary to give extra respect to women nor they should be insulted. Just accept her the way she is. Her laughter should also be seen as equal to the laughter of a man.

It is necessary to shake the rotten Faith and Tradition in the society. Our fight is not with men but with the rotten Faith, which is instilled in the mind since birth. Change should be not only of dress and facilities but it should be of our thoughts- and this will be true modernity.

Feminism is against all these suppressions, which creates distance in the society. It is against the dead traditions, which has captured the society for decades, where one section asks for its share of land and sky with trembling hands.

The unending light of Education spreads everywhere, the rhythm of smiles never ends.....this is my desire and belief.

\*\*\*

## Reference

1. Pandey Mrinal, 2012, *Band Galiyo Ke Virudh*, Rajkamal prakashan.
2. Pandey Mrinal, 2013, *Stree -Lamba Safar*, Radha Krishna Prakashan.
3. Pathak Ravindra Kumar, 2011, *Jansankhya samasya ke stree path ke Rastey*, GyanpeethPrakashan.

# **RAJIV GANDHI UNIVERSITY RESEARCH JOURNAL**

The Rajiv Gandhi University Research Journal is a peer reviewed bi-annual research journal published in July and December. It is dedicated to the publication of research papers/articles in the field of social sciences, general sciences, language and literature. The Journal also publishes research notes, comments, book reviews and short communications.

## **Instructions to Paper Contributors**

Full-length articles, short communications, or book reviews may be submitted for publication.

Manuscripts are accepted with the understanding that they are not published elsewhere except as an abstract. All manuscripts are subjected to peer review by the editors or by other qualified reviewers.

1. All contributions should be submitted electronically, typed on A4 size paper in double space with adequate margin on the left side. The authors are requested to submit the manuscript in MS Word 2007 or MS Word 2010 using Times New Roman 12 font without any paragraph formatting.
2. The cover page of the manuscript should contain (i) Title of the paper which should be concise and informative, (ii) Name(s) of author(s), (iii) Professional affiliation (include postal address, e-mail, tel./Mob. and fax numbers), (iv) An abstract of the paper in less than 150 words, and (v) Acknowledgements, if any. The first page of the article must also provide the title, but not the rest of the items of cover page. A short running title should also be suggested.
3. The length of the articles should be within 8000 words including tables, appendices, etc.
4. Tables should preferably be of such size that they could be composed in size not exceeding 15x22 cm. Each table should have a heading stating its contents clearly and concisely. The source should be given below each table. Places where tables are to be inserted should be indicated.
5. Figures and charts, if any, should be professionally drawn using black ink on transparent papers. Each figure/illustration must be specifically referred in the text. Letters, numbers, dots, lines, etc., in the drawing should be large enough to permit reduction. Text-figures are to be numbered in Arabic numerals in order of their reference. Captions and legends to figures must be typed on a separate sheet of paper and attached at the end of the paper.
6. There shall be endnote to explain a point whose explanation in the text will make the flow of discussion inconsistent. The end note shall consist of an explanation or related references to authenticate your point of argument. Indications of notes should be serially numbered in the text of the articles with superscripted numeral and the corresponding notes should be given at the end of the paper.

7. References: Author(s) are to take special care with regard to the accuracy of the references. Editors are not responsible for them. A reference list should appear after the list of notes. Cite unpublished data/references, personal communications, mimeograph respectively as unpub., Pers. comm, mimeo., followed by the year if any.
8. List the references in alphabetical order at the end of the paper. Give titles of the books and names of journals in full. In case of Journals provide first and last page numbers for all entries. Volume of the journal must be written in bold. The name of the book or the journal shall be italic.
9. The sources shall be cited on the body of the text as follows: Author, year, page(s). For example (Mibang, 1993:4). Non-English words should be italics.
10. Referencing Style

Author(s) name.Year of Publication. Title of the paper (in case of book or book chapter write Titles of the article and the book). Publication Information (Name and Place of Publisher in case a book chapter), pp/pages.

#### **Single Author/editor**

Behera, M.C.1994. Planning and Socio-Economic Development of the Tribals.New Delhi: Common Wealth.

Elwin, V. (Ed.) 1959 .India'sNorth East Frontier in the Nineteenth Century. London: OUP.

#### **More than one author/editor**

Eggins, Suzanne, and Diana Slade.1997.Analysing casual Conversion.London: Cassel

Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech, and Jan Svarivk.1985.A Comprehensive Grammar of English Language.London: Longman.

Prasad,R. K., N. C. Mondal, P. Banerjee, M. V. Nandakumar and V. S. Singh. 2008. Deciphering potential groundwater zone in hard rock through the application of GIS. Environmental Geology, 55: 467-475.



**Correspondence:** Any correspondence should be addressed to The Editor, Rajiv Gandhi University Research Journal, Rono Hills, Doimukh - 791112, Itanagar, Arunachal Pradesh at <editorrgurj@gmail.com>

#### **Subscription Rate**

| Category      | India     | Abroad   |
|---------------|-----------|----------|
| Individual    | Rs.150.00 | US \$ 25 |
| Institutional | Rs.500.00 | US\$ 75  |

**Printed at :** Kishor Vidya Niketan, B-2/236-A-1, Bhadaini, Varanasi, U.P., contact: 9415996512, 9455209586, email: kvnpublisher@gmail.com