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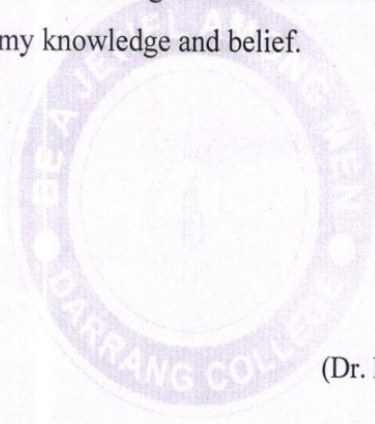
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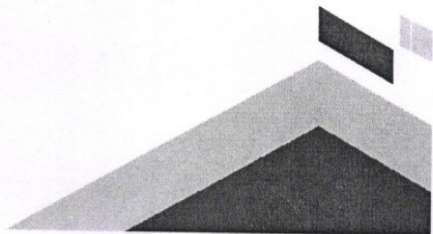
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(Dr. Palash Moni Saikia)  
Principal,  
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# ক্রিয়াত্মক গবেষণা পৰিচয়



ড° মুকুল শইকীয়া



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## 6.1 Tourism and Its Impact on Environment

Krishna Priya Gogoi

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Tourism is one of the important sources of income and revenue generation for many parts of the world. Tourism was recognized as an essential part of the nations after the *Manila Declaration on World Tourism of 1980* as tourism has its direct impacts on the economic, social, cultural, educational and environmental sectors along with the international relations of a country. According to 'The World Tourism Organization' tourism is in a term which goes beyond the normal perception of tourism as being limited specially to holiday activity only. International tourists reached 952 million in 2010, 996 million in 2011 and in 2016 international tourist arrivals grew by 3.9% to reach a total of 1235 million. The latest UNWTO World Tourism Barometer international tourist arrival reached about 1300 million in 2017. With the increasing number of tourists all over the world, increasing attention has also been focused and researched to the effects and impacts of tourism and related developments upon the environment of the tourists destinations. Tourism is more or less mainly depend upon the environment for much of its well-being, having both negative and positive impacts on the environment, but due to lack of knowledge, responsibility and long-term planning often lead to negative impacts to the environment along with the host area. A definition of environment in relation to tourism is necessary in this context, comprising both the physical and human environment.

### Meaning of Tourism

Tourism is mainly viewed as leisure related activity that is not connected with everyday life. Almost each and every institution defines 'tourism' differently. UNWTO define tourism to prevent the disaccords given by different sources. According to UNWTO, 'Tourism comprises the activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes'. When tourism is explained with the more general terms it is sum as 'Tourism is a collection of activities, services and industries which deliver a travel experience comprising transportation, accommodation, eating and drinking establishments, retail shops, entertainment businesses and other hospitality services provided for individuals or groups traveling away from home'. In order to characterize a trip which belongs to tourism are having the following criteria:

- Tourism is a travel outside the usual environment
- Type of travel where the travelling purpose different from being remunerated from within the place visited

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*Research Scholar, Department of Geography, North-Eastern Hill University, Shillong*



Diseases of Cereals and Pulses

Phatik Tamuli



# Diseases of Cereals and Pulses

Management Practices



Phatik Tamuli





# Diseases of Cereals and Pulses

Phatik Tamuli



Severe yield losses have been occurred in cereal and pulse crops due to various diseases. The assessment of crop yield losses and management practices are needed for the improvement of production systems that contribute to food security worldwide. But due to indiscriminate use of chemical pesticides environmental pollution become a major concern. Keeping this in view, it has become necessary for integrated disease management strategies, where all the components of management should be included with least cost and less damage to the environment.

"Diseases of Cereals and Pulses : Management Practices" is a compilation of 13 chapters which addresses the issues of important diseases, etiological factors, epidemiology and integrated management strategies of various diseases caused by fungal, bacterial, viral pathogens as well as nematodes. This book also describes insect pest infestations in major cereals and pulses; and the development of transgenic for disease resistance. This book will be utilized by researchers, teachers, students as well as government policy makers.



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Diseases of Cereals and Pulses

Phatik Tamuli



# Diseases of Cereals and Pulses

Management Practices



Phatik Tamuli





## DISEASES OF PIGEON PEA AND THEIR MANAGEMENT PRACTICES

ANINDITA GHOSAL AND PHATIK TAMULI

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### INTRODUCTION

The pigeon pea (*Cajanus cajan*) is a perennial legume from the family *Fabaceae*. Since its domestication in India at least 3,500 years ago, its seeds have become a common food grain in Asia, Africa, and Latin America. It is consumed on a large scale mainly in south Asia and is a major source of protein for the population of that subcontinent. The pigeon pea is known by numerous names with different etymologies, "tropical green pea", *gungo pea* in Jamaica, 'tuver' 'tour' or 'arhar' in India, (agritech.tnau.ac.in. Retrieved 2017).

The cultivation of the pigeon pea goes back at least 3,500 years. The centre of origin is probably peninsular India, where the closest wild relatives (*Cajanus cajanifolia*) occur in tropical deciduous woodlands. (Van der Maeson, L. J. G. (1995)). Archaeological finds of pigeon pea dating to about 3400 years ago (14th century BC) have been found at Neolithic sites in Kalaburagi, Karnataka (Sanganakallu) and its border areas (Tuljapur Garhi in Maharashtra and Gopalpur in Orissa) and the south Indian states such as Kerala, where it is called Tomara Payaru. (Fuller, D. Q.; Harvey, E. L. (2006). From India it travelled to East Africa and West Africa. There, it was first encountered by Europeans, so it obtained the name Congo Pea. By means of the slave trade, it came to the American continent, probably in the 17th century (Carney, J. A. and Rosomoff, R. N. (2009).

Pigeon peas are both a food crop (dried peas, flour, or green vegetable peas) and a forage/cover crop. In combination with cereals, pigeon peas make a well-balanced human food. The dried peas may be sprouted briefly, and then cooked, for a flavor different from the green or dried peas. Sprouting also enhances the digestibility of dried pigeon peas via the reduction of indigestible sugars that would otherwise remain in the cooked dried peas. (Akporhonor *et.al.*, 2006)



# IMPORTANT DISEASES OF PEARL MILLET AND THEIR MANAGEMENT

SUSHMITA SONOWAL AND PHATIK TAMULI

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## INTRODUCTION

Pearl millet [*Pennisetum glaucum* (L) R. Br.; Family: *Poaceae*] is the most widely grown type of millet. It had been grown in Africa and the Indian subcontinent since prehistoric times. The centre of diversity, and suggested area of domestication, for the crop is in the Sahel zone of West Africa. Recent archaeobotanical research has confirmed the presence of domesticated pearl millet on the Sahel zone of northern Mali between 2500 and 2000 BC, and it spread rapidly through India reaching South India by 1500 BC, based on evidence from the site of Hallur. Cultivation also spread throughout eastern and southern parts of Africa. Pearl millet is widely grown in the northeastern part of Nigeria (especially in Borno and Yobe states). It is a major source of food to the local villagers of that region. The crop grows easily in that region due to its ability to withstand harsh weather conditions like drought and flood. Records exist for cultivation of pearl millet in United States in the 1850s, and the crop was introduced into Brazil in the 1960s.

Pearl millet is well adapted to growing areas characterized by drought, low soil fertility, and high temperature. It performs well in soils with high salinity or low pH. Because of its tolerance to difficult growing conditions, it can be grown in areas where other cereal crops, such as maize or wheat, would not survive. Pearl millet is a summer annual crop well-suited for double cropping and rotations. Recently more productive varieties of pearl millet have been introduced, enabling farmers to increase production considerably.

Some of the important diseases of Pearl millet are discussed below-

**A. BACTERIAL DISEASES:** Bacterial diseases in plants may affect stems, leaves, roots, or be carried internally without external symptoms. They can cause a variety of symptoms including cankers, leaf spots, over growths, scabs, wilts, and others. These symptoms can be extremely noticeable and recognizable but can also be difficult to spot



## MANAGEMENT PRACTICES FOR SOME IMPORTANT DISEASES OF SORGHUM

SUSHMITA SONOWAL AND PHATIK TAMULI

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### INTRODUCTION

Sorghum [*Sorghum bicolor* (L.) Moench; Family: *Poaceae*] is a genus of grasses with about 30 species, one of which is raised for grain and many of which are used as fodder plants, either cultivated or as part of pasture. The plants are cultivated in warm climates worldwide. It is native to Africa with many cultivated forms now, and an important crop worldwide, used for food (as grain and in sorghum syrup or "sorghum molasses"), fodder, the production of alcoholic beverages, and biofuels. Most varieties are drought- and heat-tolerant, and are especially important in arid regions, where the grain is one of the staples for poor and rural people.

Sorghum is one of the least known of our major food crops. Many people know sorghum as a source of syrup which uses a small part of the crop. The bulk of the crop is grown for livestock feed. Sorghums are perennials in frost-free climates. Sorghum was introduced from Africa to various parts of the western hemisphere during the 17th and 18th centuries (Wall J. C. *et al.*, 1970). The culture of broomcorn for domestic use was a considerable industry in colonial times. Systematic varietal introductions apparently began with culture of sorghum for syrup. Those sorghums were used by early settlers as a source of sweetening or "long sugar." Use of sweet sorghums as a source of sweetening by pioneers led to use of sorghums as forage. Commercial grain sorghum production followed introduction of two durras from Egypt in 1874, two kafirs from South Africa in 1876, shallu from India about 1870, and milo from East Africa via Columbia in 1879. From those and other introductions, grain sorghum was improved by selection during the first part of this century. Several widely adapted varieties were available by 1920. Prolonged drought and insect and disease problems prevented a repeat of that record for 20 years. Then World War II required increased acreages in food crops and sorghum production increased rapidly. In the postwar period, combine harvesting, multiple-row planting equipment,

## MANAGEMENT STRATEGIES AGAINST MAJOR DISEASES OF MAIZE

SUSHMITA SONOWAL AND PHATIK TAMULI

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### INTRODUCTION

Maize (*Zea mays* L) is one of the most versatile emerging crops having wider adaptability under varied agro-climatic conditions. Globally, maize is known as queen of cereals because it has the highest genetic yield potential among the cereals. It is cultivated on nearly 150 m ha in about 160 countries having wider diversity of soil, climate, biodiversity and management practices that contributes 36 % (782 m t) in the global grain production. The United States of America (USA) is the largest producer of maize contributes nearly 35 % of the total production in the world and maize is the driver of the US economy. The USA has the highest productivity ( $> 9.6 \text{ t ha}^{-1}$ ) which is double than the global average ( $4.92 \text{ t ha}^{-1}$ ). Whereas, the average productivity in India is  $2.43 \text{ t ha}^{-1}$ . In India, maize is the third most important food crops after rice and wheat. According to advance estimate it is cultivated in 8.7 m ha (2010-11) mainly during Kharif season which covers 80% area. Maize in India, contributes nearly 9 % in the national food basket and more than Rs. 100 billion to the agricultural GDP at current prices apart from the generating employment to over 100 million man-days at the farm and downstream agricultural and industrial sectors. In addition to staple food for human being and quality feed for animals, maize serves as a basic raw material as an ingredient to thousands of industrial products that includes starch, oil, protein, alcoholic beverages, food sweeteners, pharmaceutical, cosmetic, film, textile, gum, package and paper industries etc.

The maize plant is often 3 m (10 ft) in height, though some natural strains can grow 13 m (43 ft). The stem is commonly composed of 20 internodes of 18 cm (7.1 in) length. A leaf, which grows from each node, is generally 9 cm (4 in) in width and 120 cm (4 ft) in length.

Ears develop above a few of the leaves in the midsection of the plant, between the stem and leaf sheath, elongating by around 3 millimetres (0.12 in) per day, to a length of



## DISEASES OF BARLEY AND THEIR MANAGEMENT APPROACHES

ANINDITA GHOSAL AND PHATIK TAMULI

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### INTRODUCTION

Barley (*Hordeum vulgare* L., Family: Poaceae), is a major cereal grain grown in temperate climate. In India, it is the fourth important crop next to rice, wheat and maize. In India, this crop is cultivated as a summer crop in temperate regions and as a winter crop in tropical regions. It is cultivated as a Rabi season crop in India. The major production states of Barley in India are Rajasthan, Madhya Pradesh, Haryana, Punjab, West Bengal, Jammu and Kashmir.

Like other cereals, barley is also exposed to various diseases, which are ultimately responsible for significant yield reduction and poor grain quality. These diseases are wide spread from high input production conditions i.e. north western plain zone (NWPZ) to medium/low input agro-ecologies of north eastern plain zone (NEPZ) and central zone (CZ). The chemical controls for diseases are available; however, inbuilt resistance mechanism is eco-friendly and best tactics for sustainable agriculture coupled with high benefit ratio. The pathogens may be disseminated through seed, soil and air. The seed borne pathogens can be controlled using seed treating chemicals. Barley is exposed to several biotic stresses; however, some major diseases on the basis of its parts are discussed below-

### FUNGAL DISEASES

#### 1. Crown rust

Crown rust is a new disease of barley and caused by *Puccinia coronata* corda. It was found first in a barley breeding nursery near Clay Center, Nebraska in 1992. Since then, crown rust has been found throughout the upper Midwest, with greatest incidence in the central Red River Valley of North Dakota and Minnesota. In that region the alternate host, common buckthorn (*Rhamnus cathartica*), grows abundantly in shelter belts and

# Diseases of Cereals and Pulses

Phatik Tamuli



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अनुवादक

डॉ. ढुण्डिराज उपाध्याय "राज"



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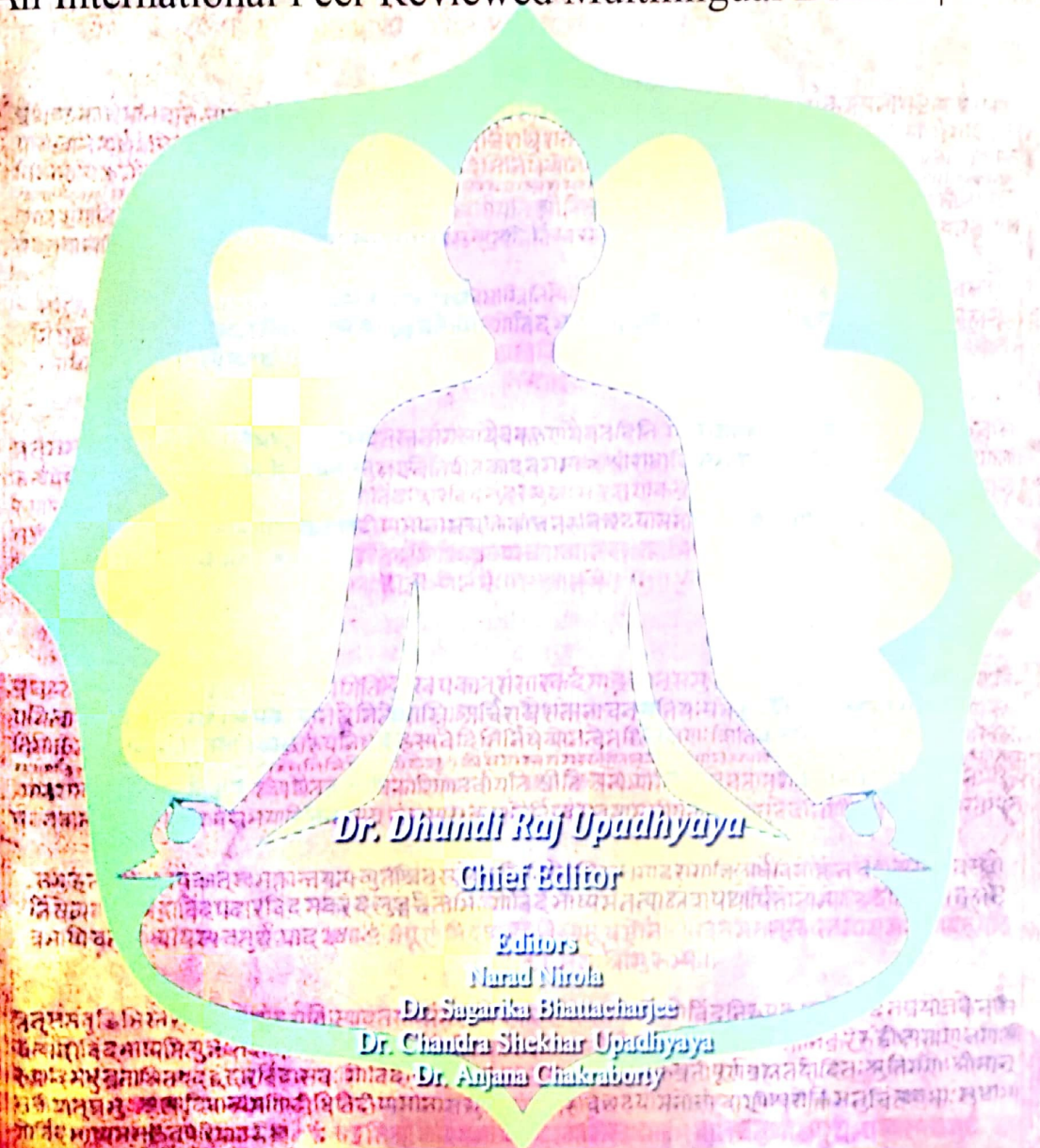


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# Water Quality Assessment Based on Fish and Macroinvertebrate Diversity Indices of River Mara Bharali in Assam, India

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<sup>2</sup>*Department of Life Sciences, Dibrugarh University, Dibrugarh, Assam, India*

**Abstract:** Fish and macroinvertebrate diversity was studied in the river Mara Bharali at Tezpur in the Sonitpur district of Assam as no such enumerative works on the river system was done previously. Five sampling stations (MB1, MB2, MB3, MB4 and MB5) covering a stretch of 16.5 kms were selected from Pumpani village (sampling station MB5, N-26°45'10.52" and E-92°50'07.93") to Maithan (sampling station MB1, N-26°37'05.69" and E-92°49'34.34"). Fishes and invertebrates were collected and identified following relevant literatures. Thirty four (34) species of fishes of 25 genera, 08 orders and 17 families has been recorded. Cyprinids were found to be the most dominant group with 12 representative species. Twenty (20) species of aquatic insects belonging to 13 families and 7 orders were found. Moreover, six (06) molluscan species belonging to 5 different families were also recorded. Shannon diversity index (H) for macroinvertebrates was highest in sector MB1 (4.468). Pielou equitability index (J) was highest at MB4 (0.9805). The value of Margalef index (Ma) was highest at MB4 (3.831) and lowest at MB3 (1.861). Sector-wise diversity indices of macroinvertebrates reflect the ecological status of river Mara Bharali. The macroinvertebrates of all the sites are evenly distributed as the calculated value of J is close to 1. On the basis of the value of macroinvertebrate diversity index, it may be concluded that river Mara Bharali is quiet healthy at sectors MB1, MB4 and MB5 as the Margalef index is greater than 3. However, sectors MB2 and MB3 are likely to be polluted as the value of Ma is less than 3.

**Keywords:** R.Mara Bharali, macroinvertebrate, diversity index, Cyprinids, aquatic insects, habitat quality

## Introduction

Rivers always borrow a great part of their character from the terrestrial ecosystem that is the catchment through which they flow. Indeed, if the landscape is in a good condition, then the river is too, and if the landscape is badly treated, then the river flowing through it will magnify and mirror that abuse (Davies and Day, 1998). Rapid industrialization, water abstraction and the extensive use of pesticides in agriculture have severe strains on rivers and resulted in deterioration of water quality. Freshwater habitats harbour diverse fauna, with fish serving as prime indicators of ecosystem status (Karr et al. 1986). Riverine fauna show a high degree of endemism, with most endemic fish species living in headwater streams and/or short stretches of river (Groombridge 1992; Kottelat & Whitten 1997).

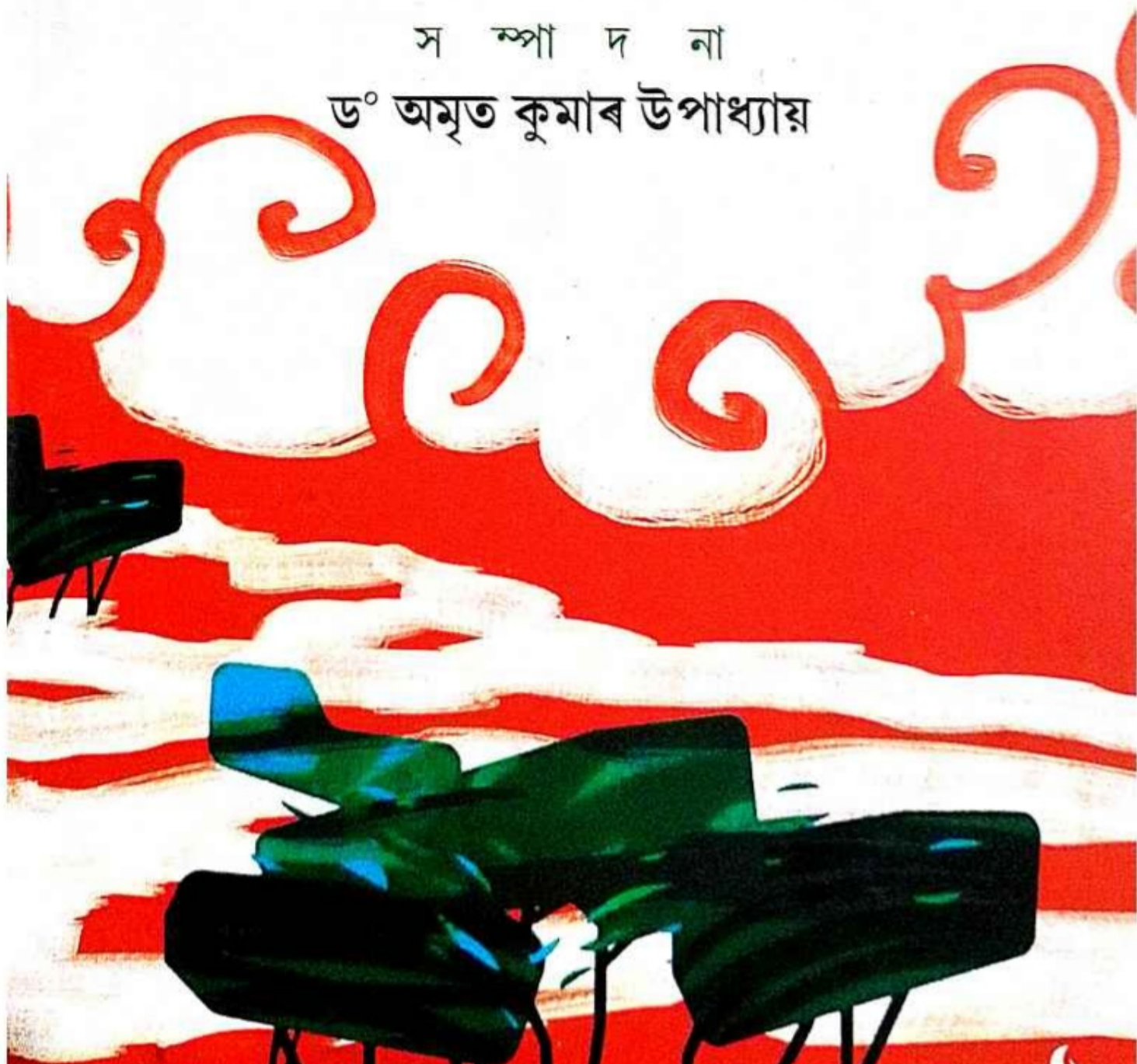
The river Jia Bharali is one of the largest tributaries of the Brahmaputra in the north bank. It is known as Kameng river in neighbouring Arunachal Pradesh. Originating from the Indo- China border, it traverses about 242 km before meeting the Brahmaputra near Bhomoraguri, Tezpur. The old channel of Jia Bharali named as Mara Bharali shows meandering pattern. Sometimes prior to 1824 the major change in the shift of the river course from the Mara Bharali to the present one has taken place. It is very important to assess the quality of river water. People along the river use water for many purposes. However, the surface water quality deteriorates due to anthropogenic activities, industrialization, farming activities, transportation, urbanization, animal and human excretions and domestic wastes. Aquatic organisms need a healthy environment. Maximum productivity depends on optimum level of physicochemical parameters (Sadia et al., 2013).

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# নিৰ্বাচিত অসমীয়া উপন্যাসৰ বিচাৰ-বিশ্লেষণ

সম্পাদনা  
ড° অমৃত কুমাৰ উপাধ্যায়





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প্ৰকাশকঃ

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সম্পাদক

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# ‘পিতা-পুত্ৰ’ উপন্যাসত নামকৰণ, প্ৰজন্মৰ ব্যৱধান আৰু মনোদ্বন্দ্ব

ড° গকুল কুমাৰ দাস

নামকৰণ :

দুটা প্ৰজন্মৰ প্ৰমূল্য আৰু সংঘাতক কেন্দ্ৰ কৰি বচনা কৰা হোমেন বৰগোহাঞিৰ ‘পিতা-পুত্ৰ’ উপন্যাসত প্ৰথমটো প্ৰজন্মক প্ৰতিনিধিত্ব কৰিছে পিতৃ শিৱনাথ ফুকনে আৰু দ্বিতীয়টো প্ৰজন্মক প্ৰতিনিধিত্ব কৰিছে পুত্ৰত্ৰয় গৌৰীনাথ-লক্ষ্মীনাথহঁতো উপন্যাসখনত আছে এই দুই প্ৰজন্মৰ আদৰ্শ আৰু প্ৰমূল্যৰ পাৰ্থক্য আৰু সংঘাতৰ প্ৰতিচ্ছবি। একেসময়তে উপন্যাসখনত আছে স্বৰাজ্যোত্তৰ ভাৰতৰ ৰাজনৈতিক দৃশ্যপটৰ সন্টালনী চিত্ৰ। স্বৰাজ্যোত্তৰ কালত নৱগঠিত সমাজখন আৰু সেই সমাজক কেন্দ্ৰ কৰি গঢ় লৈ উঠা জীৱনধাৰাৰ মাজত পৰিদৃশ্যমান হোৱা আপোন মানুহৰ বিপৰীতমুখী দৃষ্টিভংগী তথা তদানীন্তন সম্ভ্ৰান্ত সমাজৰ ক্ষয়িষ্ণু ৰূপ উপন্যাসখনত সুস্পষ্ট। উপন্যাসখনত প্ৰাক্-স্বাধীনতাকালীন আৰু স্বাধীনতাৰ পৰৱৰ্তীকালৰ অসমীয়া গ্ৰাম্য জীৱনৰ ছবিখন বাস্তৱসন্মত ৰূপত ধৰা দিছে।

বৰগোহাঞিৰ ‘পিতা-পুত্ৰ’ উপন্যাসখন মুঠ চাৰিটা পৰ্বত ৰচিত। প্ৰথমটো পৰ্বত আছে অসমৰ এখন অতি পিছপৰা গাঁও ম’হঘুলিক কেন্দ্ৰ কৰি আগবঢ়া কাহিনী পৰিক্ৰমাৰ মুখ্য চৰিত্ৰ শিৱনাথ ফুকনৰ জীৱন বৃত্তান্ত। ফুকন গাঁওখনৰ ভিতৰতে চহকী মানুহ। একে সময়তে তেওঁ নীতিনিষ্ঠও। এতেকে, এক সম্ভ্ৰান্ত পৰিয়াল তথা চহকী শিৱনাথ ফুকন সমগ্ৰ গাঁওখনৰে মান্য ব্যক্তি। সকলোৱে তেওঁক সন্মান আৰু সমীহ কৰে। উপন্যাসখনত উপন্যাসিকে যিদৰে শিৱনাথৰ বৃত্তান্ত দাঙি ধৰিছে, ঠিক সেইদৰেই পিছপৰা হ’লেও ম’হঘুলি



# পৰিষ্কাৰ

সম্পাদক

ড° বিমল মজুমদাৰ

## **Parishilan**

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## ‘ৰামধেনু’ৰ সম্পাদকীয় প্ৰবন্ধত বীৰেন্দ্ৰকুমাৰ ভট্টাচাৰ্যৰ সমাজ আৰু সংস্কৃতি-চেতনা

শ্ৰী ড° গকুল কুমাৰ দাস\*

অসমীয়া আলোচনীৰ এক দীঘলীয়া ইতিহাস আছে। এই দীঘলীয়া ইতিহাসত যিসমূহ আলোচনীয়ে অসমীয়া সাহিত্যত একোটা যুগৰ সৃষ্টি কৰিবলৈ সক্ষম হৈছিল সেইসমূহৰ ভিতৰত ‘ৰামধেনু’ আছিল অন্যতম। ‘ৰামধেনু’ জন্ম হৈছিল ইন্দ্ৰকমল বেজবৰুৱাৰ উদ্যোগত আৰু বিৰিঞ্চি কুমাৰ বৰুৱা-মহেশ্বৰ নেওগৰ সম্পাদনাত প্ৰকাশিত শিশু আলোচনী ‘বংঘৰ’ৰ গৰ্ভত।<sup>১</sup> স্বাধীনতাৰ পৰৱৰ্তী সময়ত ‘জয়ন্তী’ আলোচনীৰ প্ৰভাৱ কমি অহাত এখন মননশীল আলোচনীৰ অভাৱ অনুভূত হয় আৰু এই অভাৱ পৰিপূৰ্ণ কৰি তোলাৰ বাবেই শিশু আলোচনী ‘বংঘৰ’ৰ ঠাইত ‘ৰামধেনু’ নামেৰে এখন মাহেকীয়া আলোচনী উলিওৱাৰ সিদ্ধান্ত গ্ৰহণ কৰা হ’ল।<sup>২</sup> এই সিদ্ধান্ত অনুযায়ী ১৮৭২ শকৰ বহাগ মাহ (১৯৫০ চনৰ এপ্ৰিল)ৰ পৰা ইন্দ্ৰকমল বেজবৰুৱাৰ সম্পাদনাত ‘ৰামধেনু’ৰ প্ৰকাশ আৰম্ভ হয়। তেওঁ মাত্ৰ পাঁচটা সংখ্যাহে সম্পাদনা কৰে আৰু আহিন মাহত সম্পাদনাৰ দায়িত্ব প্ৰদান কৰা হয় মহেশ্বৰ নেওগক। নেওগেও প্ৰায় এবছৰকাল (১৯৭২ শকৰ আহিন মাহৰ পৰা ১৮৭৩ শকৰ আহিনলৈ) সুচাৰুৰূপে আলোচনীখন সম্পাদনা কৰে।<sup>৩</sup> মহেশ্বৰ নেওগৰ পিছত ১৮৭৩ শকৰ কাতি মাহৰ পৰা ১৮৭৩ শকৰে চ’ত মাহলৈ কীৰ্তিনাথ হাজৰিকাই ‘ৰামধেনু’ৰ সম্পাদক পদ গ্ৰহণ কৰে। হাজৰিকাৰ পিছত ‘ৰামধেনু’ৰ সম্পাদক হয় বীৰেন্দ্ৰ কুমাৰ ভট্টাচাৰ্য আৰু তেওঁ ১৮৭৪ শকৰ বহাগৰ পৰা ১৮৮৫ শকৰ বহাগলৈ সুদীৰ্ঘকাল আলোচনীখন সম্পাদনা কৰে। এই সময়ছোৱাতে ৰামধেনুৱে এক যুগস্ৰষ্টা আলোচনীৰ ৰূপ লাভ কৰিবলৈ সক্ষম হয়।<sup>৪</sup> ভট্টাচাৰ্যই ‘ৰামধেনু’ৰ

\*সহকাৰী অধ্যাপক, অসমীয়া বিভাগ, দবং মহাবিদ্যালয়, তেজপুৰ



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**MIGRATION, CULTURE AND IDENTITY**



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# **PERSPECTIVES ON MATERIAL CULTURES IN NORTHEAST INDIA**

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# 6

## **Connections and Connectivity: Understanding Fluvial Networks and linkages in Early Kāmarūpa (c. 5<sup>th</sup>–13<sup>th</sup> Century CE)**

*Devdutta Kakati*

The region of Kāmarūpa figures through a successive genre of literature by the early name of Prāgjyotiṣa in the pre-5<sup>th</sup> century sources such as the epics and the Puranic traditions. The region sees its existence by the denomination 'Kāmarūpa' in the Allahabad Pillar Inscription of Samudragupta in the 4<sup>th</sup> century CE.<sup>1</sup> The river Karatoya marked the western boundary of Kāmarūpa in the sources ranging from the 5<sup>th</sup> and the 13<sup>th</sup> centuries CE. The Brahmaputra valley within the girdle of the Eastern Himalayas, Patkai and Naga hills in the east has always been the prime focus of historical events as the provenance of most of the extant inscriptions assigned to the 6<sup>th</sup>-13<sup>th</sup> centuries CE, bearing the chronological label, the early medieval. With the Mikir hills, Shillong plateau and the Bhutan Himalayas to the west, the Brahmaputra valley finally merges with the north Bengal region. The Barak-Surma valley towards the south, which is contiguous to Tripura and accessible to the Noakhali-Comilla region in Bangladesh, is interlocked with the Brahmaputra valley in the rubric of networks and communication patterns.<sup>2</sup>

The Brahmaputra valley is a land-locked area. The valley, primarily depositional in origin, is the gradational work of the Brahmaputra



କୃଷ୍ଣକାନ୍ତ ହାନ୍ଦିକୈ ରାଜ୍ୟିକ ମୁକ୍ତ ବିଶ୍ୱବିଦ୍ୟାଳୟ  
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**Ⓔ**

**Marketing of Services**

**ବାଣିଜ୍ୟ**

**COMMERCE**



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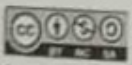
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## UNIT 9 : BANK MARKETING

### UNIT STRUCTURE

- 9.1 Learning Objectives
- 9.2 Introduction
- 9.3 Concept of Bank Marketing
- 9.4 Significance of Marketing Banking Services
- 9.5 Behavioural Profile of the Users of Banking Services
- 9.6 Marketing Mix for Banking Services
- 9.7 Let Us Sum Up
- 9.8 Further Reading
- 9.9 Answers To Check Your Progress
- 9.10 Model Questions

### 9.1 LEARNING OBJECTIVES

After going through this unit, you will be able to:

- explain the concept of bank marketing
- discuss the significance of marketing banking services
- analyse the impact of behavioural profile of users of banking services
- discuss the various factors influencing the behavioural aspects of users of banking services
- explain the marketing mix of banking services
- discuss the importance of people mix, process mix and physical evidence in marketing of banking services.

### 9.2 INTRODUCTION

With the attainment of independence, the contours of development underwent radical changes. The constitution of India assigned an overriding priority to social welfare and regional imbalance. The policy makers realised that the establishment of small affluent islands around the vast sea of backwardness was not the real purpose of promoting the financial institutions. The beginning of the planned concept of development way back



# UNIT 10 : INSURANCE MARKETING

## UNIT STRUCTURE

- 10.1 Learning Objectives
- 10.2 Introduction
- 10.3 Importance of Insurance
- 10.4 Behavioural Profile of Users of Insurance Business
- 10.5 Market Segmentation for Insurance Marketing
- 10.6 Marketing Mix for Insurance Business
- 10.7 Let Us Sum Up
- 10.8 Further Reading
- 10.9 Answers To Check Your Progress
- 10.10 Model Questions

### 10.1 LEARNING OBJECTIVES

After going through this unit, you will be able to

- explain the concept of insurance marketing
- discuss the significance of marketing insurance services
- analyse the behavioural profile of users of insurance services
- discuss the segmentation of insurance marketing
- explain the marketing mix of insurance services
- analyse the importance of pricing mix, promotion mix and place mix in marketing of insurance services.

### 10.2 INTRODUCTION

Wherever there is uncertainty, there is risk. The risk can't be averted. It involves multi-faceted losses. Insurance is considered to be a social device to accumulate funds to meet uncertain losses. The main function of insurance is to provide protection against the possible chances of generating losses. It eliminates worries and miseries of losses at destruction of property and death. Further, it provides capital to the national economy since the accumulated funds are invested in the productive heads. The industries,

# UNIT 11: TOURISM MARKETING

## UNIT STRUCTURE

- 11.1 Learning Objectives
- 11.2 Introduction
- 11.3 Significance of Tourism Services
- 11.4 Basic Components and Elements of Tourism
- 11.5 Behavioural Profile of Users of Tourism Services
- 11.6 Market Segmentation For Tourism Services
- 11.7 Marketing Mix for Tourism Sector
- 11.8 Promotion Mix
- 11.9 Future of Tourism and Aviation
- 11.10 Let Us Sum Up
- 11.11 Further Reading
- 11.12 Answer to Check Your Progress
- 11.13 Model Questions

### 11.1 LEARNING OBJECTIVES

After going through this unit, you will be able to :

- define the meaning of tourism services
- understand the significance of tourism services
- define the components or elements of tourism product
- understand the growth of tourism services in a nutshell
- discuss the behavioural profile of users of tourism services
- highlight the market segmentation for tourism industry
- explain the marketing mix for tourism services

### 11.2 INTRODUCTION

Tourism is an individual activity of traveling and visiting places. It has created travellers and tourists who visit different tourist places and destinations. They want to and they travel to places and make those places more popular. This way they bring earning opportunities. They also



## UNIT 12: HOTEL SERVICES

### UNIT STRUCTURE

- 12.1 Learning Objectives
- 12.2 Introduction
- 12.3 Types of Marketing for Hotels
- 12.4 Behavioural Profile of Users
- 12.5 Market Segmentation for Hotel Services
- 12.6 Marketing Mix for Hotel Services
- 12.7 Tools of Sales Promotion
- 12.8 Let Us Sum Up
- 12.9 Further Reading
- 12.10 Answer to Check Your Progress
- 12.11 Model Questions

### 12.1 LEARNING OBJECTIVES

After going through this unit, you will be able to :

- define hotel marketing
- analyse the pillars of hotel marketing
- discuss the various types of marketing required for hotels
- highlight the behavioural profile of users of hotel services
- discuss the market segmentation of hotel services
- explain the marketing mix for hotel services

### 12.2 INTRODUCTION

The common law says that hotel is a place where all who conduct themselves properly and who being able and ready to pay for the entertainment, accommodation and other services including the boarding like a temporary home. It is a home away from home where all the modern amenities and facilities are available on a payment basis. Initially the term motel was meant for local motorists and foreign tourists travelling by road. Basically, motels serve the needs and requirements of the travellers and

## UNIT 13: EDUCATION MARKETING

### UNIT STRUCTURE

- 13.1 Learning Objectives
- 13.2 Introduction
- 13.3 Education System of India
- 13.4 Services Marketing and School Education - An Overview
- 13.5 Significance of Education Marketing
- 13.6 Marketing Mix for Elementary Education
- 13.7 Marketing mix for Secondary Education
- 13.8 Marketing mix for Higher Education
- 13.9 Marketing mix for Adult Education
- 13.10 Let Us Sum Up
- 13.11 Further Reading
- 13.12 Answers To Check Your Progress
- 13.13 Model Questions

### 13.1 LEARNING OBJECTIVES

After going through this unit, you will be able to-

- discuss the concept of education marketing
- understand the significance and rising importance of education in society
- analyse the education system of India briefly
- discuss the marketing mix adopted for adult education
- discuss the marketing mix followed in marketing secondary education
- explain the 7 Ps adopted in marketing elementary education
- explain the significance and marketing of higher education in India
- analyse the different product mix designed for elementary education, secondary education and adult education.



# **FLOOD, EROSION AND BIG DAM ISSUES**



**EDITORS  
DHANJIT DEKA  
RAJAT SUBHRA PAUL**



**ASSAM COLLEGE  
TEACHERS' ASSOCIATION**

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# **Demographic Flood Vulnerability: A Circle-level Comparative Study of Kamrup Metropolitan District, Assam**

**Satyendra Hazarika**

## **Introduction**

Researcher from physical or natural science have focused on physical hazard vulnerability, risk etc., whereas social scientist have focused on social side, coping mechanism, adaptation etc. Interestingly it is social vulnerability that has increasingly become a primary focus of field research and vulnerability mapping project, which are generally concerned with identifying the most vulnerable members of society (Brooks, 2003).

In Indian context the concept of disaster management have received a new dimension with formulation of the Disaster Management Act, 2005. Disaster management covers a wide range of operational areas including: prevention of danger, mitigation or reduction of risk, capacity building, and preparedness, prompt response, assessing the severity or magnitude of effects of any disaster, evacuation-response-and relief, rehabilitation and reconstruction. Mitigation means, measures aimed at reducing the risk, impact or effects of a disaster (Disaster Management Act, 2005).

## **Study Area**

As a district Kamrup Metropolitan is facing two types of flood hazard, one being the peripheral rural flood and the other the issue of urban flash flood with hap-hazard urbanization. Kamrup

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*Assistant Professor, Department of Geography, Darrang College*

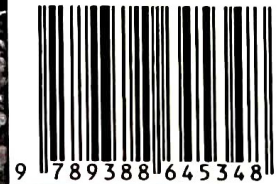
# FLOOD, EROSION AND BIG DAM ISSUES

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Dhanjit Deka did his MA and PhD under Gauhati University. He has been teaching in B Borooah College, Guwahati since 2010. He has widely travelled many countries like Germany, Netherlands, France, Brussels, Russia, Japan, China and Canada and presented few research papers in International Conferences. He has published 10 research papers in reputed national and International journals, edited books and conference proceedings. He is the member of few professional bodies like IGI, IIG, NEIGD, Assam Science Society, CEED etc. and Corresponding member of few IGU Commissions.

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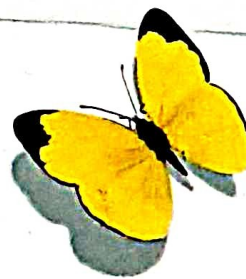


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Bio-Resources of North East India  
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# Land-use, land-cover status of Kamrup Metro District: From the perspective of Bio-resource Management

✎ Satyendra Hazarika\*


## Abstract

In study of bio-resource the interpretation of land-use/land-cover is an integral part as it is the base of the bio-resources that change with space and time. The paper tries to highlight on the issue of land-use land-cover in the perspective of bio-resources in spatial context at a district level with special reference to Kamrup metropolitan district of Assam.

**Keywords:** *Bio-resources, land-use land-cover*

## Introduction

There is always a scope for negative impact on ecosystem when there is a change in the exiting land-use land-cover. It can be studied



**T**he growth of human civilization relies on availability and utility of spatially distributed bio-resources which are of vital importance for the sustenance of mankind. The North East India is a region encompassing two of the 34 global biodiversity hotspots with high level of endemism and endangered species. Though the region has high capacity of producing natural resources, the scientific exploration and documentation of it is yet to be realized. This book highlights the current status and future prospects of natural resources of the region in an interdisciplinary manner. We hope that the outcome of this work enlisted herein provides the knowledgebase for overcoming the lacunas that exists in conservation and thereby reap economic validity of the region.



**Purbayon**

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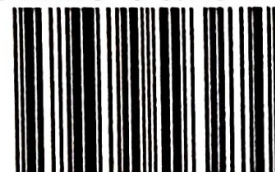
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Paper VII  
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## Unit-IV

### Origin and Development of Sanskrit Fable Literature and Place of *Pañcatantra*

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- 4.2 Objectives
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- 4.7 Divisions of Fable Literature
- 4.8 Development of Fable Literature
- 4.9 The Place of the *Pañcatantra*
  - 4.9.1 The Style and Language
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  - 4.9.4 The *Pañcatantra* in World Literature
- 4.10 Summing Up
- 4.11 Discussing A Question
- 4.12 Reading List/Suggested Reading List
- 4.13 E-learning Material Links

#### 4.1 Introduction

Here you will be able to know what does the term 'Fable' denotes. You will also get to know about the Fable Literature in a nutshell.

The Fable is one kind of attractive and amazing piece of writing which is extant among the common mass of the society. The influence of natural, spiritual and creative thoughts and deliberations of a given culture is found reflected in a fable. The Fable Literature is the carrier of the culture of a particular race or a country. The Fable Literature is also known as the

'Narrative Literature'. That specific kind of writing is said to be the Fable Literature, which draws the mind of its reader. From it, moral and ethical knowledge comes out spontaneously.

In this unit, entitled "Origin and Development of Sanskrit Fable Literature and Place of *Pañcatantra*", you will get a brief introduction of the Sanskrit Fable Literature. The origin or sources, purpose, characteristics, divisions, development of Fable Literature and place of *Pañcatantra* etc. will also be discussed here.

#### Stop to Consider

The Fable is one kind of striking and wonderful piece of writing, which still exists among the common people of the society. A Fable draws the mind of its reader. The Fable Literature is also known as the 'Narrative Literature'. Generally this form of literature is didactic in nature.

#### 4.2 Objectives

This chapter entitled "Origin and Development of Sanskrit Fable Literature and Place of *Pañcatantra*" is introduced to give an idea about Sanskrit Fable Literature by the end of this unit, you will be able to

- recognise the area of Sanskrit Fable Literature.
- relate the origin of Fable Literature.
- identify the purpose of writing Fable Literature.
- understand the characteristics of Fable Literature.
- assess the divisions of Fable Literature.
- understand the steps involved in the development of Fable Literature.
- identify the place of the *Pañcatantra* in Sanskrit Fable Literature.

#### 4.3 Introduction of Sanskrit Fable Literature

Now you will know about the Sanskrit Fable Literature-

Stories, tales and fables constitute the best creations of Indian mind. Earlier, in India, they were elevated to the position of real literature and in a much greater quantity than among the other countries.

There is found infinite fantasy in creating wonderful intricacies in Sanskrit Fable Literature. Unlike other types of Indian poetical works, in this Narrative Literature, the tendency is not to create only stereotyped characters, but also we come across several types of people. The people delineated herein fable are not only virtuous kings or brave warriors, or stunning and affectionate princess as in the epics and the dramas, but also



**BUILDING AN EFFECTIVE SUPPORT  
SYSTEM FOR ENTREPRENEURIAL  
GROWTH IN NORTH EAST INDIA**



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*Prof. Bhaskarjyoti Bora*

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# A study on the Innovative Techniques of Marketing used by Entrepreneurs with Special Reference to Traditional Assamese Jewellery

✓ Bonosree Bhuyan\*, Alpana baruah\*

## Abstract

*The history of traditional Assamese jewellery dates back to the rule of the Ahom dynasty. These hand crafted traditional jewellery are influenced by local flora and fauna. These jewelleryes have passed through generations and thus they occupy an important position in the Assamese culture. They are not only still being worn by the people of Assam but of late it has been observed that traditional Assamese jewellery is quite popular among young girls and women. The present study aims at exploring the reasons for such increasing demand by studing the innovative techniques that are applied in areas of designing and marketing traditional Assamese jewellery. A sample survey has been undertaken for fulfilling the objective of the study. A sample of entrepreneurs engaged in marketing traditional Assamese jewellery in the Guwahati city has been chosen for the study. The adoption of innovative practices in marketing and designing has acted as leverage in popularizing traditional Assamese jewellery.*

**Keywords :** Entrepreneur, innovative, marketing, traditional jewellery.

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EASTERN

25 YEARS OF ECONOMIC REFORMS & NORTH EAST INDIA

# 25 YEARS OF ECONOMIC REFORMS & NORTH EAST INDIA



**Dr. Bibhash Dhar, M.Sc. Ph.D.** born in 1954 has obtained his Master's Degree in Anthropology from the Department of Anthropology, Gauhati University, Guwahati in 1975 and Ph.D from Dibrugarh University, Dibrugarh in 1993. He started his career in Anthropology in 1976 and served the Anthropological Survey of India, Ministry of Culture, Government of India as a Superintending Anthropologist and Head Office during his tenure of service. He has ten books on North East India and a number of research papers on the North East, the state of Chhattisgarh and Andaman Islands to his credit.



**Dr. Sutapa Sengupta**, Retired Associate, Associate Professor and Head of the Department of Geography, St. Mary's College, Shillong. She was co-editor of four books and published several research papers in the journals of both National and International repute. She was resource person in NCERT programs and UGC-SAM workshops etc. She is one of the active members of North East India Council for Social Science Research, Shillong.



**Dr. Siddheswar Sarma**, started his service carrier as a Lecturer in the Department of Geography, Arya Vidyapith College and subsequently in B. Barooah College, Guwahati. He has retired as Senior Cartographer from the Department of Geography, North Eastern Hill University, Shillong, in 2010. Being a trained geographer in Remote Sensing and GIS, he has completed three projects based on remote sensing techniques. He is the author of two books on Meghalaya and co-editor of two books. After his retirement, he has been engaged with IGNOU, Shillong Study Centre and also continues to be Secretary of North East India Council for Social Science Research, Shillong till date.

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# 13

## Brain Drain in India: A Study on its Causes and Impacts

Arpita Sharma Nath  
Alpana Baruah

### Introduction

According to dictionary meaning brain drain is the movement of highly skilled and qualified people to a country where they can work in better conditions and earn more money. Highly educated professionals immigrate to other advanced countries for better career opportunities and improved lifestyle. The reasons contributing to brain drain may be varied depending on circumstances and choice but its outcome on the home country is adverse. It has been observed since a long period of time that Indian talents and potentials flee to advanced nations in search of higher salaries, career enhancements and better lifestyle. It is a rising problem for a developing country like India as it desperately needs talents and potential people especially in the sector of science and technology but due to multiple reasons the talents are fleeing their countries leaving their home nation indigent in the process. It is also referred to as human capital flight. The future of a nation lies in the hands of able and foresighted citizens who have the potentiality to think and act in multiple fields. Brain drain is an extremely serious problem for developing countries like India. Instead of paving way and registering growth of the nation the human assets in India in the field of science and technology, management, research and engineering are immigrating to other nations. Earlier India was accused of not imparting quality need based education as compared to the western countries. However, since long the education system and environment in India has been quite conducive and numerous good colleges and universities

are functioning producing quality gems year after years. The term brain drain was introduced by observing the emigration of the various technologists, doctors, scientists and engineers from various developing countries including India to more advanced or developed nations like UK, USA, Germany, etc. Countries like India are suffering from brain drain and USA Particularly is enjoying brain gain. According to 2013 statistics, UNDP estimates that India loses 2 billion dollars a year because of the emigration of computer experts to the U.S. Indian students going abroad for their higher studies costs India a foreign exchange outflow of 10 billion dollars annually. Every year hundreds of India's best brains make upright efforts to leave India. Although lots of educational institutions are flooded and established year after year with creation of more employment opportunities, the demand for passports are increasing every year.

### Objectives

Every study is conducted with some objectives in mind. The present work encircles few objectives mentioned below.

- To identify the various factors contributing to brain drain in India.
- To study the impacts of brain drain in Indian context.
- To suggest measures for curbing brain drain.

### Methodology

The study is mainly based on secondary data. Secondary data consists of information collected from various books, journals published in national and international journals and trade magazines. Descriptive research design is adopted in the study. The causes and leading impacts of brain drain is discussed and presented. Literature review has been done on brain drain in various job sectors in India.

### Discussion

The steady outflow of nation's talent especially the educated ones at the cost of the taxpayers' money have caused concern to the government. This is one of the major reasons behind growing success and prosperity of developed countries as the high intellectuals migrate from poor developing countries. It is also reported that that brain drain was at its peak during 1970's and 1980's when it was alleged that Indian youths were seeking greener pastures outside the country. However, the reason also lies in the then existing political and economic system. During Indira Gandhi's rule in 1970s, income tax was at an all-time high with the top slab having a tax rate of 97.75%. On top of the 97.75% tax, there were several more taxes like wealth tax, inheritance tax etc which when added up would exceed 100%. It means after a certain slab, if an Indian was earning Rs 100, he was





**The Book**

The present book entitled 'Demonetization and Indian Economy' is a collection of 34 papers based on a National Seminar on 'Demonetization and Indian Economy' organized by the Centre for Management Studies, Dibrugarh University from 27-28th February, 2017. Though the papers are mainly based on secondary data but through the findings and suggestions of the different papers and views presented by various Researchers, an initial review of financial, marketing, human resource and operations perspectives were attempted.



**The Editor**

Professor Ajanta Borgohain Rajkonwar is the Dean, School of Commerce and Management Science, Chairperson, Centre for Management Studies and the former Head of the Department of Commerce, Dibrugarh University. She has contributed many articles and research papers in referred journals and books of social sciences, and presented a number of papers at various national and international conferences. Professor Ajanta has authored 'Entrepreneurship Development', 'Analysis and Interpretation of Financial Statement Analysis', 'Small and Medium Enterprises in Assam' and edited 'Entrepreneurial Opportunities in the North East'.

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**Editor**

*Prof. Ajanta B. Rajkonwar*



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## Preface

Demonetisation was meant to tackle multiple objectives. It was supposed to target those people who do not pay taxes and hold part of their wealth in cash. It was also meant to tackle the problem of counterfeit bank notes and terror financing. Later, the government added that it was also meant to move towards a „cashless. – or less cash – economy. The rationale was that in order to target accumulated cash on which taxes have not been paid, an element of surprise was required so that the targeted stock of currency is not disposed. A lot of data has been accumulated since the note ban was announced by the Prime Minister, but most of it is anecdotal and cannot be subjected to a rigorous statistical analysis. However, it does highlight the hit that the Indian economy had taken due to this policy change. Those outside the purview of the banking system were hit particularly hard. For these people, liquidity and budget are often the same since they cannot borrow to tide over a fall in income. Even for those who are relatively well off, there was a significant liquidity crunch.

Other issues have also cropped up – was demonetisation the only way to target this accumulated cash? It is ironical then the taxman will anyway be let loose, even after facing all the inconveniences from demonetisation. Also, it is true that this one-time attack will not ensure that the problem will not recur. The problem of black money, in principle, requires a surprise strike, whereas the counterfeit currency does not. Money has come to occupy this unique place as a medium of exchange over decades, if not centuries. It is more that just a question of literacy; it is of financial literacy, regular power supply and of internet connectivity. In the foreseeable future, can we say with certainty that no e-wallet supplier will be of the dissembling type? Those of us who use credit cards will test ify that one has to be hawk-eyed to prevent overcharging and to hold the banks to their promises. Economies that use cash do so for sound economic reasons. The desire to avoid paying taxes is only one of these. If changing habits to move away from cash is the objective, replenishing the cash quickly will not achieve it. As soon as the cash comes back into the system, people will revert to their old ways. Hence, in order to wean them away, the pain must be prolonged. Finally, the timing of the move. There has been agrarian distress in a large part of the country with the rains playing a truant in the last three years. The kharif crop in 2016 was a normal one. India's economy is cash-based and the rural sector almost completely so. In rural India, there are very poor receive their income in cash, agriculture output sales are in cash, as is the purchase of seeds. The demonetisation announcement was made between the two major crops and hence could not buy seeds for sowing the next one. There is a general point to bear in mind in thinking about such a move- there is, no doubt, widespread tax evasion by petty shopkeepers, small and medium enterprises. If these entities were to be brought under the tax net, the level of activity in these sectors would contract. The immediate and medium-term economic implication of the move would be to cripple these sectors that transact only in money. The problem is that these sectors are big generators of employment outside agriculture. Thus, ensuring tax-compliance could hit employment in a big way. India growth is projected to slow to 6.6% in 2016-17 fiscal due to the strains that have emerged in the economy as a result of "temporary disruptions" casued by demonetisation, the IMF said. In its annual report, however, the International Monetary Fund said demonetisation would have



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# BUILDING AN EFFECTIVE SUPPORT SYSTEM FOR ENTREPRENEURIAL GROWTH IN NORTH EAST INDIA



**Editors :**  
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## Deterring Factors for Rural Entrepreneurship Development in Assam: An Empirical Study

\*Dr. Dipanjan Chakraborty, \*\* Dr. Bidyut Bikash Baishya  
\*\*\*Pom Sen Chakraborty

### Abstract

*The growing intensity of international competition and globalization is affecting the growth of micro enterprises in developing economies. Among the various difficulties of the Micro enterprises, the lack of smooth supply of raw materials and working premises were reported to be the major bottlenecks facing small scale manufacturing industries, while lack of sufficient capital and working premises were the leading problems of the informal sector operators to start their businesses. In Assam's situation since there have not been any organized policy and support system that cater for the sector, micro enterprises have been confronted by various problems which are of policy, structural and institutional in nature. In Assam, the existing business associations are financially weak and most of them have a very limited capacity to actually support and strengthen their members. Most rural micro enterprises have not also been embraced by the existing business associations and chambers, thus excluding them from any form of support that could be obtained from them. Hence in this study the major problems of rural micro enterprises are identify and recommendations will be given.*

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*Chitra*  
Principal  
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