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Volume I
(For Semester I, II & III)
Dr Bikramjit Raychaudhury

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A book chapter has published by him from an International Publisher in Croatia. As an experienced researcher, he carried out four major and minor research projects funded by National Agencies. He has research multiple collaboration with other Universities and National Institutes. In addition to this, he is serving different Universities as a paper setter, evaluator and moderator for various courses. He is a good mentor and counsellor dedicated to health professions and careers.



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Dr Bikramjit Raychaudhury

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Volume II (For Semester IV & V)

Dr Bikramjit Raychaudhury

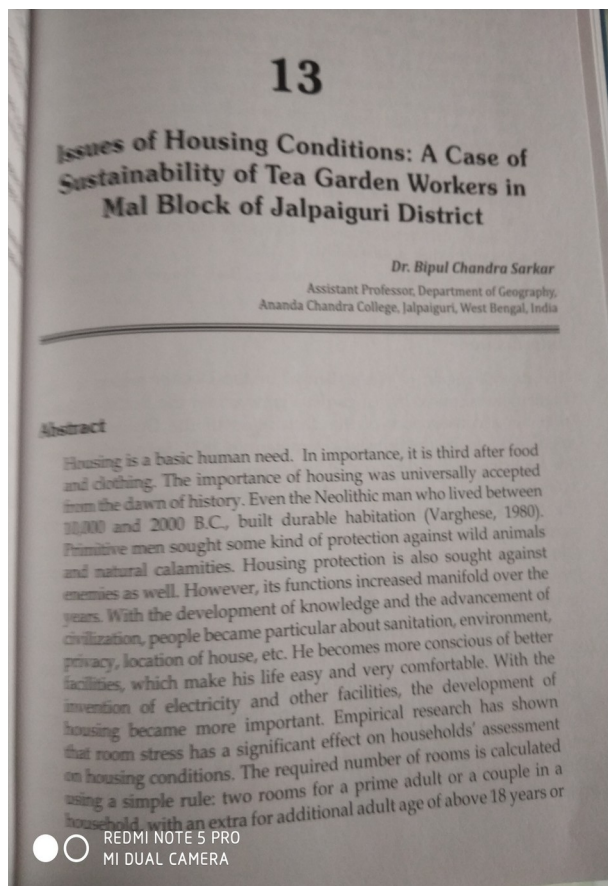
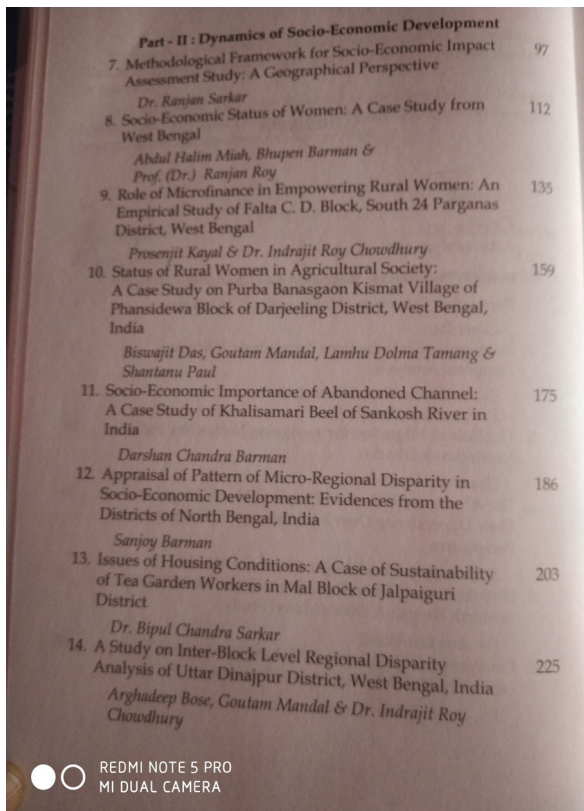
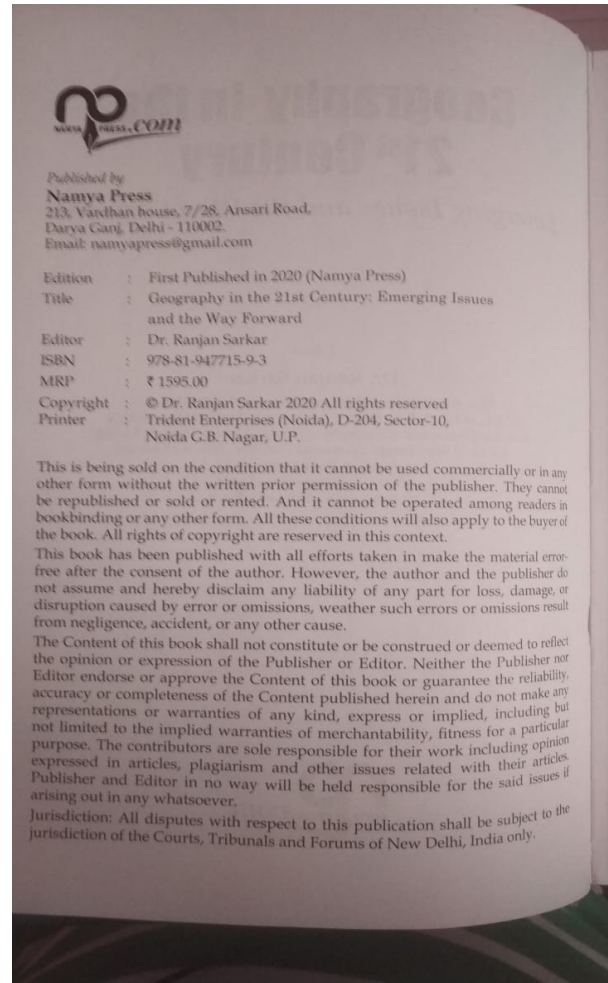
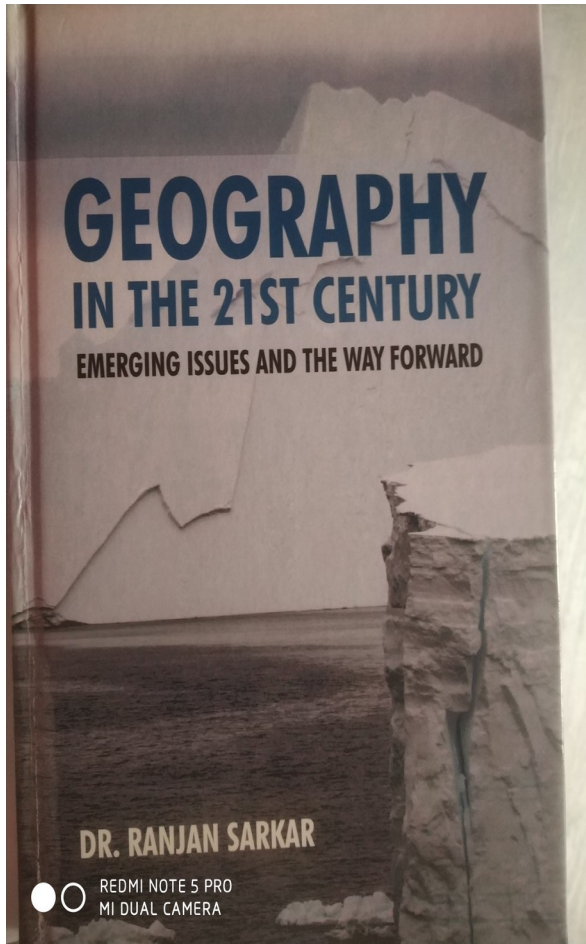
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The process of urbanization is a very dynamic one and no two urban centers are alike. North Bengal consist of the eight northern most districts of the state of West Bengal. North Bengal occupies a very special position from strategic angle given the fact that it shares international border with the three neighboring countries of Bangladesh, Bhutan and Nepal. Moreover, the entire north-east India is connected with the mainland by a narrow corridor of roughly 30 km. wide around Siliguri city. Given its strategic importance and increase in international trade with the neighboring countries, this region gained a lot of attention both from central as well as state governments and associated infrastructural change during recent years. The process of urbanization which was initially lackluster also geared up having its own implications given the delicate geo-environmental setting of North Bengal. In this book an attempt has been made to cover some of the burning issues of urbanization being faced across various urban centers of North Bengal in recent years.



Dr. Arindam Basak

CONTEMPORARY ISSUES OF URBANIZATION IN NORTH BENGAL



The editor is working as an Assistant Professor at the Department of Geography and Applied Geography, University of North Bengal. He has completed his MA and M.Phil in geography from Jawaharlal Nehru University and his Ph.D from the University of North Bengal. His area of interest are Regional Planning and Development, Urban Geography and GIS.



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Growth of Urban Centers in Cooch Behar District

Bipul Chandra Sarkar^{*a}^a Assistant Professor, Department of Geography, Ananda Chandra College, Jalpaiguri.^{*} Corresponding author e-mail address: bipulacgeo@gmail.com.

Abstract

Cooch Behar is one of the north eastern districts of West Bengal bounded by Bangladesh in the south and Assam in the east. The district has experienced lack luster urbanization process till date with the level of urbanization only 10.27% in 2011. In this paper an attempt has been made to analyze the process of urbanization and growth of urban centres in Cooch Behar district and also to find out the factors responsible for very low level of urbanization in this district.

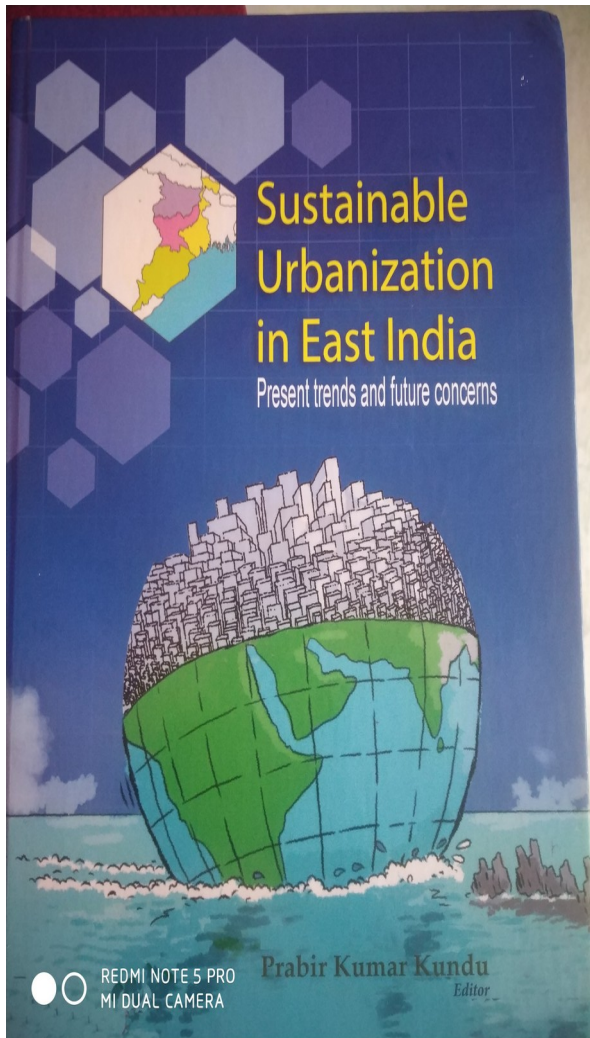
Key words: Urbanization, Urban centre, Growth of urban population.

Introduction

Cooch Behar was a princely state ruled by feudatory ruler of Koch dynasty since early phase of 16th century. On 20th August, 1949 Cooch Behar converted to a state of the dominion Government of India. On 19th January Cooch Behar emerged as a new District in the administrative map of West Bengal. So, in course of time, Cooch Behar has been transformed from a kingdom to a State and from a State to the present status of a district. The district lies between 25°57'47"N to 26°36'20"N and 88°47'44"E to 89°54'35" E, covers an area of 3387 sq.km. There are 6 municipalities namely Coochbehar, Mathabhanga, Dinahata, Tufanganj, Mekhliganj and Haldibari; and 12 census towns distributed all over the district. From the time of independence of the country this district faces tremendous pressure of immigration and infiltration from Bangladesh and nearby areas for which process of urbanization has been influenced. The district has rich fertile land of 'tal' plain consisting of even homogeneous plain of different doabs. The inhabitants are depending on agriculture and allied activities. Lack of secondary and tertiary economic activities disapprove urbanization

Contents

| Chapter Number | Title | Page Number |
|----------------|---|-------------|
| 1 | Monitoring of Urban Expansion and Land Use/ Land Cover Changes of Siliguri Jalpaiguri Development Area of Northern West Bengal <i>Subha Chakraborty, Asti Kumar Roy, Debaleena Majumdar, Swati Saha & Debajit Datta</i> | 1 - 13 |
| 2 | An insight into the Population Growth of Malda District, West Bengal, India <i>Shehasish Saha</i> | 14 - 26 |
| 3 | Growth of Urban Centers in Cooch Behar District <i>Bipul Chandra Sarkar</i> | 27 - 36 |
| 4 | Assessment of Urban Infrastructure Facilities and Developmental Prospect of Haldibari Municipality: A Geo-Planning Perspective <i>Mijanur Raikman & Indrajit Roychowdhury</i> | 37 - 78 |
| 5 | Changing Housing Condition of English Bazar Municipality of Malda District, West Bengal, India <i>Ersad Ali & Arindam Basak</i> | 79 - 92 |
| 6 | Measurement and Monitoring of Road Traffic Congestion at Siliguri Air View More Traffic Intersection Point: A Geo-Planning Perspective <i>Indrajit Roy Chowdhury</i> | 93 - 162 |
| 7 | The emergence of Urban Space: A case study of Jaigoan Development Area <i>Tuhin Dey Roy & Arindam Basak</i> | 163 - 173 |



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Contents

| Section I Urbanization: Process, Trends, Problems; Role of Small Statutory and Census Towns | Pages |
|---|--------------|
| 1. Sustainable urbanization in East India: Patterns, trends and future prospects DEBDOLINA KUNDU | 1 |
| 2. Role of census towns in the process of urbanization in Koch Bihar district BIPUL CHANDRA SARKAR | 20 |
| 3. Delimitation of ward boundaries in Dinhatra Municipality: An impact analysis of population characteristics BISHNU BARMAN & TAMIL BASU ROY | 24 |
| 4. Glimpses of urbanization in the ancient world JYOTIRMAY SEN | 30 |
| 5. Social unrest in North-East India due to urban migration: The wherewithal for correction RENUCA RAJINI BECK | 38 |
| 6. Problems of urbanization in Siliguri town SARBARI MUKHOPADHYAY | 41 |
| 7. A portfolio of census towns as indicator of evolving urbanity: A case of Malda district, West Bengal SNEHASISH SAHA | 45 |
| 8. Dynamics of urban morphology: An appraisal of Cooch Behar town WRITUPARNA CHAKRABORTY | 58 |
| 9. An overview of urbanization in Meghalaya PARANGAMA CHOWDHURY | 71 |
| 10. Urbanization in North Bengal: A study of past and present trends MADHUSUDAN KARMAKAR | 76 |
| 11. Urbanization, patterns and trends in West Bengal in the post-colonial period (1947-2011) | 82 |

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Role of Census Towns in the Process of Urbanization in Koch Bihar District

Bipul Chandra Sarkar
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Abstract
 Koch Bihar is one of the least urbanized districts in West Bengal in spite of its 6 statutory towns. Latest census of 2011 shows that there are at present 12 census towns in the district which actually favored the gradual growth of urban population in the district. Gurahati and Kharimala-Khagrahari of Cooch Behar-I; Bhangri Pratham Khanda of Dinhatra-I; Khagrahari of Cooch Behar-II got recognition as non-statutory towns in between 1971-2001. In latest census of 2011, eight villages Takagach and Baiguri of Cooch Behar-II; Nagar-Changrabandha of Mekhliganj; Kamta-Phulbari of Tufanganj-I and Lakuthi of Tufanganj-II block. Shifting of occupation from primary to secondary or tertiary sectors causes growth of census towns in the district. Most of the census towns are located beside the Cooch Behar municipality. Thus, Cooch Behar municipality gradually spreads over nearby villages.

Keywords: Statutory town, census town, gradual growth, urban population, municipality.

Introduction
 Cooch Behar was a princely state ruled by feudatory ruler of Koch dynasty since early phase of 16th century. On 20th August, 1949 Cooch Behar converted to a state of the dominion Government of India. On 19th January Cooch Behar emerged as a new District in the administrative map of West Bengal. So, in course of time, Cooch Behar has been transformed from a kingdom to a State and from a State to the present status of a district. The district lies between 25°57'47"N to 26°36'20"N and 88°47'44"E to 89°54'35" E, covers an area of 3387 sq.km. There are 6 municipalities namely Cooch Behar, Mathabhanga, Dinhatra, Tufanganj, Mekhliganj and Haldibari; and 12 census towns distributed all over the district. From the time of independence of the country this district faces tremendous pressure of immigration and infiltration from Bangladesh and nearby areas for which process of urbanization has been influenced.

Growth of Urban Population in Cooch Behar District
 The district of Cooch Behar shows a very poor share of urban population out of total population. In spite of highest number of municipalities among the north Bengal districts, Cooch Behar district shares only 10.27% urban population to its total population while state average is 31.89% (2011). Cooch Behar is the 2nd least urban populous district in West Bengal preceded by Bankura. There are six municipalities and 12 census towns in Cooch Behar district. In spite of poor urban share the district recorded unprecedented growth of urban population throughout the

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Contents

| | |
|--|------|
| Acknowledgement | v |
| Editorial Submission | vii |
| List of Contributors | xxix |
| 1. Evolution of Historical Geography of Jalpaiguri District (1869-2019) - A Spatio-temporal Analysis <i>Krishmendu Roy</i> | 3 |
| 2. Jalpaiguri District: A Glance to its Administrative Reorganisation (1869-2019) <i>Arun Ghosh</i> | 24 |
| 3. Archaeological Ruins, Historical and Heritage Sites and Sights of Jalpaiguri District (1869-2019) <i>Latika Barman & Dr. Ananda Gopal Ghosh</i> | 41 |
| 4. History of Land and Agrarian Relations in Jalpaiguri in the Context of Changing Society: (Colonial and Post-colonial Phases) <i>Kartik Chandra Sutradhar</i> | 60 |
| 5. Forests of Jalpaiguri District: A Journey Through 150 Years <i>Diganta Chakraborty</i> | 100 |
| 6. Effects of Habitat Fragmentation on Forests – Biodiversity in Jalpaiguri District. <i>Dr. Sheela Datta Chatak</i> | 121 |
| 7. Moving Wheels: Recalling the Development of Transportation of Jalpaiguri District in 150 Years <i>Bishwarup Saha</i> | 140 |

CHAPTER 5

Forests of Jalpaiguri District: A Journey Through 150 Years

Diganta Chakraborty

Jalpaiguri as a district stands supreme in the history of Forests in West Bengal. Notwithstanding very few proper studies have been made hitherto on the forests of Jalpaiguri. Even according to the Forest Survey of the Government of India in 1999, the land of 28.75% of this district was covered with forests, still writing history of almost 30% of land in the district had been neglected by the historians for a long time. It is worth mentioning that the distinguished scholar Dr. R.M. Lahiri in the editorial note of the centenary volume of Jalpaiguri District lamented due to the absence of article connected with Flora and Fauna of the district in the volume. However, some articles incorporated in later published Jalpaiguri district volumes along with a few research works no doubt tried to wipe out this dearth. In spite of this, it is certain that no volume will be full-fledged if atleast one article centering on forests is not included in it. I am fortunate and grateful as well since the honourable editor of this book kept faith on me to write the history of the forests of Jalpaiguri. I know my limitation and frankly state that my position is similar to the immortal verses of the poem entitled "Hate Bhiru deep" written by renowned poet Nirendranath Chakraborty which represents-

"Hate Bhiru deep, pathe unmad Hawa

Bhrukuti Kutil Sahashra Bhay mone:

In the present study my intention is to chalk out a sketch of the forest management along with various dimensions of forest based problems in Jalpaiguri district for last 150 years. I have initially divided the forest management of Jalpaiguri district into two parts viz. (1) Colonial period and (2) Independent era. Although lots of eminent scholars believe that even after India achieved her freedom from colonial rule the independent government followed the British Legacy, yet a few changes in the nature of forest management can not be denied. In view of this, I have placed the forest administration upto 1947 of Jalpaiguri district in the name of colonial

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Contents

| Chapter Number | Title | Page Number |
|----------------|---|-------------|
| 1 | Monitoring of Urban Expansion and Land Use/ Land Cover Changes of Siliguri Jalpaiguri Development Area of Northern West Bengal <i>Subha Chakraborty, Asit Kumar Roy, Debaleena Majumdar, Swati Saha & Debañit Datta</i> | 1 - 13 |
| 2 | An insight into the Population Growth of Malda District, West Bengal, India <i>Snehavish Saha</i> | 14 - 26 |
| 3 | Growth of Urban Centers in Cooch Behar District <i>Bipal Chandra Sarkar</i> | 27 - 36 |
| 4 | Assessment of Urban Infrastructure Facilities and Development al Prospect of Haldibari Municipality: A Geo-Planning Perspective <i>Mijanur Rahaman & Indrajit Roychowdhury</i> | 37 - 78 |
| 5 | Changing Housing Condition of English Bazar Municipality of Maldah District, West Bengal, India <i>Ershad Ali & Arindam Basak</i> | 79 - 92 |
| 6 | Measurement and Monitoring of Road Traffic Congestion at Siliguri Air View More Traffic Intersection Point: A Geo-Planning Perspective <i>Indrajit Roy Chowdhury</i> | 93 - 162 |
| 7 | The emergence of Urban Space: A case study of Jaigoan Development Area <i>Tuhin Dey Roy & Arindam Basak</i> | 163 - 173 |

Changing Housing Condition of English Bazar Municipality of Malda District, West Bengal, India

Ershad Ali^{a*} & Arindam Basak^b

^a Guest Lecturer, Department of Geography, Ananda Chandra College, Jalpaiguri, India.

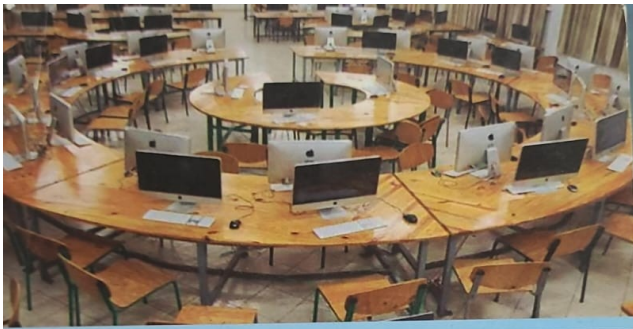
^b Assistant. Professor, Department of Geography & Applied Geography, University of North Bengal.

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Abstract

Housing is a basic requirement to develop physically, socially and mentally for any settler, especially in urban area. It is also closely linked to other basic amenities such as health, electricity, sanitation, drinking water, security, privacy, and personal space. During recent years, the housing condition of English Bazar Municipality was very unhealthy due to poor housing materials, dizziness of household density, the dominance of ownership based houses and raw house, lack of refined drinking water, lack of proper sewerage and sanitation system etc. However, the situation has been changing now due to governmental intervention, increasing literacy rate, improvement in urban economy and development of awareness by the residents of English Bazar town. Therefore, the main objective of this paper is to analyze the recent trends in housing condition of English Bazar Municipality. The discussions are based on secondary information that has been collected from various sources. The outcome was similar to any normal city in a developing country and even today in English Bazar, a large number of families are plagued by numerous problems associated with housing due to an increase in population pressure. Thus, the paper attempts to analyze the change in housing condition based on census data of 2001 and 2011 respectively.

Keywords: Urbanization, Basic amenities, Household density, Solid waste management



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Dipty Subba

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CONTENTS

| | | |
|---|---|----|
| 1 | Understanding 'ICT' in Education <i>Rajarshi Roy</i> | 1 |
| 2 | ICT and Higher Education: ICT in Teaching and Learning <i>Albina Subba</i> | 28 |
| 3 | The Impact of Information and Communication Technology on Teaching Geography at the Secondary School Level in Purulia District of West Bengal <i>Amit Deen</i> | 39 |
| 4 | ICT and Teaching Learning Process in History <i>Deewakar Thata</i> | 50 |
| 5 | Usefulness of E-Learning for Enhancement of Educational Qualification of Teachers of Government Elementary Schools in Jehanabad Block Under Jehanabad District, Bihar <i>Devanand Sinha</i> | 55 |
| 6 | Role of Information and Communication Technology in Women Empowerment <i>Gour Sundar Ghosh</i> | 68 |

vii

6

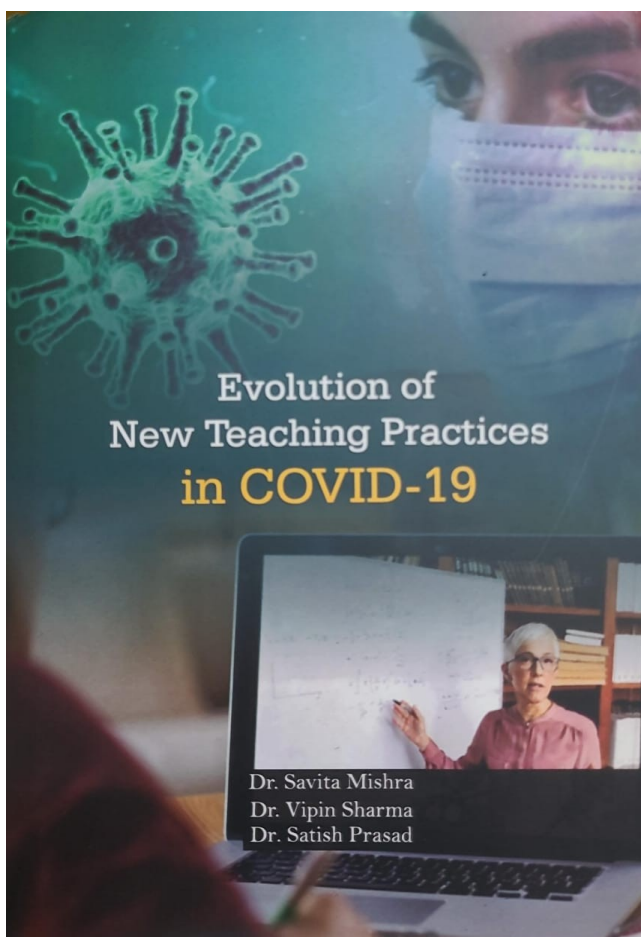
Role of Information and Communication Technology in Women Empowerment

*Gour Sundar Ghosh**

INTRODUCTION

Nature of our society is male dominating from starting so work done by women were never recognized and appreciated. Nobody has ever mentioned about their contribution in music. The famous musician Jane Pirone has created www.drummergirl.com as a reaction to negative experiences faced by her. Her motto was to encourage future female drummers like her. Her efforts also bring to notice the importance of Information and Communication Technology as without paying anything all the people can get information about female drummers on web. She has mentioned that WWW gave her a platform to bring social change. To develop women friendly work environment leading companies are now offering benefits like crèches, and option to relocate to city of their choice in case of transfer of the husband. According to a survey done by Internet and Mobile Association of India in 2009 reveals that there are 6.5 million claimed internet users, 4.18 million active internet users. Empower is a multidimensional word including social, physical, spiritual, mental, political and psychological dimensions. Empower means personal growth in decision making, analyzing critical situations, coping with all circumstances and facing challenges. Internet gives them a platform where people can interact with each other with hesitation as they are unaware of each other's identity. Especially women can show their emotions, views, feelings and opinion more openly. In text

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Contents

| | |
|---|-----|
| <i>Preface</i> | v |
| <i>List of Contributors</i> | vii |
| 1. School Education Scenario in India During Times of Covid —Professor Sharad Sinha | 1 |
| 2. Challenges of Covid-19 Pandemic and Uninterrupted Education System —Dr. Sanjukta Padhi | 9 |
| 3. The Reopening of Schools and Academic Institutions: Is it a Risk, a Challenge or an Opportunity —Dr Vipin Sharma | 18 |
| 4. COVID-19: Evolution and Implications —Prof. Mita Banerjee, Payel Srila Banerjee | 27 |
| 5. Present Scenario and Future Prospect of Education System in Pandemic Scenario —Dr. Shabana Haydar | 34 |
| 6. The Impact of COVID-19 The Pandemic in India on Right to Education —Dr. Dilip Pandey | 48 |
| 7. Effect of Current Pandemic (COVID-19) on Under Graduate Students of Dooars Area in West Bengal —Dr. Gour Sundar Ghosh | 62 |
| 8. Struggle and Hardship That Students and Teachers Faced During Corona Pandemic —Sanjay Verma, Mrs. Jasmeet Kaur | 70 |
| 9. Analysis of Aatmanirbhar Bharat Abhiyan: "SEPs For MSMEs" —Prof. Nayan Ranjan Sinha | 75 |

7

Effect of Current Pandemic (COVID-19) on Under Graduate Students of Dooars Area in West Bengal

Dr. Gour Sundar Ghosh

Abstract

This paper focus on present situation of covid-19 pandemic and its effect on higher education (Under Graduate Level) during the lockdown period in the India particular in Dooars area of West Bengal. Graduate students in Dooars area are facing various problems during the lockdown period. How they completed their assignments and projects work from home. Students are participated in which activities and how they spent time with their family on such issues are highlighted in this research paper.

Keywords: Covid-19, Under Graduate, Dooars, UGC, ICT, lockdown etc.

Introduction

The first case of covid-19 was reported in India (Kerala) on 30 January 2020, originating from China. India has been experiencing sparkled growth in Covid-19 cases. As on 26 June 2020, India has reported 189463 active cases, 285636 recovered cases and 15301 death cases. Experts suggest the number of infections could be much higher as India's testing rates are among the lowest in the world. The infection rate of covid-19 in India is reported to be 1.7, significantly lower than in the most horrible affected countries. The outbreak has been declared an epidemic in more than a dozen states and union territories, where provisions of the Epidemic Diseases Act, 1897, have been invoked, and

GENDER DIMENSIONS AND DEVELOPMENT



DR. DIPTY SUBBA

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Contents

| Sr. No. | Title & Author Name | Page No. |
|---------|--|----------|
| 1 | Gender Equality And Women Empowerment: A Study In India Subhankar Sarkar | 1-17 |
| 2 | Role of Nep, 2020 As A Remedy For Gender Inequality Dr. Gour Sundar Ghosh | 18-41 |
| 3 | Womenm Empowerment Through ICT Diki Ongmu Bhutia | 42-53 |
| 4 | Role of Education in The Empowerment and Development of Women In India Dr. Sanatan Tripathy | 54-66 |
| 5 | ICT for Gender Mainstreaming Dr. Sarmila Banerjee | 67-91 |
| 6 | Gender Concerns in Education Dr. Dipty Subba | 92-107 |

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ROLE OF NEP, 2020 AS A REMEDY FOR GENDER INEQUALITY

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Introduction

The development of a society can be judged by measuring the issues that extend educational inequality prevalent in the society. The prevalence of unequal distribution of education in male and female students hinders the development at every stage of a nation. According to the World Conference on Education (2001), all children, particularly girls, must have access to and complete quality education by the year 2015. We know it very well that both boys and girls have equal right to be educated and in developing a nation it is important to provide inclusive learning irrespective of gender.

For a millennium, India has been the land of iconic women who've played a exclusive role in governance,

Gender, Dimensions And Development 18

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Sustainable Agriculture in the Era of Climate Change

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x

Contents

| | | |
|----|---|-----|
| 9 | Role of Heat Shock Proteins (HSPs) and Heat Stress Tolerance in Crop Plants | 211 |
| | Zeba Khan and Durre Shahwar | |
| 10 | Assessment of Irradiation Stress in Crop Plants with Modern Technical Advances | 235 |
| | Indraneel Saha, Debabrata Dolui, Arijit Ghosh, Bipul Sarkar, Arbab Kumar De, and Malay Kumar Adak | |
| 11 | Antioxidants: Responses and Importance in Plant Defense System | 251 |
| | Narendra Kumar, Hukum Singh, and Satish Kant Sharma | |
| 12 | Reactive Oxygen Species and Antioxidant Defence Systems in Plants: Role and Crosstalk Under Biotic Stress | 265 |
| | Koushik Biswas, Sinchan Adhikari, Avijit Tarafdar, Roshan Kumar, Soumen Saha, and Parthadeb Ghosh | |
| 13 | Climate Change-Induced Heavy Metal (or Metalloid) Stress in Crop Plants and Possible Mitigation Strategies | 293 |
| | Navin Kumar, Shilpi Paul, and Shekhar Mallick | |
| 14 | Arsenic-Induced Stress and Mitigation Strategies in Plants | 327 |
| | Iti Sharma | |
| 15 | Arsenic Tolerance and Signaling Mechanisms in Plants | 341 |
| | Sudhakar Srivastava and Vaishali Yadav | |
| 16 | Heme Oxygenase 1(HO1): An Enzyme of Plant System and Its Role Against Various Abiotic Stresses | 355 |
| | Khushbu Verma and Afroz Alam | |
| 17 | Role of Plant Growth-Promoting Rhizobacteria (PGPR) for Crop Stress Management | 367 |
| | Ashutosh Kabiraj, Krishnendu Majhi, Urmil Halder, Moitri Let, and Rajib Bandopadhyay | |
| 18 | Plant Tissue Culture and Crop Improvement | 391 |
| | Kiranmai Chadipiralla, Pachipala Gayathri, Vemula Rajani, and Pichili Vijaya Bhaskar Reddy | |
| 19 | Abiotic and Biotic Stress Research in Plants: A Gizmatic Approach of Modern Omics Technologies | 413 |
| | Nilofer Sheikh, Dina Barman, and Kaushik Bhattacharjee | |
| 20 | Involvement of Microbes in Different Abiotic Stress Environments of Cropping Lands | 441 |
| | Muhammad Zulqurnain Haider, Farah Saeed, Aqsa Ali, Qasim Ali, Noman Habib, Muhammad Tariq Javed, Muhammad Azeem, Naeem Iqbal, Shafaqat Ali, Imran Khan, Faisal Mahmood, Youcai Xiong, and Muhammad Afzaal | |

Chapter 17 Role of Plant Growth-Promoting Rhizobacteria (PGPR) for Crop Stress Management



Ashutosh Kabiraj, Krishnendu Majhi, Urmil Halder, Moitri Let, and Rajib Bandopadhyay

Abstract Crops under both abiotic and biotic stress are the major constraints on productivity. A number of factors like physical disorders, disease susceptibility, toxicity, hormonal imbalance, and nutritional deficiency interfere with the growth and development of plant under stress condition. Under these circumstances, rhizoremediation with the help of the plant growth-promoting rhizobacteria can mitigate stress-induced adverse effects on crop productivity. Plant growth-promoting rhizobacteria and their associated molecules play dual role by affecting both nutrition and resistance concomitantly through overlapping mechanisms. These free-living plant growth-promoting rhizobacteria actively colonize plant roots, exerting beneficial effects using their own metabolism or by directly affecting the plant metabolism. Rhizobial symbiosis has great agricultural importance in terms of improving soil fertility and crop productivity due to their synergistic as well as antagonistic interactions with other microbes in the soil environment. Plant growth-promoting rhizobacteria trigger elicitors, produce siderophores which deprive iron nutrition, and also induce cell wall-degrading extracellular enzymes as defense responses against plant pathogens. PGPR have the ability to induce the secretion of phytohormones, volatile compounds, antibiotics, and toxins which play an important role in plant growth. Rhizobacteria trigger N-acyl homoserine lactones (AHLs) like auto-inducer molecules to regulate the gene expression as a part of quorum sensing. Other than these, plant growth-promoting rhizobacteria stimulate endogenous hormones of hosts to enhance stress tolerance. The mutualistic symbiosis triggers NOD factors and NOP effectors, while nonsymbiotic bacterial molecules enhance plant nutrient acquisition and growth. Here in this chapter, we have discussed and reviewed comprehensively the effectivity and mechanisms of plant growth-promoting rhizobacteria for enhancing crop productivity under different stress conditions.

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367

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Role of IT- ITES in Economic Development of Asia

Issues of Growth, Sustainability and
Governance

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xviii

Contents

| | | |
|---|---|-----|
| 9 | Technology and Employment: Empirical Evidences in Technology Product Exporting Asian Economies | 109 |
| | Krishnendu Maji | |
| 10 | FDI, ICT and Economic Growth in Developing Countries: An Empirical Analysis | 121 |
| | Madhabendra Sinha, Rishab Das, and Partha Pratim Sengupta | |
| 11 | Viewing IT and ITes as the New Opportunity in the Changing Developmental Paradigms of the Indian Economy | 131 |
| | Sovik Mukherjee and Asim K. Karmakar | |
| Part II Role of IT-ITES Upon Environment, Health, Education and Employment | | |
| 12 | IT Industry, Environmental Regulations and International Trade-A Two-Sided General Equilibrium Approach | 149 |
| | Tonmoy Chatterjee | |
| 13 | Mobile Phone Penetration and Health Outcome: Panel Evidence from 25 Selected Asian Countries | 163 |
| | Ujjal Protim Dutta, Hemant Gupta, and Partha Pratim Sengupta | |
| 14 | Challenges of Health Sustainability in IT-ITES Industry in India | 179 |
| | Rajib Bhattacharyya | |
| 15 | Network Society—Towards a Holistic Approach to Human Development in Asia | 193 |
| | Megha Jain, Aishwarya Nagpal, and Sunita Gupta | |
| 16 | Role of ICT in Sustainable Agricultural Development—The Case of India | 209 |
| | Amit Chatterjee | |
| 17 | The Effect of Knowledge and Skill-Based Production on Agricultural Employment: An Empirical Analysis in the Sample of South Korea | 223 |
| | Muhlis Can and Buhari Doğan | |
| 18 | Information Communication Technology and Self-Employment | 235 |
| | Ashu Tiwari, Archana Patro, and Jahnavi Patky | |
| 19 | An Introspective Study on the Emergence of Sharing Economy and the Role of IT & ITES Therein with Special Reference to India | 251 |
| | Dipayan Singha and Amit Majumder | |

Chapter 12 IT Industry, Environmental Regulations and International Trade-A Two-Sided General Equilibrium Approach



Tonmoy Chatterjee

12.1 Introduction

Information technology (IT) industry, nowadays, has gained a great deal of attention among researchers, so far global trade and development in services are concerned. IT sector has a remarkable potential for accelerating economic growth of any nation through the channel of trade in services. In particular, the recent and enduring rapid innovations in IT makes it a dynamic sector that is a pretty and alternative participant as a potential engine to economic growth,¹ much as the automobile industry was targeted by the Japanese after World War II (Singh 2015). In fact, the IT industry can be described as the augmentation of so-called hardware, services and infrastructure to embrace production, manipulation, storage and dissemination of information across nations (Singh and Kaur 2017).

Nations are broadly related to each other through the understanding of international trade. Trade policies in most developing economies are generally moderate and bring about opening prospects on the quantity or quality of goods and services (Bhagwati 1984; Sampson and Snape 1985). Moreover, it can be noted that, according to General Agreement on Trade in Services (GATS), trade in services may occur through the following four modes and namely (i) cross-border supply; (ii) consumption abroad; (iii) commercial presence and (iv) presence of natural persons (Chanda 2001). Arguments in favour of economic liberalization and free trade sometimes create a space of conflicting arguments in developing nations by postulating the gains from such trade in terms of 'pollution haven'.

¹If we consider the incidence of India, we find that the total revenue generated by the IT and business process management industry in India in the year 2013–14, a total of 106.3 billion US dollars of revenue was created by the Indian IT industry, due to the huge response of outsourcing from international companies.

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