



# OFFICE OF THE PRINCIPAL KAKOJAN COLLEGE

**Re-accredited B+ Grade by NAAC**

P.O. & T.O. KAKOJAN, JORHAT: Assam-785 107

website: [www.kakojancollege.edu.in](http://www.kakojancollege.edu.in)

E-mail: [kakojancollegeadm@gmail.com](mailto:kakojancollegeadm@gmail.com)


## Supporting Documents for NAAC Self Study Report (SSR)

(3rd Cycle)


Period: 2017 – 2022

<b>Criterion – 3</b>	<b>Key Indicator – 3.3</b>
<b>Research, Innovations and Extension</b>	<b>Research Publications and Award</b>
<b>Metric Number: 3.3.1.1</b>	<b>Number of research papers in the Journals notified on UGC CARE list year-wise during the last five years</b>

Prepared and submitted by  
IQAC, Kakojan College, Jorhat, Assam

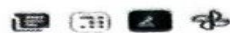





  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam


Metric No.	Heading
3.3.1.1.	Number of research papers in the Journals notified on UGC CARE list year-wise during the last five years

**RESEARCH PAPER PUBLISHED (2017 – 2018)  
(SIDDHARTHA KUMAR BHORODWAJ)**

10:51      

Published: 19 April 2017

**Mesoporous aluminosilicate: efficient and reusable catalysts for esterification of *sec*-butanol with acetic acid**




Ankana Phukan, Siddhartha Kumar  
Bhorodwaj ... Dipak Kumar Dutta 

+ Show authors

*Journal of Porous Materials* 25, 129–136  
(2018) | [Cite this article](#)  
299 Accesses | 3 Citations | [Metrics](#)

**Abstract**

Esterification of acetic acid with *sec*-butanol to produce *sec*-butyl acetate has been systematically carried out by using mesoporous (3–9 nm size) aluminosilicate (meso-AS) catalysts (surface area 327–578 m<sup>2</sup> g<sup>-1</sup>) derived from Na-montmorillonite by controlled HCl acid activation. High

RESEARCH PAPER PUBLISHED (2017 – 2018)  
(LAKHYA PROTIM NIRMOLIA)

Approved by UGC  
Journal No. : 63580  
Regd. No. 21747

Indexed : IIJIF, I2OR & SJIF  
IIJ Impact Factor : 2.471  
ISSN 2277-2014

# Research Discourse

*An International refereed research Journal*

Vol. VII

No. XXIV

July-September 2017



*Editor in Chief*

***Dr. Anish Kumar Verma***

**Associate Editors**

***Dr. Rakesh Kumar Maurya***

***Dr. Santosh Kumar Tripathi***

***Dr. Purusottam Lal Vijay***



International  
Innovative Journal  
Impact Factor (IIJIF)



*R. Bordoloi*

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



*N. Gogoi*

(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

- ◆ सर्वेश्वर दयाल सक्सेना और नयी कविता 192-195  
*गौरव कुमार जायसवाल*
- ◆ 'जूठन' आत्मकथा का समीक्षात्मक अध्ययन 196-200  
*अनीता देवी*
- ◆ माध्यमिक विद्यालयों में अध्ययनरत अनुसूचित जाति एवं गैर अनुसूचित जाति के विद्यार्थियों की शैक्षिक उपलब्धि का तुलनात्मक अध्ययन 201-204  
*डॉ० प्रेम पाल सिंह व डॉ० एन०एन० पाण्डेय*
- ◆ ग्रामीण रूपान्तरण में राजनीतिक अभिजन की भूमिका 205-207  
*डॉ० रविकान्त सिंह*
- ◆ माध्यमिक विद्यालयों में अध्ययनरत विद्यार्थियों के भग्नाशा एवं शैक्षिक उपलब्धि के सम्बन्ध का अध्ययन 208-210  
*डॉ० प्रेम पाल सिंह*
- ◆ Environment and an Individual's Survival Modes 211-213  
*Dr. Shweta Mishra*
- ◆ Interpretation of Myth and creation of Deprivation (With special reference of Religious Myths) 214-216  
*Anurag Kumar Pandey*
- ◆ Introduction to various Industrial Policies in India 217-219  
*Taranjeet Singh*
- ◆ The Battle of Sarighat: A Turning Point in the History of Assam 220-223  
*Lakhya Pratim Nirmolia*
- ◆ Behavior of Sovereign Bond Market of China 224-226  
*Shariq Ahmad Bhat*
- ◆ Detailed Analysis of Pocs0 Act 2012: Menace that Act Seeks to Cure 229-232  
*Sony Singh*
- ◆ The Ethics of War Termination in International Relations 233-235  
*Anusmita Dutta & Ankur Jyoti Bhuyan*
- ◆ Dilemma of Terrorism's Concept 236-237  
*Deepak Kumar Saxena*
- ◆ Evolution of Indian Education: The Stages 238-240  
*Dr. Vishnu Kumar*
- ◆ A Comparative Study of Commercial and Social Entrepreneurship 241-244  
*Ms. Rajni & Yashasvi Dalal*
- ◆ Healthcare Services for Human Development in Punjab: Public-Private Partnership 245-249  
*P.K. Mishra*
- ◆ Ecological Insights 250-251  
*Dr. Mitali Deb*
- ◆ Origin and Functioning of Revenue system of Northern India from 10th to 12th Century A.D. 252-254  
*Dr. Anjali Yadav*
- ◆ The Scientific Concept of 'SARGA' 255-257  
*Dr. Mitali Deb*

*R. Bordoloi*  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



*N. Gogoi*  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

## The Battle of Sarighat: A Turning Point in the History of Assam Lakhya Pratim Nirmolia\*

**Abstract :** *The history of Assam was properly recorded in written mode only after Sukapha, the founder of Ahom kingdom came to Assam. So, many invaders of different times came to Assam to annex this fertile territory within their empire. Among them Mughal was one of the most important. The Mughal attacked Assam several times. Sometimes they were able to conquer this land but were not able to completely annex within their empire. The powerful Mughals, during the time of Aurangzeb, attacked Assam for two times in 1663 AD and 1671 AD. In 1663 AD under the Commander-in-Chief of Mirjumla the Mughals attacked on Assam and they occupied this land for a period. But the independent Ahom ruler came out from the bondage of Mughal within a short period of time and prepared for war against the Mughals under the leadership of Chakradhavaj Singha. As a result the Mughal Empire sent another mission to attack on Ahom kingdom under the Commander-in-Chief of Ram Singha, the king of Ambar in 1671 AD. But the Mughals totally failed to occupy this land in the battle of Sarighat. In this paper an attempt has been made to find out the nature and results of the battle of Sarighat.*

**Keywords:** *Aurangzeb, Chakradhavaj Singha, Courage, Efficiency.*

**Introduction:** Assam, the north-east frontier state of India is surrounded by the great mountain ranges north, east and south inhabited by different hill tribes, mostly of Mongolian stock (Devi, Lakshmi, p. 01). The written history of Assam began when the Ahoms, a section of the Tai (speaking group) of the Mongoloid race of south-east Asian regions, who originally dwelt in Mongolia and in the south-western part of China in the south of Yang-tse-Kiang, penetrated into south-eastern corner Assam in the second half of the 13th century.

Sukapha, the founder of the Ahom kingdom, reached Assam in the last part of 1228 AD. After wondering from one place to another Sukapha finally established his first capital in 1253 AD at Charideo. Sukapha established a cordial relation with three local tribes i.e. Moran, Borahi and Chutia by marrying their daughters and appointing their men as cooks (changmai) in the royal kitchen. In 1268 AD, after a reign of forty years, Sukapha died. He had left a strong and permanent foundation of the Ahom kingdom from where the successors of Sukapha started their new life and administration for six hundred years in Assam.

The Ahom kingdom had faced first Mughal invasion during the period of Susengpha alias Pratap Singha for almost four decades. Though the Ahom king Pratap Singha was able to dominate the Mughal army but they never bowed down. The last powerful Mughal ruler Aurangzeb made two decisive invasions against the Ahom kingdom under the leadership of Mirjumla in 1663 AD and Mughal at Sarighat in 1671 AD where Mughal army bitterly defeated. In the battle of Sarighat, the Commander-in-Chief, Lachit Borphukan played a most significant part.

**Importance of the Study:** The battle of Sarighat was the turning point for the Ahom kingdom and its people. The powerful Mughal army not only attacked the Ahom kingdom but also destroyed much historical evidence of the Ahoms. The continuous attack of the Mughal army created lots of socio-economic problems in Assam. The Ahoms lost their huge army for which the law and order of the Ahom kingdom totally collapsed. However, both the Ahom and Mughal army used many different weapons and adopted war technique in the battle of Sarighat. But people of the modern times do not know about the history of the battle of Sarighat and its different techniques. So, it is necessary to study on the battle of Sarighat which took place in 1671 AD.

\*Assistant Professor, Department of History, Kakojan College, Jorhat, Assam

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

# RESEARCH PAPER PUBLISHED (2017 – 2018) (RAJDEEP BORAH)

International Journal of Recent Innovation In Engineering and Research

Scientific Journal Impact Factor - 3.605 by SJIF

e- ISSN: 2456 – 2084



## R DEGREE AND R INDICES OF SILICATES (SiO<sub>2</sub>) LAYER

A Bharali<sup>1</sup> and Rajdeep Bora<sup>2</sup>

<sup>1,2</sup>Department of Mathematics, Dibrugarh University, India

**Abstract-** A large number of graph invariant, called topological indices have been coined, depending on vertex degrees, which are called degree based topological indices. One of such recent index is R index, which is based on R degree of vertex in a graph. In this paper it is tried to discuss about the three R indices in connection with SiO<sub>2</sub> layer structure in a graph theoretic prospective.

**Keywords-** Topological index, SiO<sub>2</sub> layer structure, R indices.

### I. INTRODUCTION

From chemistry's point of view, compounds' properties give a measure of how a certain compound will behave and react but the process is both time, energy consuming and sometimes not possible due to financial constraints. On the other hand Chemical graph theory provides an easy alternative to this limitation. Topological indices are one of such numerical invariants, associated with the topological characterization of a compound. By topological characterization, we mean that these indices relate to certain properties of the compound including the toxicological, physicochemical, pharmacological etc. properties. Mathematically a topological index is a function from a set  $G$  of finite graphs to real numbers i.e.,  $Top : G \rightarrow R$ . Calculating topological indices is not only useful for verifying the existing properties of chemical compound but also for calculating new applications of naturally occurring molecules and more interestingly these can be used to design new compounds with specifically required properties [1].

In the development of the chemical sciences by using topological indices, Chemical graph theory has an important role. The first distance based topological index was proposed by Wiener in 1947 for modeling physical properties of alkanes, and till date, many topological indices were defined by chemists and mathematicians and so many properties of chemical structures were studied with these indices. One of such recent index is R-index, which was proposed in 2017, by Ediz [2]. In 2016, Farrukh et. al., have computed different versions of randić index [9], sum-connectivity index [8] of SiO<sub>2</sub> layer structure [3]. They have also obtained [4] various results for SiO<sub>2</sub> layer structure in connection with ABC index [11] and Geometric-Arithmetic index [5].

The rest of the paper is organized as follows: in next section we present the definitions of R indices. In section 3, we discuss the SiO<sub>2</sub> and its layer structure as a graph structure. Then in section 4, we present some new results which are obtained during our study. Conclusions are made in section 5.

### II. R DEGREES OF VERTICES AND R INDICES OF GRAPHS

A graph  $G = (V, E)$  consists of two nonempty sets  $G$  and 2-element subsets of  $V$  namely  $E$ . The elements of  $V$  are called vertices and the elements of  $E$  are called edges. For a vertex  $v$ ,  $\deg v$  shows the number of edges that incident to  $v$ . The set of all vertices which are adjacent to vertex  $v$  is called the open neighborhood of  $v$  and is denoted by  $N(v)$ . If we add the vertex  $v$  to  $N(v)$  then we get the closed neighborhood of  $v$ ,  $N[v]$ . For a vertex  $v$ ,  $S_v = \sum_{u \in N(v)} \deg(u)$  is the sum degree of  $v$  or briefly "sum degree" and  $M_v = \prod_{u \in N(v)} \deg(u)$  is the multiplication degree of  $v$  or briefly "multiplication degree".

**Definition 2.1:** [2] The R degree of a vertex  $v$  of a simple connected graph  $G$  is defined as;

$$r(v) = M_v + S_v.$$

**Definition 2.2:** [2] The first R index of a simple connected graph  $G$  is defined as

$$R^1(G) = \sum_{v \in V(G)} r(v)^2.$$

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

*Annals of Pure and Applied Mathematics*  
Vol. 16, No. 2, 2018, 287-293  
ISSN: 2279-087X (P), 2279-0888(online)  
Published on 15 February 2018  
[www.researchmathsci.org](http://www.researchmathsci.org)  
DOI: <http://dx.doi.org/10.22457/apam.v16n2a4>

Annals of  
**Pure and Applied  
Mathematics**

## Computation of Some Degree Based Topological Indices of Silicates ( $\text{SiO}_2$ ) Layer

A. Bharali<sup>1</sup> and Rajdeep Bora<sup>2</sup>

Department of Mathematics  
Dibrugarh University, Dibrugarh-786004  
Email: <sup>1</sup>a.bharali@dibru.ac.in

<sup>2</sup>Corresponding author. Email: rajdeepbora23@gmail.com

Received 1 February 2018; accepted 14 February 2018

**Abstract.** Topological Indices is a graph invariant, which is defined from a set of finite graphs to real numbers. A large number of topological indices have been conceived, depending on vertex degrees, which are called degree based topological indices. In this paper it is tried to discuss about some of these degree based topological indices viz., Augmented Zagreb indices, Harmonic index, and the three S indices in connection with  $\text{SiO}_2$  layer structure in a graph theoretic prospective.


**Keywords:** Topological index,  $\text{SiO}_2$  layer structure, Augmented-Zagreb index, Harmonic index, S indices.

**AMS Mathematics Subject Classification (2010):** 05C62


### 1. Introduction

Topological indices are numerical invariants, associated with the topological characterization of a compound. By topological characterization, we mean that these indices relate to certain properties of the compound including the toxicological, physicochemical, pharmacological etc. properties. From chemistry's point of view, compounds' properties give a measure of how a certain compound will behave and react but the process is both time, energy consuming and sometimes not possible due to financial constraints. On the other hand Chemical graph theory provides an easy alternative to this limitation. Mathematically a topological index is a function from a set  $G$  of finite graphs to real numbers i.e.,  $\text{Top} : G \rightarrow \mathbb{R}$ . Calculating topological indices is not only useful for verifying the existing properties of chemical compound but also for calculating new applications of naturally occurring molecules and more interestingly these can be used to design new compounds with specifically required properties [1].

Chemical graph theory has an important role in the development of the chemical sciences by using topological indices. The first distance based topological index was proposed by Wiener in 1947 for modeling physical properties of alkanes, and till date, many topological indices were defined by chemists and mathematicians and so many properties of chemical structures were studied with these indices. One of such recent

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

# RESEARCH PAPER PUBLISHED (2017 – 2018) (RAJDEEP BORAH)

**International Journal of Mathematical Archive-9(3). 2018, 37-40**



Available online through [www.ijma.info](http://www.ijma.info) **ISSN 2229 – 5046**

## A NOTE ON SINGULAR MULTIPARAMETER MATRIX EIGENVALUE PROBLEM

**RAJDEEP BORA\***

Department of Mathematics,  
Kakojan College, Jorhat: 785107, Assam, India.

**NIRANJAN BORA**

Department of Mathematics,  
Dibrugarh University Institute of Engineering and Technology (DUIET)  
Dibrugarh University, Dibrugarh: 786004, Assam, India.

(Received On: 22-10-17; Revised & Accepted On: 16-02-18)

### ABSTRACT

*In this paper, a note on singular Multiparameter matrix eigenvalue problems is discussed. To find solutions of singular Multiparameter problem, the original problem has been reformulated into another system based on linear combination of certain operator determinants. The new system has been by applying Kronecker Product Method adopted by Atkinson for Right Definite problem and it is proved that only eigenvectors can be evaluated by this approach. MATLAB program is used for numerical calculations.*

*AMS Subject Classification: 35PXX, 65FXX, 65F15, 35A35 (2010).*

*Key Words and Phrases: Multiparameter Matrix Eigenvalue Problems, Kronecker Product, Tensor Product Space.*

### 1. INTRODUCTION

The abstract settings of Multiparameter Matrix Eigenvalue Problems (MMEP) to be studied is

$$(A_i - \sum_{j=1}^k \lambda_j B_{ij})x_i = 0, \quad i = 1, 2, \dots, k \tag{1.1}$$

where the problem is to find k-tuple of values  $\lambda = (\lambda_1, \lambda_2, \lambda_3, \lambda_4, \dots, \lambda_k) \in C^k$  for non-zero vector  $x_i$ . The operators  $A_i, B_{ij}$  are self-adjoint, bounded and linear that act on separable Hilbert Spaces  $H_i, x_i \in H_i$ . The k-tuple  $\lambda \in C^k$  is called an eigenvalue and the decomposable tensor product  $x = x_1 \otimes x_2 \otimes x_3 \dots \dots \otimes x_k$  is the corresponding (right) eigenvector. Similarly left eigenvector can also be defined.

MMEPs arise in desperate scientific domains, particularly in mathematical physics when the method of separation of variables technique is used to solve boundary value problems. Here we present the fundamental notions regarding the theory of Multiparameter problem in Hilbert space adopted by Atkinson [4], [5] as follows:

First we consider the linear transformation  $B_{ij}^+$  on H that are induced by  $B_{ij}$  and are defined by

$$B_{ij}^+(x_1 \otimes x_2 \dots \dots \otimes x_k) = x_1 \otimes x_2 \otimes \dots \otimes x_{i-1} \otimes B_{ij}x_i \otimes x_{i+1} \otimes \dots \otimes x_k$$

On the decomposable tensor  $x_1 \otimes x_2 \dots \dots \otimes x_k$  where  $x_i \in H_i$ , extended to H by linearity.

We may define the operator determinants,

$$\Delta_0 = \begin{vmatrix} B_{11}^+ & \dots & B_{1k}^+ \\ \vdots & \ddots & \vdots \\ B_{k1}^+ & \dots & B_{kk}^+ \end{vmatrix} \tag{1.2}$$

and

$$\Delta_i = \begin{vmatrix} B_{11}^+ & \dots & B_{1,i-1}^+ & A_1^+ & B_{1,i+1}^+ & \dots & B_{1k}^+ \\ \vdots & \ddots & \vdots & \vdots & \vdots & \ddots & \vdots \\ B_{k1}^+ & \dots & B_{k,i-1}^+ & A_k^+ & B_{k,i+1}^+ & \dots & B_{kk}^+ \end{vmatrix} \tag{1.3}$$

**Corresponding Author: Rajdeep Bora\***

Department of Mathematics, Kakojan College, Jorhat: 785107, Assam, India.

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



RESEARCH PAPER PUBLISHED (2018 – 2019)  
(DR. NIRMALI DOLEY)

Summer 2018, Vol. 009

ISSN 2349-3410

# PIERIAN SPRING

*Fountain of Learning*


*A Bi Annual Peer Reviewed Multi Disciplinary International Journal*

Editor-in-Chief  
**Dr. Jai Ram Jha**


  
**CREATIVE WRITERS' CIRCLE  
PUBLICATIONS**

Associate Editors  
**Kumar Sambalam  
Rekha Kumari**

 [www.pierianspring.hpage.com](http://www.pierianspring.hpage.com)

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam




  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam


# Articles

## ENGLISH SECTION

1. *Educational Philosophy of Swami Vivekananda*  
▶ Mrs. Durgeswari Teye ▶ 1
2. *Language: A Cutting Edge Tool For Expressing Pure Literature In Post Colonial Period*  
▶ Dr. Jai Ram Jha ▶ 6
3. *Development of Panchayati Raj System in India*  
▶ Khelanta Sonowal ▶ 11
4. *Life and Works of Shri Adi Sankaracharya*  
▶ Rini Saikia ▶ 16
5. *Efficacious Use of RTI Act in Combating the Menace of Corruption*  
▶ Amardeep Kumar ▶ 22
6. *The Historical Importance of the Capital Cities of the Ahoms: An Overview*  
▶ Luhit Buragohain ▶ 27
7. *Strategy in Criminal Trial*  
▶ Kautilya Birat ▶ 32
8. *The Bankruptcy and Insolvency Code : Four Pillars of Institutional Infrastructure*  
▶ Ankit Kishore & Aushi Sarangi ▶ 35
9. *Issues and Challenges of ICT Application in College Libraries with Special Reference to College Libraries of Dhemaji District*  
▶ Sunil Taid ▶ 40
10. *A Case Study on Self-Determination Movement in Nagaland*  
▶ Bhaskar Gogoi ▶ 44
11. *Economic Prospects of North East India*  
▶ Nirmali Doley ▶ 50
12. *A Brief Insight to the Laws of Insider Trading*  
▶ Hemant Raj & Himanshu Sekhar Muduli ▶ 57
13. *Law of Dishonour of Cheques*  
▶ Ashutosh Pandey ▶ 67

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

# Economic Prospects of North East India

Nirmali Doley  
Silapathar, Dhemaji,  
Assam

## Abstract

The Wikipedia defines economy "as a social domain that emphasizes the practices, discourses, and material expressions associated with the production, use, and management of resources". It is also specified as "the state of a country or region in terms of the production and consumption of goods and services and the supply of money". And the development of the economy refers to the adoption of new technologies, transition from agriculture-based to industry-based economy, and general improvement in living standards. Time and again it is said that economic development of the region would critically depend on improved productivity of agriculture. Arguments for the prospects of industries in the North East India appear to be less vigorous. However, it is an accepted fact that the region is gifted with plenty of natural resources for industrial exploitation. But the ideas seem to be less enthusiastic about the possibilities of industries developing to take advantage of these resources. This paper attempts to highlight the substantial hurdles and limitations encountered while carrying forward North East India's economic expansion due to the problems caused by the nature of physical terrain, the history of violent conflicts in the region, the poor state of transport infrastructure and local industries in Northeast India.

**Keywords :** *economy, natural resources, technologies, productivity, hurdles, limitations, infrastructure.*



## Introduction

The North East India is a place with captivating natural beauty combined with a rich cultural heritage. The warmth of the blue mountains, angel like snow, gorgeous green arresting valleys, romantic rivers, dense forests, lovely waterfalls, exciting caves, breathtaking wildlife, wonderful traditions and rituals, marvellous monuments and alluring handicrafts—all these make the place unforgettable. The region has got its unambiguous identity due to its unusual physical, economic and socio-cultural characteristics. This region consists of eight states viz., Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, and Sikkim. The North Eastern region of India covers an area of 2.62 Lakh sq.km. It accounts for 7.9% of total geographical area of the country. With a total population of 46 million (according to the 2011 census), it accounts for 3.8% of total population of India. There are differences among the eight States in the North Eastern region with respect to

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

# RESEARCH PAPER PUBLISHED (2018 – 2019) (PROBIN DAS)



## REVIEW OF RESEARCH

ISSN: 2249-894X  
IMPACT FACTOR : 5.7631(UIF)  
UGC APPROVED JOURNAL NO. 48514  
VOLUME - 8 | ISSUE - 9 | JUNE - 2019



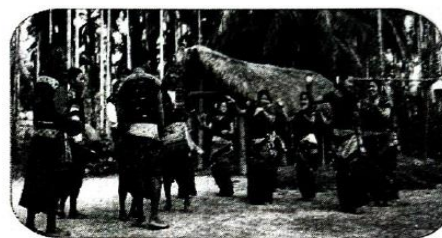
### HEALTH SEEKING BEHAVIOUR OF MISHING TRIBE IN A KULAJAN VILLAGE OF DHEMAJI DISTRICT IN ASSAM

Probin Das

Research Scholar of Dibrugarh University, Department of Sociology.

#### ABSTRACT:

Health is man's natural condition. It is a prerequisite for human development and is an essential component for the well being of the mankind. It is the result of living in accordance with natural laws pertaining the body, mind and environment. The health status of an individual or group of people is often determined as much by socially and culturally constructed human practices as that by biological and environment factors. It is fact that healthy lifestyle is as much a product of health consciousness as the attitude toward life. According to the World Health Organization, the main determinant of health includes the social and economic environment, the physical environment and the person's life individual characteristic and behaviour. Therefore, for understanding health condition of Mishing in Kulajan, there is a need to examine their health seeking behavior, diseases, pattern of treatment, for medical facility etc.



**KEYWORDS:** Health , World Health Organization , socially and culturally constructed.

#### INTRODUCTION

Health seeking behaviour is those remedial actions or activities that individual undertaken to rectify perceived ill health. It also includes all behaviours related to establishing and maintaining a healthy mental and physical state ([http://wiki.ubc.ca/Health Seeking Behaviour](http://wiki.ubc.ca/Health_Seeking_Behaviour), downloaded on 23/8/2017). Health seeking behaviour of a community or group largely depends upon their social, personal, cultural and experimental factors. It also helps to understand how

a community engaged with the health care system in their social, economic, cultural and environmental condition. The health seeking behavior of the people defines their social position of health and provides a better understanding of the disease process. Therefore it is important to study the health seeking behaviour and its impact in case of Mishing in Kulajan village.

#### OBJECTIVES

Following are the main objectives of this paper

- To understand the Health

- Seeking Behaviour of Mishing tribe in Kulajan village.
- To understand the Household Health Seeking Behaviour of Mishing tribe.

#### METHODOLOGY

##### • The study area:

The study was conducted in kulajan village in Dhemaji district of Assam. The total area of the district is 78, 438sq.km with a population of 686,133 out of which 351,249 are female and 334,884 are male. The rural and urban population distribution of the district is 48,285 people live in urban areas and 637,848 people

Journal for all Subjects : [www.lbp.world](http://www.lbp.world)

1

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



# Operations on Picture Fuzzy Numbers and Their Application in Multi-criteria Group Decision Making Problems

Palash Dutta<sup>1</sup>✉, Rajdeep Bora<sup>1,2</sup> and Satya Ranjan Dash<sup>3</sup>

<sup>1</sup> Department of Mathematics, Dibrugarh University, Dibrugarh 786004, India  
palash.dtt@gmail.com, rajdeepbora23@gmail.com

<sup>2</sup> Department of Mathematics, Kakoan College, Jorhat 785107, India

<sup>3</sup> School of Computer Applications, KIIT Deemed to be University,  
Bhubaneswar, India  
satyaranjan.dash@gmail.com

**Abstract.** Uncertainty is an unavoidable component of our life and fuzzy set theory (FST) is generally explored to deal with it. However, in some complex situations FST is not capable to play crucial rule. In such situations Picture fuzzy set (PFS) come into the picture which is the direct extension of FST and Intuitionistic fuzzy set (IFS). Although different studies on FST and IFS have been done including their algebraic structure, however these studies are found to be inappropriate to deal with picture fuzzy situations. In this regard, this present paper presents the basic arithmetic operations on PFSs along with numerical examples. Finally application of PFSs in multi-criteria group decision making is performed through a case study.

**Keywords:** Intuitionistic fuzzy set · Picture fuzzy set · Triangular picture fuzzy set

**Mathematics Subject Classification:** 03E72

## 1 Introduction

Fuzzy set theory (FST) was developed by Zadeh [1] in the year 1965 to deal with uncertain environment in solving various problems of real world. FST provides an appropriate framework for representing vague concepts by allowing partial membership. After that the intuitionistic fuzzy set (IFS) was proposed by Atanassov [2] in 1986. An IFS has the characteristics of fulfilling two functions expressing the degree of membership (belongingness) and the degree of non membership (non belongingness) of the elements of the universe to the IFS and the sum of these two degrees must not exceed one. It is encountered that one of the novel idea viz., degree of neutrality, is lacking in IFS. The idea of degree of neutrality can be observed in the environments where human intuitions are involved and need to answer of the types of situations certainly, refrain,

© Springer Nature Switzerland AG 2020  
S. Dehuri et al. (Eds.): BITMDM 2019, LAIS 10, pp. 169–188, 2020.  
[https://doi.org/10.1007/978-3-030-39033-4\\_17](https://doi.org/10.1007/978-3-030-39033-4_17)

  
(Dr. Ruprekha Bordoloi)

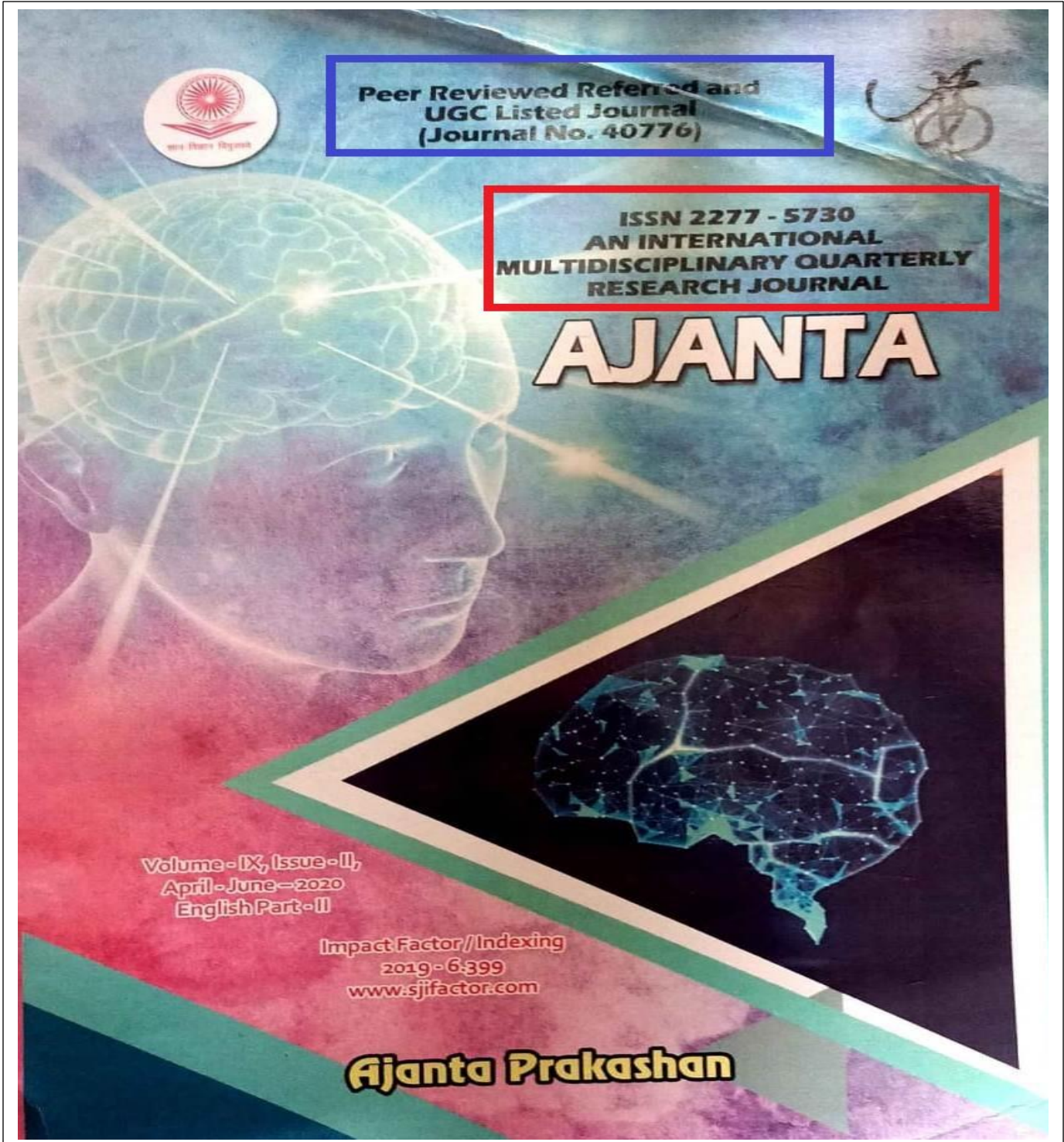
Principal  
Kakoan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakoan College  
Jorhat, Assam

RESEARCH PAPER PUBLISHED (2019 – 2020)  
(DR. PANKAJ GOSWAMI)



Peer Reviewed Refereed and  
UGC Listed Journal  
(Journal No. 40776)

ISSN 2277 - 5730  
AN INTERNATIONAL  
MULTIDISCIPLINARY QUARTERLY  
RESEARCH JOURNAL

**AJANTA**

Volume - IX, Issue - II,  
April - June - 2020  
English Part - II

Impact Factor / Indexing  
2019 - 6.399  
[www.sjifactor.com](http://www.sjifactor.com)

**Ajanta Prakashan**

*R. Bordoloi*

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



*N. Gogoi*

(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

❧ **CONTENTS OF ENGLISH PART - II** ❧

S. No.	Title & Author	Page No.
1	Infectious Diseases COVID19 and its Impact on the Mental Health of Rural Areas People in Maharashtra, India: Issues, Problems, and Solutions <b>Malhari C. Nagtilak</b>	1-6
2	The Concept of Sustainable Development: From its Beginning to the Contemporary Issues & Way Forward <b>Dr. Munde S. E.</b>	7-12
3	Prevention, Control and Abatement of Environmental Policies of the Government <b>Dr. Meenal. K. Kshirsagar</b>	13-19
4	Disaster Management in India <b>Mr. Ninad Kulkarni</b>	20-25
5	Matrix of Ecology in the Poetry of Mamang Dai and Yumlam Tana: A Smallscale Reflection <b>Dr. Pankaj Goswami</b>	26-32
6	Environmental Education in Rural Areas: Developmental Program for Sustainability in Rural Area <b>Rameshwar Shankar Dhappadhule</b>	33-36
7	Environmental Education in Rural Areas: Importance of Sustainable Development <b>Dr. Rekha Sidram Mudkanna</b>	37-40
8	India and Sustainable Development: What India Can Give to the World? <b>Saideepti Haribabu Koppolu</b>	41-44
9	Impact of the Coronavirus (covid-19) on the Environment <b>Dr. Sandeep Gupta</b> <b>Dr. Sandeep Sharma</b>	45-50
10	Role of Government - Environment and Agriculture <b>Prof. Dr. Santosh Shivkumar Khatri</b> <b>Sandip Jagannath Warule</b>	51-54
11	Environmental Degradation and its Impact on Socio-Economic Development of Rural Area <b>Ms. Sushma R. Verma</b>	55-60

*R. Bordoloi*  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



*N. Gogoi*  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

## 5. Matrix of Ecology in the Poetry of Mamang Dai and Yumlam Tana: A Smallscale Reflection

Dr. Pankaj Goswami

Assistant Professor in English, Kakojan College, Jorhat, Assam.

### Introduction

Writings in English from the eight North-eastern provinces of India have no significant place in Indian English criticism. But, some attempts have been made over the last one decade or so to include and discuss the works of Robin S. Ngangom, Desmond Kharmawphlang, Mamang Dai, Yumlembam Iboncha, Thangjam Ibopishak, Kynpham S. Nangkyrnyh in anthologies and academic forum. Identity crisis is the hallmark of Northeast's contemporary politics. This identity has been conceived in essences of ecology and culture of the land. The mega-culture of the region which is a blend of tribal and non-tribal cultures is thwarted by the conflicts of alienation. In many cases the local myths have influenced the identity of the people. All the aspects of identity and problems arising out the identity crisis and social alienation have been the burning social issues of the contemporary era. These issues have been reflected in the poetry written in English by the poets of this region. The poets of North-east India have exploited the history, culture, legends, folklores, mythic dimension. Hills, villages, rivers, community ethos have been major modes of exploring the realities and cultural traditions of the regions. Mystics, imagists and explicators of romantic conglomeration of mysteries, these poets are the first generation of Indian English writers from this region. In their home-bound pilgrimage, they have explored the glory of their lands to trace their clear identity against turmoil, identity crisis and self-alienation.

Indian English Poetry from Northeast India is rich in enshrining various aspects of the ecology of the region. The poets of Northeast are the sentinel of time and clime. It has been fashion with the poets of the region to celebrate the ecological glory of the region and their ecological awareness. The ruthless act of deforestation and oppression on Nature in various ways by destroying the serenity of the nature, obliterating the natural environment, killing rare birds and animals and distorting the landscape and biodiversity, have been sharply reacted by a number of poets of Northeast India who are writing in English. Ms. Mamang Dai(1957- )and Yumlam Tana (1976 -), two prolific as well as leading poets of Arunachal Pradesh exposed their

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam

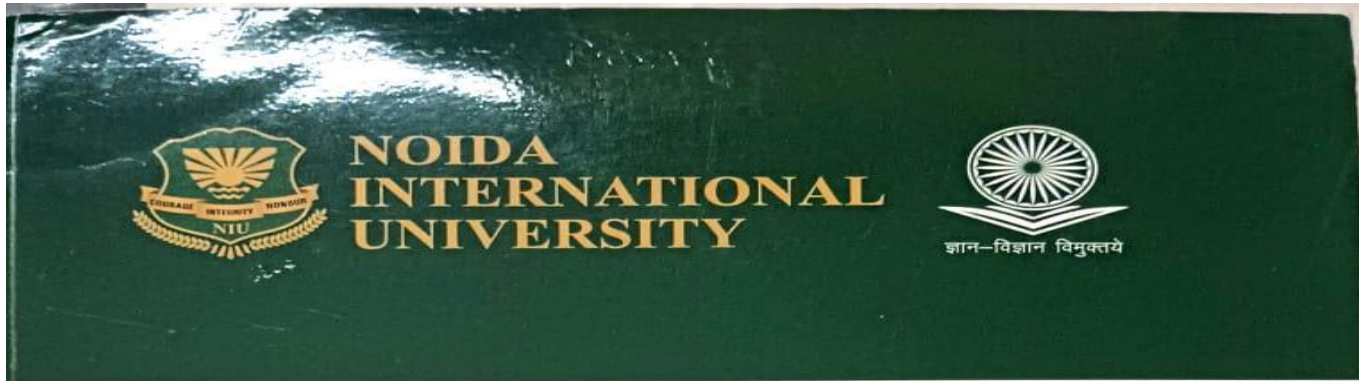


(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



RESEARCH PAPER PUBLISHED (2020 – 2021)  
(BORSHA RANI BORAH)



Volume 8 (XIV), 2021

ISSN: 2394-0298


## NIU International Journal of Human Rights

A UGC CARE Listed Journal




NOIDA INTERNATIONAL UNIVERSITY

[www.niu.edu.in](http://www.niu.edu.in)

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

## CONTENTS

ISSN – 2394 - 0298

Volume 8(XIV), 2021

- 1 BODO IDENTITY: CULTURAL HEGEMONY OF STATE AND THE POLITICS  
Borsha Rani Bora 1-6
- 2 'A STUDY OF THE RELATIONSHIP BETWEEN EMOTIONAL LABOUR AND  
WORK-LIFE BALANCE'  
Dr. Sanmath S. Shetty 7-12
- 3 HR ISSUES AND CHALLENGES IN GLOBAL PERSPECTIVE AUTO  
COMPONENTS INDUSTRY - RESEARCH SYNTHESIS STUDY  
Shashikant G Kurbetti, Dr Snehal Maheshkar 13-23
- 4 CHANGING PARADIGMS TO SUCCEED POST-PANDEMIC A NEW  
BEGINNING: METAMORPHOSIS, OVERHAULING, THREATS,  
OPPORTUNITIES IN THE HANDICRAFT SECTOR  
Mr. Virendra A Patel, Dr. Kalpana Satija 24-29
- 5 TECHNOLOGIES USED IN EXTRICATION OF MUNICIPAL SOLID WASTE  
Mr. Rajesh Kumar 30-41
- 6 CONSUMER PROTECTION ACT 2019: AN ANALYSIS OF SCOPE AND  
LIMITATION WITH SPECIAL REFERENCE THE NEW CONCEPTS  
CONTAINED UNDER THE ACT  
Dr. Deo Narayan Singh 42-48
- 7 EXPLOITATION OF WOMEN AND VIOLATIONS OF WOMEN'S HUMAN  
RIGHTS IN INDIA  
Dr. Meenakshi Bholta 49-56
- 8 CONSTITUTIONAL AND HUMAN RIGHTS RELATED TO SCHEDULED  
CASTES AND SCHEDULED TRIBES  
Prashant Kumar Baghel, Dr. Anukirti Mishra 57-65
- 9 REVISING INDIAN AGRICULTURAL POLICIES THROUGH SUSTAINABLE  
MODEL OF SWAMI VIVEKANANDA  
Shashank Dattatray Kulkarni 66-71
- 10 EFFECTS OF COVID 19 IN EDUCATION SYSTEM OF JHARKHAND STATE,  
INDIA  
Dr. Ranjan Kumar 72-83
- 11 A REVOLUTIONARY STRUGGLE HARBINGERS SOCIAL MILLENNIUM:  
A STUDY OF AGHORISM THROUGH HOLY SMOKE IT'S A GODMAN  
Nirmal Biswas 84-90
- 12 CASE STUDY OF MORNH HILLS ON DISASTER MANAGEMENT  
AWARENESS AMONG TEACHERS  
Dr. Minakshi 91-95

v NIU International Journal of Human Rights ISSN: 2394 – 0298 Volume 8(XIV), 2021

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

**BODO IDENTITY: CULTURAL HEGEMONY OF STATE AND THE POLITICS**

**Borsha Rani Bora**

Assistant Professor, Department of Sociology, Kakojan College

**Abstract:**

Ethnic identity quest has been the continuous process in North East India after the Independence of the country. Bodo, the sub nationalist group has been demanding separate Autonomous council along with separate state for long years. For long they have been feeling deprived and in the fear of losing identity in the mainstream Assamese due to the domination of larger Assamese Nationalism and it is being experienced by the Bodo in the phases of the history. Issue of language, medium of instruction, experiences built in Assam movement made them to be felt about the hegemonic nature of the state. Hence, these all issues are being politicised in later and with the emergence of the middle classes among the Bodo the movement outbreaks distinctly in Assam.

**Key Concepts:** Assamese nationality, caste Hindu Assamese, smaller nationality, Bodo, hegemony, middle class.

**Introduction:**

The major hills of Assam like Naga, khasi, jayantia, Lusai, Karbi, north kachar were excluded from the plains of Assam in the name of administration which results a great separation in Assam later on. Therefore after independence the hill stations started to evolve themselves as a separate small state independent of Assam and Assam was broken up into several states which is considered as North East India even today (Paul, 2020). As North East India is the inhabitant of various ethnic groups, the Bodo is one of the major ethnic groups inhabited in Assam. To define ethnic group there are several concepts. Milton M. Gordon defines ethnic groups as those group whose member share an elementary cultural identity. Martin M. Margat mentions that ethnic groups are those within the larger society with unique set of fundamental features which is transmitted through generation to generation through socialisation (Mochahari, 2014).

Hiren Gohain mentions that mainstream Assamese always gave importance to make the possible accommodation to the tribes of Assam. But it is noticed the tribes are not inspired to join in the larger Assamese nationalism, rather they always wish to protect their own ethnic identity by their own (Bora, 2018). It is also noticeable that the nature of accommodation varies because the tribal groups are facing the problems of land alienation, fear of losing their own culture within the Assam itself. As it is important to be concerned about social relationship in any study, therefore it is needed to observe the relationship of various ethnic groups within the larger Assamese Society. There are several relations exist in society. As Wittold Maraski gives preference on the relationship between various groups and state organisations, in the ethnic identity quest the kind of this relationship needs to be discussed.

In Assam, Bodo is the Mongoloid people living in the North East India and speaks Tibetto Burman language. Bodos launched a movement demanding equality, social justice, land and religious rights in Assam itself. Bodoland movement draws the highest attention at the National level also which is demanding separate Bodoland in Assam constituting a large area (Amarawat, 2016).

It is tried to study how the relationship among the ethnic groups and Assamese Nationalism exists and how it has the consequences on various grounds. It also tries to study the socio cultural aspects and how it works as a factor for identity assertion special in terms of Bodo.

*R Bordoloi*

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



*N Gogoi*

(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

# RESEARCH PAPER PUBLISHED (2020 – 2021) (PROBIN DAS)

PalArch's Journal of Archaeology  
of Egypt / Egyptology

## Educational Conditions Of Mishing Tribe In Kulajan Village Of Dhemaji In Assam

*Probin Das*

Assistant Professor  
Department of Sociology  
Kakojan College, Jorhat, Assam

**Probin Das, Educational Conditions Of Mishing Tribe In Kulajan Village Of Dhemaji In Assam-  
PalArch's Journal Of Archaeology Of Egypt/Egyptology 18(7). ISSN 1567-214x. Keywords:  
Education, Conditions, Mishing, Tribe.**

### Abstract

Education is a process by which people not only impart knowledge but also develop those attitude and habits with which he may successfully face feature. Education mainly stands for deliberate training and instruction. Like other animal man not only react on biological instinct but he behave in a way to which he is trained. Education is a sub system of the society and related to other subsystem. India is the home land for a large variety of indigenous people. Tribal population represents one of the most economically impoverished and marginalized group in India. With a population of more than 10.2 corers, India has the single largest tribal population in the world. It constitutes 8.6% of the country's total population country (according to 2011 census). In Assam, good numbers of tribal people are living in both hill and plain areas. Statistics shows that tribal communities are improving their educational condition from last three four decades. In this regards Mishing are not lagging behind.

**Keywords:** Education, Conditions, Mishing, Tribe.

### INTRODUCTION

Education is one of the primary agents of transformation of society toward development. It act an as input not only for economic development but also for inner strength of the communities which helps them in meeting of life. Education is single most important means by which individuals and society can improve personal endowments, build capacity levels, overcome barriers, and expand opportunities for a sustained improvement in their well-being. So, education is an important avenue for upgrading the economic and social conditions of people. Literacy and educational attainment are powerful indicators of social and economic development.

According to Durkheim (1897) "Education is the influence exercised by adult generation on those that are not yet ready for social life. Its object is to develop in the child a certain number of physical, intellectual and moral statuses which are demand of him by both the political society as a whole and the special miliue for which he is specifically destined".

512

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

# RESEARCH PAPER PUBLISHED (2020 – 2021) (MINAKSHI MILI)

A Sociological Study of Married Female College Teacher: A Review Study

PJAE, 18(7) (2021)

PalArch's Journal of Archaeology  
of Egypt/ Egyptology

## A Sociological Study of Married Female College Teacher: A Review Study

*Minakshi Mili*

Assistant Professor Department Of Sociology  
Kakojan College

**Minakshi Mili, A Sociological Study of Married Female College Teacher: A Review Study- Palarch's Journal Of Archaeology Of Egypt/Egyptology 18(7). ISSN 1567-214x. Keywords: College Teacher, Review of Literature etc.**

### Abstract

The aim of this research paper is to critical review the existing literature on married female college teacher and explores its findings to develop a new insights and future directions for further research. This research paper has tried to display all the existing literature findings in a systematic way. Without knowing the past we cannot do something new in any field. If we want to do something new it is necessary to scan the past of the particular subject of the field and its related literature. Review of literature assists others for further research in this field.

**Keywords:** College Teacher, Review of Literature etc.

### INTRODUCTION

Woman is an important part of our society. Woman plays a vital role in the metamorphosis of a society. With the passage of time, urbanization, industrialization and development of transport and communication women have started to work in every sector. But at the same time women are to give time and energy to their family roles. The working women are required to perform multiple roles which at times create conflict with each other. There is no denying the fact that women are performing multiple roles such as wife, mother, daughter, sister -in-law and more importantly the role performed outside the home as a working woman. The women of the modern India have acquired education which has made them competent to join in any profession.

Women in numerous different jobs and from different socio-economic background illuminate all the various challenges affecting their experiences of working life (Hussain.,2008). The women of the modern India have acquired education which has made them competent to join in any profession. Among the various categories of profession teaching is a kind of profession which is liked by most of the women. As teaching requires commitment to the profession therefore, the women must be always self- motivated to do justice to the professional role as well as to the other roles.

The teachers nurture the intellectual, physical, emotional, social and civic potential of each student and maintain challenging learning environments for all. College teachers are the most

504

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

RESEARCH PAPER PUBLISHED (2020 – 2021)  
(DR. NIRMALI DOLEY)



# IJARESM

ISSN: 2455-6211, New Delhi, India

International Journal of All Research Education & Scientific Methods

An ISO & UGC Certified Peer-Reviewed Multi-disciplinary Journal

## Certificate of Publication

Dr. Nirmali Doley

Assistant Professor, Department of Economics, Kakojan College, Jorhat, Assam

### TITLE OF PAPER

**Privatization & Economic Development**

has been published in

**IJARESM, Impact Factor: 7.429, Volume 9 Issue 6, June- 2021**

Paper Id: IJARESM/June21


Date: 08-06-2021



Website: [www.ijaresm.com](http://www.ijaresm.com)  
Email: [editor.ijaresm@gmail.com](mailto:editor.ijaresm@gmail.com)



Authorized Signatory

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



**Title** Wireless Power transfer in 3D Space  
**Author** Drongir Singh, Vishal Choudhary  
**Country** India

[View](#)



[DOWNLOAD](#)

**Title** Infertility: Assisted reproductive techniques  
**Author** Vijay bharti, Dr. Rajwant kaur randhawa, Dr. Priyanka choudhary  
**Country** India

[View](#)



[DOWNLOAD](#)

**Title** Tax Avoidance and Its Legality  
**Author** B. Angayarselvam  
**Country** India

[View](#)



[DOWNLOAD](#)

**Title** IoT Based Air Pollution Monitoring System  
**Author** M. K. Bhosale, ShNam Kumar, Mamoon Reyaz, Zawed Ansari  
**Country** India

[View](#)



[DOWNLOAD](#)

**Title** Current Trends In Transdermal Drug Delivery  
**Author** Kasekar N.M, Gharat K.B, Jadhav K.V, Jain D.L, Kadam V. J  
**Country** India

[View](#)



[DOWNLOAD](#)

**Title** Improving Health Care Services in Primary & Elementary School Education System  
**Author** Neha Sharma  
**Country** India

[View](#)



[DOWNLOAD](#)

**Title** An Article on Implementation of Continuous and Comprehensive evaluation in Government Schools of Delhi  
**Author** Dr. Ruby Malik  
**Country** India

[View](#)



[DOWNLOAD](#)

**Title** Privatization & Economic Development  
**Author** Dr. Nirmali Doley  
**Country** India

[View](#)



[DOWNLOAD](#)

**Title** A Study on Performance of Indian Leather Industry

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



## Privatization & Economic Development

Dr. Nirmali Doley

Assistant Professor, Department of Economics, Kakojan College, Jorhat, Assam

### ABSTRACT

*This study aims to overview the concept of privatization and the aims of and the expected gains from privatization and to develop an idea about whether and how privatization can enhance economic efficiency and improve the economic growth of developing countries. Especially in a country like India, Privatization in today's concept is seen as a means of increasing output, improving quality, reducing unit costs, curbing public spending and raising cash to reduce public debt.*

**Key words:** public sector, bank, development, private, assets

### INTRODUCTION

Privatization means the transfer of ownership, management, and control of the public sector enterprises to the private sector. It means the transfer of ownership, property, or business from the government to the private sector. The government ceases to be the owner of the entity or business. The process in which a publicly-traded company is taken over by a few people. In other words, it mainly aims to enhance the conditions of the services which people get. In addition, it also lowers the burden of the government by taking over certain industries. Privatization has no doubt made quite an impact on the world. Like there are two sides to a coin, over here also comes with benefits as well as drawbacks. Privatization leads to the creation of wealth.

The cost of production is reduced and profits are maximized. Privatization helps in keeping the consumer needs uppermost, it helps the governments pay their debts, it helps in increasing long-term jobs and promotes competitive efficiency and open market economy. In a rapidly rising economy like India there is a need for the government to realign its priorities in mobilizing the skills and resources of the private sector in the larger task of the development. Privatization may give ample space for creative and innovative thinking as well as systematic and strategic planning to realize the full potential of economy. Privatization directly shifts the focus from political goals to economic goals, which leads to development of the market economy.

Privatization may have a positive impact on a country's economic situation. Privatization should not be used to finance new government expenditures and pay off future debts. Instead, privatization enables countries to pay a portion of their existing debt, thus reducing interest rates and raising the level of investment. By reducing the size of the public sector, the government reduces total expenditure and begins collecting taxes on all the businesses that are now privatized. This process can help bring an end to a vicious cycle of over-borrowing and continuous increase of the national debt. Nations around the world have adopted different methods of privatizing state assets depending on the initial conditions of the country's economy and the economic principles of the political party in charge.

#### Privatization can be categorized in to three parts:

- i. Delegation: Government keeps hold of responsibility and private enterprise handles fully or partly the delivery of product and services.
- ii. Divestment: Government surrenders the responsibility.
- iii. Displacement: The private enterprise expands and gradually displaces the government entity.

#### Objectives of Privatisation

- a. Providing strong momentum for the inflow of FDI.
- b. Privatisation aims at providing a strong base for the inflow of FDI. The increased inflow of FDI improves the financial strength of the economy.
- c. Improving the efficiency of public sector undertakings (PSUs). The efficiency of PSUs is improved by giving them the autonomy to make decisions.

#### Major method of privatization

- a. *The sale of state-owned enterprises to private investors:* The state would simply decide which institutions should be privatized and through the use of market mechanism, private investors are able to buy shares of each

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



RESEARCH PAPER PUBLISHED (2020 – 2021)  
(DR. NIRMALI DOLEY)



# IJARESM

ISSN: 2455-6211, New Delhi, India

International Journal of All Research Education & Scientific Methods  
An ISO & UGC Certified Peer-Reviewed Multi-disciplinary Journal

## Certificate of Publication

Dr. Nirmali Doley

Assistant Professor, Department of Economics, Kakojan College, Jorhat, Assam

### TITLE OF PAPER

**An analysis on the New Education Policy 2020**

has been published in

**IJARESM, Impact Factor: 7.429, Volume 9 Issue 5, May - 2021**

Paper Id: IJARESM/May21


Date: 04-05-2021




Website: [www.ijaresm.com](http://www.ijaresm.com)  
Email: [editor.ijaresm@gmail.com](mailto:editor.ijaresm@gmail.com)



Authorized Signatory

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



Copyrights Form  
• Paper Template

Latest News

**IJARESM  
Conference  
March 2022**  
Posted Date: 07th Mar, 2022  
Call For Papers: LokSanwad  
Foundation Aurangabad,  
Maharashtra One Day...  
More...



Visitor Counter

1 0 5 0 4 2 0 7 8 6

charges by the Author. Submit your paper for possible publication in IJARESM, updated Impact Factor: 7.429. IJARESM Journal is indexed in Google Scholar, Thomson Reuters Web of Science Researcherid, Endnotes, Publons and also indexed in UGC Approved List of Journals. IJARESM Journal is a lowest price publication which is published only to support research and suite to every pocket. IJARESM Publication also provides fastest publication service all over the world.

		Total Records: 18 Records
<span>1</span> <span>2</span> <span>3</span> <span>4</span> <span>5</span> <span>6</span> <span>7</span> <span>8</span> <span>9</span> <span>Next</span>		
<b>Title</b>	Adaptive Distribution of Sensitive Information in Online Social Networks	
<b>Author</b>	M. Saraswathi, K. Venkat Gowtham, L. V. Subba Reddy	
<b>Country</b>	India	<a href="#">View</a> <a href="#">DOWNLOAD</a>
<b>Title</b>	A Study on Customer Satisfaction, Perception and Brand Loyalty towards Outfits among College Going Students in Coimbatore City	
<b>Author</b>	Dr. K. Prince Paul Antony, Ganesh Aravend V	
<b>Country</b>	India	<a href="#">View</a> <a href="#">DOWNLOAD</a>
<b>Title</b>	Geopolitical intention of China's investment in Africa: a case of Djibouti	
<b>Author</b>	Kouakou Ignace Kouadio, Dr. Anand Kumar	
<b>Country</b>	India	<a href="#">View</a> <a href="#">DOWNLOAD</a>
<b>Title</b>	Nanda Devi Glacier Burst: A Study of Impact of Climate Change	
<b>Author</b>	Shakshi Sharma, Sahab Deen	
<b>Country</b>	India	<a href="#">View</a> <a href="#">DOWNLOAD</a>
<b>Title</b>	Privacy Preserving Bio-Metric Authentication Using Bio-Honeys for BTP	
<b>Author</b>	Lav Sahay, Keerthi Satya Sai Srinam, Pasupuleti Jaya Veera Venkata Sai Ram, Kattikota Krishnadevaraya	
<b>Country</b>	India	<a href="#">View</a> <a href="#">DOWNLOAD</a>
<b>Title</b>	Feeding Plate Appliance for an Infant with Cleft Palate: A Case Report	
<b>Author</b>	Dr. Siddhant Vilas Dandawate, Dr. Sharnabasappa C. Nagaral, Dr. Sumit Deshpande, Dr Ljeena Ann Beni, Dr. Nagaprasad M. Naik	
<b>Country</b>	India	<a href="#">View</a> <a href="#">DOWNLOAD</a>
<b>Title</b>	A Study on Pattern of Investment and Savings among Salaried Employee of P.N.R Fibers after Covid-19	
<b>Author</b>	Dr. P. Vanitha, M. Gowsika	
<b>Country</b>	India	<a href="#">View</a> <a href="#">DOWNLOAD</a>
<b>Title</b>	An analysis on the New Education Policy 2020	
<b>Author</b>	Dr. Nirmali Doley	
<b>Country</b>	India	<a href="#">View</a> <a href="#">DOWNLOAD</a>

*R Bordoloi*  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



*N Gogoi*  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



## An analysis on the New Education Policy 2020

Dr. Nirmali Doley

Assistant Professor, Department of Economics, Kakojan College, Jorhat, Assam

### ABSTRACT

The new education policy is definitely a landmark on the changes a government is trying to enact in becoming a futuristic nation and be in competition to the developed countries. It is a good process to appreciate a stress free, holistic and versatile system that would remodel our country to a spirited information community. It is definite that the new policy would not just change the fate of the coming generation but would also play an important role in developing the nation as education leads to economic and social growth of a country. Our new policy has been recommended by DR. Kasturirangan, a former chairman of the Indian Space Research Organization. This paper explains the various key features of the policy, the stages it would have while implementing the policy at schools, its advantages and of course the various drawbacks. Though the policy tries to balance the rooted and pride of the country with the advance technologies, there are yet various milestones that the government has to consider to make it a full-proof plan.

**Keywords-** New Education Policy, Indian Education System, higher education, literacy rate, Modi government

### INTRODUCTION

On July 28<sup>th</sup> 2020 the government of India approved the new education policy after a huge gap of 34 years. Though there have been various changes to the education policy since independence to improve the education system and the literacy rate but the last modification was done in the year 1986 so the new policy is definitely believed to bring in sustainability to the education system and let the upcoming generation delve into vibrant knowledge, better equipments and high quality education to be at par with the developed countries of the world. India is a growing country and with its huge population there are millions of students who get admitted to the education system every year. To cater to the large crowd there are approximately 40,000 higher education institutes and about 845 universities in total scattered around the country.

The policy was the most awaited policy as it would transform the whole learning process of education making the decades old pattern new, better, practical and conceptual. The government took more than 50 months to finally approve the policy where in feedback were generated from 2.5 lakh village-level gram panchayats, 6600 blocks, 6000 ULBs and 676 districts. Two parliamentary committees were organized who debated, consulted and performed workshops and finally incorporated. The very first established education policy after independence was attempted in the year 1966 which was implemented in the year 1968 by then Prime Minister Indira Gandhi. It was proposed so that equal education opportunities were provided which would result into national amalgamation and create economic and cultural development. The next education policy was presented by Rajiv Gandhi government in the year 1986 but it took 6 years to be planned and finally was implemented at 1992 and since then it has been followed till 2020 when Modi government brought in the new policy.

### Key features of the New Education Policy 2020

Let's first have a clear understanding of what are the key features that have been planned to be implemented in the new policy and how it is going to change the picture of education for the new generation.

- a. It will emphasize upon early education of children and try to recognize the problems faced by them in few particular subjects at the primary classes and how that affects their mental growth. It will try to enroll the students into different streams at an early age depending upon the subjects they are interested and would thrive better. A new pedagogical structure would be maintained so that the education pattern in responsive from both end of the class and would attract the learners as they progress every year.
- b. It would appreciate the enrollment process and try to retain the total number of students till the end of 12<sup>th</sup> standard without letting them drop off in the middle. Thus upgrading the total enrollment ration of 25% that has been seen persistently in the past years. It aims at promoting multilingual teaching and learning of the local or native language. The exams would be more only testing the core capabilities and would be easier than the old rote learning method. A

  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

RESEARCH PAPER PUBLISHED (2020 – 2021)  
(DR. NIRMALI DOLEY)

# INFOKARA RESEARCH

An UGC-CARE Approved Group 2 Journal



INFOKARA

An ISO : 7021 - 2008 Certified Journal

Certificate ID - IK-4221

ISSN NO: 1021-9056 / web : <http://infokara.com/>  
e-mail : editor.infokara@gmail.com

*Certificate of Publication*

This is to certify that the paper entitled  
**Taxation as a tool for economic development of India**

Authored by  
**NIRMALI DOLEY**

From  
**Kakojan College, Jorhat, Assam**

Has been published in

**INFOKARA RESEARCH, VOLUME 10, ISSUE 1, JANUARY - 2021**



*H. Mathew*

**Mathew Hull, Editor-In-Chief, INFOKARA RESEARCH**



International  
Organization for  
Standardization

7021-2008

*R. Bordoloi*  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



*N. Gogoi*  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



EFFLUENTS

**Sangeeta Sahu**, Bhilai Institute of Technology, Raipur, Kendri, New Raipur, CG, India

Page No: 161 – 171

[DOI:16.10089/IR.2021.V10I1.285311.3965](https://doi.org/10.10089/IR.2021.V10I1.285311.3965)

15. IMPORTANCE OF BUSINESS ETHICS

**S.Tephillah Vasantham**, Mother Teresa women's university, Kodaikanal

Page No: 172 – 186

[DOI:16.10089/IR.2021.V10I1.285311.3966](https://doi.org/10.10089/IR.2021.V10I1.285311.3966)

16. Ascendancy of Imagery in the Select Poems and Lyrics of Gulzar and Prasoon Joshi

**Ravi Shanker Panicker**, Bhilai Institute of Technology Raipur

Page No: 187 – 198

[DOI:16.10089/IR.2021.V10I1.285311.3967](https://doi.org/10.10089/IR.2021.V10I1.285311.3967)

17. A STUDY ON ACCULTURATION ASPECTS OF SECONDD GENERATION INDIAN AMERICANS

**George M.Kakkanatt** and **Dr.Nishi Tripathi**, Sam Higginbottom University of Agriculture, Technology and Sciences, Allahabad

Page No: 199 – 206

[DOI:16.10089/IR.2021.V10I1.285311.3968](https://doi.org/10.10089/IR.2021.V10I1.285311.3968)

18. RELIABILITY EMBELLISHMENT STRUCTURE FOR CLOUD COMPUTING ENVIRONMENT

**R.Jeya**, Bharathiar University, Tamilnadu

**Dr.V. Baby deepa**, Government arts college, Tamilnadu

Page No: 207 – 214

[DOI:16.10089/IR.2021.V10I1.285311.3969](https://doi.org/10.10089/IR.2021.V10I1.285311.3969)

19. Women Politics in India

**Memi Rani Chintey**, Rengam Subansri College, North Lakhimpur, Assam

Page No: 215 – 223

[DOI:16.10089/IR.2021.V10I1.285311.3970](https://doi.org/10.10089/IR.2021.V10I1.285311.3970)

20. Taxation as a tool for economic development of India

**Nirmali Doley**, Kakojan College, Jorhat, Assam

Page No: 224 – 232

[DOI:16.10089/IR.2021.V10I1.285311.3971](https://doi.org/10.10089/IR.2021.V10I1.285311.3971)

21. Bulk Arrival Tandem Fluid Model Driven by an MX/M/1 Vacation Queue

**M. Deepa** and **Dr. K. Julia Rose Mary**, Nirmala College For Women

Page No: 233 – 242

[DOI:16.10089/IR.2021.V10I1.285311.3972](https://doi.org/10.10089/IR.2021.V10I1.285311.3972)

22. A STUDY ON THEORIES OF PLASTICITY AND THEIR APPLICABILITY TO SOILS UNDER ENVIRONMENTAL ENGINEERING

**Maaz Allah Khan**, Maharishi University of Information Technology, Lucknow (Uttar Pradesh)



*R Bordoloi*

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



*N Gogoi*

(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

## Taxation as a tool for economic development of India

Nirmali Doley

Assistant Professor

Department of Economics

Kakojan College, Jorhat, Assam


### Abstract

The taxation system is an important concept in the economy of a country. In order to run the government and manage the affairs of a state, money is required. Therefore, the government imposes taxes in many forms on the incomes of individuals and companies. Moreover, we can say that Tax is one of the most important sources of revenue to the Government and at the same time one of the important tool for economic development. The basic objective of this paper is to evaluate the impact of both direct and indirect taxes on economic growth of India.


**Keywords:** Tax, development,

### Introduction

Tax is a payment compulsorily collected from individuals or firms by government. A direct tax is levied on the income or profits of an individual or a company. The word 'direct' is used to denote the fact that the burden of tax falls on the individual or the company paying the tax and cannot be passed on to anybody else. For example, income tax, corporate tax, wealth tax etc. An 'indirect' tax is levied on manufacturing and sale of goods or services. It is called 'indirect' because the real burden of such a tax is not borne by the individual or firm paying it but is passed on to the consumer. Excise duty, customs duty, sales tax etc. The government levies taxes on the citizens of the country to produce income for business projects to enhance the country's economy and to lift up the standard of living of the nationals. The government's authority to a levy tax in our country is drawn from the Constitution of India that deals out the supremacy to levy taxes to the State as well as Central governments. All the taxes levied within the country require being backed by an escorting law passed by the State Legislature or the Parliament.

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

RESEARCH PAPER PUBLISHED (2020 – 2021)  
(DR. NIRMALI DOLEY)

# INFOKARA RESEARCH

An UGC-CARE Approved Group 2 Journal



INFOKARA

An ISO : 7021 - 2008 Certified Journal

ISSN NO: 1021-9056 / web : <http://infokara.com/>  
e-mail : [editor.infokara@gmail.com](mailto:editor.infokara@gmail.com)

Certificate ID - IK-4240

*Certificate of Publication*

This is to certify that the paper entitled

**Economic growth and income inequality**

Authored by

DR. NIRMALI DOLEY

from

Kakojan College, Jorhat, Assam

Has been published in

INFOKARA RESEARCH, VOLUME 10, ISSUE 2, FEBRUARY - 2021



*H. Mathew*

Mathew Hull, Editor-In-Chief, INFOKARA RESEARCH



ISO  
International  
Organization for  
Standardization  
7021-2008

*R. Bordoloi*  
(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



*N. Gogoi*  
(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



[DOI:16.10089,IR.2021.V10I2.285311.3980](#)

4. INNOVATIVE TEACHING AND LEARNING METHODOLOGIES FOR HIGHER EDUCATION INSTITUTIONS

**Doyal Mukherjee**, Kalyani University, Kalyani, Nadia

Page No: 32 – 37

[DOI:16.10089,IR.2021.V10I2.285311.3981](#)

5. An Energy Efficient Heterogeneous Clustering in WSN using Hybrid Genetic Algorithm Entropy-based clustering Technique

**Shrawan Kumar**, YBN University, Ranchi, Jharkhand

Page No: 38 – 46

[DOI:16.10089,IR.2021.V10I2.285311.3982](#)

6. IMPACT OF ICT IN TEACHING-LEARNING PROCESS OF HIGHER SECONDARY STUDENTS IN INDIA

**Dipu Mahali**, Sarat Chandra Memorial H.S. Institution, Polba, Hooghly, W.B., India

Page No: 47 – 54

[DOI:16.10089,IR.2021.V10I2.285311.3983](#)

7. EMPIRICAL STUDY – MEN'S WEAR AS HIGH NECK T-SHIRT, DESIGNER V-NECK T-SHIRT, CREW NECK T-SHIRT, HOOD

T-SHIRT AND POLO T-SHIRT

**Dr.K.Prabha kumari**, Chandrahari.T, Karthik,  
**R.G. Sundheresan.S. Vishnu.V** and **Karthy.M.**, Nift – tea college of Knitwear Fashion, Tirupur

Page No: 55 – 59

[DOI:16.10089,IR.2021.V10I2.285311.3984](#)

8. Analysing Garment Sample Production Processes in Men's Round Neck T-Shirt, Vest RN, and Singlet

**Dr.N.Siva kumar, Sendhilnathan.G, Naveen.T, Elamathi.T** and **Anand.S**, NIFT – TEA COLLEGE OF KNITWEAR FASHION, TIRUPUR

Page No: 60 – 66

[DOI:16.10089,IR.2021.V10I2.285311.3985](#)

9. Applications in Fuzzy Stratified Graphs


**Dr.N.Sarala** and **T.Mahasri**, ADM College for Womens (Autonomous), Nagapattinam, (Affiliated Bharathidasan University, Trichy)

Page No: 67 – 77


[DOI:16.10089,IR.2021.V10I2.285311.3986](#)

10. Economic growth and income inequality

**Dr. Nirmali Doley**, Kakojan College, Jorhat, Assam

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam



## Economic growth and income inequality

Dr. Nirmali Doley

Assistant Professor

Department of Economics

Kakojan College, Jorhat, Assam.


### Abstract

This topic is especially present in today's economic world as the gap between the poor and rich only seem to widen, mostly in the developing nation like India. Income inequality has been a matter of discussion since the beginning of economic growth. Surprisingly, this is also true for India where the top 10% holds 77.4% of the total national wealth, while the top 1% holds 51.53% of the wealth. The bottom 60% population holds only 4.8% of the national wealth. Therefore, this paper aims to analyse the relationship between income inequality and economic growth in India.


**Key Words:** income inequality, economic growth, economy in India

### Economic Growth

According to Mc Connel, Brue and Flynn (2009) economic growth is 'an outward shift in the production possibilities curve that results from an increase in resource supplies or quality or an improvement in technology' or it's 'an increase in real GDP or in real GDP per capita over some period of time'. One of the definitions of economic growth is "the increase in the total output of an economy that happens as a result of a society acquiring new resources or learning to produce more using the existing ones." "New resources may refer to an increase in capital stock or in labour forces." "Accumulation of capital and technological advances are two of the most important sources of economic growth" (Case, Oster and Fair, 2012. Economic growth can be measured by comparing real GDP for different years. Real GDP is defined as 'the value of total production of farms, factories, shops and offices of a country measured in the prices of a single year'. One of the main approaches for calculating GDP is the expenditure approach which equals 'the sum of consumption expenditure, investment, government spending on goods and services and net exports' (Parkin, Powell and Matthews, 2005). Growth doesn't occur in isolation. Events

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

RESEARCH PAPER PUBLISHED (2020 – 2021)  
(BABITA PHUKAN BORKOTOKY)

Print ISSN: 0973-1431  
Online ISSN: 0976-4755

# BIOINFOLET




*A Quarterly Journal of Life Sciences*

UGC-CARE APPROVED JOURNAL, INDEXED IN WEB OF SCIENCE  
CITATION INDEX, EXPANDED.


Vol. 18

2021


No. 1A

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam




  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

Antifungal activity and characterization of Ethanolic extracts of <i>Ricinus communis</i> (Castor) <b>Pawan Deshmukh and Umesh P. Mogle</b>	61
Influence of <i>Celosia argentea</i> L. weed manure on the yield of Spinach <b>Pratap Vyankatrao Naikwade</b>	64
Nodal Vasculature in some Bignoniaceae. <b>Dilip Aswale and Sangeeta Sutar*</b>	69
Powdery Mildew Disease on some plants from Jalna District, Maharashtra State, India <b>Navalsingh J. Todawat</b>	73
Zooplankton Diversity of Palashi Reservoir in Ahmednagar District, Maharashtra <b>Lalita Kunjir and S. A. Kawade</b>	78
Nutraceutical and Medicinal Bio-Resources used by Tea-Tribe of Jorhat District of Assam <b>Babita Phukan Borkotoky, Pavitra Chutia and Satya Ranjan Sarmah</b>	81
Screening, Isolation and Identification of Distillery spent wash decolourizing Bacteria from soil <b>A.B. Shinde and D.B. Nakade</b>	90
Effect of Organic Manures and Earthworm on soil nutrient content <b>W. B. Shirsath</b>	95
Biological control of Charcoal Rot of Jowar with the use of <i>Trichoderma</i> species <b>M.T. Gavali, S.A. Bansode and U. N. Bhale</b>	96
Cultural, Morphological, Biochemical and Genomic identification of <i>Enterococcus canis</i> N12 isolated from fresh water fish <i>Cyprinus carpio</i> <b>N. D. Totewad and G. Gyananath</b>	100
Qualitative analysis and Antimicrobial Activities of Cow urine against human Pathogens. <b>Pradeep Devidas Devkate, Mahesh Panditrao Jadhav and Mamata K, Malviya</b>	103
Host Parasite Interaction and protein profile of <i>Dendrophthoe falcata</i> (L.F) Ettingsh var. <i>Pubescens</i> (Hook. F) Associated with different hosts <b>Laxmishree S. Chengala and Geetha S. Menon</b>	105
Degradation of Edible Fats and Oils by Lipolytic Consortium for bioremediation of restaurant waste water <b>V.P. Sutar and J.V. Kurhekar</b>	111

  
(Dr. Ruprekha Bordoloi)  
Principal  
Kakojan College  
Jorhat, Assam



  
(Dr. Nibedita Gogoi)  
Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam

**NUTRACEUTICAL AND MEDICINAL BIO-RESOURCES USED BY TEA-TRIBE OF JORHAT DISTRICT OF ASSAM**

**Babita Phukan Borkotoky, Pavitra Chutia\* and Satya Ranjan Sarmah\*\***

Department of Botany, Kakojan College, Jorhat, Assam, 785107

\*Department of Life Sciences, DR College, Golaghat, 785621 Assam

\*\*Department of Mycology and Microbiology, Tocklai Tea Research Institute, Jorhat, Assam, 785008

**ABSTRACT**

Present study gives information on utilization of plant and animal species by Tea tribe community of Assam, with special reference to those from Jorhat District. In Assam nearly 20 % population comprises tea tribe community. Total 52 plant and animal species are utilized as a source of nutraceuticals and ethnomedicines by this community. During the survey, undertaken for present study, it was observed that 37 plant and 15 animal species were utilized by the tribal people. The plant species belonging to 25 families and 35 genera were used, showing great diversity in their food habit. The plants belonging to family Euphorbiaceae were found to be most commonly used. The types of animal species used by tea tribe ranged from insects to mammals, wherein Molluscs and Mammals were the largest group of animals. The plants and animal species mentioned in this communication were also used to treat diseases of different kinds and as an immunity booster.

**Key words:** Ethnomedicine, Nutraceutical, Bio-resource, Tea-tribe, Traditional knowledge

**Introduction:**

Since ancient times, plants and animals have been used for medicinal purposes ( Mishra *et al.*,2011). Around 65 % Indian population relies on traditional medicine for primary health care (Siddalinga *et al.*,2013;Pandey, 2015,Solanki and Chutia, 2009;Binu Devi *et al.*,2015). Even today the Pharmacopeias are found to be dependent on plant and animal products and play an important role in global health care ( Alves and Rosa,2007;Chivian,1997).

In addition to domesticated animals, wild animals are also used by various ethnic people for food, medicines, customs and rituals. Their beliefs and faith are deeply rooted with some selective animals (Pushpangdan, *et al.*, 2014), as the way of life for many tribal communities was based on hunting of wild animals. Ethno-biology plays an important

role in this context, to tap centuries old traditional knowledge, and also to explore new sources of food and medicines ( Jain,1987,1991).

Tea-tribe community (adivashi) of Assam is a an assemblage of tribal and backward class successors, who were brought to Assam as bound labours by British Colonial Planters during 1860-99. They were essentially from tribal regions of present day Jharkhand, Odisha, West Bengal, Telengana and Chattishgarh. There were at least 32 ethnic groups among them who were brought from Jharkhand. They had to sacrifice much of their traditional values and practices mainly due to migration from their original places to a new habitat. However, they are still maintaining their special food habits and traditional knowledge of primary health care.

Systematic study of ethno-biology among Assam's tea-tribe culture is meager,

(Dr. Ruprekha Bordoloi)

Principal  
Kakojan College  
Jorhat, Assam



(Dr. Nibedita Gogoi)

Co-ordinator  
IQAC  
Kakojan College  
Jorhat, Assam