



ISSN No. : 2278-5272

# খোজ Khoj

অষ্টম সংখ্যা

Vol.: VIII

(বৌদ্ধিক উত্তৰণৰ নিষ্ঠাৱান প্ৰচেষ্টা)

*A Multilingual, Multidisciplinary, Annual Peer Reviewed Journal*

ডিব্ৰু মহাবিদ্যালয়, ডিব্ৰুগড়  
অক্টোবৰ, ২০১৬

সম্পাদিকাৱয় :

ৰূপজ্যোতি বৰা

ড° নন্দিনী কোঁৱৰ



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Vol. VIII, 2016



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'KHOJ' an annual Journal of Dibru College, published by the IQAC of Dibru College, Dibrugarh, Assam; October, 2016.

Price ₹ 150.00 only

ISSN No. : 2278-5272

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Printed at : Kaustubh Printers  
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E-mail : Kaustubhprakashan@gmail.com

The views expressed in the Research Papers/Articles in the volume are the authors' own and the editor(s) and publisher are in no way responsible for the same.

Khoj



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Ref No.DU/VC/M/073/16/1118

Date: 21.09.2016

### Message

To,

Mrs Rupjyoti Borah  
Nandini Konwar  
Annual Research Journal  
Dibru College  
Dibrugarh



Dear Mrs Borah and Ms Konwar,

It is a pleasure to learn that the 8<sup>th</sup> volume of the multidisciplinary *Research Journal Khoj* is being published by the teachers' unit of *Dibru College, Dibrugarh*.

*Research Journals* are an important component of education - for the young scholars as well as the upcoming faculty members, in a way which provides them the opportunity to see their views published. I firmly believe that the journal will help in providing incentive to the young and creative minds for undertaking their research and articulating it.

I hope that the Journal will succeed in its objective and usher in an era of much needed research in your institute. I convey my best wishes for the successful publication of *Khoj*.

With best regards.

A. K. Buragohain  
Alak K. Buragohain



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### শুভেচ্ছাবাণী



উজনি অসমৰ প্ৰেক্ষাপটত ডিব্ৰুগড় চহৰ বৌদ্ধিক স্নায়ুকেন্দ্ৰস্বৰূপ। অসমৰ প্ৰথমখন চিকিৎসা মহাবিদ্যালয়, ডিব্ৰুগড় বিশ্ববিদ্যালয় আদিৰ স্থাপনে ডিব্ৰুগড়ক সুকীয়া বিদ্যায়তনিক মাত্ৰা প্ৰদান কৰি আহিছে। এই ডিব্ৰুগড় চহৰৰ মাজমজিয়াত অৱস্থিত ডিব্ৰু মহাবিদ্যালয় চহৰখনৰ ভিতৰতে কলা, বাণিজ্য আৰু বিজ্ঞান — এই তিনিওটা শৈক্ষিক শাখা থকা উচ্চশিক্ষাৰ একমাত্ৰ শিক্ষানুষ্ঠান। ১৯৬৩ চনৰ ১৬ আগষ্টৰ দিনা প্ৰতিষ্ঠা লাভ কৰা মহাবিদ্যালয়খনিয়ে ইতিমধ্যে সোণালী জয়ন্তী বৰ্ষ উদ্‌যাপন কৰাৰ সোণালী গৌৰৱ অৰ্জন কৰিছে।

কোনো স্থায়ী দাতা নথকা মহাবিদ্যালয়খনি প্ৰতিষ্ঠাৰ বেলিকা গুৰি ধৰোঁতাসকলে অভাৱনীয় কষ্ট কৰিবলগীয়া হৈছিল তাক দোহৰাৰ প্ৰয়োজন নাই। সেয়ে প্ৰতিষ্ঠাৰ দিনটো অধিক বৰণীয় আৰু স্মৰণীয় কৰি তুলিবলৈ সৰ্বতোপ্ৰকাৰে প্ৰয়াস কৰি অহা হৈছে। ইয়াৰে অংশস্বৰূপে 'খোজ' নামেৰে ISSN নম্বৰ সহকাৰে এখন গৱেষণা পত্ৰিকা প্ৰতি বছৰে প্ৰকাশ কৰি অহা হৈছে। প্ৰধানকৈ গৱেষণামূলক আৰু মৌলিক চিন্তাধাৰাৰ লেখা প্ৰকাশ কৰা গৱেষণা পত্ৰিকাখনিয়ে অধ্যাপক-অধ্যাপিকাসকলৰ চিন্তাধাৰাক পাঠকৰ মাজলৈ কঢ়িয়াই নিবলৈ সক্ষম হৈছে। তদুপৰি লেখক-লেখিকাৰ বাবে এখন শক্তিশালী মঞ্চ তৈয়াৰ কৰাতো গৱেষণা পত্ৰিকাখনিয়ে এক অনবদ্য ভূমিকা পালন কৰিবলৈ সমৰ্থ হৈছে।

সম্প্ৰতি প্ৰকাশ পাবলৈ লোৱা গৱেষণা পত্ৰিকাখনিত এলানি চিন্তাশীল লেখা সন্নিবিষ্ট হৈছে। পত্ৰিকাৰ যুটীয়া সম্পাদকৰ দায়িত্ব বহন কৰা অধ্যাপিকাদ্বয় ৰূপজ্যোতি বৰা আৰু ড° নন্দিনী কোঁৱৰৰ শলাগ ল'লো। ইয়াৰ উপৰি সম্পাদনা সমিতিৰ সমূহ বিষয়ববীয়ালৈ আন্তৰিক শুভেচ্ছা আৰু ধন্যবাদ জ্ঞাপন কৰিছোঁ। আশা কৰোঁ পত্ৰিকাখনিত আলোচিত হোৱা বিষয়সমূহে ন ন চিন্তাৰ বাট মুকলি কৰিব আৰু সাহিত্যৰ জগতখনক সমৃদ্ধ কৰিব।

ইতি

ড° পৰেশ বৰুৱা

অধ্যক্ষ, ডিব্ৰু মহাবিদ্যালয়

ডিব্ৰুগড়।

তাৰিখ : ২০.১০.২০১৬

### সম্পাদকৰ কণ্ঠস্বৰ পৰা ...

খোজত খোজ মিলাই উত্তৰণ সাধন কৰি যাব পৰা প্ৰকৃতি মানুহৰ বাহিৰে অন্য ইতৰ প্ৰাণীৰ নাই। মানৱ সম্পদ গঢ় দিওঁতা বিদ্বান সমাজখনৰ মৌলিক আৰু গৱেষণাধৰ্মী চিন্তাবোৰৰ বৈচিত্ৰতা থাকিলেও শৈক্ষিকভাৱে জীৱ কল্যাণৰ স্বার্থত ই খোজত খোজ মিলাই আগুৱাই যায়। যিকোনো পৰিস্থিতিত সৃষ্টি হোৱা চেতনাৰ প্ৰৱহমান সোঁতত সমুদায় পৰিবেশৰ ওপৰত অথবা কোনো ঘটনা পৰিঘটনাৰ অন্তৰ্হীন স্থিতিৰ ওপৰত ন্যস্ত হৈ যেতিয়া মননশীল চিন্তাৰ উদ্ৰেক ঘটে, তেতিয়া বিজ্ঞানসন্মত সিদ্ধান্তত উপনীত হ'ব পাৰি। তললৈ সৰি পৰা আপেল, নিউটন আৰু মধ্যাকৰ্ষণ বলৰ আৱিষ্কাৰৰ পৰা মনালিছা ছবিৰ হাঁহি অথবা দহৰ বাণীৰে একৰ জ্ঞান স্বৰূপ ডাকৰ বচনলৈকে সকলোতে বিজ্ঞান আৰু মৌলিক চিন্তাৰ সমাহাৰ ঘটিছে। ডিব্ৰু মহাবিদ্যালয়ৰ পৰা প্ৰতি বছৰে 'খোজ' শিৰোনামৰে প্ৰকাশিত গৱেষণাধৰ্মী আলোচনীখনি সকলো বিষয়ৰ বাবে মুক্ত আৰু নিঃসন্দেহে যথার্থ বুলি অনুভৱ কৰো। কলা, বিজ্ঞান আৰু বাণিজ্য শাখাৰ শিক্ষক শিক্ষিকাৰে পৰিপূৰ্ণ ডিব্ৰু মহাবিদ্যালয়ত বৈচিত্ৰ্য-প্ৰজ্ঞাৰ সাধনা আৰু প্ৰকাশৰ উপৰি এক গৱেষণাধৰ্মী আৰু মৌলিক ভাৱনাৰ বাতাবৰণ সৃষ্টি আৰু আদান প্ৰদানৰ নিমিত্তে 'খোজ' প্ৰায় সকলো শৈক্ষিক বিষয়ৰ গৱেষণাধৰ্মী লেখাৰ দস্তাবেজ হৈ থাকিব।

'খোজ'ৰ অষ্টম সংখ্যাটি সম্পাদনা কৰাৰ দায়িত্ব যুটীয়াভাৱে পালন কৰিবলৈ পাই নথৈ সুখী অনুভৱ কৰিছো। এই বছৰৰ অষ্টম সংখ্যাত প্ৰকাশিত গৱেষণাপত্ৰসমূহ পুনৰীক্ষকৰ দ্বাৰা পুনৰীক্ষণ কৰাৰ পাচত যথার্থভাৱে ছপাশালত দিয়া হৈছে। তদুপৰি এই সংখ্যাটিত প্ৰথমবাৰৰ বাবে মহাবিদ্যালয়ৰ সম্পাদনা সমিতিৰ উপদেষ্টামণ্ডলীৰ ওপৰিও তিনিগৰাকী বিশিষ্ট ব্যক্তি ক্ৰমে ড° (ডাঃ) ৰতন কুমাৰ কটকী, অধ্যক্ষ, অসম চিকিৎসা মহাবিদ্যালয়, ড° চন্দ্ৰকান্ত গগৈ, অৱসৰপ্ৰাপ্ত প্ৰাধ্যাপক ডিব্ৰুগড় বিশ্ববিদ্যালয় আৰু আই. চি. এম. আৰু লাহোৱালৰ বিজ্ঞানী শ্ৰীযুত বসন্ত কুমাৰ গোস্বামীদেৱক উপদেষ্টামণ্ডলীৰূপে অন্তৰ্ভুক্ত কৰা হৈছে। আমাৰ একেধাৰ অনুৰোধত তেখেতসকলে সন্মতি প্ৰদান কৰা বাবে আমি তেখেতসকলৰ প্ৰতি কৃতজ্ঞ হৈ ৰ'লোঁ।

অষ্টম সংখ্যক এই আলোচনীখনি প্ৰকাশৰ দায়িত্ব সূচাৰুকে পালন কৰি পাঠকমণ্ডলীৰ হাতত অৰ্পণ কৰালৈকে যাৱতীয় কাম কাজ ভাগি আগুৱাই নিয়াৰ এই সময়চোৱাত আমি ডিব্ৰু-মহাবিদ্যালয় পৰিয়ালৰ ভালে সংখ্যক সদস্য-সদস্যাৰ অকুণ্ঠ সহায় সহযোগ আৰু দিহা পৰামৰ্শ

Khoj



পাই আহিছে। এইসকলৰ ভিতৰত বিশেষকৈ মহাবিদ্যালয়খনৰ অধ্যক্ষ ড° পৰেশ বৰুৱাদেৱৰ উদ্যোগ আৰু ইতিবাচক চিন্তাই আমাৰ কৰ্মোদ্যমক এক বিশেষ মাত্ৰা প্ৰদান কৰি আহিছে। ইয়াৰ লগতে এই সংখ্যাৰ সম্পাদনা সমিতিৰ সমূহ সদস্য-সদস্যাৰ দিহা পৰামৰ্শ আৰু সহায় সহযোগ আমাৰ বাবে বিশেষভাৱে স্মৰণযোগ্য। মহাবিদ্যালয়ৰ যিসকল অধ্যাপক-অধ্যাপিকাই গৱেষণা-পত্ৰ আৰু মৌলিক চিন্তাবিশিষ্ট লেখা আগবঢ়াই আমাৰ এই সংখ্যাটি প্ৰকাশোপযোগী কৰিলে, সেই সমূহ লেখক-লেখিকালৈ আন্তৰিক ধন্যবাদ জনাইছোঁ। লগতে সাম্প্ৰতিক কালৰ বাবে প্ৰাসঙ্গিক হৈ পৰা যোগ-দৰ্শনৰ আৰু হৃদপিণ্ড ৰোগৰ ওপৰত এটি গৱেষণামূলক প্ৰবন্ধ আগবঢ়োৱাৰ বাবে ড° ৰতন কুমাৰ কটকীদেৱলৈও আন্তৰিক ধন্যবাদ জ্ঞাপন কৰিছোঁ। গৱেষণা-পত্ৰ আৰু পৰ্যালোচনামূলক প্ৰবন্ধসমূহ যিসকল সদাশয় পুনৰীক্ষকে পুনৰীক্ষণ কৰি দি আমাক সহায় কৰিলে, তেখেতসকললৈ অশেষ ধন্যবাদ আৰু কৃতজ্ঞতা জ্ঞাপন কৰিছোঁ। ডিব্ৰুগড় বিশ্ববিদ্যালয়ৰ মাননীয় উপাচার্য মহোদয় ড° অলক কুমাৰ বুঢ়াগোহাঁইদেৱে আমাৰ অনুৰোধ ৰক্ষা কৰি অনেক ব্যস্ততাৰ মাজতো এটা শুভেচ্ছা বাণীৰে আমাক উৎসাহিত কৰা বাবে তেখেতৰ ওচৰত আমি চিৰকৃতজ্ঞ। আমাৰ মহাবিদ্যালয়ৰ আভ্যন্তৰীণ মান নিৰূপণ কোষ (I.Q.A.C) এ এই আলোচনীখন প্ৰকাশৰ বাবে যথেষ্ট বৰঙনি আগবঢ়াই অহাৰ বাবে আমি এই সমিতিৰ সকলো সদস্য-সদস্যাৰ ওচৰত চিৰকৃতজ্ঞ।

ডিব্ৰু মহাবিদ্যালয় পৰিয়ালৰ ভালেসংখ্যক সদস্য-সদস্যাই প্ৰায় সকলো কামতে নিঃস্বার্থ সহায় সহযোগ কৰাতো এক পৰম্পৰা সদৃশ। সেই অনুসৰি আমাৰ এই কৰ্মসূচী সূচাৰুৰূপত আগুৱাই নিয়াত আৰম্ভণীৰ পৰা শেষলৈকে যোগাযোগ, আলোচনা, কাৰ্যালয়, ছপাশাল আৰু মুদ্ৰণ আদি এশ এবুৰি কৰ্মত সততে লাগি থকা ব্যক্তিসকল, বিশেষকৈ অধ্যাপক চন্দ্ৰগুপ্ত বৰা, যোগেশ্বৰ বৰুৱা, প্ৰণৱ পাল, অধ্যাপিকা মধুমিতা গোস্বামী বৰঠাকুৰ, মমী বৰগোহাঁই, বনজী চেতিয়া ফুকন প্ৰমুখ্যে গৱেষণা সহায়ক অতনু কোঁৱৰ আৰু মহাবিদ্যালয়ৰ কৰ্মচাৰীবৃন্দ ক্ৰমে বিকাশ টুটি, অমৃত দাস, দিব্যজ্যোতি গগৈ, ৰিন্টু দাস, ৰাজেশ দাস, উৎপলা বৈশ্য আৰু অৰূপ দত্তলৈ অশেষ ধন্যবাদ জ্ঞাপন কৰিছোঁ।

সদৌ শেষত আলোচনীখনৰ মুদ্ৰণ আৰু ছপা কৰি উলিয়াই দিয়া কৰ্মভাগি যথা সময়ত সমাপন কৰি দিয়াৰ বাবে কৌস্তভ প্ৰকাশনৰ দীপক বৰুৱা আৰু স্বত্বাধিকাৰী গায়ত্ৰী বৰুৱা প্ৰমুখ্যে সমূহ কৰ্মকৰ্তালৈ আমাৰ তৰফৰ পৰা অশেষ ধন্যবাদ জনাইছোঁ। গভীৰ আশা আৰু আস্থা সহকাৰে কামনা কৰোঁ— বৌদ্ধিক, চিন্তাশীল আৰু উচ্চ শিক্ষিত সমাজৰ চেতনাত উদ্বেগ ঘটাই গৱেষণাধৰ্মী এই বিষয় আৰু চিন্তাবোৰ সাধাৰণ মানুহ আৰু সমাজৰ কল্যাণকামী খোজলৈ ত্ৰাসিত হওক। তেহে গৱেষণামূলক কথাবোৰৰ প্ৰায়োগিক মূল্য থাকিব।

সম্পাদিকাধ্বয়  
ৰূপজ্যোতি বৰা  
ড° নন্দিনী কোঁৱৰ

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## Yoga Darśana and Coronary Artery Disease

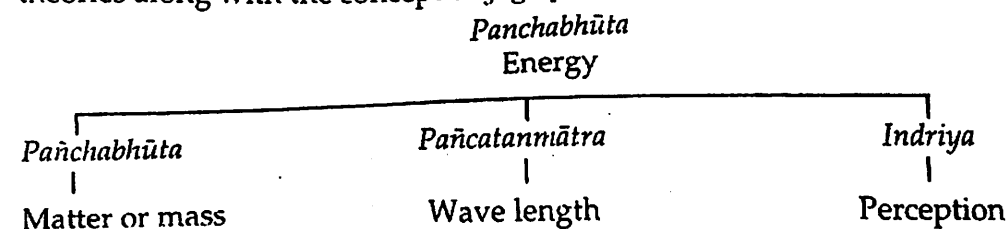
**Dr. R.K. Kotokey**, M.D.(Med), Ph.D.(Cardiology), FICC, FCSI, FCCP, FAIMS  
Principal-cum-Chief Superintendent, Assam Medical College & Hospital, Dibrugarh

### Introduction

The Indian *yoga* philosophy has a very wide horizon. In the recent years *yoga* has been advocated to maintain a good health and in the treatment of diseases. But unfortunately the concept of *yoga* philosophy is not yet properly understood and sufficient research works have not been done yet to evaluate the whole philosophy. Here a noble approach has been made to discuss the effect of Indian *yoga* philosophy and Coronary Artery Disease (CAD) including heart attack (Myocardial Infarction).

### The First New Concept of Yoga Philosophy as a Modern Science in the New Millenium

*Yoga* philosophy is based on *pañcabhūta*. The concept of *yoga* can be explained completely on the basis of *pañcabhūta* which is nothing but five states of matter. This concept of *pañcabhūta* can be explained on the basis of *Theory of Relativity of Einstein* and *Theory of Heisenberg*. Subsequently, the theory put forward by Stephen Hawking and Max Plank also support the *pañcabhūta* concept. Therefor, *yoga philosophy* is completely based on modern scientific concept. The new concept of *yoga* philosophy in the new millennium can be explained by the comparative analysis of the following theories along with the concept of *yoga* philosophy.





### According to Einstein's Theory of Relativity

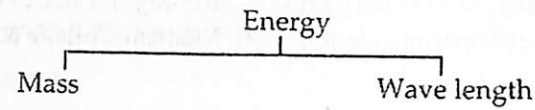
$$E = mc^2$$

$$m = E/c^2$$

Where :

m : Matter or mass  
E : Energy  
c : Velocity of light or wave length

### Summary of Einstein's Equation



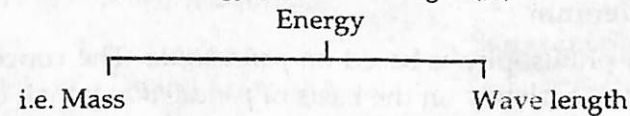
### Theory of Heisenberg

$$\lambda = h/mv$$

i.e.,  $m = \lambda/hv$   
 $h/v = E$   
i.e.,  $m = E/\lambda$

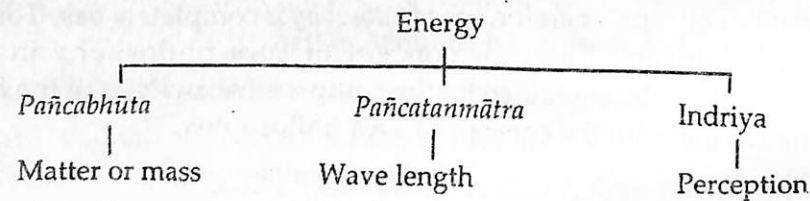
### Summary of Heisenberg's Theory

$$\text{Mass (m)} = \text{Energy (E)} / \text{Wave length (\lambda)}$$

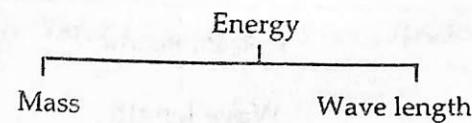


### Total Summary

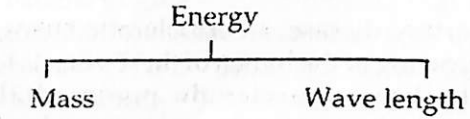
### Yoga Philosophy



### Einstein's Theory



### Heisenberg's Theory

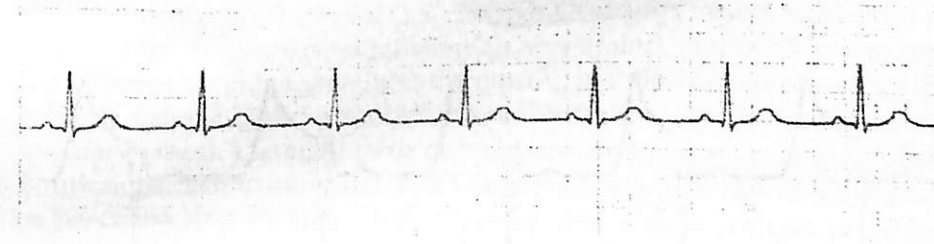
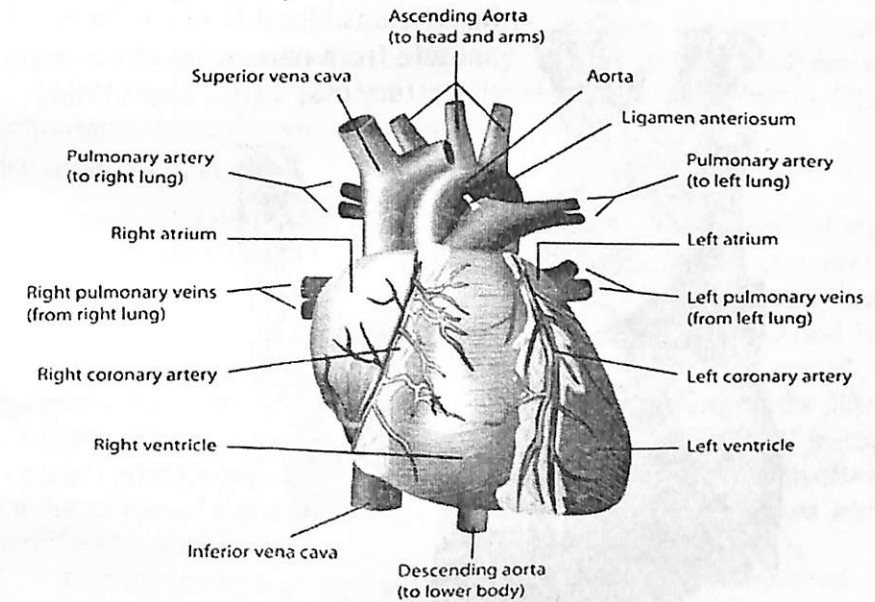


It is clear that all those theories are in accordance to the theory of yoga philosophy. It is a new concept.

### Coronary Artery Disease (CAD) and Heart Attack (Myocardial Infarction)

Coronary artery disease is an atherosclerotic disease of a coronary artery (or arteries) sufficient to cause narrowing of coronary arteries leading to a regional reduction in myocardial (heart muscle) blood flow and inadequate perfusion of the myocardium supplied by the involved coronary artery.

Heart attack or myocardial infarction is characterized by myocardial cell death (death of heart muscle) due to complete obstruction of the coronary arteries leading to complete absence of blood supply to the heart muscle.



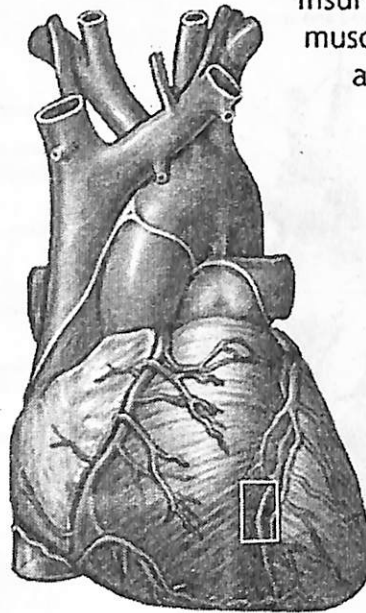


## Pathogenesis of CAD and Heart attack

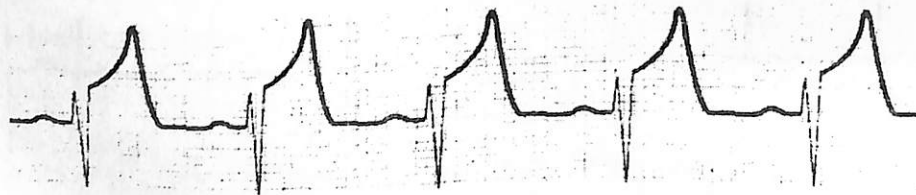
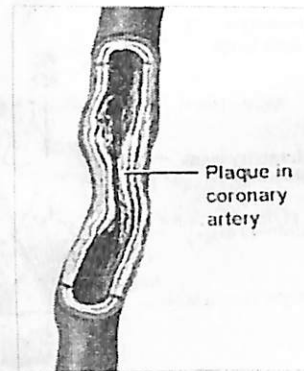
In coronary artery disease, atherosclerotic changes in the coronary vessels lead to narrowing of the lumen of these vessels leading to decreased blood flow to the heart muscles. In myocardial infarction these atherosclerotic lesions, known as plaques rupture leading to formation of a blood clot within the lumen of the coronary vessels and complete obstruction of the lumen which in turn leads to total absence of blood flow to the heart muscle and death of heart muscles. Patients with coronary artery disease fall into two large groups.

### Classification of CAD and Heart Attack

1. Chronic stable angina – stable angina pectoris is characterized by chest or arm discomfort that is reproducibly associated with physical exertion or stress and is relieved within 5-10 min. by taking rest and/or by putting sublingual nitroglycerin drug.



Insufficient blood flow to the heart muscle from narrowing of coronary artery may cause chest pain



2. Acute coronary syndrome – this includes :
  - (a) Unstable angina – this is defined that angina pectoris or equivalent ischemic discomfort with at least one of three features : (1) it occurs at rest (or with minimal exertion), usually lasting > 10 min; (2) it is severe and of new onset (i.e., within the prior 4-6 weeks); and/or (3) it occurs with a crescendo pattern (i.e., distinctly more severe, prolonged, or more frequent).
  - (b) ST elevation MI – patients with acute myocardial infarction (MI) with ST-segment elevation on their presenting electrocardiogram and also elevation of cardiac biomarkers (i.e., enzymes)
  - (c) Non-ST elevation MI – a patient with the clinical features of UA develops evidence of myocardial necrosis (death), as reflected in elevated cardiac biomarkers.

Risk factors for CAD are : (1) diabetes mellitus, (2) hypertension, (3) hyperlipidemia (increased levels of fatty material in blood), (4) smoking, (5) high-fat and energy-rich diet, (6) sedentary lifestyle, (7) obesity, (8) most importantly mental stress and strain.

### Pātañjala Yoga Darśana

*Yogaḥ cittavṛttinirodhaḥ* (YS, 1.2). Yoga means modification of mental mode or thought waves. *Nirodha* is commonly explained as cessation, but we have used the term modification in the light of medical science because, the mind cannot be destructed when the person is alive. Mind is the composite of actions of the whole brain tissues. According to Patañjali, *yoga* is a methodical effort to attain perfection through the control of the different elements of human nature, physical and psychical. The special feature of the *yoga* system is its practical discipline, by which the modification of mental modes is brought about through the practice of yogic exercises and the conquest of desire.

*Yoga* means *astāṅga yoga yamanīyamāsanaḥprāṇāyāmapratyāhāradhāraṇa dhyāna samādhayo'ṣṭāvaṅgāni* (YS., 2.29). *Aṣṭāṅga yoga* means eight limbs or steps of *yoga*. They are *yama* (abstention or restraint), *niyamaḥ* (observance), *āsana* (posture), *prāṇāyāma* (breath control), *pratyāhāra* (withdrawal of the senses), *dhāraṇa* (fixed attention or concentration), *dhyāna* (meditation), *samādhi* (trance). The eight parts or limbs are complementary to each other. To attain perfection or for the fruitful results of *yoga*, the eight limbs should be practiced step by step. Unfortunately now a days without practicing



*yama* and *niyama*, *āsana* and *prāṇāyāma* are performed and it is not true *yoga* in the light of *Yoga Sūtra*. Moreover, though *pratyāhārā*, *dhāraṇa*, *dhyāna* are having vast differences practically, the people presently use the term meditation or concentration interchangeably. Patañjali was a very practical medical scientist. Mere advice or practice cannot lead to meditation. Therefore, he added external aid or path (in *Śrīmad Bhagavad Gītā* described as *bahirāṅga*), which definitely helps to achieve meditation. They are *yama* and *niyama*. *Yama* includes *ahimsā* (abstinence from injury or killing), *satya* (veracity), *asteya* (abstinence from theft), *brahmacharya* (control over sexual activity), *aparigraha* (abstinence from avariciousness). *Niyama* includes – *śauca* (cleanliness), *saṁtoṣa* (contentment), *tapah* (mortification), *svādhyāya* (study) and *īśvara praṇidhānāni* (the making of *īśvara* the motive of all action, means the doing of all actions to fulfil the purpose of that great teacher). These two first steps of *astāṅga yoga* are to be practised first and then *āsana*, *prāṇāyāma* and so on. *Śrīmad Bhagavad Gītā* and *Śrīmad Bhāgavata Mahāpurāṇa* describe *antaraṅga* or internal aid which includes *pratyāhārā*, *dhāraṇa*, *dhyāna* and *samādhi*. All these four steps with different disciplines should be practised step by step to achieve concentration. Therefore, meditation (*dhyāna*) or concentration can be achieved by methodically following *antaraṅga* only.

#### Patañjala Yoga Darśana and Coronary Artery Disease

*Yogasūtra* of Patañjali is the methodical compilation of all the Yogas of Indian Yoga philosophy. Max Müller, Radhākrishnan and Moor have extensively discussed *Patañjala Yoga Darśana* in the light of philosophy or religion only. But here, it is tried to explore him as a great medical scientist and a cardiologist. As for example, the basic concept of coronary artery disease at the present time, has been explained by Patañjali in about 200 B.C. The modern approach towards coronary artery disease (CAD) in the medical science are : (1) primary prevention – abstinence of CAD in the society or to adapt necessary measures so that the disease is prevented. Patañjali has said : *heyam duḥkham anāgatam* (YS., 2.16). *Heyam* means to prevent the disease before appearance in the society. (2) If CAD prevails then to find out the cause of CAD i.e., diagnosis of the disease which is the second step towards CAD in the medical science. Patañjali says : *draṣṭr dṛśyayoh samyogo heyahetuḥ* (YS. 2.17). Patañjali also says : *heya hetuḥ* – means to diagnose CAD or sufferings. (3) After diagnosis of CAD, to treat the disease for complete removal or eradication of the disease i.e., for treatment Patañjali says : *tad abhāvāt samyogābhāvo hānam tadṛśeḥ kaivalyam* (YS., 2.25). The term *hānam* means to root out or treatment of CAD. (4) The ways, the

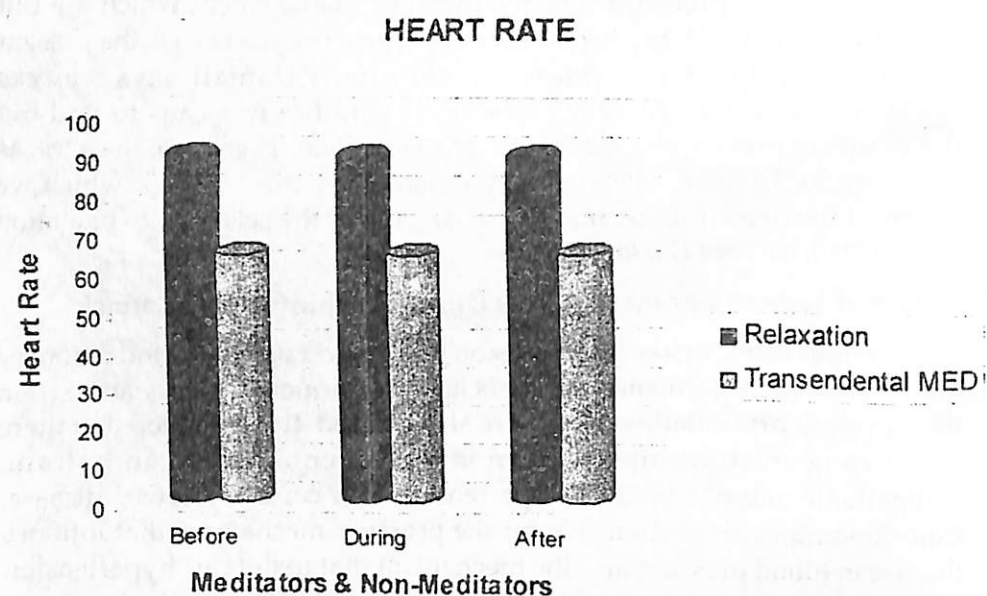
means, methods, procedures or treatment or management which are put forward to cure CAD; to prevent the subsequent occurrence i.e. the present medical concept is secondary prevention. Patañjali says : *viveka khyātiraviplavā hānopāyah* (2.26) *Hānopāya* scientifically means to find out the means to prevent the recurrence of the disease. Therefore, the *yoga*, as described by Patañjali is completely based on Medical Science which we follow at the present time. It is a new concept of the scientific explanation of the *Patañjala Yoga Darśana*.

#### Effects of Yoga in Coronary Artery Disease including Heart attack

Various diseases like hypertension (high blood pressure) and coronary artery disease in particular are associated with mental stress and strain though other precipitating factors are also defined. It is observed that there is a strong relationship between environmental stress and strain, sympathetic nervous system, hypertension and coronary artery disease. Catecholamines are responsible for the pressure mechanism that initiates the rise in blood pressure and the mechanism that maintains hypertension via vascular hypertrophy (Yu et. al., 1996).<sup>1</sup> It is seen that the blood pressure remains normal among nuns in a secluded order over a 20 year period, whereas, it rises with age in women living nearby in the outside world (Timio et. al., 1988).<sup>2</sup> The air traffic controller, who works under high level psychological stress annually develops hypertension at a rate 5.6 times greater than non-professional pilots do (Cobb and Rose, 1973).<sup>3</sup> Among healthy men job strain is associated with a 3.1 times greater odds ratio for hypertension (Schnall et. al., 1990)<sup>4</sup> and higher ambulatory blood pressure (Schwartz et al., 1996).<sup>5</sup> People who migrate to more urbanized, modern disorganized societies have higher blood pressure (Poulter et al., 1990; Kaufman et al., 1996).<sup>6</sup> Again, it is also observed that social disorganisation is associated with more hypertension (Bland et. al., 1991).<sup>7</sup> Interestingly there is a strong relationship between social stress and strain, anger and hypertension (Shapiro et. al. 1996).<sup>8</sup> As the *astāṅga yoga* can reduce or eliminate mental stress and strain, worries and anxieties, hypertension can be controlled through its practice.

*Āsana* and *prāṇāyāma* have been tried in coronary artery diseases (Schell F.J. Allolio B., Schonecke O.W., 1994)<sup>9</sup> and meditation also showed beneficial effect on cardiovascular system (Nagarathna R., Nagendra H.R., 1995<sup>10</sup>; Tellers S., Nagaratha R., Nagendra H.R., Desiraju T., 1993<sup>11</sup>) as it alter the heart rate and cardiac output.

Following is the graph showing variation of heart rate during meditation :



Modern cardiologists are of the opinion that heart rate is very important in the management of coronary artery disease, hypertension, congestive cardiac failure and in many cardiac conditions. Therefore, meditation may help in the treatment and/or prevention of the above conditions. Even *yoga* can help in regressing the atherosclerotic process in post CABG cases and post PTCA cases which have already been documented in research works.

If *āsana*, *prāṇāyāma* and meditation in combination with *yama* and *niyama* are advocated the results will be very much effective. Again *āsana* and *prāṇāyāma* were tried in patients of diabetes mellitus (B. Sahay, Dr. Dean Ornish, Dr. Phulgenda Sinha). As meditation has enormous effect in neuroendocrinal system, more beneficial effects will be found in a combination of *astāṅga yoga*. Meditation has tremendous effect in psychological disorders and psychosomatic disorders which have been proved already (Dr. A.K. Agarwal, 1995<sup>12</sup>, Schultz, J.H, 1932,<sup>13</sup> Walton D., 1961, Benson H, Ronner, B, Marzetta, B Klemchuk, H., 1974<sup>14</sup>). It is quite possible that if *astāṅga yoga* is followed methodically in these situations, results will be wonderful.

**Table 1 : Showing the effect of *āsana* and *prāṇāyāma* in coronary artery disease : (Adopted from the PhD thesis of Dr. R.K. Kotokey)<sup>15</sup>**

Author	Effect
1. Tellers S., Nagarathna R., Nagendra H.R., Desiraju T., 1993	(1) Blood pressure reduction (2) Improved lung functions (3) Reduction of heart rate (4) Reduction of respiratory rate (5) Balance in autonomic function
2. Bera T.K, Rajapurkar M.V., 1993	(1) Improvement in ideal body weight and body density (2) Improvement in cardiovascular endurance and anaerobic power. (3) Reduction in fat folds and reduction in waist, umbilical, hip circumferences.
3. Bulavin V.V., Klluzhev V.M., Kliachkin I.M., Lakshmankumar., Zuikhin N.D., vlasova TN., 1993 (In post heart attack cases)	(1) Improvement in exercise tolerance (2) Improvement in psychosomatic condition.
4. Rai L., Ram K., Kant U., Madan S.K., Sharma S.K., 1994	(1) Greater minute ventilation (2) Larger tidal volume (3) Higher oxygen consumption (4) Greater CO <sub>2</sub> elimination.
5. Kotokey R.K., 2002	(1) Reduction in blood pressure and more than 5 mm of Hg.

A few scientific effects of *āsana* and *prāṇāyāma* in the treatment of CAD are – (1) It can show how to remove mental stress and strain, anxiety, worries etc. which are now thought to be some of the precipitating factors responsible for heart attack. (2) It can be the means to reduce cholesterol, to control high blood pressure (hypertension) and diabetes which are also considered as precipitating factors of heart attack. These can be prevented with the help of *āsana* and *prāṇāyāma*. (3) So far as the role of *yoga* in controlling overweight, lack of activity, undue social interactions etc. is concerned Nagarathna and Nagendra in 1995 tried meditation in coronary artery disease and found a satisfactory result. Harte, Eifert and Smith tried meditation and *āsana* in coronary artery disease and found a satisfactory outcome. In India, Dr. Manchandra from All India Institute of Medical Science, has shown improvement in the atherosclerosis changes of the coronary arteries in heart attack patients. All these results prove that *yoga* is beneficial in the prevention and treatment of heart diseases.

In the late seventies in USA it was proved that transcendental meditation can relieve mental instability, worries and anxieties and can



counter psychiatric illnesses, psychosomatic diseases with the following scientific mechanisms :

1. Reduced nervousness;
2. reduced depressions;
3. reduced irritability;
4. increased sociability;
5. increased self-assuredness;
6. decreased tendency to dominate;
7. decreased inhibition;
8. increased emotional stability;
9. increased staying power and efficiency;
10. decreased anxiety and increased inner control.

A few scientific effects of meditation are :

1. It stabilizes neuroendocrine system of the body.
2. It reduces stress by balancing different hormones like adrenaline, nor-adrenaline etc.
3. It stabilizes the mind and thus, brings peace and tranquility.

The different aspects of psychiatric and behavioral modifications, which help in preventing coronary artery disease, can be achieved with the help of *yoga* therapy.

It appears from the studies already mentioned above that coronary artery disease including heart attack and all other precipitating factors like hypertension, diabetes mellitus, obesity, mental stress and strain etc. can be prevented (primary prevention and secondary prevention) with the methodical practice of *astāṅga yoga*.

*Yoga* includes proper and balanced diet which is very essential for maintenance of positive health i.e., good health. It is stated in *Srimad Bhagavad Gītā* : *yuktāhāravihārasya yuktaceṣṭasya karmasu, yuktasvapnāvabodhasya yogo bhavati duḥkhaḥ* (VI.17). It means "A person having balanced qualities, taking balanced diet, working regularly and having regular and balanced sleep-wakeful hours drives away the worldly miseries and sufferings." It appears clearly that *yoga* puts very much importance on life-style modification concept of the present day coronary artery disease treatment.

The all pervasive stress and stress induced disorders like hypertension and angina are fast growing epidemics and banes of modern society. The holistic science of *yoga* is the best method for prevention as well as management of stress and stress induced disorders. The psychophysiological responses to *yoga* are opposite to the stress response. *Śavāsana*, *yoganidrā*, meditation and slow rhythmic *prāṇāyāma* breathing are very effective in calming the mind and promoting psychosomatic health. Cardiac patients are sensitive and reactive. *Yoga* relaxation techniques calm the mind and make one emotionally balanced. Consequently, minor disturbances do not cause emotional upsets and cardiovascular problems.

Therapeutic effect of *yoga* may be due to (1) management of stress, (2) improvement of cardiorespiratory function and overall fitness, (3)

modulation of autonomic functions, (4) reduction in glucose level in blood in diabetes mellitus patients, (5) reduced hypertension, (6) reduced body weight, (7) increased coronary blood flow, (8) reduced atherosclerotic plaques in the coronary artery, (9) and reduced lipid level in blood.

Stress is an important causative factor in cardiovascular diseases like hypertension, angina and heart attack. It has been demonstrated that subjects trained in *yoga* can achieve a state of deep psychosomatic relaxation associated with highly significant decrease in oxygen consumption within five minutes of practising *sāvitri prāṇāyāma* (a slow, rhythmic and deep breathing) and *śavāsana*. These findings are consistent with the report that *yoga* training not only produces a significant decrease in basal anxiety level, but also attenuates the change in anxiety score in stressful situations such as examination. It has also been reported that *yoga* training helps in development of resistance against stress. Practice of *āsana* and *prāṇāyāma* results in overall improvement in physical fitness and cardio-respiratory functions. It has also been demonstrated that *yoga* training of twelve weeks duration produces a significant increase in respiratory pressures, breath holding time and handgrip strength. This indicates an improved physical strength and cardio-respiratory function. It has been proved that after *yoga* training, exercise induced stress to cardiovascular system is less severe. *Yoga* training promotes emotional and physiological balance. In an interesting study, it was found that a brief (15 min.) *yoga* based relaxation training normalizes the function of autonomic nervous system by deviating both sympathetic and parasympathetic indices towards more normal middle region of the reference values. These studies show that *yoga* has a great potential to improve our physiological functions, psychosomatic health and overall performance.<sup>16</sup>

*Yoga* based lifestyle modifications help in regression of coronary lesions and in improving myocardial perfusion. This is translated into clinical benefits and symptomatic improvement.<sup>17</sup> *Yoga* and meditation appear to improve endothelial function which is a predictor of development of CAD.<sup>18</sup> Therefore, *yoga* is accepted as a primary and secondary preventive measure in CAD including heart attack.

## Conclusion

The *Yoga* philosophy is not an imagination but based on modern scientific facts. *Yogasūtras* should be considered in the light of evidence based modern medical science. Tremendous benefit of *yoga* in the treatment of coronary artery disease including myocardial heart attack can be achieved, provided it is practised methodically and holistically. Patañjali believes that during the acute stage of the disease, proper diagnosis and treatment should be instituted. But in primary and secondary prevention of coronary artery

disease and heart attack beneficial effect is well established and *astāṅga yoga* is the answer.

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## Some Rites and Rituals among the Tai-Khamyangs of Sivasagar District

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### INTRODUCTION:

Festivals having religious significance are called religious festival. It is a time of special importance marked by adherents to that religion. In every religion of the world religious festivals occupy a very important role. It reflects the socio-cultural as well as socio-religious aspects of every community, with diverse forms. These are commonly celebrated on recurring cycles in a calendar year. Without festivals one religion cannot exist. Similarly every religious festival is associated with some rites and rituals, which also reflects the religious identity.

### THE PEOPLE:

The Khamyangs are one of the important scheduled tribe of Assam. They are considered as a section of 'Tais' who entered Assam at about the beginning of the 18<sup>th</sup> century. According to Grierson (1966:59-64) the people known to us as Khamyangs are a section of Nora, who formerly resided on the Patkai range 'Khamyangs' itself is a tai-word, deriving etymologically from '*kham*' (gold) and '*yang*' or jang (to have) and meaning "people having gold" Racially they are Mongoloids and Linguistically they belong to Tibeto-Burman linguistic groups. But normally they speak the native Tai-Khamyang language. By religion they are Buddhists. The Budha Vihar (Monastery) And the Vante (the religious priest) play very important role in their socio-religious life.

### METHODOLOGY:

The data embodied here was collected in the year 2012. For primary data field study was done. Specially observation method, interview method, survey

schedule method and case study method was applied for collecting data. For secondary data internet facilities, books, dissertation has been taken into consideration.

### THE SETTING:

The present study was carried out among the Khamyangs of Chalapathar Shyam Gaon in Sivasagar district; it is situated in the Eastern Border of Silakuti Mauza at a distance of about 18 km. west of Charaideo Sub-divisional head quarter. The village is about 60km away from Dibrugarh town and the nearest Railway station is the Safrai Railway Station. The village is exclusively inhabited by the Khamyangs population and comprising of 88 households during the time of my survey. The total population of the village is 686. Among them 345 are males and 340 are females. Out of 88 families 45(51.14%) are nuclear and 43(48.86%) are found as joint family.

### RITEs AND RITUALS:

The rites and rituals found within a religion are different from one religion to another and also from place to place. The Khamyang of Chalapathar Shyam Gaon performs different religious rituals throughout the year. As they are purely Buddhist, each and every ritual is connected with Buddhism. The Khamyangs celebrate five great festivals along with the few *tithies* round the year. Their rites and rituals can be divided on the basis of three main points such as (i) Family rituals (ii) community rituals and (iii) occasional rituals.

#### 1. FAMILY RITUALS:

The ceremonies which are performed within a family are called family rituals. The 88 families of the village worship their *philum khuta* (main post of their house) regularly and offer food towards the post. According to the Khamyang dialect *phi* means god and *lum* means post. The offering process is locally termed as *tangsam*.

##### a) MANGALA OR MANGAL SUTRA :

There is no rigidity regarding the time of mangal sutra. It can be celebrated in any period of time within a year. Mostly this performance depends upon the families' ability. But at the beginning of New Year i.e. *Bhaisag*, it is observed by most of the families. The number of which is 58(65.90%). The remaining 30 (34.09%) families reported that they celebrated it as per their own convenience.

It is nothing but a big festival, the recitation of *slokas* by the *vante* (religious priest of the village) from their religious book is known as *Mangal Sutra*. For the purpose of families' happiness and well-being they invite (*pung*) the *vante* a day before with a *Sarai* full of flowers. In the morning of the day the family offered *Khowsam* (Rice) to the *vante* at *Vihar*.

#### b) SANGHA DAN:

It is a kind of ritual celebrating by the Buddhist Khamyang of Chalapathar Shyam gaon. It is compulsory to invite five or seven *vikkhus* for this purpose. The meaning of *Sanghadan* is to offer a feast to the *vikkhus*. They believe that by doing so one can gain *punya*. From the study it is found that almost 80 (90.90%) families celebrated this rituals. Only 8 (9%) families did not perform it, perhaps it may be due to their poor family economy.

On that day as soon as the *vikkhus* arrive the head of the family wash their feet and then all the members bow before them. There is a custom that the feast may start before noon and if the *vante* cannot finish his lunch before noon for any delay then as per their custom the remaining portion of unused food may be put in a pit, which must be covered with earth filling, otherwise they believe that it may bring an unfortunate situation to the family.

#### c) YANP:

In this ritual the whole house is wrapped with a raw thread for seven times by the *vante*. This is performed with a hope that the evil spirit may not harm or enter into their house. Study reveals that all the 88 families of the village performed it without any delay.

### 2. COMMUNITY RITUALS:

The festivals which are celebrated by the whole community are referred to as community rituals. The community festivals performed by the Buddhist Khamyang are — *Chang-ken*, *mangala*, *Buddha purnima*, *barsha brata*, *maghi purnima* etc.

- a) **Chang-ken:** - The *Chang-ken* festival is a great occasion for the villagers. It comes at the junction of the months of *Chaitra* and *Baisag*. *Chang-ken* means *Sankranti* or New Year. In their Tai language New

Year is called as *pi-hu* (*pi* means year and *hu* means beginning) i.e. beginning of new years. The village youths make preparations for the festival from some fifteen days ahead of it by rehearsing songs of the festival and setting up a '*Kung-pun*' (A religious implement, having indigenous mechanism of spraying water around from a boat). It continues for three days.

Actually the bathing ceremony of the Buddha image is called as *chang-ken*. The date and position of the idol during the bathing are selected according to their *chakret* (The Buddhist religious book i.e. *panjika*). The image is taken out by the *vante* and kept for bathing in a place, which is just behind the main *vihar*. In the first morning of the festival the *vante* recites traditional *Pali gathas* and young men and women of the village hear the holy book. Then the pouring of water and washing of the Buddha image through the *Kungpan* (a kind of religious implement) is done first by the *vante*. At the same time the boys and girls of the village sprinkle water and mixed coloured water and on one another. In the evening villagers come to the *vihar* again and light innumerable candles.

The people of the village consider their religious book *Chakret* as the symbol of *Dharma* and for the washing purpose of 'Dharma' the people wrapped the whole books by a thread and the representing thread is thus washed. Like the washing process of Buddha and Dharma the *Sangha* (group of *vikhu*) is also washed by pouring little water upon the hands and feet of the *vikhus*.

On the following day also washing of the Buddha, Dharma and sangha goes on. At the end of all this, the *vante* gives the last wash to images and puts them back in the *vihar*. There is much decoration; feasting and prayers. The younger people take *Panchasheel* (the five religious principles of the Buddhist Khamyang) and the elders take *Astasheel* (Eight religious principles) from the *vante*. During the whole three days the villagers refrain from plucking fruits, flowers and digging the earth.

#### b) Mangala

For the well being of the whole community at the beginning of every New Year the villagers practice this *mangala* with the help of village *vante*. Generally in the boundary of the village and in the bank of river it is performed. To protect the whole community from natural calamities



they celebrate it by arranging a “*taichi kongmoh*” (A structure made from sands with seven steps) near the river. Each and every people of the village assemble there and they invite *vante* to recite the *Mangal Sutra*. As soon as the ritual is completed in the bank of the river the gathered people bring along with them some sands or turf of the ‘*taichi-kongmoh*’ and spread it over their houses for the family protection. At the time of this *Mangala*, the villagers closed their main village path by bamboos, preventing anybody entering in to the village.

c) *Buddha purnima or jayanti:*

On the occasion of Buddha’s birthday they celebrate the Buddha purnima. It begins in the month of Baisag. Among the people of the village Chalapathar Shyam Goan it is one of the great community festivals because the Birth, Buddhata and Death of Buddha are gained on the same auspicious day. The celebration day ranges from 2 to 3 according to the peoples’ desires. By hoisting the Buddhist religious flag the festival begins. (Their flag was universally accepted and adopted in the 1<sup>st</sup> world Buddhist conference held in 1950 at Sri Lanka. It has Six colours with some particular indication). *Panchasheel* and *Astasheel*, is done accordingly.. In the evening sometimes cultural programme and feasting is arranged. Lighting the *vihar* (Monastery) by innumerable candles is another important feature of *Buddha Purnima*

d) *Troimashik barsha brata:*

It is another important festival performed by the Buddhist Khamyang of Chalapather village is *troimashik barsha brata*. It means three months of *brata* (fasting) which generally includes four full moon days, three dead moon days ( *amabhasya* ) three ‘*krishna-astami*’ and three ‘*sukla-astami*’.

All rituals regarding this barsha brata are same with other rituals .The 3<sup>rd</sup> *purnima* (full moon ) and 3<sup>rd</sup> *amabhaisya* (dead moon) is called as ‘*madhu purnima*’ and ‘*mai-pi-tithi*’ respectively. The *vihar* is illuminate by lighting in the evening which makes the *vihar* very very beautiful .Each and every villager come there and light a pair of candles. This lighting process is locally termed as ‘*simithong*’. The *pravarana* is the last purnima of the *troimashik barsha brata* .One can offer Buddha image, *kathin sivar dan* (piece of cloth made within a night by the help of both man and

woman) only at the time of *pravarana*. There is a custom to avoid any ceremony, particularly family festivals during these *troimashik, barsha brata*.

e) *Maghi Purnima:*

In the month of *Magh* the villagers celebrate a festival characterised by *Meiko-chunm-Fai*. This means a kind of Meji constructed with eight numbers of bamboos. The word *Meiko-chung-Fai* is a combination of three words-*mei-means* wood, *chung means* to catch *Fai-means* fire i.e. *The fire catching on wood* . Particularly the youth of the village construct it in a field and the firing begins at the evening.

On the way to the *vihar* for the above rituals (except the *Mangala*) devotees bring along with them ‘*Khowsam*’ flowers, incense-sticks, candles etc.

Besides these, the Khamyangs of Chalapather shyam Gaon perform some occasional festivals such as *garakhia sabha* (rituals of young boys) *Aai sabha* (rituals connected with measles and chicken pox) *Bajkarana* (birth ritual) etc. Along with these rituals they do sometime *tangsam* to their *philam khuta* (*phi-god lam-post*).

CONCLUSION:

Above discussions among the Khamyangs of Chalapather Shyam Gaon in Sivasagar district reflects various religious rites and rituals celebrating throughout a year .All their festivals are conducted by the *Vante* (the main priest of their Buddhist monastery). These are arranged as per their *chakret* (*panjika*). Both in family as well as community level *Buddha vihar*, *Vante*, *Phi-lam khuta* , *Astasheel* and *Panchasheel* plays an important role. Due to their religious principle “non-violence” the feeling of oneness and peaceful life is found among them.■

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## Life Cycle Rituals : A Case Study among the Sonowal Kacharis of Dainijan Village, Dibrugarh

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**Introduction:** No people so far studied have been found to be without belief in supernatural powers of some kind. However effectively man deals with the problems of life by practical measures, there is always a margin of uncertainty and often of anxiety, when proposition of supernatural powers is resorted to in public or private worship or rite, and the accompanying emotions of awe and reverence can often be observed.

There are numerous religions in this world: Hinduism, Buddhism, Judaism, Islam and Christianity. In all religions, people go through the same stages in life, such as, birth, adolescence, adulthood, marriage and death. However, in these stages of life, not all religions have the same rituals and practices that they perform to celebrate these events.

Rituals may be considered in relation to four main categories of activities:

- Ritual concerned with the life of man and with extreme emotion.
- Ritual concerned with physical phenomena.
- Ritual concerned with economic activities.
- Ritual concerned with social structure.

(Source: Notes and Queries on Anthropology, 1874)

There are different tribal people in Assam and all of them have different beliefs and practices with regard to their life cycle rituals. The Sonowal Kacharis under investigation also have their own rituals relating to their life cycle. The present investigation has been carried out among the Sonowal Kacharis of Dainijan village under Borboruah block in Dibrugarh district of Assam. Standard

anthropological methods have been used to collect the relevant data.

**The Tribe:** The Sonowal Kacharis is a group of Kachari tribe and a popular plain scheduled tribe population of Assam. Waddel (1901) says that the section of the Kacharis that live in Upper Assam is the Sonowal or Sadiola who were mostly gold washers in erstwhile Lakhimpur district of Assam. Now they are mainly distributed in Dibrugarh, Lakhimpur, Dhemaji, Tinsukia, Sibsagar, Jorhat and Golaghat districts of Assam. According to 1971 census their total population in Assam is 1, 98, 619. According to the census report 2001 the total population of the Sonowal Kacharis is estimated 2, 35, 881 .71. They belong to the Tibeto-Burman linguistic family but at present they had adopted Assamese language.

There are various research works on Sonowal Kacharis such as Barua and Phukan (1990), Das, Barua and Dutta (2008), Das (2015), etc.

**The Present Study:** The important rituals that are observed by these people under investigation are as follows.

**Horogdeo Puja:** This puja is performed by the *kolari* clan families of Sonowal Kacharis. Every seven or nine years interval this *puja* is performed. In the month of *Ahin/ Kati/ Phagun* generally they prefer to perform this *puja*. Approximately 10,000-12,000 amount of money is required to arrange this *puja*.

Generally from 6 O'clock morning this *puja* is started. The important items required in this *puja* are *jati kol* (local variety of banana), *hukan mas* (dry fish), *kesa kol* (unripe banana), *puthi mas* (a kind of fish), *tora gojali*, *bed gaj* and *jangli koshu* ( wild arum), *dhekia*, *nol tenga*, *mejenga* along with *thula bhat*, , *khajur pitha*.

Besides they make *anguli pithas* (finger shaped rice cakes) from *kumal sawal* (local variety of rice) and *nangal pithas* (rice cakes) from *kojhur dhan*, *nepali sawal* and *bora sawal* (locally available different rice). Two parts of boiled *kesa kol* are used in this *puja*. A curry is made by *bedgaj* and *hukan puthi mas*. A special curry is made by *noltenga ugha* (a kind of acid climbing plant) and *puthi mas* (a kind of fish).

On that day hundred and one mustard oil *saki* (lamp) are offered with two pairs of betel nut. In this *puja* gatherings are offered homemade rice beer and water to drink in two different bamboo pipes (*nal bahor sunga*) with *chapori pitha* and *poita bhat* (boiled rice soaked in water and keep for a few time).



In this *puja* a piece of *huta ugha* (one of the implement used in loom) and a bamboo *kolosi* (pot) are required. Bamboo *kolosi* is used to welcome the goddess *Laxmi*. Separate *huta ugha* and bamboo *kolosi* are used for each family who join this *puja*. After completing the *puja*, every person of the family takes a *pachi* (basket) and another one takes the *huta ugha* and bamboo *kolosi* to their respective home. The person who takes the *huta ugha* and bamboo *kolosi* proceeds first before the person who brings the *pachi*. The man who takes the *huta ugha* generally leaves threads from the place of worship up to his home. At the end he keeps it in a suitable place in his compound. The main intension of performing this *puja* is to get rid off from thunder and storm and safe their home.

**Lakhimi Puja:** This *puja* is performed after the completion of harvestings in the month of *puh* (December). They invite 2 or 3 *bhakats* (person who performs religious activities) to perform this *puja*. One of the family members brings three paddy plants with roots to their home and keeps it tied in their granary. In this *puja* also *huta ugha* is required. The *huta ugha* is tied in a tree near the granary and under this tree they perform their *puja*. In this *puja* 9 pieces of banana leaves are required and in each banana leaf one pair of betel nut and a *saki* (lamp) is kept. Again in a *pachi* (basket) they keep fresh rice powder and a few bamboo sticks and both ends of these sticks are covered with cotton. Then these are offered to goddess *Lakshmi*. After completing the *puja* one of the family members takes the *pachi* and another one takes the *huta ugha* towards the granary. The person who takes the *huta ugha* goes first and the person who takes the *pachi* follows him. Then they enter in to their granary and keep this *pachi* and *huta ugha* in to a corner inside the granary.

The main intension of this *puja* is to welcome goddess *Lakshmi* to their agricultural field and also to their home. It is related with their life cycle rituals as every individual life is related to hunger and to get rid off from hunger they worship goddess *Lakshmi*.

**Namghar Hokam:** This *puja* (*hokam*) is performed at *Namghar* (worshiping place). All the villagers perform this *puja* together. On first April (*Bohag*) they perform this *puja*. All the villagers come to the village *Namghar* and worship there and perform *nam kirtan* with *prasad*. They perform this *puja* for the welfare of the villagers for the entire year as like other Assamese people they also consider the *Bohag* (April) month as New Year.

**Baitho Puja:** This is the important *puja* of the Bodo Kacharis and as Sonowal

*Kachari* is one of a branch of great Bodo-Kacharis, a major tribal community in Assam, they also observe this *baitho puja*. *Baitho* is their main god and for well being of their village and villagers they yearly worship this god. The people under study also observe this *puja* yearly in the month of March on a specific day as suggested by their *medhi* (priestly man).

**Bedsuwa or Namkirtan:** This *bedsuwa* or *namkirtan* is performed in the family level for the well being of their children. Generally, the religious man of the village (*bhakat*) advice them to perform this function. However some families also perform it annually without the advice of the *bhakat*. This function is performed only in the month of *Bohag* (April). In this *namkirtan* 9 *bhakats* are required. As a *prasad* they use *kesa chana*, *matimah*.

**Hudhi Hobha:** This is a purification ritual of a new born baby. It is observed just after two days of removal of umbilical cord (*navi hora*). In this ritual 2 or 3 *bhakats* are required. The important items required for this ritual are *aroi sawal* (a kind of rice), *kesa chana* and rice beer locally made. Generally they prepare these items in to their neighbors' home however some families prepare in their own house. Instead of *mah prasad* some families also arrange tea and sweets for the *bhakats*. In this ritual the *bhakats* identify the future of the new born baby and finally bless the baby. After one month of this ritual they again arrange a *hokam* for the welfare of the baby and this procedure of this *hokam* is same with *hudi hobha*.

**Annapasan:** After eight or nine months of the new born baby they observe the ritual *Anapasana* (first rice feeding of the baby). In this ritual three *bhakats* are invited. In this ritual the main food items are rice, fish, meat and the locally made rice beer (*hanj*). They also cook *payash* as a special item of this ritual. The *bhakats* give blessing to the baby and the mother of the baby feed him a little spoon of *payash*. On that day they also keep a dish which contains items like gold, book, paddy, and pen. The baby is asked to touch one of the items of that dish. They generally believe that the particular item touched by the baby will identify his future. For example if the baby touches gold then in future he will be very rich man. Again if he touch book then he will be an educated man. If he touches paddy then there will be wealth in his home.

**Biar Hokam or Bedor Kam:** In this *hokam* (religious function for marriage) five or seven *bhakats* are invited. The important items for this *hokam* are *kecha kol*, (9 numbers of unripe bananas), *chana* (gram), *narikol* (coconut). In this *hokam*

some families willingly arrange feast with the items like meat, fish, and rice beer. The main intension to perform this function is to successfully complete the marriage ceremony of the children.

**Death:** When someone dies in their village, then the young boys inform all the villagers about the death and all the village people gathered in that particular house. The male members of the village go to the cremation ground with the dead body. On the third day from the death they observe *tiloni*. One of the family member of that particular house bring *shanti pani* (holy water) from the *medhi* (priestly man). On the *tiloni* they invite 2 or 3 *bhokats*. The *bhokats* perform *nam kirtan* on that day. After finishing *nam kirtan* the *bhokats* are entertained with *chana* and refreshment. On that day every person who accompanied the dead body are given a little bit salt in the sense that no debt is remained. They also keep a *puthi mas* (a kind of fish) in a pot and *shanti pani* into another pot on a table. The persons who accompanied the dead body come there and everyone touch the *puthi mas* with his right hand ring finger and take a few drop of *shanti pani*. They believe that by doing this activity all of them can be purified. From the day till the time of *tiloni* the family members do not take rice. Only from the *tiloni* as the *nam kirtan* is over they take rice. However in this day they do not take non-veg. items.

On the 10<sup>th</sup> day they observe *doha*. The day before *doha* the widows of the village collect *pitha*, *sesu*, *akhoi*, *kath allu*, *kochu allu*, *mora allu*, *mitha allu*, *chapor pitha*, *goroi mash*, *vhapor pitha*, *handah*, *komal chawal* etc. To perform this *doha* they invite 5 or 7 or 9 *bhakats*. On that day they give ten numbers of *pindas* in the side of the river and also shave their head hairs. Till the time of *doha*, they sleep on the floor and not in bed. The invited *bhakats* perform *nam kirtan* and after *nam kirtan* the *bhakats* take a feast with the items like rice, meat, fish, rice beer etc. along with the villagers.

After *doha*, *kaj* is performed on the 11<sup>th</sup> day from the death. However some of them also perform it after one year. The gathering of people in *kaj* is more than that of *doha*. In this *kaj* they invite all of their family members and villagers. In this *kaj* the numbers of invite *bhakats* are more. In this *kaj* the family members willingly arrange meat of god, rice beer, chicken, meat of duck etc. The procedure of the *kaj* is same with that of *doha*.

**Conclusion:** Every culture has its forms of organized ritual. The entire survival of a tribe or community depends on their different rituals. The people of Dainijan

village still continue their traditional rituals in the forms of prayers, offerings, sacrifices and feasts which are related to their life cycles. Though they are inhabited very near to Dibrugarh town area but in spite of the influence of modernization the people still preserving their traditional rituals.■

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## Josephson Effect and the Squid

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### Introduction : The Josephson Effect

A significant theoretical advancement was made in the field of superconductivity in 1962. when Brian D. Josephson, a graduate at Cambridge University, predicted that electrical current would flow between two superconducting materials, even when they are separated by a non-superconductor or insulator. His prediction was later confirmed and won him a share of the 1973 Nobel Prize in Physics. This tunneling phenomenon is today known as the 'Josephson effect' and has been applied to electronic devices such as the SQUID, an instrument capable of detecting even the weakest magnetic field.

The Josephson effect is one of the notable effects of Superconductivity, a macroscopic quantum mechanical phenomenon which appears in certain metals at very low temperatures. In the superconducting state, electrons are attracted by each other and form bound pairs called Cooper pairs. The Josephson effect occurs when these pairs of electrons tunnel through a thin insulating barrier placed between two superconductors, the whole setup being called Josephson Junction.

The Josephson effect results from two superconductors acting to preserve their long-range order across an insulating barrier. With a thin enough barrier, the phase of the electron wave function in one super-conductor maintains a fixed relationship with the phase of the wave function in another superconductor. This linking up of phase is called phase coherence. It occurs throughout a single superconductor and it occurs between the superconductors in a Josephson Junction. Phase coherence or long-range order- is the essence of the Josephson effect.

The effects of tunneling of superconducting electron pairs include:-

**1. D.C Josephson effect :** If no voltage is applied to the junction terminals, a direct current, i.e. a current of Cooper pairs, flows through the junction up to a critical value  $I_c$ , which depends on the geometry of the apparatus temperature and magnetic field.

**2. AC Josephson effect :** If a direct voltage is applied to the junction terminals, the current of the electron pairs crossing the junction oscillates at a frequency, which depends solely on the applied voltage,  $V$  and fundamental constants (the electronic charge,  $e$  and the Planck's constant,  $h$ ):

$$f = \frac{2eV}{h}$$

Josephson

Conversely, if an AC voltage of frequency  $\phi_z$  is applied to the junction terminals by microwave irradiation, the current of Copper pairs tends to synchronize with this frequency (and its harmonics) and a direct voltage appears at the junction terminals. This synchronization is revealed in the current voltage characteristics by the appearance of voltage steps at integer multiples of the

value  $\left\{ V = \left( \frac{\hbar}{2e} \right) \phi_z \right\}$  These are called Shapiro steps.

The exactitude of the voltage frequency relation  $V = \left( \frac{\hbar}{2e} \right) \phi_z$  and its independence from experimental conditions (temperature, polarization current, junction materials) have been tested on many occasions with an uncertainty level of up to  $10^{-10}$ , A Josephson junction therefore acts as a fundamentally accurate voltage-frequency converter. This is why the Josephson effect is now used for the conservation of the volt. The constant of proportionality,  $K_j = \frac{2e}{h}$ , between frequency and voltage is called the Josephson constant.

### JOSEPHSON VOLTAGE STANDARD

When a DC voltage is applied to a Josephson junction, an oscillation of frequency

$f_{\text{Josephson}} = \frac{2e\Delta V}{h}$  occurs at the junction, Since this relationship of voltage



to frequency involves only fundamental constants and since frequency can be measured with extreme accuracy, the Josephson junction has become the standard voltage measurement.

## THE STANDARD VOLT

The standard volt is now defined in terms of a Josephson junction oscillator. In the relation for the oscillation frequency of a Josephson junction,

$$f_{\text{Josephson}} = \frac{2e\Delta V}{\hbar} \text{ the frequency and voltage across the junction depends}$$

only upon the fundamental constants  $e$  and  $\hbar$ . For one microvolt applied to the junction the frequency is

$$f_{\text{Josephson}} = 483.6 \text{ MHz}$$

The standard volt is now defined as the voltage required to produce a frequency of 483,597.9 GHz. The Josephson Voltage standard is an intrinsic standard which gives a highly stable voltage reference that can be reproduced anywhere, whatever the sample.

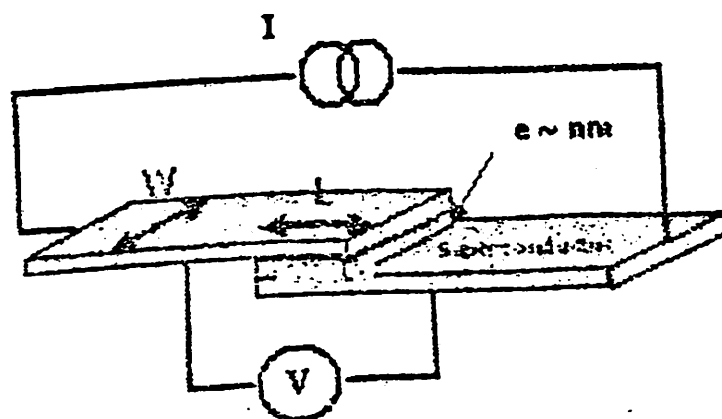


Figure 1: Josephson junction

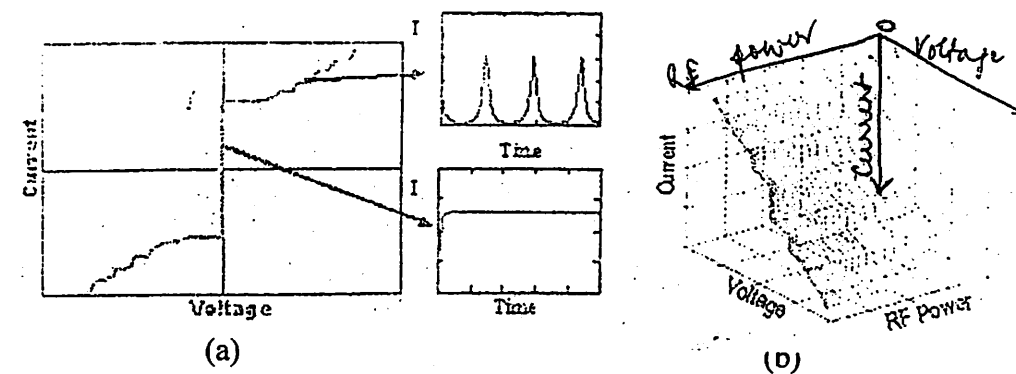


Figure 2: Current-voltage characteristics (a) When no voltage is applied to the junction terminals, a direct current flows through the junction upto  $I_c$ . Above this value, a direct voltage develops at the junction terminals and the electron pair current  $IJ$  oscillates at frequency  $f = 2e V/\hbar$ ; (b) Current-voltage characteristics of a Josephson junction under microwave irradiation for different microwave power: Shapiro steps

3. Macroscopic Long-range quantum interference- A dc magnetic field applied through a superconducting circuit containing two junctions in parallel causes the maximum super current to show interference effects as a function of magnetic field intensity. This effect can be utilized in sensitive magnetometers.

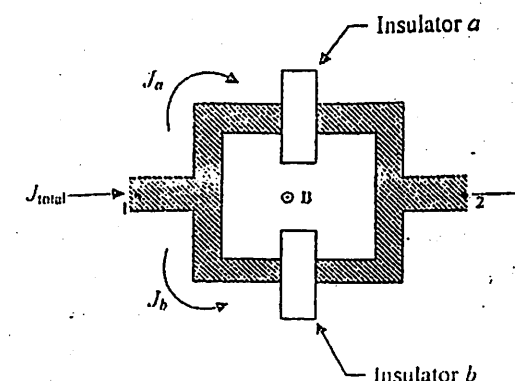


Figure 3: The arrangement for experiment on macroscopic quantum interference. A magnetic flux,  $\Phi$  passes through the interior of the loop.

The current varies with  $\Phi$  the magnetic flux. The magnitude of the current

has maxima when,

$$\frac{e\phi}{h} = s\pi, \quad S = \text{integer}$$

The periodicity of the current is shown in Fig-4. The short period variation is the interference effect of the two junctions:..... The longer variation is a diffraction effect and arises from the finite dimensions of each junction, which causes  $\phi$  to depend on the particular path we integrate over. The diffraction effect was responsible for the failure to observe pair tunneling in early experiments on single electron tunneling.

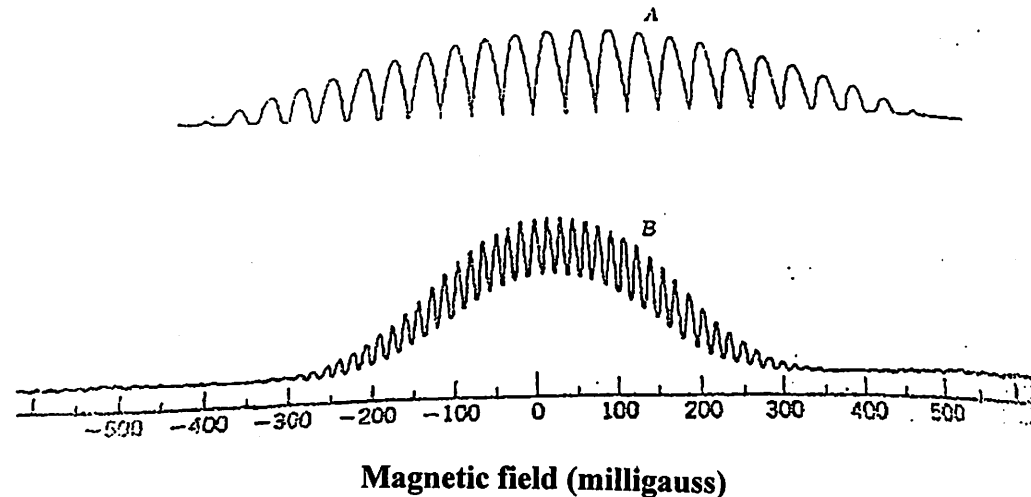


Figure -4: Experimental trace of  $J_{\max}$  versus magnetic field showing interference and diffraction effects for two junctions A and B.

#### Applications :

The Josephson junction devices have wide variety of applications. They provide a serious rival to the established silicon transducers and threaten to revolutionize the electronics and computer industries. The Japanese in particular continue to lead research into this branch of superconductivity. Although Josephson junctions have not materialized for computer circuits, they have been used thus far in medical instruments that sense brain waves.

Josephson devices continue to find more and more applications which include Magnetic sensors, Gradiometers, Oscilloscopes, Decoders, Analogue to Digital converters, Oscillators, sensors for biomedical, scientific and defence purposes, Microprocessors and Random Access Memories (RAMs)

#### DC SQUID

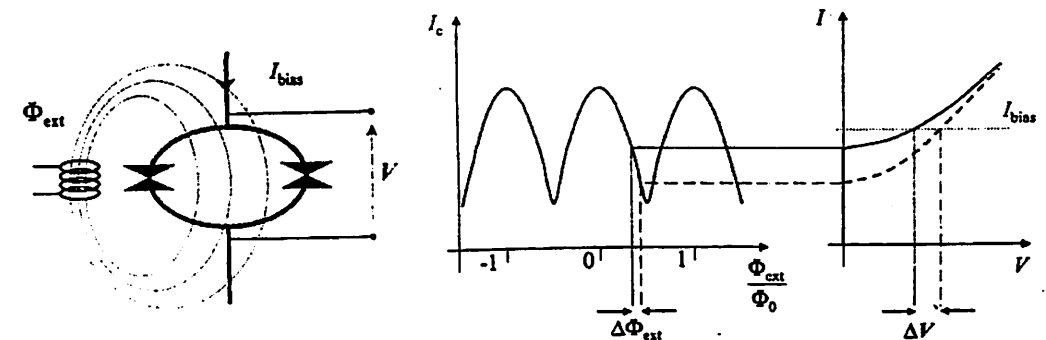


Fig. 5 Working principle of a dc-SQUID as flux-to-voltage converter.

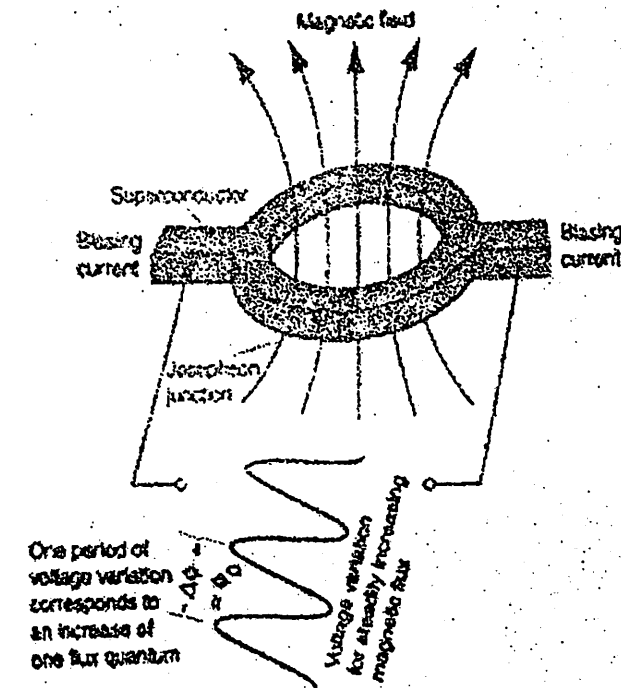


Fig. 6

## THE SQUID

One of the most important application of the Josephson effect is the SQUID. The SQUID i.e., super conducting quantum interference device is an ultra sensitive detector of magnetic flux made up of one or more Josephson junction. It is required to be kept at very low temperature. It is used to measure extremely weak signals, such as subtle changes in the human body's electromagnetic energy field.

The SQUID was introduced by James Zimmerman in the late 1960s. It can detect a change of energy as much as 100 billion times weaker than the electromagnetic energy that moves a compass needle. It has been used to measure the magnetic fields in mouse brains to test whether there might be enough magnetism to attribute their navigational ability to an internal compass.

One type of SQUID is the RF SQUID, i.e. a radio frequency SQUID. A radio frequency SQUID (RF SQUID) is made up of one Josephson junction, which is mounted on a superconductor ring. An oscillating current is applied to an external circuit, whose measured voltage oscillates with the changes in phase at the two junctions, which in turn depends upon the change in the magnetic flux. The magnetic flux is then measured.

Another type of SQUID, is the DC SQUID, direct current SQUID. A direct current SQUID (DC SQUID) which is much more sensitive, consists of two Josephson junctions employed in parallel, so that electrons tunneling through the junctions demonstrate quantum interference dependent upon the strength of the magnetic field within the loop. When a DC SQUID is biased with a current greater than the critical current, the voltage across the SQUID is modulated with the flux threading the SQUID. This special flux to voltage characteristic has enabled it to detect small magnetic fields.

SQUIDs have been used for a variety of testing purposes that demand extreme sensitivity namely medical, engineering and geological equipment. Since they measure changes in a magnetic field with great sensitivity, they do not have to come in contact with the system that they are testing.

One of the devices most promising uses is in magneto-encephalography (MEG), the process of measuring magnetic fields to enable brain imaging. MEG is a non-invasive method of recording minute magnetic fields emanating from the brain. It consists of a multi-million dollar helmet like instrument which is placed around the subject's head. The helmet is made up of 2 probes or dewars which each contain 37 SQUIDs. The SQUIDs are kept cool by bathing the magnetic

detector coils at a temperature of  $269^{\circ}\text{C}$ . The device works by picking up the tiny magnetic fluxes from the brain and using them to induce small currents in the coil. Every single quantum of magnetic flux is enough to produce a measurable current in the coil. The current in the coil then induces a magnetic field in the SQUID.

A SQUID based sensor is used in the diagnosis of foetal heart conditions with higher resolution than an electrocardiogram. In diagnosing heart or blood circuit problems the use of magneto cardiograms is an important supplement to conventional electro-cardiograms. Such diagnostic equipment is now feasible with the application of the new SQUID sensors.

SQUIDs are an advantageous alternative to ultrasound or-X-ray methods in monitoring internal faults or wear especially in metal containing structures.

Any man-made body will have an influence on the magnetic field of the surroundings. Hence SQUIDs can be applied in military and other surveillance tasks.

Therefore the use of SQUIDs are numerous and diverse and with advanced technologies, its applications are continuously on the rise. ■

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## A Highlight on the Development of Christiansen Effect

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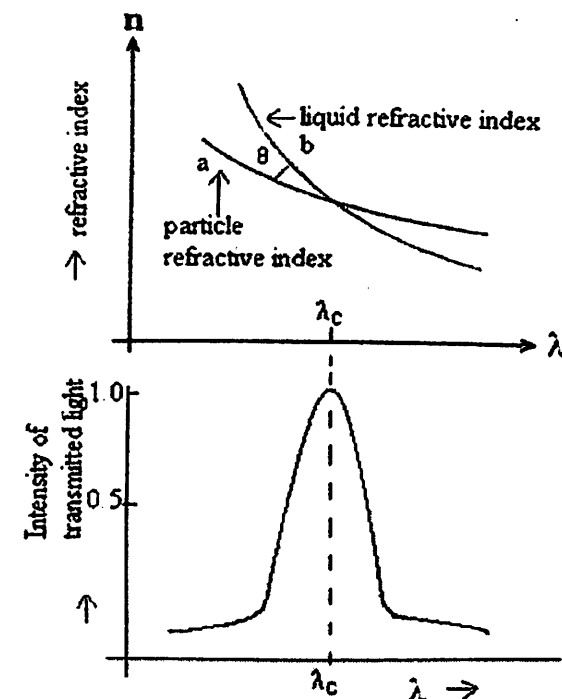
**Abstract :** The Christiansen effect concerns with an optical technique to produce optical spectral filtering. This effect has lots of applications in diverse field of science and technology. The present paper is concerned with some salient features of Christiansen phenomenon and highlights of its development.

### 1. Introduction

The Christiansen effect is a very important tool in the research of material science. In 1884 C Christiansen [2], while studying particle-liquid mixtures in an attempt to determine the refractive indices of various crystals, noticed that if a suspension of particles in a liquid medium have a refractive index whose rate of change with wavelength is different from that of the liquid, and if the refractive indices of particles and liquid are equal at a particular wavelength, then the medium will transmit perfectly at that wavelength. At all other wavelength, scattering will occur and the suspension will transmit less than perfectly (Fig. 1). Christiansen discovered this effect for the first time and he designated this wavelength as Christiansen wavelength  $\lambda_c$ .

### 2. Highlights of its development

In 1889, Lord Rayleigh [17] published a paper entitled "On an Improved Apparatus for Christiansen's Experiment" where the experimental arrangement was rapidly improved by him. In 1929 Weigert and his co-workers [7] published a series of papers in which attention was directed to the fact that with proper temperature control and regulation such filters could be used quantitatively for



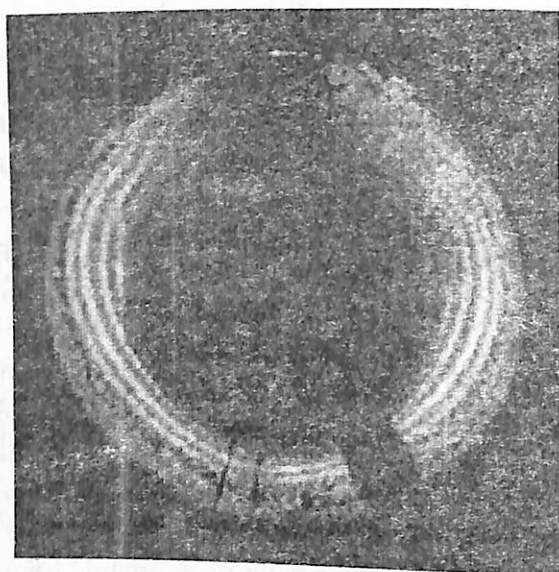
**Figure 1:** Curve *a* represents the dispersion curve of a crystal, and *b* that of a transparent medium. The two intersect at an angle  $\theta$  at the point  $\lambda = \lambda_c$

the production of monochromatic light. By correct choice of the substances involved,  $\lambda_c$  may be shifted from the visible to the ultraviolet or infrared regions of the spectrum. In 1933 Kohn and von Fragstein [14] implemented a Christiansen cavity that transmitted ultraviolet light. By correct choice of the substances involved,  $\lambda_c$  may be shifted from the visible to the ultraviolet or infrared regions of the spectrum. In 1936 Barnes and Bonner[20] proved the universal principle of this optical filtering method, since they even extended it to the infrared range. They build some suitable IR filter with some crystalline powders like quartz; MgO, NaCl, calcite etc. dispersed in air or in organic liquid.

Historically, Raman and coworkers [3-5] may be considered as pioneers in giving a model of Christiansen effect. There were no serious attempts to explain the observations of Christiansen effect. In 1949 Raman came back to the subject, offering adequate explanations to the phenomenon through a series of papers published during 1949 to 1955. The theory which Raman advances is concerned

with the concept of wavefront corrugation and is analogous to the earlier work by Ramachandran on clouds [8], except that instead of air and water, one has here two media of refractive indices  $n_1$  and  $n_2$ . Using wave front corrugation concept, Raman is able to explain not only the intensity of transmitted spectrum but also aspects of the diffraction halo. Raman and Viswanathan extended their model to birefringent solid particles, and incorporated in their model the influence of the “packing properties” of the solid particles.

1973 Cloupeace and Klarsfeld [19] originated another new important application for the first time in the study of natural convection problem in porous media. Using the Christiansen effect, he demonstrated a method for the study of two-dimensional thermal phenomena in saturated porous media making possible the visualization of a certain numbers of isotherms as bright lines of different colors. After a parametric study of the passband of Christiansen filters, Charrier–Mojtabi (1993) [6] mentioned also its implementation to natural convection in annular process media.



**Figure 2 :** The use of an arc lamp makes it possible to visualize separated isothermal lines for example in annular natural convection  
- From Charrier-Mojtabi(1993)

During the second part of last century, many workers did more optically-oriented studies in different field using Christiansen effect technique. These works are mainly on IR studies determination of refractive indices of solid and

liquids in the infrared and investigation of multi-component system, mineral studies, investigation of the homogeneity of glass, dye laser timing and to investigate heat transfer and flow through porous media and the related problems. In 1960 Shelyubski [26] originated a new important application of the Christiansen effect for the quantitative measurement of the homogeneity of a glass by the application of Raman’s theory. Homogeneity is one of the most important factors in quality control in the glass industry and Christiansen effect was found very suitable to measure the homogeneity. In 1986 Z Tiziara [28] extended Shelyubski theory to an important application; mineral study.

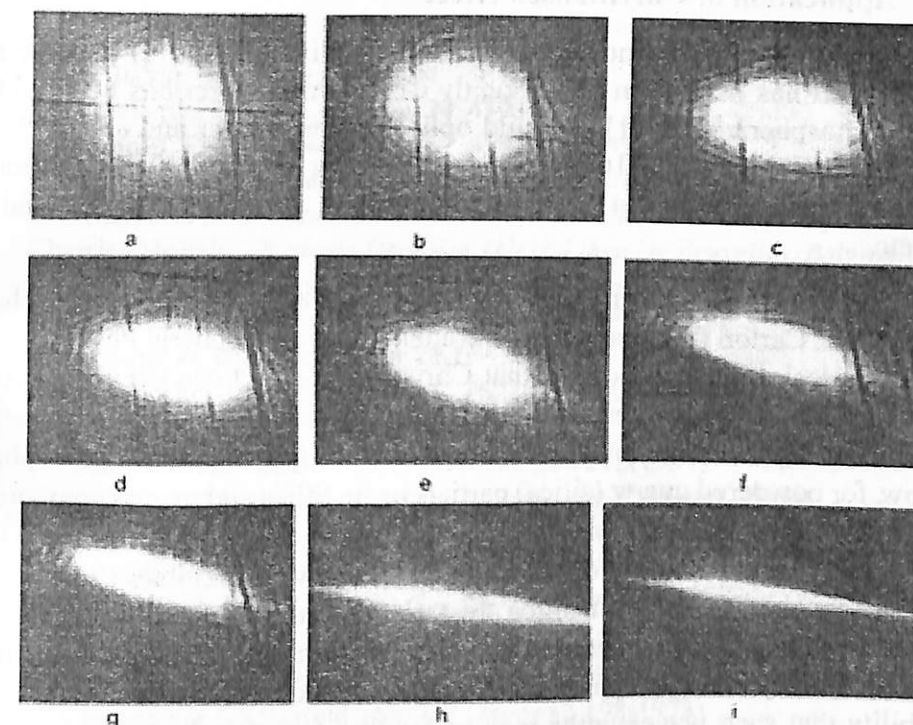
Until the eighties, Christiansen filters were widely used for infrared down to UV wavelengths. In 1987 Wajak *et al.* [25] did an important study on the Christiansen filter for the ultra violet with a new light. The development of laser sources in the far UV down to the limit of the vacuum UV (KrF and ArF lasers) had led to many uses where spectral filters in the far UV were required. Interference filters were really not the best solution if wavelengths around 250 nm and below were of interest as these filters for this spectral range can only be obtained with reduced transmission and bandwidths much broader than values possible in visible range. Wajak and his co-workers built some Christiansen filters for this spectral range using LiF powder with some alkenes such as hexane which were clearly superior to commercially available interference filter.

**A new type of Christiansen filter** referred to as Solid matrix Christiansen filter were designed by Z Milanovic *et al.* [27] in 1991. Instead of **classical solid in liquid** system, these filters had been fabricated with host matrices by mixing finely ground optical glass powders with pellets of optical grade resins and injection molding the combination into planar filters of various sizes. These filters transmit unscattered light of the intersection wavelength and incoherently scatter light of other wavelengths. Balasubramaniam *et al.* [15] in 1992 also fabricated some **solid-in-solid filter**. It was observed that the performances of solid CFs were very good and had narrow band width. They reported that with the proper choice of media such solid Christiansen filters could function in practice as sensors or switches.

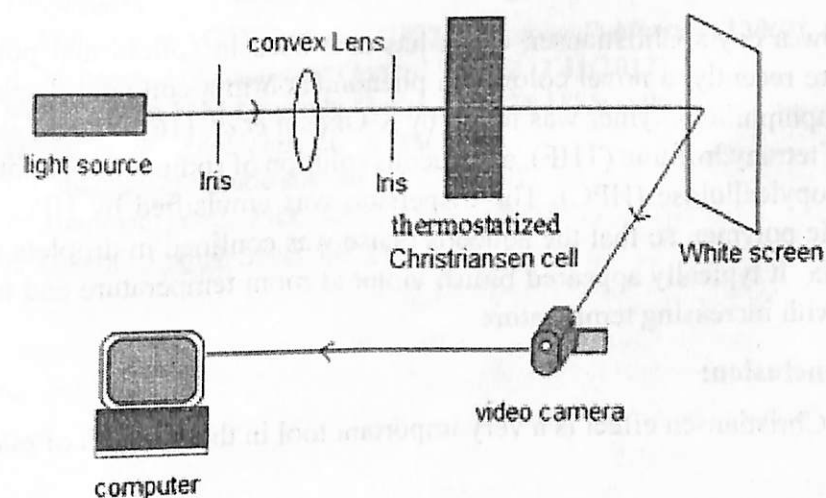
**The nonlinear Christiansen filter** was first developed by SD Vartak and NM Lowandy [24] in 1996, for the first time. Vartak and Lawandy demonstrated the cross-switching effect in the nonlinear CF and use it to

ascertain the difference between switching that is due to nonlinearly along and switching that is due to combined effects of nonlinearly and scattering. Using thermal non-linearity they performed experiment on the CF in both the transient and the steady-state regimes to create an intensity dependent index of refraction. In 2002 Liu Xiao- Dong [18] discovered an interesting effect known as “reversed Christiansen effect”, when they investigated into the mid-infrared Christiansen effect of the dispersive materials. It was found to occur in the KBr pellets in which powder of the dispersive material  $\alpha$ -SiC was dispersed. The KBr pellet technique is commonly used for infrared transmission (or absorption) spectroscopy of powders. When a large (not small as usual) amount of alpha-SiC powder is dispersed into KBr powder, the resulted pellet has an infrared transmission spectrum with a sharp peak at the position of  $1,052.33 \text{ cm}^{-1}$ . They observed that this new phenomenon is very interesting, and looks contrary to the usual Christiansen effect, but can be explained with Lorentz dispersion model accurately together, so they termed it as **reverse-Christiansen effect**. Exactly at this frequency, the refractive indices of these two materials are equal, and absorption coefficients are very small. This new phenomenon is very useful for making a new type of mid-infrared band-pass filter.

Recently Mahanta and Baruah [21-23] have carried out a study on the role of diffusion on the nature of chromatic patterns associated with the Christiansen effect in detail. When we have adjusted the refractive index of liquid of Christiansen cell by varying the concentration of saturating liquid phase it has been observe that diffusion acts as an important key factor on the chromatic pattern associated with the Christiansen effect. In our experiment Laser radiation (5mW, 675nm) is allowed to fall on the thermostated Christiansen cell containing two suitable liquids through an iris and the chromatic patterns are observed on a white screen. Video camera has been used to photograph the chromatic patterns under different circumstances. When laser radiation is allowed to pass through the boundary separating the two liquids miscible through diffusion, beautiful circular fringe is observed on the screen. The pattern changes with time. At the beginning of the experiment, approximately circular fringe is observed and as time evolves, the fringes become more and more elliptical. They are reproduced in Fig 3. It is worthwhile to note that the circular fringe appear on the screen only when the light is transmitted through diffusion region. This gives additional information to the development of Christiansen filter theory.



**Figure 3:** Time evolution diffusion fringe pattern in Christiansen cell.



**Figure 4:** The Christiansen effect experiment setup - from Mahanta and Baruah [22]



## 2. Application of Christiansen effect

This effect has found its applications in diverse field of science and technology. It has been seen that recently Christiansen effect has been widely used in atmospheric study[1], to build optical power limiter and sensor[9,12], colloids and polymer study[16], and in microgravity research [13] in addition to its conventional uses like in glass technology[10], mineral study[28] and IR study etc.

Recently Christiansen effect has found lot of applications in atmospheric physics. H.R. Carlon first drawn [11] the attention of atmospheric Physicists and I.R system designers by reporting that Christiansen effect can occur in dust or particulate clouds in the atmosphere. An interesting example of Christiansen effect occurs near  $7.4 \mu\text{m}$ , on the lower wavelength edge of the  $7\text{-}13 \mu\text{m}$  IR atmospheric window, for powdered quartz (silica) particle in air. Silica and related compounds including silicates are major constituents of soil derived atmospheric dust. Thus, if precipitated films of silica dust in air can be shown to exhibit Christiansen effect, atmospheric clouds of silica dust could also exhibit this effect, with enhanced optical transmittance near  $7.4 \mu\text{m}$  compared to other wavelength, because of the optical band pass characteristics of such dusts in air. There is the possibility that such wavelengths may be favored for optical transmission and that they may thus be optimum wavelengths for transmission through dusty atmospheres, e.g., in the designing a new laser system.

Now a day's Christiansen effect has also used in colloid and polymer study. More recently, a novel coloration phenomenon in a colloidal dispersion with an amphiphilic polymer was found by K Okoshi *et.al.* [16]. The dispersion consists of tetrahydrofuran (THF), an aqueous solution of sodium thiosulfate and hydroxypropylcellulose (HPC). The dispersion was emulsified by HPC as an amphiphilic polymer, so that the aqueous phase was confined in droplets in the THF matrix. It typically appeared bluish violet at room temperature and turned into blue with increasing temperature.

## 3. Conclusion:

The Christiansen effect is a very important tool in the research of material science.

This effect has found its applications in diverse field of science and technology. Day by day the applications of this effect have spread in diverse field.

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## Vitamin C content in some Citrus fruits of Dibrugarh district, Assam

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### Abstract :

Vitamin C (L-Ascorbic acid) is a white odourless crystalline powder sour in taste which is freely soluble in water. The importance of vitamin C was seen in the disease called scurvy. *Citrus* is rich in vitamin C. A number of varieties of *Citrus* are available in this part of the country. Considering the importance of vitamin C in human body and its rich source the present study was aimed in finding the vitamin C content in different varieties of *Citrus* of Dibrugarh district.

Key Words: Vitamin C, *Citrus*

### Introduction:

Vitamin C (L-Ascorbic acid) is a white odourless crystalline powder which is sour in taste. It is freely soluble in water. The importance of vitamin C was seen in the disease called scurvy. Scurvy is a deficiency disease characterized by general degeneration of connective tissue. Severe case include numerous small hemorrhages caused by fragile blood vessels, tooth loss, poor wound healing and the reopening of old wounds, bone pain and degeneration and eventually heart failure (Nelson L. David and Cox M. Michael Principles of Biochemistry, 2005). Mild deficiency of Vitamin C can lead to fatigue, irritability and increase in respiratory tract infection. As vitamin C deficiency progresses it causes petechiae, ecchymoses, purpura, joint pain, poor wound healing, hyperkeratosis, and

corkscrew hairs (Jacob RA, Sotoudeh G. Nutr Clin Care 2002). Additional signs of scurvy include depression, bleeding gums and loosening or loss of teeth due to tissue and capillary fragility (Stephen R, Utecht T. J Emerg Med 2001). The importance of Vitamin C comes from the fact that it is required for collagen synthesis, L-carnitine, and certain neurotransmitters. Vitamin C is also involved in protein metabolism. Collagen is an essential component of connective tissue, which plays a vital role in wound healing. Vitamin C is also an important physiological antioxidant (Frei B, England L, 1989) and has been shown to regenerate other antioxidants within the body, including alpha-tocopherol (vitamin E). Vitamin C, by limiting the damaging effects of free radicals through its antioxidant activity, might help prevent or delay the development of certain cancers, cardiovascular disease, and other diseases in which oxidative stress plays a causal role. In addition to its biosynthetic and antioxidant functions, vitamin C plays an important role in immune function. Studies consistently show that smokers have lower plasma and leukocyte vitamin C levels than nonsmokers, due in part to increased oxidative stress which can be compensated by taking more vitamin C. Most animals can synthesise Vitamin C from glucose but in the course of evolution human and some other animals like gorillas, guinea pigs and fruit bats have lost the ability to synthesise vitamin C and hence has to be supplemented directly from plant products. Relatively low levels of vitamin C are found in extracellular fluids, such as plasma, red blood cells, and saliva (Jacob RA, Sotoudeh G. Nutr Clin Care 2002). Feeding infants evaporated or boiled cow's milk is not recommended as it can cause vitamin C deficiency. Cow's milk naturally has very little vitamin C and heat can also destroy vitamin C. In human population all over the world the richest and most refreshing supply of Vitamin C is *Citrus* or more commonly lemon juice.

*Citrus* are small to medium size shrubs or trees with sharp axillary spines belonging to family: Rutaceae. According to Iwamasa (1976) *Citrus* genus had originated near Assam in India about thirty or forty million years ago. The wider adaptability of *Citrus* fruits of Assam is reflected in their general distribution in three well defined topographical situations, namely, the Brahmaputra and the Surma valley plains between 200 – 500 feet, sub-montane regions between 500-2,000 feet and high hills above 2,000 feet (Woodford, 2005).

*Citrus* is mainly consumed as fresh fruit or juice. In summer days it makes for a refreshing drink. Prickles are also prepared from it. *Citrus* juice is also taken with rice and curry; and is also an ingredient in certain ethnic curries prepared by

the people of Assam. *Citrus* is also an ethnobotanically important plant used in the treatment of different ailments by the local people of Assam. Tender leaves of *Golnemu* (*Citrus aurantiifolia* (christen)swing) are used to treat diarrhoea (Borah *et al.*, 2006). Ripe fruits of *Citrus medica* Linn. are used in sore throat, cough, asthma, thirst, hiccup, earache, nausea, vomiting, potent anti scorbutic, stomachic, tonic, stimulant, expellant of poison, correct fetid breath; distilled water of the fruit is sedative; fruits and seeds are cardiac tonic and useful in palpitation and fruit decoction is analgesic; Roots, flowers, seeds, peels and leaves are also used in many ailments; Fruit extracts have also shown good antioxidant activity; The fruit wrapped in cloth is used to protect clothes from moths indicating its insect-repellent activity; *Citrus medica* Linn. fruit extract possesses antiulcer activity (Nagaraju *et al.*, 2012).

*Citrus* are the most produced fruit all over the world. The production of *Citrus* fruit accounts for more than 65% fruits produced all over the world (Sawamura, 2010). They have good sour and sweet taste and are a rich source of vitamin C. They have refreshing aroma. Many *in vivo* and *in vitro* studies have reported that *Citrus* fruit is effective against many chronic diseases such as cancer and vascular diseases (So *et al.*, 1996; Miyagi *et al.*, 2000; Poullose *et al.*, 2006; Vanamala *et al.*, 2006). The production of *Citrus* juice generates a large quantity of waste including fruit peel and pulp (Vikram *et al.*, 2007; Wang *et al.*, 2007). These contents could potentially be developed into value added products such as food additives and health enhancing drugs (Shi and Lay, 2013). Vitamin E or  $\alpha$ -d Tocopherol has been reported to be present in oranges (Newhall and Ting, 1965; Ting and Newhall, 1965). Several compounds such as flavanoids, limnoids and other health promoting substances like dietary fibres and pectin are present in *Citrus* fruit (Ladaniya; Milind, 2008). Besides reducing or preventing cell clumping, *Citrus* phenols, flavonoids, limnoids are also anti-carcinogenic, anti-inflammatory and anti-allergen (Manthey *et al.*, 2000).

Considering the importance of Vitamin C in human body and its rich source the present study was aimed in finding the Vitamin C content in different varieties of *Citrus* of Dibrugarh district.

#### Study area:

Assam situated in the North-east India has a geographical area of 78,438 sq. Km representing 2.39% of Indian land mass with a population of 22,41,432 accounting for 2.64% of the total population of the country. Dibrugarh district is

located in the eastern parts of Assam. The total area of the district is 3381 sq. Km with a total population of 1185072 (2001 census). The soil of Dibrugarh district is mainly alluvial, deposited by the river Brahmaputra and its tributaries. Relatively long rainy season, high humidity and moderate to high temperature are suitable factors, for luxuriant growth of the vegetations of the district. The soil is acidic in nature.

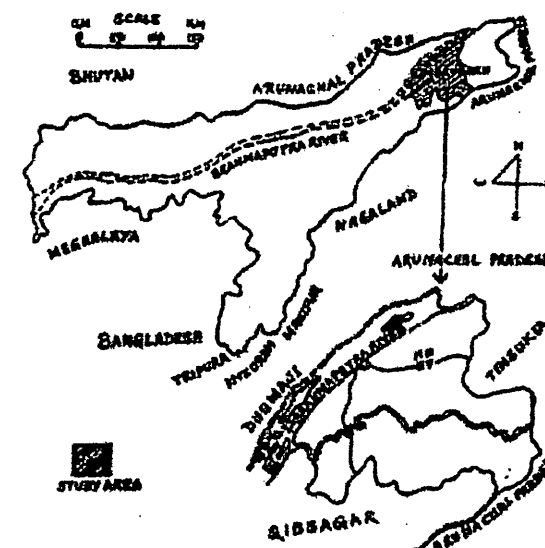


Fig.1 Location map of the study area

#### Materials and Methods:

Titration method with Iodine and ascorbic acid with soluble starch as indicator was used to find the concentration of Vitamin C in the samples of *Citrus*. A known concentration of the iodine was added to calculate the amount of ascorbic acid with soluble starch acting as an indicator.

When iodine reacts with starch, it gives the solution a blue-black color. If ascorbic acid is present in the solution, iodine will react with it, and not with the starch, so the solution will not change color. However, once all of the ascorbic acid has been oxidized, added iodine will be free to react with the starch, producing a distinct color change.

Known amount of ascorbic acid concentration and the amount of iodine required to titrate it is taken as standard. Based on this the concentrations of ascorbic acid in the test sample is found out.



The amount of Vitamin C in the samples can be found out by the following formula:-

Volume of iodine solution titrated / Known concentration of Vitamin C =  
Volume of iodine solution titrated / X amount of Vitamin C in the sample

#### Result and Discussion:

Vernacular Name	Scientific Name	Amount of Ascorbic acid/100cc of juice
Bira-jora	<i>Citrus medica</i>	6.33
Jora tenga	<i>Citrus limon</i>	7.96
Kaji Nemu	<i>Citrus jambhiri</i>	4.6
Robab Tenga	<i>Citrus grandis</i>	1.5
Komola	<i>Citrus reticulata</i>	4.5
Mousumi tenga	<i>Citrus limetta</i>	5

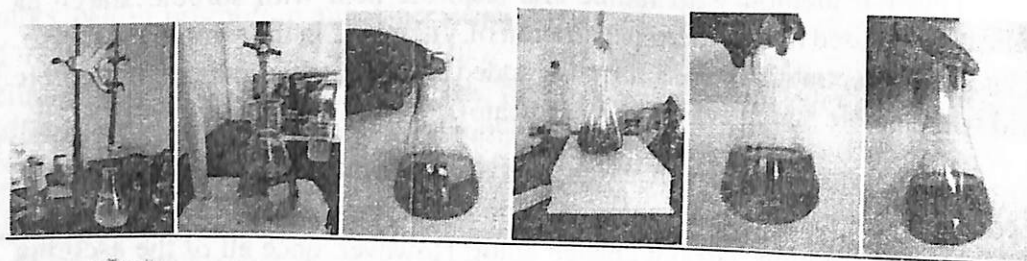


Jora tenga

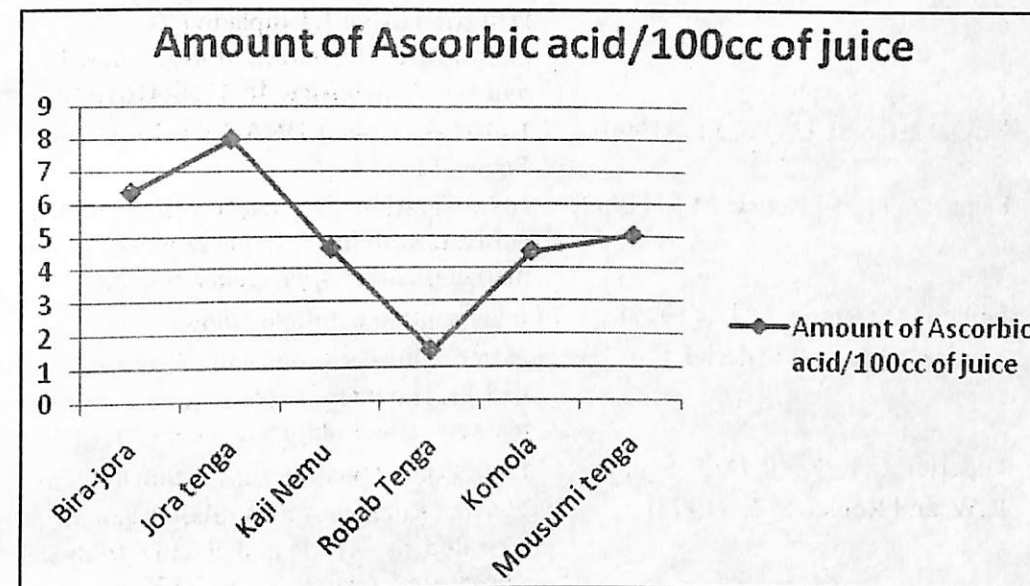
Bira jora

Kaji nemu

Robab tenga



Titration sequence showing the end point colour change for Vitamin C in Citrus samples



Vitamin C content was found to be highest in jora tenga and lowest in robab tenga.

#### Coclusion:

This is a preliminary study to see the vitamin C content in some Citrus fruits found in this part of the country. It gives us an idea as to the ascorbic acid content and its future potential to harvest the same.

(Acknowledgement to ILBH, Dibru College, Dibrugarh, Sponsored by DBT, Govt. of India.)

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## Screening the potential of *Pseudomonas putida* to degrade the pesticide used in tea industry

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### Abstract:

*Pseudomonas putida*, a gram negative rod shaped saprotrophic bacteria, known for its biodegradation capacity was screened against Deltamethrin, most common insecticide used in tea gardens. The bacterial strains were inoculated in MSM medium contains 10% essential element and spectrophotometer reading of the aliquots prepared was taken at 600 OD. The spectrophotometer observation shows the qualitative kinetics of biodegradation of the harmful pesticide by the bacterial strain of *P. putida* for a definite time period.

**Introduction:** Tea is one of the major non alcoholic beverages in the world. As a perennial crop, tea plant suffers heavily from the infestation by several insects and mites. Pests, pathogens and weeds are important factors limiting the productivity and quality of tea. In view of this, several agrochemicals are continuously used to protect the crop. The major environmental concern is the capability of the pesticides to leach from soil and contaminate the ground water. The chemicals persisting on the soil layer is very harmful to the microorganisms, plants, wildlife and humans. Therefore, it is very important to employ bioremediation methods in order to remove these harmful chemicals from the soil. Bacterial species of *Pseudomonas*, *Arthobacteria* and *Xanthobacteria* are known to have degradation property.

In the present study, we have used *Pseudomonas putida* to screen its degradation activity against Deltamethrin (Trade name –Decis); one of the major pesticides used in tea industry. *Pseudomonas putida* is a gram negative rod shaped saprotrophic soil bacterium. Various types/strains of *P. putida* has different efficiency in hydrocarbon degrading property and studies showed few strains are also capable of converting styrene oil into the biodegradable plastic PHA(Polyhydroxy Alkanoates). This diverse property of *P. putida* strains may be exploited for bioremediation. Therefore, in this brief study we have screened the potential of *P. putida* strains isolated from soil by Biotechnology division, Tocklai Tea Research Institute, Jorhat. The species was confirmed by 16s rRNA sequencing.

#### Materials and method:

- a) **Standard bacterial strain and pesticide:** The bacterial strain of *Pseudomonas putida* (Genbank accession no. KP637150) was routinely maintained in the Biotechnology Department, Tocklai Tea Research Institute, Jorhat.

The pesticide used is Decis which contains an emulsifiable concentrate formulation containing 25g/L(28%W/W) Deltamethrin. It is widely used as agricultural insecticide for the control of aphids, caterpillars and a range of other pest in variety of crops including tea.

- b) **Culture media:** To study the degradation property, MSM (Mineral Salt Media) growth media is prepared. This media contains all the essential elements for the culture of bacteria to measure the bioremediation property.

<u>Salts</u>	<u>g/L</u>	<u>mg/200ml</u>
Na <sub>2</sub> HPO <sub>4</sub>	3.6	720
(NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub>	1	200
KH <sub>2</sub> PO <sub>4</sub>	1.6	320
MgSO <sub>4</sub>	1	200
CaCl <sub>2</sub>	.1	20
Fe(NH <sub>4</sub> )citrate	0.07	14

In addition to this media, the essential trace elements media are prepared. The composition of trace element are as follows.

<u>Element</u>	<u>g/L</u>	<u>mg/200 ml</u>
NaNO <sub>3</sub>	2	400
NaCl	.8	160
KCl	.8	160
CaCl <sub>2</sub> ·2H <sub>2</sub> O	.1	20
KH <sub>2</sub> PO <sub>4</sub>	2	400
Na <sub>2</sub> HPO <sub>4</sub>	2	400
MgSO <sub>4</sub>	.2	40
FeSO <sub>4</sub>	.001	.2

The prepared media are autoclaved for 2 hours and 10% of the essential elements are mixed with the MSM medium.

#### c) Pesticide dilution:-

The pesticides are prepared in the ratios- 1:1000, 1:2000 and 1:4000. The broth medium and the MSM medium are taken with the pesticides in the ratio of 1:3 (Standard method followed). For the controls, water was taken instead of pesticides.

#### d) Kinetics of Degradation:-

After the inoculation, the broth culture tubes are incubated and after every 24 hrs interval, spectrophotometer reading of the aliquots prepared was taken at 600 OD. The turbidity occurred due to the degradation of the pesticides by the bacterial strain.

#### Results

From the microbiological study it was found that the bacteria *Pseudomonas putida* was able to degrade the pesticide Deltamethrin, because of its bioremediation property. From the spectrophotometric studies of the culture tubes, the relative turbidity and the % of optical density which indicates the relative bacterial growth was studied.



The spectrophotometer observation (Table:4) shows the qualitative kinetics of biodegradation of the harmful pesticide by the bacterial strain of *P. putida*. The relative bacterial growth was calculated by the given formula.

The percentage of O.D was calculated by the formula:-

$$\{(O.D \text{ of the control} - O.D \text{ of sample}) \div O.D \text{ of the control}\} \times 100$$

**Table: Spectrophotometric readings of the samples with respective incubation period.**

Sample	Incubation period	O.D of Control	% of O.D
1:1000	24 hours	1.924	23.96
	48 hours	1.948	28.28
	72 hours	1.876	46.41
1:2000	24 hours	2.049	52.3
	48 hours	2.152	54.3
	72 hours	1.404	50.42
1:4000	24 hours	1.924	49.63
	48 hours	1.948	54.87
	72 hours	1.876	26.27

**Discussion:-**

It was observed that as the incubation times increases, the O.D also increases to a certain point but after certain time interval, it decreases. The control is devoid of pesticides and gives less O.D value than the samples with pesticides. It may result due to the carbon degradation capacity of the bacterial strain, as the pesticide contain carbon, the bacteria sustain taking carbon source from pesticide used and reason for decreased in the O.D value after certain period can be assumed to be lack of carbon source due to complete utilization by the *P. putida* strains. This inturn resulted in the declined bacterial growth. Therefore, we can conclude based on initial screening that bacteria species employed in the present study is able to

degrade the pesticide. However, this finding is based on initial screening which further can be quantified with more sophisticated experiments, such as use of Gas Chromatography technique to have more precise picture about the biodegradation potential of the present study bacterial strain.■

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## DNA extraction and Quantitative estimation of ten varieties of *Hibiscus mutabilis* found in Dibrugarh, Assam

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### ABSTRACT :

DNA extraction and Quantitative estimation of ten varieties of *Hibiscus mutabilis* found in Dibrugarh, Assam was studied. DNA was extracted from the leaf by n-Cetyl N,N,N, Tri Methyl Ammonium Bromide (CTAB) method and the concentration and purity of the DNA was measured by using spectrophotometer under 260 and 280 nm respectively.

**Key words:** *Hibiscus mutabilis* , DNA , spectrophotometer.

### INTRODUCTION

*Hibiscus mutabilis* is a large bushy shrub belonging to family Malvaceae and commonly known as changeable rose or cotton rosemallow. The plant is also known as Sthalpadma or Sthalkamal. *Hibiscus mutabilis* is native to southern China and confederate state of America and cultivated in Indian gardens as an ornamental plant for its beautiful flowers. (Raut D.N, 2014 et al).The genus *Hibiscus* comprises about 275 species in the tropics and sub-tropics (Dasuki, 2001).Isthalapadma is a large shrub or small multi-stemmed tree that grows to 15 ft (4.6 m) high with about a 10 ft (3 m) spread.

*Hibiscus mutabilis*, Sthalapadma is widely used medicinal plant throughout India and in various systems of medicine like Ayurveda and Siddha. In the

traditional system of medicine, the various parts such as leaves, flowers, seeds, stems are used as emollient, in pectoral and pulmonary complaints, stimulant and leaves applied to swelling (Vandana, 2010, H. Barve et al).

*Hibiscus mutabilis*, believed to have emollient and cooling effect, are used to relieve swellings and skin infections (Dasuki, 2001).

Ferulic acid (FRL) purified from the leaves of *Hibiscus mutabilis*, showed impressive effects in preventing saturated fatty acid (SFA) induced defects in skeletal muscle cells. FRL exhibited certain unique features for preventing lipid induced insulin resistance and therefore promise a better therapeutic choice for type 2 diabetes (T2D). (B. Gogoi, et al, 2014,)

### MATERIALS AND METHODOLOGY:

#### Plant material:

The plant material used for this study were collected from different areas of Dibrugarh, Assam was identified and experimental work was carried out at Institutional level Biotech HUB, Dibru college. The whole plant materials were clean, leaves were separated and then air-dried at room temperature (about 26°C).

- Isolation of DNA from *Hibiscus mutabilis* was done by CTAB method. ( Doyle and Doyle,1990)
- Quantitative analysis of DNA from *Hibiscus mutabilis* was done by Spectrophotometric analysis. (UV-VIS Spectrophotometer 118, Systronics, an ISO 9001:2008 Co.)

#### Morphological characters:

Local name	Botanical name	Habitat	Height(feet)
Isthalapadma	<i>Hibiscus mutabiilis</i>	Terrestrial- prefers land (sandy), medium (loamy), heavy (clay) soil, prefers rich well drained and moist soil. It grows well in full sun or partial shade.	10 or 15

Ten varieties of *Hibiscus mutabilis* were collected from Kholihamari, Gandhinagar, Bogibill, Running gate, Banipur, Borbaruah, Kumarinisiga, Udaipur, Milan nagar and Boiragimoth.



Isthalapadma (*Hibiscus mutabilis*) plant with flower.

## RESULTS:

### Concentration of DNA:

Concentration of the DNA Sample= Optical Density (O.D) at 260 x 50 x dilution factor= mg/ml

While taking absorbance, the sample diluted 100 times, i.e. dilution factor is 100 times Concentration of DNA of sample = Optical Density (O.D) at 260 x 50 x 100 = mg/ml

Sample no	O.D at 260	O.D at 280	O.D 260/280	Concentration of DNA sample (µg/ml)	Purity Percentage of DNA (%)
1	0.181	0.153	1.183	0.905	65.55
2	0.193	0.156	1.237	0.956	66.66
3	0.207	0.159	1.301	1.110	72.22
4	0.215	0.162	1.327	1.155	73.77
5	0.222	0.164	1.353	1.305	75.16
6	0.228	0.166	1.373	1.075	76.27
7	0.231	0.169	1.366	1.165	75.88
8	0.233	0.170	1.370	1.035	76.11
9	0.243	0.178	1.365	1.140	75.83
10	0.261	0.192	1.359	1.215	75.50

### PERCENTAGE OF PURITY OF EXTRACTED DNA:

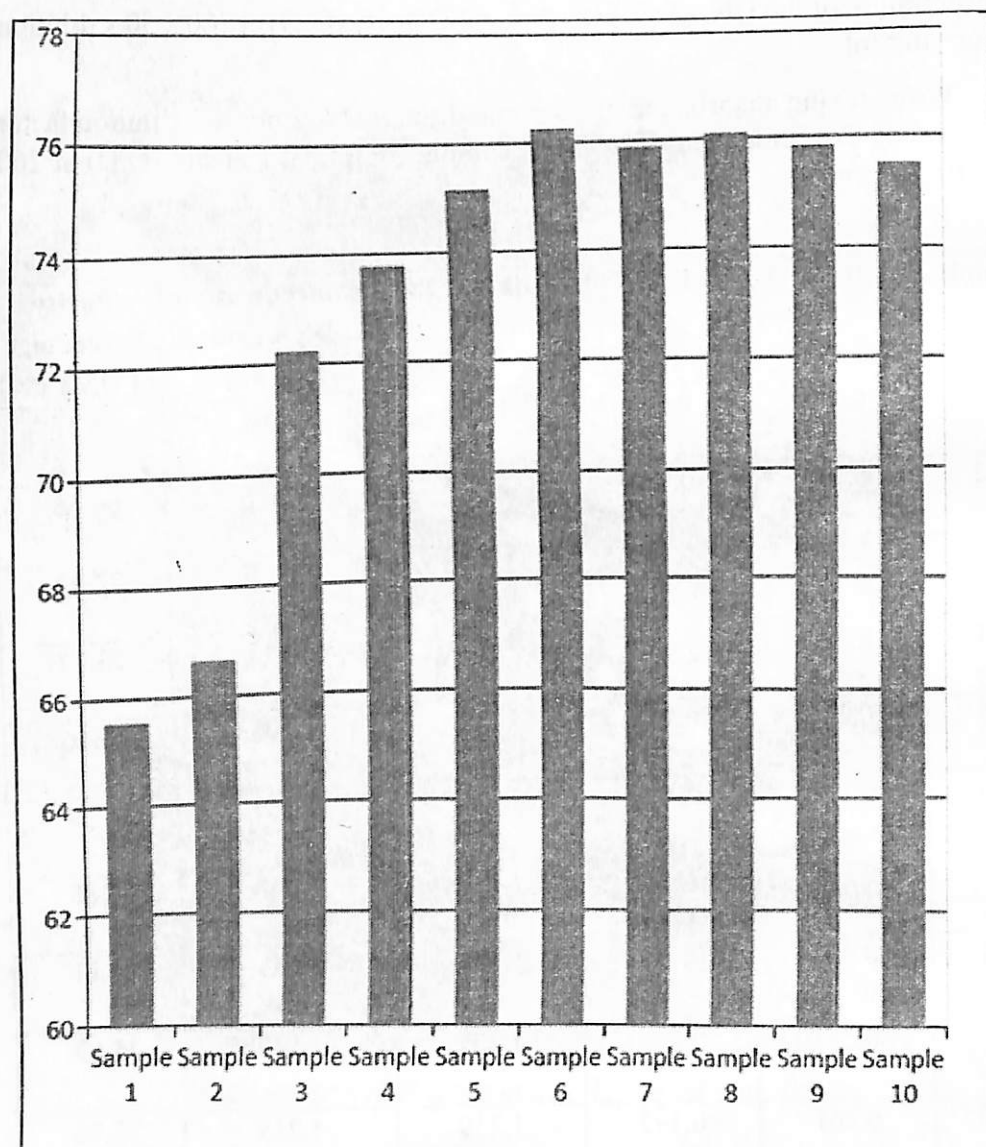


Fig: Bar diagram to show percentage purity of extracted DNA.

### CONCLUSION:

DNA extraction and Quantitative estimation was done on 10 varieties of *Hibiscus mutabilis* leaves. Upper side of the leaves is fresh green and lower side pale green. Length of leaves 10-22.5cm and breadth of 6-10 cm. Out of 10 samples, sample no 6 show the highest percentage of purity 76.27% and the lowest percentage of purity was found in sample 1 i.e., 65.55%. All the ten samples shows around 1.1061  $\mu\text{g/ml}$  (average) of DNA concentration and percentage purity of 73.35 % (average) DNA at 260 and 280nm. The DNA extracted can be used for further study by PCR and Gel Electrophoresis to find out the genetic variability of the test samples.

(Acknowledgement to ILBH, Dibru College, Dibrugarh, Sponsored by DBT, Govt. of India.)

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## Spraying Pesticides in Tea Estate and Butterfly Mortality: with special reference to the vicinity of Jalan Nagar South Tea Estate, Dibrugarh, Assam

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### Abstract :

The present study was carried out in the vicinity of Jalan Nagar South Tea Garden area to take stock of butterfly diversity and assess the impact of pesticides on their mortality. During the study period of six months, a total of 59 species of butterflies belonging to 5 families have been identified and recorded, displaying a rich diversity in the area. The family Nymphalidae was the most dominant family with 17 genera and 27 species. *Eurema sp.* and *Papilio sp.* were the most dominant butterflies found in the study area. The butterfly communities inhabiting in field margins of the tea gardens are facing serious threats due to spraying of pesticides and insecticides. It was recorded 840 dying individuals of butterflies during the study period. The actual exposure and effects of pesticides and insecticides on butterfly population, however, is difficult to estimate as these are dependent on many factors. Risk analysis using actual exposure levels of pesticides on butterfly larvae of different species, incorporating results from field experiments is needed as there is a serious declination in the population of *Eurema sp.* in study area.

**Key words:** Butterflies, pesticides, insecticides, Jalan Nagar South Tea Estate.

## INTRODUCTION

The present study area near Jalan Nagar South Tea Estate, Dibrugarh is occupying an area of about 10 sq. km. (Lat. 27°05'38" N; Long. 94°33'46" E), having an altitude of 108m above MSL. (Fig.1) The temperature varies from 08°C in winter to 37°C in summer with wet warm humid climatic condition prevails during summer. The study area is at the south bank of Brahmaputra River. There is a large tract of Tropical Rainforests in its eastern and southern regions, which is a part of the Dehing Patkai Wildlife Sanctuary. Influenced by the favourable climatic condition, the area is rich in diversified butterfly population all around.

The butterflies are good nature's pollinators and flying beauty of nature. Intense practices of unabated spraying of pesticides and insecticides in the tea gardens to control pests in turn mass death; thereby, greatly curb the butterfly population. The present report is about the mortality and an assessment of the impact of pesticides and insecticides.

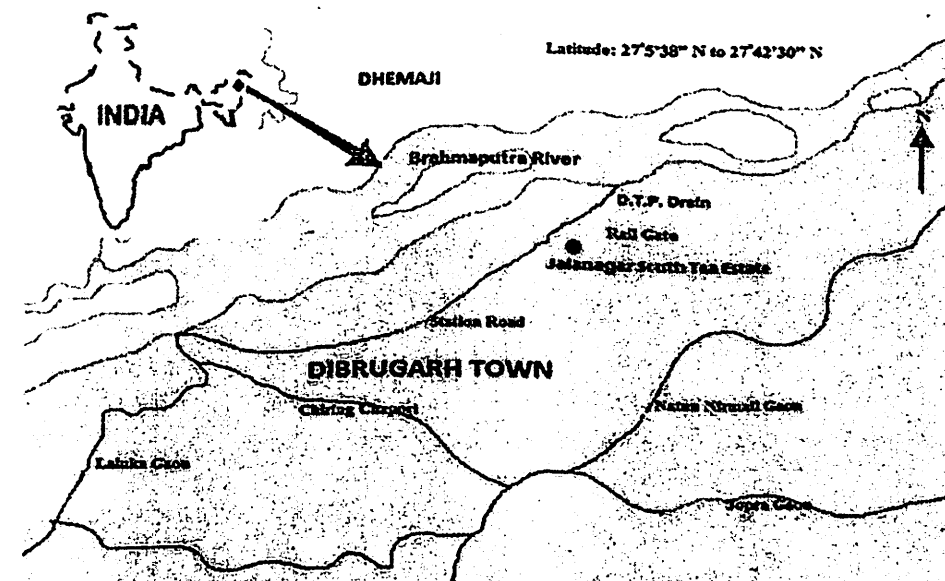


Fig.1 Location map of Jalan Nagar South Tea Estate, Dibrugarh, Assam

## MATERIALS AND METHODS

The present study was conducted in various spots surrounding the Jalan Nagar South Tea Estate for a period of 6 months from the end of July, 2013 to January, 2014. Field notes, photographs (camera: Nikon d5100) and observations

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of butterflies were taken for the entire growing season during the day light hours. Species were noted along with the date, location of capture and any plant association. Other factors noted include the time of day using a twenty-four hour clock and the weather conditions. At each location the same route of inspection was followed each time to reduce the number of variables presents (Pyle, 1984). An effort has been made to use the latest nomenclature and common names as far as possible as per D' Abrera (1982-1986) and Varshney (1980, 1985, 1990). The butterflies were identified using the field guides of Kehimkar (2008) and Evans (1932).

### RESULTS AND DISCUSSION

#### Diversity of butterflies in study area

A checklist of butterfly fauna in study area has been prepared based on butterfly diversity. A total of 59 species belonging to 52 genera representing 5 families have been recorded. The family Nymphalidae was found dominant with 17 genera and 27 species followed by Lycaenidae representing 12 genera and 12 species; Hesperidae comprising of 6 genera and 7 species; Peridae with 6 genera and 8 species and Papilionidae with 2 genera and 5 species.

Table 1: Common butterflies recorded in and around the Tea Garden area

Sl no.	Local Name	Scientific Name
<b>Hesperidae</b>		
1	Fulvous Pied Flat	<i>Pseudocoladenia dan</i>
2	Common Small Flat	<i>Sarangesa dasahara</i>
3	Dark Palm Dart	<i>Telicota ancilla</i>
4	Small Branded Swift	<i>Pelopidas mathias</i>
5	Great Swift	<i>Pelopidas assamensis</i>
6	Indian Palm Bob	<i>Suastus gremius</i>
7	Grass Demon	<i>Udaspes folus</i>
<b>Papilionidae</b>		
8	Common Mormon	<i>Papilio polytes</i>
9	Red Helen	<i>Papilio helenus</i>
10	Great Mormon	<i>Papilio memnon</i>
11	Lime Butterfly	<i>Papilio demoleus</i>
12	Tailed Jay	<i>Graphium agamemnon</i>

<b>Pieridae</b>		
13	Three spot Grass Yellow	<i>Eurema blanda</i>
14	Common Grass Yellow	<i>Eurema hacabe</i>
15	Common Emigrant	<i>Catopsilia pomona</i>
16	Mottled Emigrant	<i>Catopsilia pyranthe</i>
17	Great Orange Tip	<i>Hebomoia glaucippe</i>
18	Chocolate Albatross	<i>Appias lyncida</i>
19	Indian Cabbage White	<i>Pieris canidia</i>
20	Psyche	<i>Leptosia nina</i>
<b>Lycaenidae</b>		
21	Western Centaur Oakblue	<i>Arhopala pseudocentaurus</i>
22	Yamfly	<i>Loxura atymnus</i>
23	Common Imperial	<i>Cheritra freja</i>
24	Indian Red Flash	<i>Rapala iarbus</i>
25	Common Pierrot	<i>Castalius rosimon</i>
26	Common Cerulean	<i>Jamides celeno</i>
27	Zebra Blue	<i>Leptotes plinius</i>
28	Dark Grass Blue	<i>Zizeeria karsandra</i>
29	Pale Grass Blue	<i>Pseudozizeeria maha</i>
30	Lime Blue	<i>Chilades lajus</i>
31	Pea Blue	<i>Lampides boeticus</i>
32	Punchinello	<i>Zemeros flegyas</i>
<b>Nymphalidae</b>		
33	Plain Tiger	<i>Danaus chrysippus</i>
34	Striped Tiger	<i>Danaus genutia</i>
35	Chocolate Tiger	<i>Parantica melaneus</i>
36	Striped Blue Crow	<i>Euploea mulciber</i>
37	Blue Spotted Crow	<i>Euploea midamus</i>
38	Common Evening Brown	<i>Melanitis leda</i>
39	Common Palmfly	<i>Elymnias hypermnestra</i>
40	Common Bushbrown	<i>Mycalesis perseus</i>

41	Dark-brand Bushbrown	<i>Mycalesis mineus</i>
42	Common Four Ring	<i>Ypthima huebneri</i>
43	Common Five Ring	<i>Ypthima baldus</i>
44	Red Lacewing	<i>Cethosia biblis</i>
45	Leopard Lacewing	<i>Cethosia cyane</i>
46	Common Leopard	<i>Phalanta phalantha</i>
47	Commander	<i>Moduza procris</i>
48	Common Sergeant	<i>Athyma perius</i>
49	Colour Sergeant	<i>Athyma nefte</i>
50	Common Lascar	<i>Pantoporia hordonia</i>
51	Common Sailer	<i>Neptis hylas</i>
52	Grey Count	<i>Tanaecia lepidea</i>
53	Common Castor	<i>Ariadne merione</i>
54	Grey Pansy	<i>Junonia atlites</i>
55	Peacock Pansy	<i>Junonia almana</i>
56	Lemon Pansy	<i>Junonia lemonias</i>
57	Chocolate Pansy	<i>Junonia iphita</i>
58	Yellow Pansy	<i>Junonia hierta</i>
59	Great Eggfly	<i>Hypolimnys bolina</i>

### Effect of pesticides on the butterfly population

During the study, it was observed that the Jalan Nagar South Tea Estate unabatedly spray many pesticides namely organophosphates, organochlorine, pyrethroides for tea pests control. A total of 840 dead and dying individuals of butterflies were collected from road side surrounding Jalan Nagar South Tea Garden area. Mass death occurred immediately after spraying pesticide but gradually reduces after sometime. The dead butterflies emits bad odours; on smelling cause nausea, headache and vomiting. A powdery substance often found coated on their wings. It was further observed that the grass yellow (*Eurema* sp.) butterflies suffered severely, although, a few dead individuals of *Graphium* sp. and *Pantoporia* sp. were also found. The *Eurema* sp. was the most dominant species found in the study area and since they fly very close to the ground, so this might be one of the reasons why they are the most affected species.

Although, the actual exposure and pesticide/insecticide toxicity on butterfly population is difficult to assess. It is assumed that the extent of insecticide deposition and consequent bio-availability of toxic insecticide residues on plant foliage including tea depends on their location within the field boundary and toxicity of the chemicals deposited on the foliage (Longley and Sotherton, 1997). The boundary fences of the tea garden, covered with *Lantana camera* (*goophul*) and other wild flower vegetations, serve as a source of food plants for the butterflies. These flowering vegetations may become contaminated with several pesticides sprayed in the garden areas, causes massive deaths. There was a sharp decline in the population of the *Eurema* sp. after the event which may be attributed to the prolonged effect of the pesticides and insecticides used in the garden area.

Table 2: List of affected butterflies showing the number of dead individuals

Sl. No.	Common Name	Scientific Name	No. of dead individuals
1	Common Grass Yellow	<i>Eurema hacabe</i>	28
2	Three-spot Grass Yellow	<i>Eurema blanda</i>	21
3	Tailed Jay	<i>Graphium agamemnon</i>	2
4	Common Lascar	<i>Pantoporia hordonia</i>	3

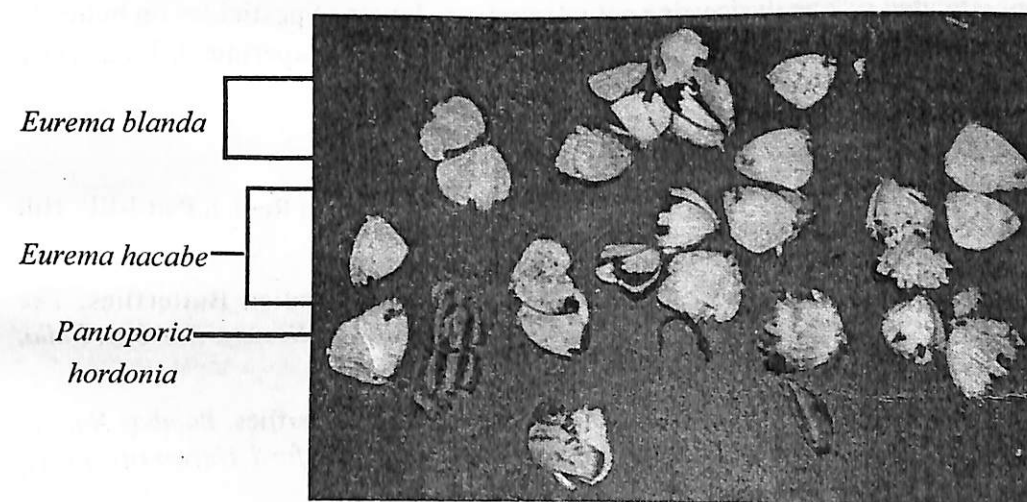


Fig. 2: Dying butterflies collected in the Jalan Nagar South Tea Estate area

## CONCLUSIONS

Pesticides and insecticides are toxic to beneficial insects, birds, mammals, amphibians, or fish. Wildlife poisoning depends on pesticide's toxicity and other properties, the quantity applied, frequency, timing and method of spraying, weather, vegetation structure and soil type. Herbicides can change habitats by altering vegetation structure, ultimately leading to population decline. Although many uncertainties may be addressed, the results from the literature review and preliminary risk analysis clearly suggest that

- Butterflies are amongst the most sensitive group of organisms to insecticides
- Butterflies could be negatively affected as non-target organisms during every moment of the insecticide spraying season.
- Butterflies are at a potential risk during or shortly after insecticide spray on nearby crops.

Thus, from the present study, the authors conclude that butterfly communities inhabiting field margins in tea garden areas are facing serious threats during periods of pesticides and insecticides use and therefore, butterflies should be incorporated as non-target organisms in research to observe the effect of insecticides. A more sophisticated risk analysis using actual exposure levels of pesticides on butterfly larvae of different species incorporating results from field experiments is currently needed. ■

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## Bharat Operating System Solution (BOSS)

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### Abstract:

Without its software, a computer is basically a useless lump of metal. With its software, a computer can store, process and retrieve information, play music and videos, send e-mail, search internet, and engage in many other valuable activities to earn its keep. Roughly computer software can be divided into two kinds: System program, which manages the operation of the computer itself, and application programs, which perform the actual work the user wants. The most fundamental system program is the Operating System (sometimes abbreviated as "OS") is the program that, at first loaded into the computer by a boot program, manages all the other programs in a computer. An OS is a program that controls the execution of application programs and acts as an interface between the user of a computer and the computer hardware. Every general-purpose computer must have an OS to run other programs and applications. Computer operating systems perform basic tasks, such as recognizing input from its keyboard counterpart, sending results to the display, keeping track of files and directories on the disk, and controlling peripheral devices such as printers. The operating system is also in charge of security, making sure unauthorized users do not access the system. The other programs are called applications or programs. The application programs employ the operating system by causing requests for services by using a defined Application Program Interface (API). In addition, users can interact directly with the operating system through a user interface for instance a command language or a graphical user interface (GUI).

Linux is a Unix-like and mostly POSIX-compliant computer operating system (OS) assembled under the model of free and open-source software development and distribution. The defining component of Linux is the Linux kernel, an operating system kernel first released on October 5, 1991 by Linus Torvalds. The Free Software Foundation uses the name GNU/Linux to describe the operating system. Linux operating systems are personal computers based on the Intel X86 architecture, but have been ported to more computer hardware platforms than any other operating system. Because of the dominance of Android on smart phones, Linux has the largest installed base of all general-purpose operating systems. Linux is also the leading operating system on servers and other big systems such as mainframe computers and virtually all fastest supercomputer.

**India's Contribution in Operating System Development :** India has been lagging behind in terms of development on computer science and operating systems. Mindful of the pitfalls of weaknesses in its cyberspace pursuing Snowden reports and many attacks by Chinese online hackers on key government websites, Centre has taken an essential step towards having its own main system (OS) with which it programs to replace all other OSs, such as most popular Microsoft Windows in future. This software package Bharat Operating System Solutions has been described as "India's own PC operating system" and the most meaningful product to come out of the Indian software industry in decades the software has also been endorsed by the Government of India for adoption and implementation on a national scale. The new OS can help India take a considerable step to prepare in this direction as will be able to care for both the individual computer as well as the networking.

Operating systems such as DOS, UNIX, etc. were being created when India had nearly zero activity in computing related field. Its university systems such as IIT were just born. There were no great universities or other organizations to develop talent that could create an operating system. The problem of feeding (green/white revolutions) people was far more imperative. And US and Europe were way ahead because of the lead resulting from industrial revolution. Charles Babbage who laid foundations of computing were all able to do so due to the ecosystem in England and other countries. Then, the Second World War was a big impetus to creation of computers and software. If India had no computer related work going on, how could an Indian be in a position to create an operating system in the 1960s and 1970s? Today, creation of a new operating system is a

risky and low return idea given the advances in existing operating systems. Still, I would not name any, but there have been startups by Indians in Silicon Valley who worked in operating systems area and got successfully acquired for their innovations. India started on its history in computing only in the 80s when it was denied a super computer because it did the first nuclear test in mid seventies. It is still not doing enough research and development on computer science and operating systems today to be able to foster talent that is capable of creating software such as operating system in India in near future. Still, these days, a lot of Indians work on contributions to Linux, Windows, Android, OS X and other OS es. It is it not necessary to create a full OS from scratch to make this type of contributions worthwhile.

GNU/Linux has had six major releases till March 2015

Version	Code name	Desktop	Date of release
BOSS GNU/Linux Evaluation	Sethu	<u>GNOME 2.8</u>	
BOSS GNU/Linux v1.0	Tarang	<u>GNOME 2.14</u>	2007-01-10
BOSS GNU/Linux v2.0	Anant	<u>GNOME 2.18</u>	2007-09-17
BOSS GNU/Linux Server			2008-01
BOSS GNU/Linux v3.0	Tejas	<u>GNOME 2.20</u> and <u>KDE 3.5</u>	2008-09-04
BOSS GNU/Linux v4.0	Savir	<u>GNOME 2.30.2</u> and <u>KDE 4.4.5</u>	2012-08-02
BOSS GNU/Linux v5.0	Anokha	<u>GNOME 3.4.2</u> , <u>KDE 4.8.4</u> and <u>Xfce 4.8</u>	2013-12-23
BOSS GNU/Linux v6.0	Anoop	<u>GNOME 3.14</u>	2015-03-04

BOSS (Bharat Operating System Solutions) GNU/Linux distribution developed by C-DAC (Centre for Development of Advanced Computing) derived from Debian for enhancing the use of Free / Open source software throughout India. BOSS GNU/Linux – a key deliverable of NRCFOSS has upgraded from entry-level server to advanced server. It supports Intel and AMD X86/X86-64 architecture. BOSS GNU/Linux advanced server has unique features such as web server, proxy server, database server, mail server, network server, file and print server, SMS server, LDAP server. BOSS GNU/Linux advanced server comprises administration tools such as a web-based interface, Gadmin, PHP myadmin, PHP LDAP admin, PG admin. The accessibility of BOSS Linux will have a constructive impact on the digital divide in India as more people can now have access to software in their local language to use the Internet and other information

and communications technology (ICT) facilities. Community Information centers (CICs) and internet cafes will also benefit from BOSS GNU/Linux as this software can be utilized to power these outlets and is affordable and easy to install, use and support.

**BOSS 4.0** is coupled with GNOME and KDE Desktop Environment with wide Indian language support and packages, relevant for use in the government domain. It will enable the mainly non-English literate users in the country to be exposed to ICT and to use the computer more effectively.

**BOSS 5.0** codenamed anokha, comes with many new applications mainly focused on enhanced Security and User friendliness. BOSS 5.0 supports Linux Standard Base (LSB) version 4.1 The new version features XBMC Media center to allow the user to easily browse and view videos, photos, podcasts, and music from a hard drive, optical disc, local network, and the internet.

**BOSS 6.0** (Anoop) The latest Release of BOSS GNU/Linux Version 6.0 – codenamed as Anoop, is coupled with GNOME Desktop Environment 3.14 version with wide Indian language support & packages, relevant for use in the Government domain. This release aims more at enhancing the user interface with more glossy themes and Tab like look and feel on the desktop by coupling latest applications from the community.

BOSS Linux 6.0 has Linux Kernal 3.16, supports Intel 32-bit and 64-bit architectures, a 3D desktop environment, Graphic installer, Office application software suite Libreoffice, Internet access software (Firefox, email, chat etc.), and file sharing / converter and multimedia applications. This release comes with improved Desktop appealing features that includes Contacts, Documents, Maps, Photos and Music etc. The All-in-one Notification area notifies the user about Brightness, Networking, System settings all under the same menu. The desktop comes with an on-screen keyboard with Indian language support. The Smart Common Input Method tool provides input mechanism for Indian languages with Unicode 7.0 support. The Orca Screenreader and Magnifier & E-Speak applications helps people with visual impairments for using the BOSS desktop. The Bulk document converter helps people to easily migrate from other Operating system to BOSS GNU / Linux.

Currently BOSS GNU/Linux Desktop supports all the Official Indian Languages such as Assamese, Bengali, Gujarati, Hindi, Kannada, Malayalam, Marathi, Odia, Punjabi, Sanskrit, Tamil, Telugu, Bodo, Urdu, Kashmiri, Maithili, Konkani, Manipuri which will enable the mainly non-English literate users in the

country to be exposed to ICT and to use the computer more effectively and not available language are Nepali, Sindhi and Phari (Dogri)

**Future Prospect of BOSS:** Mindful of the pitfalls of weaknesses in its cyberspace pursuing Snowden reports and many attacks by Chinese online hackers on key government websites, Centre has taken an essential step towards having its own main system (OS) with which it programs to replace all other OSs, such as most popular Microsoft Windows in future. A highly improved version of BOSS (Bharat Os Solutions) developed by C-DAC (Centre for Development of Advanced Computing) will be unveiled and discussed in an internal meeting in union home ministry in this week. It has successfully tested fending itself from all sorts of attacks during the past 90 days of trial. Several government departments including the Army brains received the task to attack it to test its vulnerability status however they all failed to break it. "It answers government's need have a completely secure network. Fresh requirements unique to the system have been written for the OS. Its source code which makes it safe and secure will have to be guarded by any means," sources said. The Snowden reports exposed that India was the most scrutinized nation by the US intelligence organizations. While other countries like China started carrying away R&D on new kinds of attacks like the Wise dust, Nano technologies and Artificial intelligent, India still lags behind certainly. However, the new OS can help India require a substantial step to prepare in this direction as will be able to look after both the individual computer as well as the network. Though the plan to have its operating system has been the plan of the things of the government for a past few years, it is unable to take off due to lack of proactive and systematic procedure and funding. The growth could not go further than BOSS which besides being insecure is also not as versatile, adaptable and user friendly as Microsoft Company Windows. The new Apache based OS is totally indigenous and has recently been developed by making use of Gujarat Complex University, DRDO and private computer geeks receive more or less all the characteristics and ease of Microsoft Windows, sources said. The OS is expected to be given to Department of electronics and information technology (DEITY) to help smooth rough edges and ready it for the use of government ministries. Later, the government can collaborate with indigenous industry giants to develop it further and create an open source OS along with other hardware and network systems that would encourage other entities and visitors to shift to it from all other OS like Windows, Macintosh, BlackBerry CASING etc., sources added. The Snowden reports revealed that India was the most scrutinized nation by America intelligence agencies. While other countries like China began carrying

out R&D on new varieties of attacks like the wise particles, Nano technologies and Approach, India still lags in back of by far.

### Conclusion:

Boss developer is NRCFOSS/CDAC, India, its operating system family is like UNIX and open source model and initially release 10, 2007 and latest release September 2015 which known as Anoop 6.0. It is free software license and user interface is GNOME/KDE. However, the new OS can help India take a considerable step to prepare in this direction as will be able to care for both the individual computer as well as the networking. The accessibility of BOSS Linux will have a constructive impact on the digital divide in India as more people can now have access to software in their local language to use the Internet and other information and communications technology (ICT) facilities. Community Information centers (CICs) and internet cafes will also benefit from BOSS GNU/Linux as this software can be utilized to power these outlets and is affordable and easy to install, use and support. Indian Government will soon have its very own, home-grown operating system for official purposes. It replace Microsoft(R) Office to Libreoffice suite comprises programs to do word processing, spreadsheets, slideshows, diagrams and drawings, maintain databases, and compose mathematical formulae and updated scientific and number formats. ■

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## Supercomputer and India's Super Computer Param Kanchenjunga

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### Abstract:

The United States has been a leader and an innovator in the field of supercomputing since the beginning. India's supercomputer program was started in late 1980s because Cray supercomputers were denied for import due to an arms embargo imposed on India, as it was a dual use technology and could be used for developing nuclear weapons. For the purpose of achieving self-sufficiency in the field, the Centre for Development of Advanced Computing (C-DAC) was set up in 1988, PARAM 8000 is considered India's first supercomputer. It was indigenously built in 1990 by Centre for Development of Advanced Computing and was replicated and installed at ICAD Moscow in 1991 under Russian collaboration. The National Institute of Technology (NIT) Sikkim has recently established a supercomputer 'Param Kanchenjunga'. It is aimed to help in research and academics. It is the fastest and most powerful.

Now at the beginning we must know what a supercomputer is? A supercomputer is a computer that performs at or nearby the currently highest functional rate for computers. Typically, supercomputers have been used for scientific and executive applications that must manage very large databases or do a great amount of computation (or both). The largest, most powerful supercomputers are really multiple computers that perform parallel processing. In general, there are two parallel processing approaches: symmetric

multiprocessing (SMP) and massively parallel processing (MPP).

SMP (symmetric multiprocessing) is the processing of programs by multiple processors that share a common operating system and memory.

MPP (massively parallel processing) is the coordinated processing of a program by multiple processors that work on different parts of the program, with each processor using its own operating system and memory.

A brief history of Supercomputer. Supercomputer first came into existence in 1964 when the first commercially successful supercomputer, the CDC (Control Data Corporation) 6600 was designed by Seymour Cray. Released in 1964, the CDC 6600 had a single CPU and cost \$8 million — the equivalent of \$60 million today. The CDC could handle three million floating point operations per second (flops).

**Supercomputer and General computer can be compared in the following categories:**

By definition, a general purpose programmable machine which carries out arithmetic and logical operations according to a specified set of instructions. Whereas a supercomputer is an extremely fast computer capable of performing hundreds of millions of instructions per second.

The components of a Personal computers include motherboard, CPU, memory (or RAM), hard drive, and video card. A supercomputer includes processors, memory, I/O system, and an interconnect.

Application Areas of General computer are Education, health and medicine, to keep inventory report, ticket booking, account and administration, teaching learning tool, hotel management, banking and finance sector, etc. Application areas of supercomputer include nuclear weapon development, accurate weather forecasting, host processes for a local computer, etc.

Example of a Mainframe computer is a computer used for critical applications which includes bulk data processing, enterprise resource planning and transaction processing. Example of a supercomputer is the Deep Blue is a famous chess-playing supercomputer

The performance of super computers is usually quoted in MIPS (million instructions per second), which is how many fundamental programming



commands (read, write, store, and so on) the processor can manage. Supercomputers are employed in scientific calculations, they're measured according to how many floating point operations per second (FLOPS) they can do, their performance has been measured in successively greater numbers of FLOPS, as the table illustrates:

Unit	FLOPS	Power form	Example	Key decade
Hundred FLOPS	100 FLOPS	10 <sup>2</sup> FLOPS	Eniac	~1940s
KFLOPS (kilo flops)	1,000 FLOPS	10 <sup>3</sup> FLOPS	IBM 704	~1950s
MFLOPS (megaflops)	1,000,000 FLOPS	10 <sup>6</sup> FLOPS	CDC 6600	~1960s
GFLOPS (gigaflops)	1,000,000,000 FLOPS	10 <sup>9</sup> FLOPS	Cray-2	~1980s
TFLOPS (teraflops)	1,000,000,000,000 FLOPS	10 <sup>12</sup> FLOPS	ASCI Red	~1990s
PFLOPS (peta flops)	1,000,000,000,000,000 FLOPS	10 <sup>15</sup> FLOPS	Jaguar	~2010s

The supercomputers from 2008 to recent year as the table illustrates:

Year	Supercomputer	Peak speed (Rmax)	Location
2016	Sunway TaihuLight	93.01 PFLOPS	Wuxi, China
2013	NUDT Tianhe-2	33.86 PFLOPS	Guangzhou, China
2012	Cray Titan	17.59 PFLOPS	Oak Ridge, U.S.
2012	IBM Sequoia	17.17 PFLOPS	Livermore, U.S.
2011	Fujitsu K computer	10.51 PFLOPS	Kobe, Japan
2010	Tianhe-IA	2.566 PFLOPS	Tianjin, China
2009	Cray Jaguar	1.759 PFLOPS	Oak Ridge, U.S.
2008	IBM Roadrunner	1.026 PFLOPS	Los Alamos, U.S.
		1.105 PFLOPS	

After being denied Cray supercomputers as a result of a technology embargo, India started a program to develop indigenous supercomputers and supercomputing technologies. Supercomputers were considered a double edged weapon capable of assisting in the development of nuclear weapons. For the purpose of achieving self-sufficiency in the field, the Centre for Development of Advanced Computing (C-DAC) was set up in 1988 by the then Department of Electronics with Dr. Vijay Bhatkar as its Director. The project was given an initial run of 3 years and an initial funding of 300,000,000, the same amount of money and time that was usually expended to purchase a supercomputer from the US. In 1990, a prototype was produced and was benchmarked at the 1990 Zurich Supercomputing Show. It surpassed most other systems, placing India second after US. The final result of the effort was the PARAM 8000, which was installed in 1991.It, is considered India's first supercomputer.

The National Institute of Technology (NIT) Sikkim has recently established a supercomputer ‘Param Kanchenjunga’; It is aimed to help in research and academics. It is the fastest and most powerful. The machine is equipped with latest Intel-based processor and accelerator technologies with a peak computing power of 15 Teraflops.

Union Human Resource Development Minister Prakash Javadekar on Monday unveiled “Param-Ishan” – a super-computing facility at IIT - Guwahati. The high-performance “Param-Ishan” has computing speed of 250 teraflops and capacity of 300 tera bites (TB). The 250 teraflops means that computer is capable of performing 250 trillion operations per second. The supercomputer was installed in a partnership of the Centre for Development of Advanced Computing (C-DAC) and IIT – Guwahati.

### CONCLUSION:

Supercomputers are mainly used for tasks which require immense computational power. Such tasks, if attempted on the normal computers will take an incredibly long time, sometimes several years to complete. Since the inception of supercomputing, the United States has been a leader and an innovator in the field. But there have been startups by Indians in who worked in this area and got successfully acquired for their innovations. ‘Param Kanchenjunga’; It is aimed to help in research and academics. It is the fastest and most powerful. The number of supercomputers in the world increases rapidly. They are sometimes seen as an indication of a country’s technological advancement and surely they are. There is

an estimation that in future, personal computers can run 10 times faster than today's supercomputers. The government should ensure that researchers with the most demanding computational requirements have access to the most powerful supercomputing systems. Our quest of faster and more efficient computers is insatiable. We will keep on building systems that are better than the last one. Maybe someday we can build the kind of supercomputers that will simulate the human brain.■

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## Arsenic Contamination of Groundwater and Problems in Drinking Water

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### Introduction

Arsenic(As), a metalloid that occurs naturally, is the twentieth most abundant element in earth's crust and is a component of more than 245 minerals in the earth. The inorganic forms of arsenic consisting mostly of arsenite and arsenate compounds are toxic to human health (Guha Majumdar, 2008). A rapid growth and development in research on arsenic occurrence and behaviour in the environment has occurred over the last decade or so. Today, environmental problems of arsenic have been recognized and documented in numerous countries across the world (Smedly, 2008). As per W.H.O. guidelines value limit for arsenic concentration is 0.01 mg/l (W.H.O.guideline, 2008) and according to the Indian standard drinking water specification (IS10500, Second Revision) the desirable limit of Arsenic in groundwater is 0.05 mg/l (BIS, 2005). Consuming arsenic contaminated water can cause diabetic, kidney, liver, heart, skin, bladder diseases. The diseases include several types of cancer also (Smith, et al, 1992).

### Sources of Arsenic :

Arsenic contamination of ground water is a naturally occurring process with high concentration of arsenic in deeper levels of groundwater. The most common sources of elevated arsenic levels in groundwater are weathering of arsenic bearing minerals. Arsenic contamination has been found to occur due to geothermal influence on ground water, mineral dissolution (e.g. pyrite oxidation), desorption in the oxidizing environment, and reductive desorption and dissolution.

Geogenic sources of arsenic are numerous - within the various geologic materials, the most common occurrences of As appear to be in sulphides (mainly pyrite) and as sorbed species on Fe hydroxides, although As also appears within some silicate and carbonate rocks. The main processes involved in As release to groundwater are reduction of Fe hydroxides, reduction of As within minerals and as a sorbed species, competitive sorption with other oxyanions, and sulphide oxidation. Studies also show that these processes can be mediated by microbes. Major geologic sources of arsenic include alluvial materials, mineralized sedimentary and metasedimentary rocks and volcanic rocks and related deposits (Barringer and Reilly, 2013). Pyrite is the main source of As in coals with high As content, whereas in lower As coals, the As tends to be associated with the organic material (Yidovich and Ketris).

Smedley and Kinniburgh (2002) pointed out that whether the released As remains at problematic levels in groundwater depends not only on whether there are biogeochemical reactions that retard the transport of As, but also upon the hydrologic and hydrogeologic properties of the aquifer, such as flow velocity and dispersion. If the kinetics of As release are slow, and groundwater residence time is short, then As concentrations may not increase to the point where groundwater would be considered contaminated. Conversely, if reactions that mobilize As are rapid and residence time is long, then As can accumulate in groundwater such that concentrations become hazardous.

### Distribution and Occurrence of Arsenic in Groundwater :

Knowledge of the potential extent of arsenic contamination and of the severity of its health effects has grown significantly in recent years. Naturally occurring arsenic contamination of groundwater has been discovered in at least 70 countries of the world. In half of these countries, the discovery took place within the last 10--15 years. This trend, as well as reasoning based on current geological knowledge, indicates that arsenic contamination will certainly be discovered in more countries and locations in the world. The problem is most severe and threatening in Bangladesh and in some parts of India and China. Tropical river basins draining the Himalayas are the largest sites of arsenic pollution. Current estimates suggest arsenic contamination could affect more than 140 million people (UNICEF, 2013).

Inorganic arsenic is naturally present at greater levels in groundwater of a number of countries such as Argentina, Chile, China, India, Mexico, USA and

particularly Bangladesh where approximately half of the total population is at high risk of drinking arsenic-contaminated water from tube wells (W.H.O., 2010). However, in South Asian countries including India, Bangladesh, Cambodia and Vietnam the problem of arsenic contamination in groundwater are most severe.

A key factor in the emergence of arsenic contamination as a global issue was the experience in South Asia, particularly Bangladesh and India. Arsenic contamination of groundwater emerged unexpectedly as a major health issue in Bangladesh in the 1990s, arising from what had been considered a highly successful tubewell boring project advocated for and sponsored in part by UNICEF. Although the tubewell water was microbiologically pure, the naturally occurring arsenic contamination may constitute a public health emergency (Smith et al., 2000)

In India the ground water arsenic contamination and its effects have been reported in as many as 10 states viz. Assam, Bihar, Jharkhand, Chhattisgarh, Haryana, Karnataka, Manipur, Punjab, Uttar Pradesh and West Bengal in which altogether 86 districts are affected. According to the same CGWB report the districts affected by arsenic in Assam are Baska, Barpeta, Bongaigaon, Cachar, Darrang, Dhemaji, Dhubri, Goalpara, Golaghat, Hailakandi, Jorhat, Karimganj, Marigaon, North Lakhimpur, Nagaon, Nalbari, Sibsagar and Sunitpur (Govt. of India, 2015).

Arsenic distribution in groundwater is highly variable even in affected areas, only a percentage of wells are normally found to be contaminated, while others are arsenic-safe. Drinking and cooking with contaminated groundwater is considered the main conduit for human exposure to arsenic. Other avenues of exposure include food (from crops irrigated with contaminated water, which transfers arsenic into the food chain), and polluted air from burning contaminated coal. Some human activities such as mining may cause arsenic pollution; anthropomorphic problems from such pollution may be severe but are generally limited in extent (UNICEF, 2013).

Ground water are generally more vulnerable to arsenic contamination than surface water because of the interaction of ground water with aquifer minerals and the increased potential in aquifers for the generation of the physicochemical conditions favourable for arsenic release. Arsenic occurs in environment in many oxidized states but in water it is found as the inorganic forms, arsenite and arsenate. Arsenic can be mobilized naturally in water through reactions, weathering and

some microbiological activities. Arsenic contamination of ground water has been found to occur due to geothermally influenced ground water mineral dissolution (e.g. pyrite oxidation), desorption and dissolution (Smedly and Kinniburgh, 2002).

#### **Effect of arsenic on human health :**

Arsenic is a systemic poison, and chronic ingestion of arsenic can lead to a wide range of health problems, which are collectively called arsenicosis or chronic arsenic poisoning. The effects of arsenic are skin lesions, cancer of the skin, lung and bladder, and gastro-intestinal and pulmonary conditions. Chronic arsenic poisoning has also been found to have slowed cognitive development of children (UNICEF, 2008). Besides skin cancer a study on cancer risks from arsenic in drinking water indicates that it could cause liver, lung, and kidney/bladder cancer (Smith, et al, 1992).

The symptoms and signs caused by long-term elevated exposure to inorganic arsenic differ between individuals, population groups and geographical areas. There is no universal definition of the disease caused by arsenic. This complicates the assessment of the burden on health of arsenic.

Similarly, there is no method to distinguish cases of cancer caused by arsenic from cancers caused by other factors. For this reason there is no reliable estimate of the magnitude of the worldwide arsenic problem (WHO, 2016).

Not everyone exposed to excess arsenic will develop arsenic-related disease. Exposure to arsenic is a hazard – something that can cause harm. The likelihood that this exposure will lead to health effects is the risk. The risk of arsenic health effects increases with arsenic concentration and with duration of exposure. In addition there are many other contributory factors that are not yet fully understood (e.g., diet, smoking and genetic susceptibility).

#### **Skin lesions:**

The most widely recognized signs of chronic arsenic poisoning are melanosis (changes in skin colour) and keratosis (hardening and thickening of skin into nodules). Melanosis occurs mainly on unexposed parts of the body such as the chest, abdomen and back. Small patches of skin (from the size of a pinhead to a grain of corn) become darker (hyper-pigmentation) or lighter (hypopigmentation or leukomelanosis) than surrounding skin. A “raindrop” pigmentation pattern of both hyper- and hypo-pigmentation is characteristic of



high exposure to arsenic. Keratosis, and the more advanced hyperkeratosis, occurs mainly on the palms and soles. In early stages, small nodules form that can be felt when touched. In hyperkeratosis, these nodules grow and coalesce into wart-like bumps. As the nodules thicken, skin can become cracked and vulnerable to secondary infections, leading to debilitation and pain. Keratosis is approximately half as common as melanosis. The risk of skin lesions increases with duration of exposure and arsenic concentration in water. Melanosis and keratosis can develop in a few years at very high concentrations, but in most cases ten to twenty years are required. Keratosis often develops after melanosis (UNICEF, 2008).

#### Cancer:

While skin lesions are among the most recognized symptoms of arsenicosis, it is cancer that poses the greatest health threat. Arsenic is a known carcinogen, with skin, lung and bladder cancers causing the greatest disease burden. Internal cancers can occur without any development of skin lesions, so simply relying on early onset symptoms to estimate the likely disease burden is not reliable. Cancers have a long latency period, and can occur even several decades after exposure has ceased. The lung cancer risk of drinking water having 500 ppb arsenic is comparable to that of smoking cigarettes regularly, while the risk of consuming arsenic at 50 ppb is roughly equivalent to that posed by second-hand smoke (UNICEF, 2008).

#### Other effects:

Besides skin lesions and cancers, arsenic has been linked to a wide range of other health problems such as peripheral neuritis symptom or a tingling sensation in the fingers and toes. Gastro-intestinal disturbances are also frequently reported. The vascular system can be affected and lead to gangrene; in Taiwan a form of gangrene called "black-foot disease" is associated with arsenic.

Effects of pulmonary are also common, and range from mild bronchitis to bronchiectasis and Chronic Obstructive Pulmonary Disease, which can be fatal. Arsenic-exposed populations have been reported to be at higher risk of developing diabetes, hypertension, hepatomegaly (abnormal enlargement of the liver), conjunctivitis and heart attacks than those who are not exposed. Arsenic has special effects on children. Several studies have reported that arsenic-exposed children have slower cognitive development. Arsenic has also been linked to an increased risk of foetal loss and still birth in pregnant women (UNICEF, 2008).

#### Conclusion

Groundwater is widely used for drinking and other purposes in both rural and urban areas in the world. Arsenic contamination in groundwater particularly in deeper level is a serious worldwide problem. Many people of the world have been suffering from arsenic related diseases. Many countries have been taking necessary steps for removal or minimize arsenic in rural or urban drinking water supply to prevent arsenic related diseases. Modern techniques such as oxidation, ion exchange, coagulation, membrane technique, precipitation, adsorption etc should be used for removal of arsenic in drinking water.

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Khoj: Vol. VIII, 2016  
ISSN No. : 2278-5272

## R : A Software Language for Analysis of Circular Data

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### Abstract :

Circular Data is ubiquitous in many applied and behavioral sciences. Due to circular nature, such type of data cannot be handle with traditional statistical tools and techniques. The programming languages in different software made the analysis very simple and easy. In this study, an attempt has been made to justify the practical importance of R-software language in studying the circular data in a very comfortable and flexible way. Some real life examples of circular data viz. wind direction and Road Traffic Accidents (RTA) are also analyzed and illustrated using R-software platform.

*Keywords: Circular data, R-software, Circular Statistics, wind direction, RTA.*

### 1. Introduction

R is a language and environment for statistical computing and graphics. It is a widely used language among statisticians, data miners and researchers in today's world. R-language is first appeared in 1995, developed by Robert Gentleman and Ross Ihaka of the Statistics Department of University of Auckland. It has quickly gained a worldwide audience and support. R is now maintained by an international team of dedicated and volunteer developers, called R- development core team (2011). The source code of the R-environment is written in C, C++, FORTRAN and R. It is a 'free and open software' in the sense that one can has the freedom to run, copy, distribute, study, change and improve the software. With its extensive functionality and object oriented

philosophy, R is incredibly popular among researchers and statisticians. In recent years, R became the most popular language in the field of statistical computing for its vastness of package ecosystem, where the users developed hundreds of packages coded in R.

Data arises on a certain cyclic nature with direction are known as directional data. Directions are measured by angles in Directional statistics. Circular statistics is a branch of Directional statistics that deals with angular representation of circular data, distributed on the circumference of a unit circle. Thus the circular data can be represented on a two dimensional directions with no magnitude, for which these are conveniently plotted as points on the circumference of a unit circle, centered at origin. Data on the angular displacement, directional propagations and in general, periodic occurrence can be treated within the framework of circular data (Zubairi et. al., 2008). Circular data takes values on the circumference of a circle within the range of angle  $(0, 2\pi)$  radian or  $(0^\circ, 360^\circ)$ . A circular observation can be regarded as a point on a circle of unit radius or a unit vector. Some of the examples of circular data are- bonding angles of molecules, wind directions occurred in a certain place, the incidence throughout the year of measles, the times during the day of cyber attacks at an intelligence centre, flowering onsets during the year and so on. Due to the rapid development of circular statistics, several monographs and reference books have lay out its standard repertoire in modern statistical research (Batschelet, 1981; Fisher, 1993; Mardia and Jupp, 2000; Jammalamadaka and Sengupta, 2001).

Due to the circular nature, directional data cannot be analyzed with commonly used statistical tools and techniques as these would provide wrong and misleading results (Berens, 2009). Also, many programming languages do not support circular statistics and related analysis. Although some specialized software languages have been developed in studying the circular nature of angular data viz. **Oriana** (Kovach Computing Services, 2009) and **AXIS** (Handerson et. al., 2002) which are commercially available software program for the analysis of circular data, they have some limitations in analyzing grouped data set, circular plots of the corresponding probability density function as well as correlation and regression analysis (Zubairi et al., 2008). R programming language is hugely popular among statisticians due to its open source nature and availability of more specialized add-on packages. In this study, an attempt has been made to incorporate the importance of R-platform in the analysis of

circular data and its research endeavor.

## 2. Tools used for the Analysis

R is extensible and offers rich functionality with its package ecosystem. The users have developed thousands of packages those are coded and used in R. It is now became a multiplatform and open source environment for different fields. The packages for working with circular data available in R are mentioned below as useful reference.

- **CircStats** (Lund and Agostinelli, 2012): It provides the descriptive and inferential statistical analysis of Directional Data. It is based on the Book "Topics in Circular Statistics" by Jammalamadaka and Sengupta (2001).
- **circular** (Lund and Agostinelli, 2013): This is an extension of **CircStats** package. It provides the functions for the statistical analysis (circular modeling and tests), graphical representation of some circular dataset.
- **CircNNTSR** (Fernandez-Duran and Gregorio-Dominguez, 2013): It provides the functions for constructing circular distributions based on non negative trigonometric sums, estimating parameters and plotting the constructed densities.
- **isocir** (Barragan and Fernandez, 2014): This package provides a set of routines for analyzing the angular data subjected to order constraints on a unit circle.
- **movMF** (Hornik and Grun, 2014): It focused on the mixtures of von Mises distribution and estimates the parameters by using EM algorithm.
- **NPCirc** (Oliveira, Crujeiras and Rodriguez-Casal, 2014): It provides Non parametric density and regression estimation for circular data, specifically provides the circular kernel density estimation procedure.
- **CircSIZer** (Oliveira, Crujeiras and Rodriguez-Casal, 2013): It describes the non parametric density and regression curves with a specific graphical design where a significant peaks and valleys are identified by 'blue-red' pattern of density map.

The R software and all of its user contributed packages can easily be downloaded from the website **cran.r-project.org**. The command **library()** produces a descriptive list of all the packages available within the R environment. In order

to download R one has to search 'comprehensive R archive network' or in short 'CRAN'. It has a detailed and extensive web-based help facility. The required specific packages are also available in the CRAN mirror (Pewsey et.al., 2013).

### 3. Examples with Real Data Analysis

In this study, some commands and codes of 'circular', 'NPCirc' and 'CircNNTSR' package available in R platform are considered to illustrate (a) the real dataset of wind direction (WD) of Tocklai (Jorhat) and (b) Road Traffic Accident (RTA) of Dibrugarh town, Assam respectively. Here, wind direction data have analyzed with some basic circular statistics and also illustrated with graphical representation viz. Circular plot with Rose diagram as well as non parametric line density curves. On the other hand, RTA of Dibrugarh has been analyzed by descriptive circular statistics and Non Negative Trigonometric Sums (NNTS) density curves for different values of parameter estimates. The wind direction data have been collected from the Tocklai Tea Research Institute, Jorhat and the RTA data have collected from the Medical Record Department (MRD), Assam Medical College and Hospital (AMCH), Dibrugarh, Assam. The daily wind directions for three years (from January 2009 to December 2011) and RTA of one year (from March, 2010 to February, 2011) have been considered here for analysis. It is expected that the study would help and encourage the oriented readers and users of this direction.

#### 3.1 Analysis of Daily Wind direction data

To analyze the wind direction of Tocklai Station with R, some basic circular statistics and graphical representation have been considered. The two important circular statistics are- mean direction and mean resultant length which are defined as-

The mean angle ( $\mu$ ) and the mean resultant length ( $\rho$ ) are defined for circular data as follows--

$$\mu = \begin{cases} \tan^{-1}\left(\frac{S}{C}\right) & S > 0, C > 0 \\ \tan^{-1}\left(\frac{S}{C}\right) + \pi & C < 0 \\ \tan^{-1}\left(\frac{S}{C}\right) + 2\pi & S < 0, C > 0 \end{cases}$$

Where  $C = \sum_{i=1}^n \cos\theta_i$  and  $S = \sum_{i=1}^n \sin\theta_i$ .

$$\rho = (\bar{C}^2 + \bar{S}^2)^{\frac{1}{2}} \quad \text{where } \bar{C} = \frac{1}{n} \sum_{i=1}^n \cos\theta_i \text{ and } \bar{S} = \frac{1}{n} \sum_{i=1}^n \sin\theta_i.$$

Where,  $\rho \in [0,1]$ .

The estimated values of descriptive statistics for the Tocklai station are depicted in the Table-3.1.

Table-3.1 Estimated value of the parameters of wind direction at Tocklai station

Wind direction time	Mean angle (degree)	Mean resultant length
Afternoon	-0.167 (170.40°)	0.35873
Morning	-0.0032 (179.82°)	0.87694

The Circular plot with Rose diagram and the Non Parametric density curves for the Tocklai station are depicted in the figure-3.1 and figure-3.2 respectively.

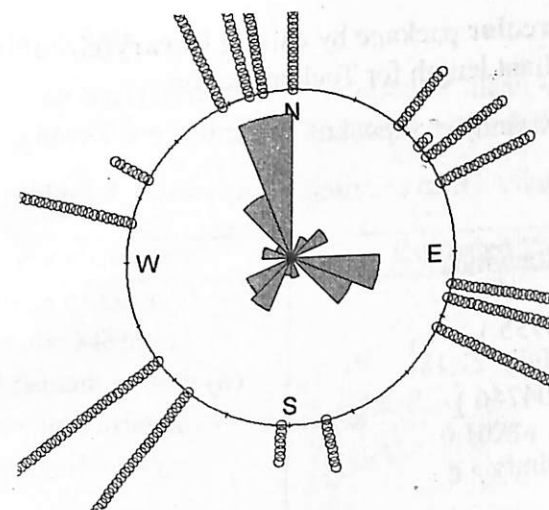


Figure-3.1.1 Circular Plot with Rose Diagram for the Tocklai station



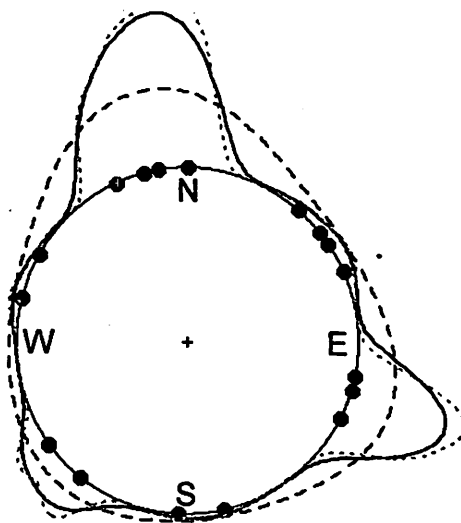


Figure-3.1.2 Non Parametric circular density curves at different bandwidths

The necessary R-codes by using the `library()` for the descriptive statistics and graphical representations are briefly mentioned here.

§ R-code using **circular** package by calling `library(circular)` for estimating mean and mean resultant length for Tocklai station

```
> mle.vonmises(tocwind)
```

Call:

```
mle.vonmises(x = tocwind)
```

```
mu: -0.1674 ( 0.05755 )
```

```
kappa: 0.7686 ( 0.04746 )
```

```
> rho.circular(tocwind)
```

```
[1] 0.3587327
```

§ R-code using **circular** package for Rose Diagram

```
> tocwindc<-circular(tocwind,type="angles", units="radian", template="geographics")
```

```
> plot(tocwindc,pch=21,cex=1.5,bin=720,stack=TRUE,sep=0.035,shrink=1.5,col="blue")
```

```
> rose.diag(tocwindc,bins=16,col="darkgrey",cex=1.5,prop=1.3,add=TRUE)
```

§ R-code using **NPCirc** package by calling `library(NPCirc)` for describing Non parametric line density curves.

```
> toc<-read.table("altocwd.csv.txt")
```

```
> tocc<-circular(toc,type="angles",units="radian",template="geographics")
```

```
> plot(tocc,cex=1.5,shrink=1.7,col="red")
```

```
> lines(density.circular(tocc,bw=6.0523),col="blue",lty=2,lwd=2)
```

```
> lines(density.circular(tocc,bw=49.9996),col="red",lty=1,lwd=2)
```

```
> lines(density.circular(tocc,bw=99.9357),col="green",lty=3,lwd=2)
```

### 3.2 Analysis of RTA data

By using the formulae described in 3.1 the circular mean and mean resultant length for RTA data have been estimated and depicted in the Table-3.2.

Table-3.2 Descriptive statistics of RTA data

Parameter	Estimated Value
Nos. of Data	3791
Circular Mean ( $\mu$ )	181.75° (July)
Mean Resultant Length ( $\rho$ )	
Circular Variance	0.10234
Angular deviation	0.8976
	1.3398

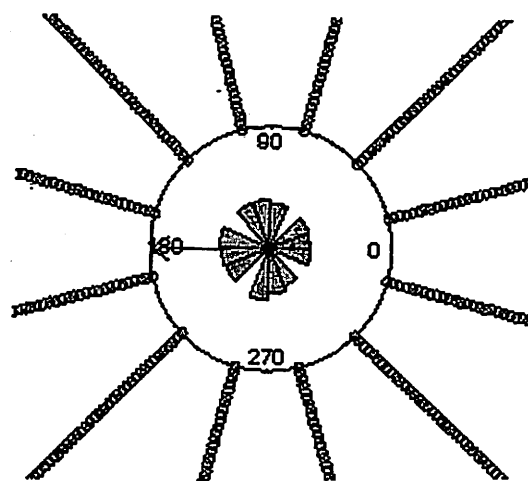


Figure-3.2.1 Circular plot with Rose diagram for RTA in Dibrugarh Town

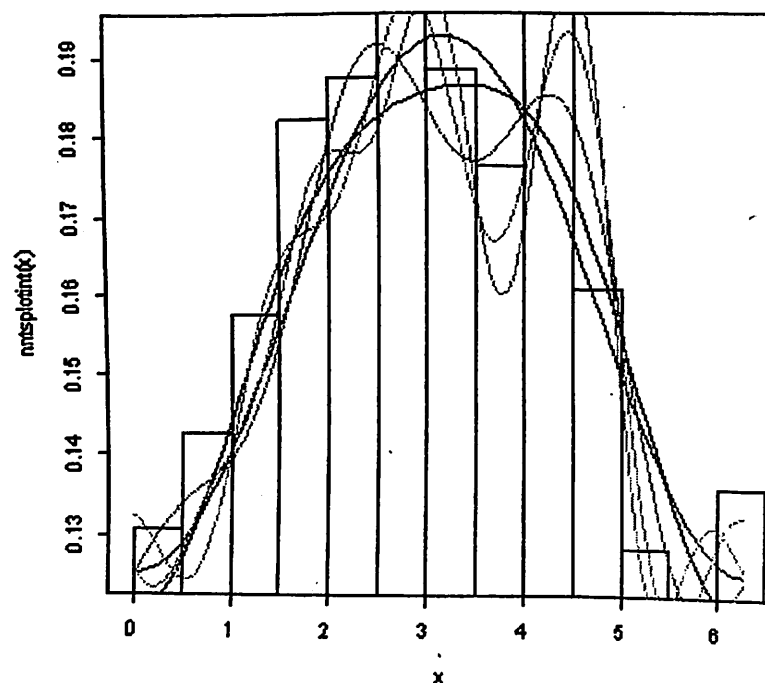


Figure-3.2.2 NNTS density curves obtained by CircNNTSR package of RTA data for different values of  $M=1, 2, 3, 4$ , and  $5$  in NNTS model.

## 1. Conclusion

What have been conclude from the study are given below-

R- environment can be suited not only for linear statistical analysis, but it has a wider scope to analyze some specific nonlinear and advanced topics also. Like other analytical software platform, R is considered more userfriendly and flexible enough to handle data in many commercial as well as scientific purposes. To analyze the circular data in a more advanced way, R platform is regarded as one of the strong and powerful toolkit. It also justifies the practical importance of R- environment in studying the Circular statistics as one of the powerful and scientific tools in today's research endeavor. ■

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## Subhasitas of Sanskrit Literature : The Storehouse of Value Education

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### Abstract :

The growth of a civilized society is intrinsically linked to the evolution of acceptance and adherence to values in human life. Education is one of the most significant vehicles to achieve this. The basic mandate of education is to prepare young persons for the future. In this respect much more needs to be done particularly in terms of inculcating and internalizing humanistic, ethical and moral values among the younger teachers. Only the teachers understand the significance of these aspects in preparing children for the future.

In the present day situation, we have to teach the new generation the moral values present in Sanskrit literature in order to arrest the social, political and moral degradation. We all are acquainted with the great Sanskrit epics Mahābhārata, Śrīmadbhāgavatgītā, Manusamhitā, Pāṇatantra and hitopodeśa that are the storehouse of so many moral values and they teach the everyday morality like truthfulness, helpfulness, good manners etc.

### Introduction:

The growth of a civilized society is intrinsically linked to the evolution of acceptance, and adherence to values in human life. Education is one of the most significant vehicles to achieve this. The visible impact of science and technology is that of materialistic development at a very fast pace. The only objectives of these days are to possess 'more' and acquire a greater status in the society. No section, including teachers, can remain aloof from such overpowering trends. That such trends are affecting socially accepted norms, behavior and values of the younger generation is no longer an unknown entity.



The basic mandate of education is to prepare young persons for the future. The level of fulfillment of such expectations is an outcome of the level of application, understanding and action on the part of the teachers. The quality of teachers cannot be developed by providing them education and training in cognitive areas alone. Much more needs to be done. Particularly in terms of inculcating and internalizing humanistic, ethical and moral values amongst the younger teachers. Only teachers who understand the significance of these aspects in preparing children for the future, can really discharge their functions effectively and fully. This cannot be done by adding a few chapters in text books, providing separate text book or earmarking a couple of periods per week. The curricula of teacher training institution should not ignore value inculcation. Value inculcation must permeate all sections of society and all activities that influence the family and society. Parents, community and society must accept their respective roles and responsibilities. Teacher educators, who prepare the teachers, could focus on *development strategies* that would enable examination of every content unit with a view of developing values and ethics.

In a civilized society we must follow some social order. In the present day situation we have to teach the new generation the moral values present in the Sanskrit literature in order to arrest the social, political and moral degradation. There are so many moral advices found in Sanskrit literature regarding non-violence, truthfulness, helpfulness etc. All these moral advices in Sanskrit literature are called 'Subhasita' सु भाषितम् इति सुभाषितम्। The meaning of भाषित is speech and the meaning of सु is beautiful. Hence, the full meaning of 'Subhasita' is 'beautiful speech'. All the Sanskrit literature is full of many Subhasitas which can re-establish traditional values and strengthen links at the present juncture.

We all are acquainted with the great Sanskrit epics viz. Mahābhārata, Śrīmadbhāgavatgītā, Manusamhitā, Pañcatantra, Hitopodeśa etc. Which are the storehouses of so many moral values and they teach the everyday morality.

#### Truthfulness:

About truth it is said that-

सत्यं सर्वजगन्मूलं जगदाधारकं परम्।

सत्यान्नास्ति परं ज्योतिः, सत्यं धर्मस्य जीवितम्॥

Truth is the gravitation principle of the universe, by which it is supported and in which it inheres. Pythagoras also said that 'Truth is God.'

Only the truth can save the people from any kind of sin, save form sorrow. But there is also the prohibition for saying unpleasant truth. Manu, the author of Manusamhitā said-

सत्यं ब्रूयात् प्रियं ब्रूयात् न ब्रूयात् सत्यमप्रियम्।  
प्रियं च नानृतं ब्रूयात् एष धर्मः सनातनः॥ (मनु 4.138)

#### Non-Violence :

About non-violence there are so many moral values written in Sanskrit literature. According to Manu, non-violence is the only way to success in every step of our life. Any work can be done easily by a sweet speech, not by a rude speech. It is said that-

अहिंसयैव भूतानां कार्यं श्रेयो नुशासनम्।

वाक् चैव मधुरा श्लक्ष्णा प्रयोज्यो धर्ममिच्छता॥ (मनु 2.159)

About the generosity of non-violence Manu said-

यो हिंसकानि भूतानि हिनस्यामात्मसुखेच्छया।

स जीवञ्च मृतञ्चैव न क्वचित् सुखमेधते॥ (मनु 5.45)

Whoever in this earth can kill the living being for self-happiness never obtain happiness not only in his lifetime but after his death as well.

These moral values are very relevant in present day situation. Nowadays terrorists are making our lives intolerable by numerous acts of terrorism. At present the increasing number of terrorists in every Indian State brings down frightful darkness to our society. So, in such a critical point of time we can try to motivate the evil forces to adopt non-violence with the help of such kind of moral values depicted in the Sanskrit literature.

#### Helpfulness :

There are so many good saying about the act of doing good to others. Nowadays, in the time of materialism man has become self-centred, nobody thinks for others. But in the ancient period the sages and the religious people composed many valuable speeches, which have more contemporary relevance as far as the generation is concerned. At present we the teachers have a very significant duty of teaching the young ones the moral values inherent in such kind of speeches, a few important ones of which are cited below.

अयं निजं परो वेति गणना लघुचेतसाम्।

उदारचरितानां तु वसुधैव कुटुम्बकम्॥ (हितोपदेश 1.69)

Again,

परोकाराय फलन्ति वृक्षाः, परोपकाराय वहन्ति नद्याः

परोपकाराय दुहन्ति गावः परोपकारार्थमिदं शरीरम्॥ (विक्रमोर्वशीय 66)



Trees bear fruits to feed others, river flows to serve others, cows give milk for the nourishment of human being. Likewise the human body is also meant for doing good things to others.

#### Good Manners:

Today most of the young generation do not know the proper manner how to respect their parents, teachers and elder ones. The moral degradation of the new generation has become a serious social problem. In the Manusmriti of Sanskrit literature, there are so many Subhasitas about good manner, which if properly taught, can arrest the moral degradation of the new generation to a great extent. Among all of them, one verse from Visnumriti may be quoted where it is said that in spite of being characterless, if a man has good manners he can live for hundred years'.

सर्वलक्षणहीनोऽपि यः सदाचरवान् नरः ।  
श्रद्धधानोऽनसुयश्च शतं वर्षाणि जीवति ॥

#### Desire for Performing duties:

Today, the new generation have apathy about any work. They are not aware of their own duties. In the Śrimadbhāgavatgītā Krishna encourages Arjuna to do his duty. He urges upon him the doctrine that in performing all social and religious duties, without the least regard for the direct and indirect results, he may be able to progress towards union with the Supreme. We all are acquainted with those advices in the Gita. So, at the present social juncture, if we try to make our children and the new generation cultivate the habit of reading a few chapters of the Gita daily, it is felt that a feeling of purity would act on their mind due to which they would hesitate to do all kinds of immoral acts.

#### Respect for women:

Another very sorrowful social disease at present is the lack of love and respect for women. Today if we cast a glance at the headlines of daily newspaper, we come across so many news items about indecent and cruel behaviour towards women of all age groups. The present day women, though they are educated, are not safe in the society. But in the Vedic period and in the time of Manu, women had a good social status and they enjoyed the due respect in the society. This aspect has been depicted in almost all the religious books of Sanskrit literature. In this regard some important Ślokas in Sanskrit literature are quoted below.

यत्र नार्यस्तु पुज्यन्ते रमन्ते तत्र देवता । (मनु 3.53)  
मातृदेवो भव । (तैत्तिरीय उप. 1.11.2)

Again,

सहस्रं तु पितृन् माता गौरवेणातिरिच्यते ।  
पितृर्दशगुणं माता गौरवेणातिरिच्यते ॥ (मनु 2.145)

#### Conclusions:

In this way the Subhasitas present in Sanskrit literature are full of moral values which are most relevant for the present critical social system. To strengthen the value inculcation it is necessary to concentrate on the preparation of teachers, educational administrators and planners and to regularly review the curriculum and teaching learning materials in the context of value enrichment. For a civilized society the way the advancement in the industrial, electronic and information technologies are necessary, the moral values have also the same kind of importance. So, we all have the duty to include Sanskrit, which is the storehouse of all the moral values, as a compulsory subject in the Primary and Secondary levels at schools. Plato maintained that the good life is possible only within a good society. Kant's ideal community consisted of men who treated one another as ends rather than means. So, our dream of such a beautiful society with all of humanity would be fulfilled if we go through the valuable Subhasitas present in Sanskrit literature and try to apply in our daily life. ■

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## কালিদাসৰ ঋতুসংহাৰত ঋতু, প্রকৃতি আৰু মানৱ চৰিত্ৰ

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সংস্কৃত বিভাগ, ডিব্ৰু মহাবিদ্যালয়, ডিব্ৰুগড়

ঋতুসংহাৰ হৈছে কবি কালিদাসৰ অন্য এক অনুপম সৃষ্টি। মানৱ মনৰ লগত প্ৰকৃতিৰ এক অভিন্ন সম্পৰ্ক সদা বিৰাজমান। আকৌ ঋতু পৰিবৰ্তনৰ লগে লগে প্ৰকৃতিৰো ৰূপ পৰিবৰ্তন হয়। এই পৰিবৰ্তিত ঋতুৱে প্ৰকৃতি আৰু মানৱ মনত সৃষ্টি কৰা প্ৰতিক্ৰিয়াক আধাৰ হিচাপে লৈ মহাকবি কালিদাসে ৰচনা কৰে এই সৰু খণ্ডকাব্যখন। কালিদাসৰ এইখন প্ৰাথমিক ৰচনা। গ্ৰীষ্ম, বৰ্ষা, শৰৎ, হেমন্ত, শীত আৰু বসন্ত হৈছে ছয় ঋতু য'ত প্ৰকৃতিয়ে ন-ন সজ্জাৰ লৈ মানৱৰ আগত ধৰা দিয়ে। প্ৰকৃতিৰ পৰিবৰ্তিত ৰূপ আৰু শৃঙ্গাৰ ৰসক প্ৰাধান্য দি কবি কালিদাসে এই কাব্যখন ৰচনা কৰিছিল।

ব্যাকৰণৰ দিশৰ পৰা 'সম' উপসৰ্গৰ লগত 'হ' ধাতু আৰু যোগ কৰিলে 'সংহাৰ' শব্দটো পোৱা যায়। 'সংহাৰ' শব্দটোৰ অৰ্থ হৈছে 'থুপ' বা 'গোট'। সেয়ে 'ঋতুনাং সংহাৰঃ ইতি ঋতুসংহাৰ' (ষষ্ঠী বুলি ক'ব পাৰি। অনেকে অৱশ্যে এই কাব্যক 'ঋতুৰ মালা' বুলিও আখ্যা দিছে। কাব্যখনত কবি কালিদাসে গীতিময় ৰূপত ঋতুসমূহক উপস্থাপন কৰিছে। ছয় ঋতু অনুসৰি ছটা সৰ্গত কাব্যখন ৰচিত। এই আলোচনাত বিভিন্ন ঋতুত প্ৰকৃতিৰ ভিন ভিন ৰূপৰ লগতে প্ৰকৃতি আৰু মানৱ সমাজত ইয়াৰ প্ৰতিফলনৰ এটি সম্যক আলোচনা কৰিবলৈ বিচৰা হৈছে।

ঋতুসংহাৰৰ প্ৰথম সৰ্গত কবিয়ে গ্ৰীষ্ম ঋতুৰ বৰ্ণনা কৰিছে। এই সৰ্গত মুঠতে আঠাইশটা শ্লোকত কবিয়ে গ্ৰীষ্ম ঋতুৰ বৰ্ণনা কৰাৰ লগতে এই ঋতুত মানৱ মন আৰু প্ৰকৃতিৰ ৰূপৰো বৰ্ণনা কৰিছে। সাধাৰণতে বহাগ আৰু জ্যৈষ্ঠ মাহক এই ঋতুৰ সময় বুলি কোৱা হয়। গ্ৰীষ্ম ঋতুত সূৰ্যৰ প্ৰচণ্ড উত্তাপ সহ্য কৰিব নোৱাৰি সকলো প্ৰাণীয়ে শীতল কিৰণ বিলোৱা চন্দ্ৰমাক স্মৰণ কৰে। গভীৰ শীতল পানীতেই পাইছে এনেদৰে—

প্ৰচণ্ড-সূৰ্যঃ স্পৃহণীয়-চন্দ্ৰমাঃ

সদাৱগাহ-স্কত-বাৰি-সঞ্চয়ঃ। (১।১১)

গ্ৰীষ্মৰ প্ৰচণ্ড তাপত পিপাসাতুৰ বনৰীয়া জীৱবোৰে বনত জন্ম লোৱা তৃণবোৰকে পানী বুলি ভাবি দৌৰিবলৈ ধৰে, পথৰ গৰম ধূলিৰে ধূসৰিত সাপে তাপৰ পৰা ৰক্ষা পাবলৈ ফণা সামৰি চিৰ বৈৰী ময়ূৰৰ পাখীৰ তলতেই আশ্ৰয় লয় আৰু ময়ূৰেও সাপৰ অনিষ্ট কৰাৰ পৰা বিৰত থাকে। কবিয়ে সৰ্প আৰু ময়ূৰৰ এটি বৰ সুন্দৰ চিত্ৰায়ণ কৰিছে এই কাব্যত।

ছতান্নি-কল্লৈঃ সৱিতুৰ্গভস্তিভিঃ

কলাপিনঃ ক্লান্ত-শৰীৰ-চেতসঃ।

ন ভোগিনঃ ধৃতি সমীপ-বৰ্তিনং

কলাপ-চক্ৰেণ নিৱেশিতাননম্।। (১।১৬)

অৰ্থাৎ যন্ত্ৰৰ অগ্নি সদৃশ প্ৰচণ্ড সূৰ্যৰ তাপৰ ফলত শৰীৰ শিথিল হৈ পৰা ময়ূৰে সৰ্পক বধ কৰাৰ পৰিবৰ্তে শত্ৰু সৰ্পৰ কুণ্ডলীত মুখ দি পৰি আছে। আনকি সূৰ্যৰ তাপত উতলি উঠা পানীৰ পৰা ভেকুলী ওলাই আহি ফণধৰৰ ফণাৰ তলতে বিশ্রাম লোৱা বুলিও কবিয়ে বৰ্ণনা কৰিছে। একেদৰে সৰ্পয়ো পিয়াহত আতুৰ হৈ পৰা বাবে ওচৰত বহি থকা ভেকুলীক আক্ৰমণ কৰা নাই।

বিষাণ্ণি-সূৰ্য্যাতপ-তাপিতঃ ফণী

ন হস্তি মণ্ডুক-কুলং তৃষাকুলঃ।। (১।২০)

গ্ৰীষ্মৰ তাপৰ প্ৰভাৱত আনকি বনৰ ৰজা বাঘৰো ওচৰতে বৈ থকা হাতীক বধ কৰাৰ শক্তি হেৰাই যায়। একেদৰে হাতীয়েও পানীৰ সন্ধানত নিৰ্ভয়ে বাঘৰ কাষেদিয়েই পাৰ হৈ যায়। গাহৰি বোৰে বোকাৰে ভৰা পুখুৰীৰ পাৰত মাটি খান্দি গাঁতত সোমাই থাকে। পাহাৰীয়া মহাবোৰেও পানীৰ সন্ধানত পাহাৰৰ গুহা অভিমুখে আকুল হৈ যোৱাৰ দৃশ্যও কবিয়ে সুন্দৰকৈ অঙ্কন কৰিছে।

তদুপৰি এই ঋতুত প্ৰচণ্ড গৰমৰ ফলত উৎপন্ন হোৱা বনাগ্নিয়ে সেউজীয়া গছ-গছনিবোৰো পুৰি ধ্বংস কৰাৰ চিত্ৰায়ণো কবিয়ে কৰিছে অতি সুন্দৰকৈ। ৰজা ফুল অথবা সেন্দূৰ সদৃশ অগ্নিয়ে অৰণ্যৰ গছ-লতিকাক দগ্ধ কৰি চাৰিও দিশত বিয়পি পৰাৰ বৰ্ণনা কবিয়ে কৰিছে এনেদৰে—

ৱিকচ-নৰ-কুসুম-স্বচ্ছ-সিন্দূৰ-ভাসা

প্ৰৱল-পৰন-ৱেগোদ্ভূত-ৱেগেন তূৰ্ণম্।

তট-ৱিটপ-লতাগ্ৰালিঙ্গন-ব্যাকুলেন

দিশি দিশি পৰিদগ্ধা ভূময়ঃ পাৱকেন।। (১।২৪)

অগ্নিয়ে দহন কৰাৰ ফলত শুকান বাঁহ ফটাৰ শব্দকো কবিয়ে বৰ্ণনা কৰিবলৈ পাহৰা নাই।

স্ফুটতি পটু-নিদাঈঃ শুষ্ক-বংশ-স্থলীষু। (১।২৫)

বনাগ্নিৰ পৰা ত্ৰাণ পাবলৈ হাতী, হৰিণ আৰু বাঘে নিজৰ নিজৰ শত্ৰুতা পাহৰি মিত্ৰতা পূৰ্বক নিৰাপদ ঠাইলৈ যোৱাৰ বৰ্ণনাও কবিয়ে অতি সুন্দৰকৈ কৰিছে। নাৰীয়ে এই ঋতুত কোমল বস্ত্ৰ পৰিধান কৰা, চন্দনৰ লেপ লোৱা, চন্দন জলত ডুবাই থোৱা বিচনীৰ বা লোৱা আৰু প্ৰিয়তমক গ্ৰীষ্ম দহনৰ পৰা মুক্ত কৰিবলৈ কৰা বিভিন্ন প্ৰচেষ্টাৰ বৰ্ণনাৰ পৰা বুজি পোৱা যায় যে গ্ৰীষ্ম ঋতুৰ ৰূপৰ লগতে জীৱ আৰু

জড় জগতৰ গ্ৰীষ্মকালীন ব্যৱহাৰৰ বিষয়েও কালিদাস জ্ঞাত আছিল আৰু সেয়ে এই সকলোবোৰ দিশেই তেওঁৰ গ্ৰীষ্মৰ বৰ্ণনাত উপলব্ধ।

গ্ৰীষ্ম ঋতুৰ পাছত বৰ্ষা ঋতুৰ আগমন হয়। আষাঢ় আৰু শাওণ মাহক এই ঋতুৰ সময় বুলি ধৰা হয়। গ্ৰীষ্মৰ প্ৰখৰ তাপ যেন বৰ্ষা ঋতুত নামি অহা বৰষুণে ধুৱাই নিব খোজে। কবিৰ ভাষাত বৰ্ষা হ'ল প্ৰেমৰ ঋতু, প্ৰেমিক-প্ৰেমিকাৰ ঋতু। ঋতুসংহাৰৰ দ্বিতীয় সৰ্গত কবি কালিদাসে বৰ্ষা ঋতুৰ বৰ্ণনা কৰিছে। এই সৰ্গতো সৰ্বমুঠ আঠাইশটা শ্লোক আছে। কিন্তু কবি কালিদাসে ইয়াত অকল প্ৰেমৰ বৰ্ণনা দিয়েই ক্ষান্ত থকা নাই, বৰ্ষা ঋতুৰ মোহনীয় ৰূপৰো বৰ্ণনা কৰিছে। কবিৰ দৃষ্টিত প্ৰকাণ্ড, যৌৱনপুষ্ট হাতীৰ পিঠিত উঠি, বিজুলী ৰূপী পতাকা উৰাই, নাগাৰাৰ শব্দ ৰূপ মেঘৰ গাজনিৰে বজা সদৃশ বৰ্ষা ঋতুৰ আগমন হয়।

সসীকৰাভোদধৰ-মন্ত-কুঞ্জৰঃ

তড়িপতাকোঃশনিশদ-মৰ্দলঃ।

সমাগতো ৰাজৱদুদ্রত-দ্যুতিৰ্

ধনগমঃ কামিজন-প্ৰিয়ঃ প্ৰিয়ে॥ (২।১)

বৰ্ষাকালীন মেঘ কবিৰ দৃষ্টিত কেতিয়াবা নীলা পদুমৰ পাতৰ দৰে, কেতিয়াবা ঘন কাজলৰ দৰে-

নিতান্ত-নীলোৎপল-পত্ৰ-কান্তিভিঃ

কচিৎ প্ৰভিনাঞ্জন-ৰাশি-সন্নিভৈঃ। (১।২)

গৰ্জন কৰি অহা মেঘে যেন ইন্দ্ৰধনুত বিজুলী ৰূপী বাণ ধাৰণ কৰিছে আৰু সেই বাণৰ প্ৰহাৰৰ ফলত সৃষ্টি হোৱা তীব্ৰ বৰষুণে প্ৰবাসী ব্যক্তিৰ অন্তৰত হাঁহকাৰৰ সৃষ্টি কৰিছে। ময়ূৰৰ নৃত্য বৰ্ষা ঋতুৰ এক মনোৰম দৃশ্য। এই ময়ূৰেও মেঘৰ গৰ্জন শুনি নিজৰ বহু ৰঙী পাখি মেলি নাচিবলৈ ধৰাৰ বৰ্ণনা কবিয়ে এনেদৰে কৰিছে—

সদা মনোজ্ঞঃ স্বনদুৎসৰোৎসুকং

বিকীৰ্ণ-বিস্তীৰ্ণ-কলাপ-শোভিতম্। (২।৬)

কবিৰ দৃষ্টিত বৰ্ষাকালৰ নদী এগৰাকী কামাতুৰ স্ত্ৰী আৰু সমুদ্ৰ হৈছে প্ৰেমিক। বৰ্ষাকালত পানীৰে উফলি উঠা নদীয়ে এনেদৰে দুপাৰৰ গছ-গছনি খহাইছিল-দ'ল ভাঙি সমুদ্ৰলৈ গতি কৰে, যেনেদৰে কামাতুৰা স্ত্ৰীয়ে প্ৰেমিকক লগ পাবলৈ গতি কৰে।

নিপাতয়ন্ত্যঃ পৰিতপ্তট-দ্ৰুমান্

প্ৰবৃদ্ধ-বৈগৈঃ সলিলৈৰনির্মলৈঃ।

স্ত্ৰিয়ঃ সুদৃষ্টা ইৱ জাতি-বিভ্ৰমাঃ

প্ৰয়াস্তি নদ্যন্ত্ৰিভিতং পয়োনিধিম্॥ (২।৭)

স্বামী প্ৰৱাসত থকা নাৰীয়ে আকৌ নিজৰ আভূষণ আদিও ত্যাগ কৰি স্বামী-বিৰহত চকুপানী টোকে। তদুপৰি বৰ্ষাৰ পানীৰ ধাৰক ভ্ৰমবশতঃ সাপ জ্ঞান কৰি আতঙ্কিতহোৱা ভেকুলী, মধুলোভী ভোমোৰাই ফুলবোৰক পাহি বিহীন দেখা গাই ময়ূৰৰ পাখিকে ফুল বুলি ভুল কৰা, ভোমোৰাই যৌৱনপুষ্ট হাতীৰ গালত মদজল পান কৰি থকা দৃশ্য, পাহাৰৰ শিখৰ স্পৰ্শ কৰি থকা বগা পদুম ফুলৰ দৰে আভা যুক্ত মেঘ, অসংখ্য বাৰণাৰ কাষত নাচি থকা ময়ূৰ, কদম আদি ফুলৰ সুগন্ধেৰে পূৰ্ণ বায়ু আদি দৃশ্যক কবি কালিদাসে

অতি মনোমোহা ৰূপত পাঠকৰ আগত প্ৰস্তুত কৰিছে। সুন্দৰী নাৰী সকলে উজ্জ্বল বস্ত্ৰ, মণি, অলঙ্কাৰৰ লগতে তেওঁলোকৰ চুলিত কদম, নৰ কেশৰ আৰু কেতেকী ফুল পৰিধান কৰে। নিজৰ শৰীৰ অগৰু আৰু চন্দনৰ প্ৰলেপেৰে সুবাসিত কৰি ৰাখে। বননিবোৰ ফুলি উঠা কদম ফুলেবোৰ যেন বৰ্ষা ঋতুৰ প্ৰসন্নতা আৰু বিকশিত কেতেকী ফুলবোৰ যেন তাৰ হাঁহি। ঋতুসংহাৰত বৰ্ষা ঋতুক এজন প্ৰেমিক ৰূপে কল্পনা কৰিছে কবিয়ে, যি নায়িকাক প্ৰসন্ন কৰিবৰ বাবে বিভিন্ন আভূষণ তৈয়াৰ কৰে।

শিৰসি বকুল-মালাং মালতীভিঃ সমেতাং

বিকসিত-নৱ-পুষ্পৈৰ্যুথিকা-কুড্‌মলৈশ্চ।

বিকচ-নৱ-কদম্বৈঃ কৰ্ণপূৰং বধুনাং

ৰচয়তি জলদৌঘঃ কান্তৰংকাল এষঃ॥ (২।২৪)

প্ৰেমিকৰ এই কামত সহায় কৰে শীতল বায়ুৱেও। কাৰণ বৰষাৰ নতুন পানীৰ কণিকাৰে শীতল এই বতাহে ফুলেৰে ভৰি থকা গছবোৰক দোঁ খুৱায় আৰু কেতেকী ফুলৰ ৰেণুৰে সুবাসিত হৈ প্ৰেমিকৰ মন আকুল কৰি তোলে।

নৱ-জল-কণ-সঙ্গাচ্ছীততামাদধানঃ

কুসুম-ভৰ-নতানাং লাসকঃ পাদপানাম্।

জনিত-ক্ৰটিৰ-গন্ধঃ কেতকীনাং ৰজোভিঃ

পৰিহৰতি নভস্বান্ প্ৰোষিতানাং মনাংসি॥ (২।২৬)

এনেদৰে বহু গুণ যুক্ত এই বৰ্ষা ঋতুক সৰ্বশেষত কবিয়ে প্ৰকৃতিৰ প্ৰকৃত বন্ধু আৰু প্ৰাণীৰ প্ৰাণ বুলিয়েই অভিহিত কৰিছে।

তৰু-বিটপ-লতানাং বান্ধবো নিৰ্বিকাৰঃ।

জলদ-সময় এষ প্ৰাণীনাং প্ৰাণভূতো (২।২৮)

বৰ্ষা ঋতুৰ পাছতে আগমণ ঘটে শৰৎ ঋতুৰ। কেৱল সংস্কৃত সাহিত্যই নহয়, পৃথিৱীৰ অন্য দেশৰ সাহিত্যতো এই ঋতুৰে সকলোতকৈ বেছি প্ৰাধান্য লাভ কৰি আহিছে। আহিন আৰু কাতি এই দুটা মাহ শৰৎ ঋতুৰ সময়। ঋতুসংহাৰ কাব্যৰ তৃতীয় সৰ্গত কবি কালিদাসে শৰতৰ অপৰূপ সৌন্দৰ্য বৰ্ণনা কৰিছে। এই কাব্যৰ তৃতীয় সৰ্গত শৰৎ ঋতুৰ বৰ্ণনা উপলব্ধ। এই সৰ্গতো কবিয়ে মুঠতে আঠাইশটা শ্লোকত শৰতৰ বৰ্ণনা কৰিছে। সৰ্গটোৰ প্ৰথম শ্লোকটোৱেই বোধকৰো শৰতৰ সৌন্দৰ্য বৰ্ণনা কৰিবৰ বাবে আটাইতকৈ উপযুক্ত। এই শ্লোকত কবিয়ে শৰতক নৱবধুৰ উপমা দিছে।

কাশাংশুকা বিকচ-পদ্ম-মনোজ্ঞ-বত্ৰা

সোণ্মাদ-হংস-ৰৱ-নুপুৰ-নাদ-ৰম্যা।

আপক-শালি-ক্ৰটিৰা তনু-গাত্ৰয়ষ্টিঃ

প্ৰাপ্তা শৰন্নৱ-বধুবিৰ ৰূপ-ৰম্যা॥ (৩।১)

অৰ্থাৎ ফুলি উঠা কঁহুৱা ফুলবোৰ যাৰ বস্ত্ৰ, উন্মত্ত হংসৰ কলৰৰ যাৰ নুপুৰৰ ধ্বনি, পকা ধান যাৰ শৰীৰ— এনেহে প্ৰস্তুটিত পদুমৰ দৰে শৰৎ ঋতু যেন এগৰাকী ন-কইনা হৈ। শৰতৰ অপৰূপ সৌন্দৰ্য প্ৰকাশ কৰিবৰ বাবে ইয়াৰ বাহিৰে উপযুক্ত উপমা একো থাকিব নোৱাৰে। শৰৎ ঋতুত ফুলি উঠা কঁহুৱাৰ

শুভ বৰ্ণই পিছে পৃথিৱী আৰু জ্যোৎস্নামণ্ডিত নিশাক, শুভ হংসই নদীৰ পানীক, ভেঁট ফুলবোৰে সৰোবৰক, প্ৰস্ফুটিত সপ্তপৰ্ণী ফুলৰ গছবোৰে বননীক আৰু মালতী ফুলবোৰে উদ্যানৰ সৌন্দৰ্যক দ্বিগুণিত কৰা বুলিও কবিয়ে প্ৰকাশ কৰিছে। কবি কালিদাসৰ কল্পনাত নদীবোৰ সুন্দৰী স্ত্ৰীসদৃশ, নদীৰ উজ্জ্বল মাছবোৰ সিবিলাকৰ কৰধনী, পাৰত বহি থকা শুভ চৰাইবোৰ স্ত্ৰীকপী নদীৰ মালা হিচাপে দৃশ্যমান হৈছে। শৰতৰ আকাশ নিৰ্মল, বগা ডাৱৰেৰে ভৰি পৰে। কবিৰ দৃষ্টিত শৰতৰ সেই নিৰ্মল আকাশ যেন এজন ৰজা আৰু বগা ডাৱৰে ৰজাক চোঁৱৰেৰে বা দিছে।

সংলক্ষ্যতে পৰন-বেগ-চলৈঃ পয়োদৈ

ৰাজেৰ চামৰ-ৰৈকপৰীজ্যমানঃ।। (৩।৪)

শাৰদী ৰাণীৰ চকুৰ কাজল স্বৰূপ মনোহৰ নীলা আকাশ, বন্ধুক ফুলৰ ৰঙেৰে ৰঙচুৱা পৃথিৱী, পথাৰৰ পকা ধান, গছৰ কিশলয় অৰ্থাৎ নতুনকৈ ওলোৱা কুঁহিপাত, ফুলি থকা ফুলৰ ৰস চুহি থকা ভোমোৰা, নদীৰ ঢৌত ঠোঁট দি থকা বতখ চৰাই, কদম গছ আৰু সাৰস পক্ষীয়ে ঘেৰি থকা নদী, হংসৰ মাত আৰু গুলপীয়া পদুমৰ পৰাগেৰে ৰঙচুৱা হৈ পৰা নদীও এই শাৰদী ৰাণীৰ সৌন্দৰ্যৰ বাহক। শৰৎ কালৰ নিশাৰো এক সুকীয়া সৌন্দৰ্য কবিয়ে বৰ্ণনা কৰিছে এনেদৰে।

তাৰাগণ-প্ৰব-ভূষণমুদ্রহন্তি

মেঘাৰোধ-পৰিমুক্ত-শশাঙ্ক-বক্ৰা।

জ্যোৎস্না-দুকূলমমলং ৰজনী দধানা

বৃদ্ধিং প্ৰয়াতনুদিনং প্ৰমদেৰ বালা।। (৩।৭)

অৰ্থাৎ তৰাৰ অলঙ্কাৰ পৰিধান কৰা, মেঘৰ ওৰণী লৈ, চন্দ্ৰমাৰ সুন্দৰ বস্ত্ৰ পৰিধান কৰি এই শাৰদী নিশাৰ ৰূপ যেন নৱ-যৌৱনা কন্যাৰ দৰে প্ৰতিদিনেই বৃদ্ধি পাইছে। এই সময়চোৱাত শীতল বায়ুয়ে ধানৰ ভৰত দোঁ খোৱা ধান গছবোৰ, ফুলেৰে ভৰি থকা ফুল গছবোৰ আৰু পদুমেৰে ভৰি থকা সৰোবৰবোৰক কঁপাই তোলে। এই ঋতুত আকাশ ইমানেই নিৰ্মল হৈ পৰে যে মেঘৰ মাজত ইন্দ্ৰধনু, বিজুলী ৰূপী পতাকা বা আকাশেৰে উৰি যোৱা বগলী দেখা পোৱা নাযায়। আনকি ময়ূৰেও আকাশৰ ফালে মূৰ তুলি নাচায়।

নষ্টং ধনুৰ্বলভিদো জলদোদৰেষু

সৌদামিনী স্ফুৰতি নাদ্য বিয়ংপতাকা।

ধ্বন্তি পক্ষ-পৰনৈৰ্ নভো বলাকাঃ

পশ্যন্তি নোন্নত-মুখা গগনং ময়ূৰাঃ।। (৩।১২)

শৰতৰ আন এক সুন্দৰ উপাদান শেৰালি ফুলেও ঋতুসংহাৰ কাব্যত ঠাই পাইছে। উদ্যানবোৰ শেৰালি ফুলৰ সুগন্ধেৰে সুগন্ধিত আৰু পক্ষীৰ কুজন আৰু হৰিণীৰ মাতৰ শব্দেৰে ভৰি থকা উদ্যানসমূহে প্ৰেমীজনৰ মনত অস্থিৰতাৰ সৃষ্টি কৰে। শৰতৰ প্ৰাতঃকাল নিয়ৰৰ প্ৰভাৱত শীতল আৰু পদুম, ভেঁট আদিৰ সুবাসেৰে সুগন্ধিত মৃদু বায়ুৰে মনোমোহা হৈ থাকে। তদুপৰি ধানেৰে ভৰি থকা খেতি-পথাৰত চৰি থকা গোসমূহ আৰু হংস, সাৰস আদি চৰাইৰ কুজনেও ঋতুসংহাৰত স্থান লাভ কৰিছে। কবিৰ দৃষ্টিত প্ৰকৃতিৰ সৌন্দৰ্যৰ আগত মানৱী-সৌন্দৰ্য স্নান পৰি যোৱাটো এই কাব্যৰ আন এটা মন কৰিব লগীয়া দিশ। শৰতত হংসৰ গতিয়ে নাৰীৰ গতিৰ, শ্বেত কমলে মুখচন্দ্ৰৰ, নীলকমলে চকুৰ, পানীৰ সৰু সৰু তৰঙ্গই

কটাক্ষৰ, সেউজীয়া লতাবোৰে বাহুৰ, নৰমালতী আদি ফুলে তেওঁলোকৰ সুন্দৰ হাঁহিক স্নান কৰি পেলোৱা বুলি কবিয়ে মত প্ৰকাশ কৰিছে এই কাব্যত। তথাপিও যুৱতীসকলে নিজকে নৰমালতীৰে কেশৰাজি, নীলকমলেৰে কুণ্ডল আৰু চন্দনৰ ৰসেৰে নিজৰ শৰীৰক সজাই লগতে ভৰিত পায়ল পৰিধান কৰি নিজকে অধিক সুন্দৰ কৰিবলৈ প্ৰয়াস কৰিছে।

শৰতৰ মেঘ বিহীন নিশা আকাশত বিৰাজমান চন্দ্ৰমাক ৰাজহংস, তৰাসমূহক ভেঁটফুল আৰু স্বয়ং আকাশখনক এটি বৃহৎ সৰোবৰৰ লগত তুলনা কৰিছে কালিদাসে।

স্ফুট-কুমুদ-চিহ্নানাং ৰাজহংস-স্থিতানাং

মৰকত-মণি-ভাসা ৰাৰিণা ভূষিতানাম্।

শ্ৰিয়মতিশয়-ৰূপাং ব্যোম তোয়াশয়ানাম্

বহতি বিগত-মেঘং চন্দ্ৰ-তাৰাকীৰ্ণম্।। (৩।২১)

এই ঋতুত সকলো বস্ত্ৰেৰে পৰা অপৰিষ্কাৰ ভাৱ আঁতৰি গৈ নিৰ্মল হৈ পৰে। ভেঁট ফুলৰ সৈতে মিলিত হোৱা শীতল বতাহ, পৰিষ্কাৰ চৌদিশ, পক্ষবিহীন পৃথিৱী আৰু তাৰকাখচিত আকাশে সকলোৰে মন হৰণ কৰে। সূৰ্যৰ উদয়ে এই ঋতুত পদুম ফুলক প্ৰেমিকৰ আগমনত উৎফুল্লিত হোৱা প্ৰেমিকাৰ দৰে আৰু চন্দ্ৰমাৰ অন্তৰ্গমনৰ লগে লগে ভেঁট ফুলবোৰ বিচ্ছেদৰ দুঃখত বিহ্বল প্ৰেমিকাৰ দৰে হোৱা বুলি উল্লেখ কৰিছে কবিয়ে। ইয়াৰ দ্বাৰা প্ৰকৃতিত মানৱতা ৰূপায়ণ কৰাৰ উপৰিও এই শৰৎ ঋতুক প্ৰেমৰ ঋতু বুলি উল্লেখ কৰিছে কবি কালিদাসে।

ঋতুসংহাৰৰ চতুৰ্থ সৰ্গত হেমন্ত ঋতুৰ বৰ্ণনা লাভ কৰা যায়। সৰ্বমুঠ উনৈশটা শ্লোকৰ দ্বাৰা এই ঋতুৰ সৌন্দৰ্য উপভোগ কৰাৰ অৱকাশ প্ৰদান কৰিছে কবিয়ে। হেমন্ত ঋতুৰ সময় হৈছে আঘোন আৰু পুহ মাহ। হেমন্ত ঋতুৰ বৰ্ণনায়ুক্ত এই সৰ্গৰ আৰম্ভণিতে কবিয়ে কৈছে যে কুঁৱলীৰে আৰু হিমপাতেৰে ভৰা, নতুনকৈ গজি উঠা খেতিৰ সেউজীয়া শোভাৰে, ৰঙা লোপ্ৰ ফুলেৰে, পকা ধানেৰে আৰু অন্তৰ্ধান হোৱা পদুম ফুলেৰে এয়া হেমন্ত ঋতুৰ আগমণ ঘটিছে।

নৱ-প্ৰবালোদগম-সস্য-ৰম্যঃ

প্ৰফুল্ল-লোপ্ৰঃ পৰিপক্ক-শালিঃ।

বিলীন-পদ্মঃ প্ৰপতন্তুযাৰো

হেমন্তকালঃ সমুপাগতোঃয়ম্।। (৪।১)

হেমন্ত ঋতুত শীতৰ প্ৰভাৱৰ বাবে নাৰী সকলে ৰাজুবন্ধ, খাৰুআদি অলঙ্কাৰ পৰিধান নকৰে আৰু পাতল-কোমল-ৰেশমী বস্ত্ৰ পৰিত্যাগ কৰে। তাৰ পৰিবৰ্তে তেওঁলোকে নিজৰ শৰীৰ চন্দনেৰে চৰ্চিত কৰে, নিজৰ মুখ ফুল আদিৰে চিত্ৰিত কৰে আৰু কেশ আদি ক'লা অগৰুৰে শুকুৱায়। বহু দূৰলৈকে বিস্তৃত ধান খেতি, হৰিণ-হৰিণীৰ গোটেৰে উজ্জ্বল, পখীৰ কুজনেৰে ভৰপূৰ, নীলা পদুম প্ৰস্ফুটিত হৈ থকা আৰু হাঁহৰ শাৰীৰে ভৰা শীতল পানীৰ পুখুৰীয়ে সহজেই মানৱ মনক আকৰ্ষণ কৰে। এই ঋতুত ঘাঁহৰ ওপৰত পৰি থকা নিয়ৰৰ সৰু সৰু টোপালবোৰ যেন কবিৰ দৃষ্টিত বিৰহ বিধুৰ প্ৰেমিক-প্ৰেমিকাৰ চকুপানী।

তৃণাশ্ৰ-লগ্নৈস্তহিনৈঃ পতন্তি

আক্ৰন্দতীবোষসি শীতকালঃ।। (৪।৭)



হিম চৈচা বতাহত শেঁতা পৰি যোৱা প্ৰিয়ঙ্গু লতাডালো কবিত্ব দৃষ্টিত বিৰহী নাৰী।

প্ৰিয়ে, প্ৰিয়ঙ্গুঃ প্ৰিয়-বিপ্ৰিয়ুক্তা

বিপাণ্ডুতাং য়াতি বিলাসিনীৰ॥ (৪।১১)

এনেদৰে দেখা যায় যে কবিয়ে হেমন্ত ঋতুকো মানবীয় ৰূপ-তুলিকাৰে জন মানসত ডাঙি ধৰিছে।

ঋতুৰ ভিতৰত পঞ্চম হৈছে শিশিৰ বা শীত ঋতু। অসমীয়া মাঘ আৰু ফাগুন মাহক এই ঋতুৰ সময় বুলি কোৱা হয়। ঋতুসংহ্ৰাৰ কাব্যৰ পঞ্চম সৰ্গত সৰ্বমুঠ চৈধ্যটা শ্লোকৰে এই ঋতুক বৰ্ণনা কৰিছে কবিয়ে। এই ঋতুৰ সংজ্ঞা কবিয়ে এনেদৰে দিছে

প্ৰকট - শাল্যংগু - চয়ৈৰ্মনোহৰং

কচিৎস্থিত- ক্ৰৌঞ্চ - নিনাদ-ৰাজিতম্।

প্ৰকাম - কামং প্ৰমদাজন - প্ৰিয়ং

বৰোৰ। কালং শিশিৰাহুয়ং শৃণু॥ (৫।১)

অৰ্থাৎ হে প্ৰিয়াত্ম শূনা, পকা ধান আৰু কুঁহিয়াৰেৰে ভৰি পৰা, ক্ৰৌঞ্চ পক্ষীৰ কুজনেৰে ভৰা আৰু যুৱতীসকলৰ প্ৰিয় ঋতুৱেই হৈছে শীত ঋতু। তদুপৰি এই শীতৰ প্ৰকোপৰ পৰা ৰক্ষা পাবলৈ মানুহে ঘৰৰ খিৰিকী বন্ধ কৰে, জুইত নিজৰ শৰীৰ সেকে, ৰ'দ লয়, ডাঠ বস্ত্ৰ পৰিধান কৰে আৰু প্ৰিয়জনৰ সংস্পৰ্শত থাকে।

নিৰুদ্ধ - বাতায়ন - মন্দিৰোদৰং

ছতশনো ভানুমতো গভস্তয়ঃ।

গুৰুণি বাসাংস্যবলাঃ সমৌৰনাঃ

প্ৰয়াস্তি কালেঃ জনস্য সেব্যতাম্॥ (৫।২)

চন্দন এবিধ শীতলীকাৰক হোৱা বাবে এই ঋতুত মানুহে চন্দন পৰিধান যে নকৰে সেই কথাও কবিয়ে উল্লেখ কৰিছে এই কাব্যত। আনকি শৰৎ কালৰ চন্দ্ৰমাৰে ভৰা ৰাতিও মানুহৰ ভাল নালাগে। লগতে ভাল নালাগে ঘন কুঁৱলীৰে ভৰা শীতল বতাহ। কাৰণ শেঁতা তাৰকাৰে ভৰা শীতকালৰ নিশা ঘন কুঁৱলীৰ বাবে অধিক শীতল হৈ পৰে। তেনে স্থলত চন্দ্ৰমাৰ শীতল কিৰণে নিশাৰ শীত দুগুণে বৃদ্ধি কৰে। এনে পৰিস্থিতিত মানুহ খুব কমেইহে বাহিৰলৈ ওলায়।

তুষাৰ - সংঘাত - নিপাত - শীতলাঃ

শশাঙ্ক - ভাভিঃ শিশিৰীকৃতাঃ পুনঃ।

বিপাণ্ডু - তাৰাগণ - জিহ্মা - ভূষিতা

জনস্য সেব্যো ন ভৱন্তি ৰাত্ৰয়ঃ॥ (৫।৪)

তদুপৰি বিভিন্ন শৃঙ্গাৰ ৰসাত্মক শ্লোকৰ সমাহাৰেৰে শীত ঋতুৰ বৰ্ণনা লাভ কৰা যায় কালিদাসৰ ঋতুসংহ্ৰাৰত।

ঋতুৰাজ বসন্তৰ বৰ্ণনা কবিয়ে ঋতুসংহ্ৰাৰ কাব্যৰ একেবাৰে শেহৰ সৰ্গ অৰ্থাৎ ষষ্ঠ সৰ্গত কৰিছে। সৰ্বমুঠ সাতত্ৰিশটা শ্লোকত কবি কালিদাসে বসন্ত ঋতুৰ এটি সৰস আৰু সুন্দৰ বৰ্ণনা দিবলৈ চেষ্টা কৰিছে। অসমীয়া চ'ত আৰু বহাগ মাহকে বসন্ত ঋতুৰ সময় বুলি কোৱা হয়। বসন্ত ঋতুক বীৰ আখ্যা দি কবিয়ে

কৈছে - হে প্ৰিয়ে, আমমুকুল ৰূপী বাণ ভোমোৰাৰ শাৰী ৰূপী গুণ থকা পুষ্পধনু লৈ এয়া বীৰ বসন্তই প্ৰৱেশ কৰিছে।

প্ৰফুল্ল - চূতাক্ষৰ - তীক্ষ্ণ - সায়কো

দ্বিৰেফ - মালা - বিলসন্ধনুৰ্গণঃ।

মনাংসি বেঙ্কুং সুবত - প্ৰসঙ্গিনাং

বসন্ত - যোদ্ধা সমুপাগতঃ প্ৰিয়ে॥ (৬।১)

এই ঋতুতগছত ফুল ফুলে, পানীত পদুম ফুল বিকশিত হয়, নাৰীৰ অন্তৰত প্ৰেমৰ উন্মেষ হয়, বতাহ বলে, সন্ধ্যা মনোমোহা আৰু দিন ৰমণীয় হৈ পৰে।

দ্ৰুমাঃ সপুষ্পাঃ সলিলং সপদ্মং

স্ত্ৰিয়ঃ সকামাঃ পৰনঃ সুগন্ধিঃ।

সুখাঃ প্ৰদোষা দিবসাস্ত ৰম্যাঃ

সৰ্বং প্ৰিয়ে ত্বু চাকৃতং বসন্তে॥ (৬।২)

এই ঋতুত ঈষৎ কুঁৱলী পৰাৰ ফলত পৰিবেশ কিছু পৰিমাণে শীতল হৈ পৰে। অথচ ঘামৰ প্ৰভাৱো এই ঋতুত থাকে। সুন্দৰ ফুল পাতেৰে সজ্জিত নাৰীসকলৰ মুখত জিলিকি উঠা ঘামৰ বিন্দুবোৰ দেখিবলৈ ৰত্নৰ মাজত মনোহৰ মুকুতা যেন বোধ হয় বুলি কবিয়ে মত প্ৰকাশ কৰিছে।

সপত্ৰলেখেষু বিলাসিনীনাং

বক্ৰেষু হেমাসু - ৰহোপমেযু।

বস্ত্ৰান্তৰে মৌক্তিক - সঙ্গ - ৰম্যাঃ

স্বেদাগমো বিস্তৰতামুপৈতি॥ (৬।৮)

বসন্ত ঋতুৰ লগে লগে পৰিবেশ সামান্য গৰম হোৱাৰ বাবে মানুহে দিনত গছৰ ছাঁত আৰু ৰাতি চন্দ্ৰমাৰ কিৰণত আশ্ৰয় ল'বলৈ ধৰে।

ছায়াং জনঃ সমভিবাঙ্কতি পাদপানাম্

নক্তং তথেষ্ছতি পুনঃ কিৰণং সুধাংশোঃ। (৬।১১)

ইয়াৰ উপৰি আম গছৰ ডালত বহি থকা কুলি চৰাই যুটিৰ প্ৰণয় চিত্ৰ, ফুলে ফুলে উৰি ভোমোৰাই কৰা গুঞ্জন, কোমল পাত আৰু ৰঙা ফুলেৰে ভৰি থকা অশোক ফুলৰ গছ, মৃদু বতাহত হালি-জালি থকা অতি কোমল লতিকাৰোৰ, উজ্জ্বল কুৰুবক ফুল, বতাহে নচুৱাই থকা ৰঙা পলাশ ফুল আদি সকলোৰে এই ঋতুত যেন ন-পৰশেৰে প্ৰাণ পাই উঠে। ইমানেই নহয়। কবিয়ে পলাশ ফুলৰ গছজোপাক ৰঙা শাৰীৰ ওবণীৰে এগৰাকী নৱ-বধূৰ লগতো তুলনা কৰিছে।

সদ্যোবসন্ত - সময়ে হি সমাচেতেয়ং

ৰক্তাংগুকা নৱ-বধূৰিৰ ভাতি ভূমিঃ॥ (৬।২১)

আনহাতে কুলি চৰাইৰ মধুৰ অথচ উদ্বেজক কুহু-কুহু ধ্বনিয়ে আৰু ভোমোৰাৰ গুঞ্জে লজ্জাশীলা, বিনয়ী, সতী স্ত্ৰীৰ মনো ক্ষণেকৰ বাবে প্ৰেমাকুল কৰি তোলে বুলি কবিয়ে প্ৰকাশ কৰিছে। বসন্তৰ পৰশ পৰি পাহাৰ-পৰ্বত ফুলৰ সমাহাৰেৰে আৰু কুলি চৰাইৰ মাতেৰে আকৰ্ষণীয় হৈ পৰিছে। কবিত্ব দৃষ্টিত

বসন্তৰ সকলো উপাদান অৰ্থাৎ সুন্দৰ সন্ধ্যা, চন্দ্ৰ চন্দ্ৰমা, কুলি চৰাইৰ কুহু ধ্বনি, ভোমোৰাৰ গুঞ্জন আদি যেন পুষ্পশৰ ধাৰণ কৰোঁতা কামদেৱক উদ্দীপিত কৰাৰ বসায়ন হে।

সৰ্বং বসায়নমিদং কুসুমায়ুধস্য ॥ (৬।৩৫)

গতিকে এনেহে বৰ্ণনীয় বসন্ত ঋতুৱে সকলোকে আনন্দ প্ৰদান কৰক এয়েই কবিৰ একান্ত ইচ্ছা।

তেনেই সৰু এই ঋতুসংহাৰ কাব্যখনৰ দ্বাৰা কবি কালিদাসে ছয় ঋতু আৰু তাৰ প্ৰভাৱ প্ৰকৃতি আৰু মানৱ মনত কেনেদৰে পৰে সেই কথা সুন্দৰ আৰু সাৱলীল ভাষাত প্ৰকাশ কৰিবলৈ চেষ্টা কৰিছে। কেৱল শৃঙ্গাৰ বসৰ আধিক্যই মাজে মাজে পাঠকক অৱসাদ গ্ৰস্ত কৰি তোলে। সাহিত্যৰ সমালোচক সকলে মন্তব্য কৰে যে কবি কালিদাসৰ অপৈণত বয়সৰ সৃষ্টি হোৱা হেতুকে এই ঋতুকাব্যখনত শাৰীৰিক প্ৰেমে অধিক প্ৰাধান্য লাভ কৰিছে। মানসিক উত্তৰণৰ অৱকাশ এই কাব্যত পোৱা নাযায়। ঋতু পৰিবৰ্তনে প্ৰকৃতি আৰু মানৱ মনৰ ওপৰত নিশ্চয়কৈ ক্ৰিয়া কৰে আৰু এই পৰিবৰ্তনৰ ফলত বিপৰীত লিঙ্গৰ মাজত আকৰ্ষণ সৃষ্টি হোৱাটোও নিতান্তই স্বাভাৱিক। কিন্তু এই আকৰ্ষণ শৰীৰতেই সীমাবদ্ধ হ'লে কাব্যখনক উৎকৃষ্ট বুলি ক'ব নোৱাৰি। ঋতুসংহাৰৰ ক্ষেত্ৰতো এই একেই কথাই প্ৰযোজ্য। সেয়ে হ'লেও প্ৰকৃতিৰ ৰূপ-চিত্ৰণৰ ক্ষেত্ৰত এই কাব্যখনৰ জৰিয়তে কবি কালিদাস সাৰ্থক বুলি ক'ব পাৰি।■

প্ৰসঙ্গপঞ্জী

ঋতুসংহাৰ— কালিদাস, বিমল শ্যাম (সঃ), নিধি প্ৰকাশন, দিল্লী, ১৯৮০।

নিবন্ধ চিন্তামণি— শৰ্মা, ড° ৰাজেন্দ্ৰ নাথ, এম এল পাৱিকেশ্যন, ২০১৫।

Khaj: Vol. VIII, 2016

ISSN No. : 2278-5272

## Status of Women in Mising Community of Assam

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### Introduction:

The Mising Community of Assam belongs to the Tibeto – Burmese family of great Mongoloid race. According to D. Nath, the Mising tribe of Assam, initially known as Miris, constitutes a group of greater Mongoloid race occupying the 'hills and dales' of north-eastern India. They were known as 'Miris' until they were officially recognised as second largest plain tribe in 1950. The original homeland of the Misings was in the Himalayan region of North-East India. It is very certain that in search of their essential commodities and also for cultivated land, they migrated down along the river Siyang in between 13<sup>th</sup> and 14<sup>th</sup> century A. D. According to Dr. S. K. Chatterjee, the original homeland of this tribe was in upper part of Huang – Ho and Yangtse-Kiang river in North West China and entered India in 2000 B.C. while according to some other authors, the Misings migrated to India even before the Aryans.

### Objectives:

To give a pen-picture of the status of women in Mising community.

### Methodology:

This paper is prepared with various informations provided by eminent writers of this community. Moreover, some persons of this community have also given informations. Field works have been done in Doloni Gaon in Chowlkhowa in Dibrugarh district of Assam.

The Misings are one of the most ancient tribes of north-east India. Quoted from 'Kirata-Janakriti' by S.K. Chatterjee, Dr. N. Pegu says that the Misings are referred as 'Kirata'. Dr. D. Nath says that the Misings as a distinct tribe of the north-east have been mentioned not only in Vaishnava literature, but also in contemporary records of foreign chronicles.

After entering into this new land, they had adjusted with the local environment and as a result a new social order grew up on the banks of the Brahmaputra and its sub-rivers. It is to be mentioned that they preferred to live on the banks of rivers and so they are also called as 'Riverine People of Assam'. Behind their preference to dwell on the banks of rivers was the reason that the soil of such areas are immensely fertile though they had to suffer much due to floods and soil erosion.

Previously they were called as 'Miri' which means mediator as they played a significant role in maintaining diplomatic relation between the hill-tribes and the mighty Ahom kings of Assam.

The Misings are the worshippers of 'Doni' (mother sun) and 'Polo' (father moon). According to Dr. N. Pegu they cannot be possibly called 'animist'. These deities, according to Dr. D. Doley are always benevolent to mankind and the Misings offer prayer to Doni-Polo in the beginning of all rituals. Moreover, the Misings believe in human soul and its morality.

In course of time, with the contact of local people, the Misings adopted local beliefs, rites, Hinduism and later to Christianity and also became Anukulist though in a small number of their population. Apart from these two groups, the other Mising people have been maintaining their own traditional culture, beliefs and practices.

To assess the status of women in the missing community, it is very necessary to highlight the family structure, system of marriages, various functions, right of inheritance etc.

Generally, the Misings follow monogamy but as existed in other societies polygamy was also prominent in Mising society. According to Dr. Jogendra Nath and Dr. Nabo Kr. Pegu, polygamy was confined to upper strata of the society upto the middle of the 20<sup>th</sup> century. They live in joint family and the eldest male gets to be the head of the family and he has full control over each and every activity of his family members. He has also to represent his family in the socio-religious occasions. Therefore, the nature of the Mising society is patriarchal one.

In the system of marriage, a marriageable girl can be forcefully married against her will is a matter of prestige. Quoting from the 'The Story of Civilization' by Will Durant, Dr. J. Nath and Dr. N.K. Pegu mention that 'there is always chance in capturing a girl from another clan and then marry'. Ms. Prabhavati Doley Pegu delivered, 'in respect of such circumstances, the status of women in the society is that under subjugation'. Thus, she disregarded the system of polygamy in the Mising society as it is dangerous for the interest of women. According to Dr. N. Pegu, only the first wife enjoyed rights while second and third wife had to remain as silent spectators considering misfortune to become women.

The Mising are basically of peasant community and therefore their economy is based on Agriculture. They produce rice, mustard seed, black pulse and vegetables though originally for consumption but now a days for commercial purpose. The Mising women play extensive role in the growth of economic life. They render physical labour in the paddy field from preparing soil for harvesting to the entire process of production. In fact, they share workload almost equally with the men folk. So, the Mising women have to be busy in agricultural activities throughout the year whether it is Kharif or Rabi. Actually there is no off season in a calendar.

Mising women keep domestic animals and birds such as pigs, cattle, chicken etc. Though the cattle are owned as the property of the family, but the pigs and chickens are kept by women as their own. The income earned from these sources come to their hands only by which they fulfill their personal needs. Apart from this, they also spend the money for buying clothes for their children. Thus, Mising women are financially more independent than men. Sometime they are asked money by husbands also. Therefore, it is very clear that family expenditures are borne more by the women folk. The contribution of a Mising woman in every aspect is immense.

Dr. Durgeswar Doley mentions a system called 'Rikseng arig' which was private cultivation among women only generally for growing mustard seeds. By selling the mustard seeds, they spend money mainly in making ornaments. But due to scarcity of suitable land, this system has become extinct.

Above all of these hard labours, the Mising women have also to collect vegetables and fire-woods from forests to prepare daily meals for their family members. They often go for fishing also.

Weaving is an integral part of Mising women. They are renowned for the proficiency in weaving. They weave colourful clothes for themselves and also for entire family members. Now-a-days with the extended demand and popularity of Chadar-Mekhela and other missing clothing, they also sell their weaving products in markets and trade-fares. In this way, they also contribute financially to their families. It should be mentioned that girl who is not expert in weaving, faces difficulty in getting married with a boy of her choice. According to Tabu Taid, 'it is exclusive preserve of the Mising woman, who steps her training in the craft even before she reaches her teens'. Thus, weaving is not only a tradition itself but also an economic necessity. As Dr. N. Pegu states, 'it was a custom, till recent times, that the bride must weave her bridal costume 'yamboo', failing which there was chance of wedding being postponed or even engagement broken off'. He again says that 'a wife expert in weaving is a special asset and dream of many young man'. After dinner and completing all house-hold works, the Mising elderly women engage themselves till midnight in spinning and weaving clothes specially 'gadu' (Mirijim), a blanket made from cotton. The women collect cotton from their own farm called 'pagrig'. Here it should be mentioned that 'gadu' is considered of very high in society along with 'a symbol of status and dignity of a family in the community'. To provide a 'gadu' to the children is a hope of every Mising mother.

But unfortunately, the status of women in Mising society is not enlightened. According to Ms. Prabhavati Doley Pegu, the founder chair person of 'Takam Mising Kebang, 1990, 'In spite of her so much hard labour whatever she has received from the Mising society is pathetic. In her struggle for live and to keep others alive, she carries the unbearable burden of works which results in her untimely old age, and in return of that she has all along been receiving from man only male despotism'.

Moreover a Mising house is divided into two parts – 'Rising' and 'Koktok'. 'Rising' is the upper and most respectable and sacred portion of the house where only the elderly male persons and guests are allowed to be seated. On the other hand, 'Koktok' is the lower part and is reserved for women. Therefore, according to many, the Mising women acquire lower status in the society. But according to Dr. Pegu, it is misinterpreted. The purpose of the arrangement of house in such order is to maintain social discipline and part of the moral codes of 'do's and 'dont's'.

In the social status, the Mising women have lower position than the men.

The men enjoys more rights and privileges. A women in the Mising society can neither inherit nor claim the property of her husband as well as of her father. Even a women has to seek permission from her father or husband to spend her own money. In family and public affairs also, the decisions are taken by the menfolk. Of course, in respect of marriage, a mother's opinion is taken and if she is not satisfied, then the marriage proposal may be cancelled. But in practice, as Dr. D. Doley mentions, the father is approached for his daughter's marriage and when he denies, the proposal can not be accepted. Thus, the social structure of Mising community is highly patriarchal

In the religious aspect, though the Mising women had to make all the preparations from cooking food and preparing 'apong', a kind of beer to serve the priests and guests, but they were debarred from attending ritual functions such as 'Dobor uii' (a ritual to worship Doni-Polo). There are instances that some religious functions are celebrated even without women. In 'Kebang' (assembly) also, only male opinions are accepted. Moreover as existed in other communities a Mising woman is not allowed to participate in some ritual functions during her menstruation period.

Apart from all these, discriminations, the women in Mising community are regarded as 'valuable company deserving love and protection'. The Misings women have full faith upon their husbands and therefore co-operate and accept whatever decisions are taken by their husbands. The habits and hard labours definitely contribute in making the Mising women so self-sufficient that even after the death of a husband, the widow very courageously and efficiently manages her domestic affairs.

Though the discrimination between male and female definitely contributed in keeping the womenfolk in backwardness, but with the advent of modern education, Mising girls are sent to schools and higher educational institutions for getting all types of education including science and technology. They have coming forward in such a way that now-a-days the Mising women are adjusted themselves to cope with all the prevailing situation even holding higher posts in many jobs.■

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Khoj: Vol. VIII, 2016  
ISSN No. : 2278-5272

## ব্যোমকেশের কাহিনিতে প্রান্তিক অস্তিত্ব ও অপরাধী মন

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বাংলা বিভাগ, ডিব্রু কলেজ

সাহিত্য, শিল্প, সংস্কৃতি, সমাজনীতি, রাজনীতি ও অর্থনীতি যে কোনো ক্ষেত্রেই কেন্দ্র থেকে দূরবর্তী অবস্থানকে প্রান্তিকতা বলা যায়। প্রান্তিকতার ইংরেজি প্রতিশব্দ Marginality এর সংজ্ঞায় বলা যেতে পারে :-

“... the temporary state of having been put aside of living in isolation, at the edge of the system (cultural, social, political or economic) ... in mind when one excludes certain domains or phenomena from one's thinking because they do not correspond to the mainstream philosophy”<sup>1</sup>

প্রান্তিকতার ধারণা যত না সাহিত্যের তার থেকে অনেক বেশি সমাজতাত্ত্বিক। যে সমাজতাত্ত্বিকের কাছ থেকে ‘প্রান্তিকজন’ বা ‘Marginal Man’-এর ধারণা প্রথম পাওয়া গেছে তিনি হলেন Robert E. Park।<sup>2</sup> পার্কের ধারণার সাথে বর্তমানে সমাজতাত্ত্বিকদের বহুলাংশেই দ্বিমত ঘটবে। ‘প্রান্তিকজন’-এর সংজ্ঞায় বহুত্ববাদী মতামত বারবারই উঠে এসেছে। প্রান্তিক মানীষ (Marginalized People) কোনো না কোনো ভাবে সামাজিক, রাজনৈতিক, অর্থনৈতিক বা সাংস্কৃতিক ক্ষেত্রে বঞ্চিত হন। অর্থাৎ “Marginalised people might be socially, economically, politically and legally ignored, excluded or neglected, and are therefore vulnerable to livelihood change.”<sup>3</sup>

মনে রাখতে হবে শুধু অর্থনৈতিক ক্ষেত্রে দুর্বল হলে বা সমাজের নিম্নস্তরের মানুষ হলেই অথবা নিম্নবর্ণীয় হলেও কোনো মানুষ প্রান্তিক হবেন এমন নয়। কোনো মানুষ কেন্দ্র থেকেও পরবর্তীকালে প্রান্তিক হতে পারেন। সমালোচক Ghanas.Gurung ও Michael Kollmair বলেন— “.....marginalized people are usually discriminated against stigmatized, ignored and often suppressed on the basis of race, gender, age, culture,



religion, ethnicity, occupation, education and economy by the mainstream”<sup>৪</sup>

সমালোচকদের বক্তব্য থেকে বোঝা যাচ্ছে যে শুধু সামাজিক, রাজনৈতিক, অর্থনৈতিক, সাংস্কৃতিক ক্ষেত্রে বঞ্চিত হলেই কেউ প্রান্তিক হবেন এমন নয়। বয়স, পেশা, শিক্ষা, ধর্ম, লিঙ্গ, ঐতিহ্য প্রভৃতি বহুল ক্ষেত্রেই মানুষ শোষিত, বঞ্চিত হতে পারেন। যেমন ধরা যাক পরিবারে যিনি সবচেয়ে বয়স্ক, তিনিও অন্যান্য সদস্যদের দ্বারা বঞ্চিত হতে পারেন। অত্যন্ত দরিদ্র হলেই শুধু সে প্রান্তিক হবেন এমন কোনো কথা নেই। এক্ষেত্রে উল্লেখ্য আনন্দ পুরস্কার পাওয়ার পর এক সাক্ষাৎকারে আখতারুজ্জামান ইলিয়াস জানিয়েছিলেন, আজকের বাংলা সাহিত্য হল মধ্যবিত্তদের দ্বারা রচিত মধ্যবিত্ত সাহিত্য। ‘মধ্যবিত্ত সাহিত্য’ বলতে ইলিয়াস সাহিত্যে মধ্যবিত্ত জীবনচর্যাকে বুঝিয়েছিলেন। ইলিয়াসের এই কথাকে কিন্তু একেবারেই এড়িয়ে যাওয়া যায় না। বাংলা সাহিত্যের হাতেখড়ি যে বৌদ্ধ সিদ্ধাকারদের হাতে হয়েছিল তাঁরাও ছিলেন প্রান্তিক মানুষ। মধ্যযুগের প্রাগাধুনিক সাহিত্যের লৌকিক দেব-দেবীরাও ছিল দেবসমাজে প্রান্তীয়। দেবসমাজে যথার্থ প্রতিষ্ঠার জন্য মনসা-চন্ডী-ধর্ম দেব-দেবীদের সংগ্রাম করতে হয়েছে। প্রাগাধুনিক সাহিত্যে নয়, আধুনিক সাহিত্যেও প্রান্তিক মানুষদের সংগ্রামের কথা প্রতিফলিত হয়েছে। রবীন্দ্রসাহিত্যেও তার ব্যত্যয় ঘটেনি। যেমন ‘মুক্তধারা’য় ধনঞ্জয় বৈরাগীও প্রান্তিক মানুষেরই প্রতিনিধি। আবার তারাশঙ্করের কলমে উঠে এসেছে রাঢ় অঞ্চলের (কোপাই নদীর তীরবর্তী হাঁসুলী বাকের কথা) প্রত্যন্ত প্রদেশের অচেনা কাহার গোষ্ঠীর কথা। কাহারদের বিশ্বাস, লোককথা, দৈব বিশ্বাস, অর্থনৈতিক অবস্থান, জীবনচর্যার মর্মস্পর্শী বিবরণ দিয়েছেন তারাশঙ্কর। আবার কখনো মহাশেতা দেবীর উপন্যাসে নিম্নবর্গীয় প্রান্তিক মানুষের সংগ্রামের কথা এসেছে। বাংলায় ‘দলিত সাহিত্য’-এর তকমায় কোথাও এসব গল্প-উপন্যাসকে প্রান্তিক ভাবা হয়নি।

বিশ শতকে তারাশঙ্কর, মহাশেতাদের লেখায় প্রত্যক্ষভাবে নিম্নবর্গীয় মানুষের কথা এসেছে। কিন্তু সাহিত্যে বঞ্চিত শোষিত মানুষ তো শুধু নিম্নবর্গীয়রা নয়। অনেকসময় শিক্ষিত, ধনী হয়েও কেউ প্রান্তিক হতে পারে। মধ্যবিত্ত মানুষও কিন্তু প্রান্তিক হতে পারে। মধ্যবিত্ত মানুষ কখনো শিক্ষাগত দিক দিয়ে বঞ্চিত হতে পারেন। আবার কখনো পেশাগত জীবনে ঘটতে পারে চরম বঞ্চনা। কখনো আবার পারিবারিক জীবনের অস্থিরতা মানুষকে বঞ্চিত করে। এমনই বঞ্চনার কাহিনি লিপিবদ্ধ করেছেন শরদিন্দু বন্দ্যোপাধ্যায় ব্যোমকেশের কাহিনিতে। এই কাহিনিগুলির অন্তর্গত কোনো চরিত্র উচ্চ শিক্ষিত, বা কেউ শিক্ষিত ধনী হয়েও নিজের কর্মফলে বা নিয়তির পরিহাসে বঞ্চিত হয়েছে। এই চরিত্রগুলির মধ্যে অনেকে তথাকথিত প্রান্তিক না হলেও সমাজের মূলস্রোত দ্বারা কোনো না কোনো ভাবে বঞ্চিত বা শোষিত হয়েছে। ঐ বঞ্চনার ফল হয়েছে মর্মান্তিক। প্রান্তীয় অবস্থানের জটিলতা তাদের মনের ভিতরের অপরাধ প্রবণতাকে বাইরে নিয়ে এসেছে।

‘চিড়িয়াখানা’র (১৯৫৩ খ্রিস্টাব্দ) ভূজ ডাক্তার আপাত দৃষ্টিতে কখনোই প্রান্তিক হতে পারেন না। একজন ডাক্তার শিক্ষা-সংস্কৃতি, সামাজিক প্রতিপত্তি, অর্থনৈতিক অবস্থানে সমাজের একেবারে কেন্দ্রে অবস্থান করে। কিন্তু নিজ কৃতকর্মের জন্য সমাজের মূলস্রোত থেকে সে একপ্রকার বহিস্কৃত হয়েছে। বহুল অর্থের বিনিময়ে গর্ভপাত করতে গিয়ে ধরা পড়ে যায় সে। কেড়ে নেওয়া হয় তার ডাক্তারি ডিগ্রি। প্রকৃতপক্ষে একজন ডাক্তারের পেশাগত জীবনে এর থেকে দূর্দশা আর কী বা হতে

পারে? এতকিছুর পরেও ভূজঙ্গ নির্লিপ্ত। শরদিন্দু লিখছেন - “অবস্থার শোচনীয় অবগতি সত্ত্বেও মনের ফুর্তি নষ্ট হয় নাই। ধর্মজ্ঞান প্রবল নয়, লজ্জাকর দুর্নৈতিক কর্মে ধরা পড়িয়াও লজ্জা নাই।”<sup>৫</sup> এমনই এক অদ্ভুত জটিল চরিত্র ভূজঙ্গ দাস। যে সামাজিক প্রতিপত্তি, অর্থনৈতিক সচ্ছলতা, পেশাগত নিশ্চয়তা সবকিছু হারিয়ে সর্বহারা হয়ে গোলাপ কলোনিতে আশ্রয় পায়। প্রাক্তন বিচারপতি নিশানাথবাবু সমাজের মূলস্রোত থেকে বঞ্চিত মানুষদের পুনর্বাসন দিয়েছেন গোলাপ কলোনিতে। সেখানে পানুগোপালের মতন শারীরিক প্রতিবন্ধীর পাশাপাশি ব্রজদাসের মতো জেলফেরত আসামিও সুস্থ জীবন পায়। আবার মুশকিল মিঞার মতো ভিন্ন ধর্মের মানুষও সেখানে স্বচ্ছন্দে থাকতে পারে। গোলাপ কলোনি হল সমাজের মূলস্রোতের বাইরে বিকল্প পুনর্বাসন ব্যবস্থা। গোলাপ কলোনিতে এসেও ভূজঙ্গের কোনো পরিবর্তন হয়নি। তার মনে তৈরি হয় একের পর এক অপরাধের ষড়যন্ত্র। এই অপরাধে তার সঙ্গী স্ত্রী সুনয়না ওরফে বনলক্ষ্মী। গোলাপ কলোনিতে আসার আগেও সুনয়না নিজের রূপের ফাঁদে ফেলে স্বর্ণব্যবসায়ী মুরারি দত্তকে। ভূজঙ্গ ও সুনয়না তাকে হত্যা করে মুরারি দত্তের দোকান থেকে বহুমূল্য অলঙ্কার চুরি করে। তারপরে গোলাপ কলোনিতে তারা গিয়ে ওঠে।

সমাজের প্রান্তিক অবস্থানে পৌঁছে তাদের মন অপরাধের জন্য আরও সক্রিয় হয়। একদিকে প্রবল অর্থলালসা, অন্যদিকে সমাজের (কেন্দ্রের) মূলস্রোত থেকে বিচ্ছিন্ন হওয়ার যন্ত্রণা তাদের বিপথে চালিত করে। প্রান্তিক মানুষ কেন্দ্রে পৌঁছতে চায়, ভূজঙ্গ একদিন সেই কেন্দ্রেই ছিল, পরে সেখান থেকে বহিস্কৃত হয়েছে। ফলে কেন্দ্রে পৌঁছতে পারছে না বলে তার মধ্যে ভয়ানক প্রতিশোধ স্পৃহা কাজ করছে। সেই আক্রোশ থেকেই একের পর এক অপরাধের ষড়যন্ত্র করছে। নিশানাথবাবুর ভাইপো বিজয়কে সুনয়না ওরফে বনলক্ষ্মী নিজের মোহিনী জালে আবদ্ধ করে রাখে। বিজয়ের কাছ থেকেই নিশানাথবাবুর অতীত জীবনের কলঙ্কের কথা জানতে পারে বনলক্ষ্মী। নিশানাথবাবু ও দময়ন্তীদেবী স্বামী-স্ত্রীর মতো একসঙ্গে থাকলেও তাঁরা বিবাহিত ছিলেন না। ভূজঙ্গ, দময়ন্তীকে তার প্রাক্তন স্বামী লাল সিং এর নামে ‘ব্ল্যাকমেল’ করতে শুরু করে। এইসব আচরণের মধ্যে তার ‘marginal complex’ চরিতার্থ হয়। নিশানাথবাবু যাতে তাদের ধরতে না পারে তার জন্য অত্যন্ত চাতুরির সঙ্গে তাঁকে হত্যা করে ভূজঙ্গ। নিশানাথবাবু উচ্চ রক্তচাপের সমস্যাকে কাজে লাগিয়ে ভূজঙ্গ তাকে এমন ভাবে হত্যা করে যেন মনে হয় নিশানাথের স্বাভাবিক মৃত্যু ঘটেছে। এক্ষেত্রে ভূজঙ্গ নিজের ডাক্তার হওয়ার সুযোগকে কাজে লাগিয়ে অপরাধ করেছে। ভূজঙ্গ প্রথমে অজ্ঞান করে তারপর “নিশানাথবাবুর পায়ে দড়ি বেঁধে কড়িকাঠের আঁটা থেকে ঝুলিয়ে দিয়েছিল। রাড-প্রেসার ছিলই, তার ওপর শরীরের সমস্ত রক্ত নেমে গিয়ে মাথায় চাপ দিয়েছিল। মাথার শিরা ছিঁড়ে পাঁচ মিনিটের মধ্যে মৃত্যু হল। তারপর তাঁকে নামিয়ে বিছানায় শুইয়ে দিলে। কিন্তু .... ভাগ্যবশে মোজা খুলে নিয়ে যেতে ভুলে গেল।”<sup>৬</sup> এই ভুলেই ভূজঙ্গ ধরা পড়ে। নিজের সম্মান বাঁচাতে শেষ পর্যন্ত তাকে আত্মহত্যা করতে হয়।

ভূজঙ্গ সামাজিক, অর্থনৈতিক, শিক্ষাগত ক্ষেত্রে উচ্চ আসনে থাকলেও পরে সে প্রান্তিক হয়ে পড়েছিল। কিন্তু ‘আদিম রিপু’-র (১৯৫৫ খ্রিস্টাব্দ) প্রভাত পিতৃপরিচয়হীন অনাথ বলে স্বভাবতই সামাজিকভাবে ব্রাত্য। এমনকি শিক্ষাগত যোগ্যতাতেও ভদ্রসমাজের উপযুক্ত নয় সে। হাসপাতালের নার্স ননীবালা প্রভাতকে লালন করেছে। সামান্য দণ্ডরীর কাজ করেও ননীবালা ও প্রভাতের জীবন নির্বিক্রে

কাটছিল। কিন্তু এই সময়েই তাদের জীবনে আসে অনাদি হালদার। অনাদি তার কালো টাকা প্রভাতের সাহায্যে বইয়ে ঝাঁপিয়ে ফেলে। কালো টাকা লুকানোর প্রতিদান স্বরূপ অনাদি প্রভাত ও ননীবালাকে কলকাতার বাড়িতে থাকতে দেয়। এমনকি প্রভাতকে অনাদি নিজ অর্থব্যয়ে একটা দোকানও করে দেয়। প্রভাতকে ‘পুষ্টিপুত্র’ নেবে বলেও জানায়। কিন্তু কখনোই আইনসম্মতভাবে প্রভাতকে দণ্ডক নেওয়ার চেষ্টা করেনি অনাদি। আইনি জটিলতার কথা কিছুই জানত না ননীবালা বা প্রভাত। আসলে অনাদি নিজের কালো টাকার কথা সকলের কাছে গোপন করার জন্যই ‘পুষ্টিপুত্র’ নেওয়ার কথা বলে প্রভাতদের আশ্রয় দিয়েছিল। প্রভাতকে দণ্ডক নেওয়ার প্রয়োজনও ছিল না, কারণ অনাদি জানত প্রভাত তারই সন্তান। কিন্তু প্রভাত এসবের কিছুই জানত না। এই অবস্থায় প্রভাত শিউলিকে বিয়ে করতে চায়। কিন্তু অনাদি আপত্তি করে। অনাদির অমতেই প্রভাত যখন শিউলিকে বিয়ে করতে চায়, তখন জানতে পারে স্বয়ং অনাদি শিউলিকে বিয়ে করতে চেয়েছে। টাকার লোভে শিউলির বাবাও এই বিবাহে একপ্রকার রাজি হয়েছে। এই কথা শুনে এক নিমেষেই সমস্ত পৃথিবী প্রভাতের কাছে অন্ধকার হয়ে যায়। অনাদি যে তার বাবা তা না জানলেও, প্রভাত অনাদিকে বাবার মতোই শ্রদ্ধা করত। জন্য থেকেই প্রভাত কলঙ্কের সাগরে নিমজ্জিত হয়েছিল। প্রভাতের মতো জারজ সন্তান কোনোদিন সমাজে কোনো মর্যাদা পায়না। শৈশব থেকেই সবকিছু থেকে বঞ্চিত প্রভাত। এই বঞ্চনা স্বভাবতই তার মধ্যে হীনম্মন্যতার জন্ম দিয়েছিল। শিউলিকে নিয়ে সে সুস্থ কাঙ্ক্ষিত জীবনের স্বপ্ন দেখেছিল।

অনাদি ছিল প্রকৃতই বিকৃত মনস্ক। তার যৌনলালসা এমন স্তরে পৌঁছেছিল যে, তার নিজের সন্তানের সঙ্গেও এতবড়ো অন্যায় করতে এতটুকু ঝাঁপেনি। সন্তানের সুস্থিতিময় সুন্দর জীবনই বাবার কাছে কাম্য হয়। কিন্তু অনাদি স্বার্থপর। সে নিজের সুখ ব্যতীত কিছুই বোঝে না। অনাদির এই কুৎসিত আচরণে একমুহূর্তে ওলট-পালট হয়ে যায় প্রভাতের সব স্বপ্ন, আশা আকাঙ্ক্ষা। নিরীহ, শান্ত ‘ভালমানুষ’ প্রভাত বোঝে টাকার জোরে অনাদি শিউলিকে কিনে নিতে চায়। এরকম সংকটে মানুষ কখনো অবচলিত থাকতে পারে না। তার ওপর প্রভাতের রক্তে ছিল পিতৃ হত্যার বিষ। অনাদিও তার বাবাকে খুন করেছিল। শিউলিকে চিরতরের মতো হারানোর ভয়ে প্রভাতও হত্যার মতো অপরাধ করে ফেলেছে।

প্রভাতের এই অপরাধ ব্যোমকেশ ক্ষমাসুন্দর দৃষ্টিতে বিচার করেছেন। কোন্ সাংঘাতিক পরিস্থিতিতে প্রভাতের মতো নির্লোভ, শান্ত ছেলে এমন অপরাধের দিকে এগিয়ে যায় তা ব্যোমকেশ উপলব্ধি করেন। শুধুমাত্র টাকার লোভে যে কখনোই প্রভাত অপরাধ করতে পারে না তা ব্যোমকেশ বুঝতে পারেন। ব্যোমকেশ বলেন ‘প্রভাতবাবু টাকার লোভে এমন কাজ করবেন? প্রভাতবাবুর চরিত্র যতখানি বুঝেছিলাম তাতে তাঁকে অর্থলোভী বলে মনে হয়নি।’<sup>১</sup> প্রভাতে মতো সং মানুষ বঞ্চিত হতে হতেও প্রতিবাদ করে না। প্রভাতরা কোন্ দুঃসহ পরিস্থিতিতে এমন অপরাধী হয়ে ওঠে তা ব্যোমকেশ উপলব্ধি করতে পেরেছেন। তাই অনাদির মতো দুঃচরিত্র পিতৃহস্তারক মানুষকে হত্যার জন্য প্রভাতের কোনো শাস্তির কথা ভাবেন না ব্যোমকেশ। বরং প্রভাতকে সুস্থ জীবনে ফিরিয়ে আনার চেষ্টা করেন ব্যোমকেশ। প্রভাতের বইয়ের ব্যবসার অংশীদার হন। কিন্তু প্রভাতকে নিজের পিতৃপরিচয় জানিয়ে দেন ব্যোমকেশ। প্রভাতের সোঁটাই বড় শাস্তি বলে মনে করেন ব্যোমকেশ।

‘আদিম রিপুতে’ শান্ত জীবন থেকে প্রভাত পরিস্থিতির শিকার হয়েছিল। অন্যদিকে এই

উপন্যাসের বাঁটুল চরিত্রটি ক্ষয়িষ্ণু সমাজ ব্যবস্থার শিকার। বাঁটুল নানাপ্রকার সমাজ বিরোধী কাজে যুক্ত। ১৯৪৬ সালের সাম্প্রদায়িক দাঙ্গায় আত্মরক্ষার নামে পাড়ার লোকদের কাছ থেকে তোলা আদায় করে। বেআইনি অস্ত্র সরবরাহ ও প্রয়োজনমতো ভাড়া দেওয়া বাঁটুলের কাজ। এমনকি অবলীলাক্রমে হত্যা করতেও বাঁটুলের বাধে না। বেআইনি অস্ত্রের চোরাকারবার করেও বাঁটুল প্রকাশ্যে ঘুরে বেড়ায়। দ্বিতীয় বিশ্বযুদ্ধের সময়ে কলকাতা ও তার পার্শ্ববর্তী অঞ্চলে সেনা ছাউনি হয়েছিল। যুদ্ধের শেষে খোলা বাজারে রাইফেল, বন্দুক সহজলভ্য হয়ে পড়ে। কালোবাজারে অস্ত্রের কেনা-বেচা শুরু হয়। বাঁটুলদের মতো মানুষরা এই ধন্য সময়ের প্রতীক। অর্থনৈতিক, সামাজিকভাবে একেবারে প্রান্তিক বাঁটুলের শিক্ষাগত যোগ্যতাও নেই। এসব অশিক্ষিত বেকার যুবকরা সমাজের বুকে পরগাছার মতো জেগে ওঠে।

‘রক্তের দাগ’ (১৯৫৬ খ্রিস্টাব্দ) উপন্যাসে সত্যকামের সঙ্গে ‘আদিম রিপু’র-র প্রভাতের সাদৃশ্য এই যে তারা দুজনেই সমাজ বহির্ভূত সম্পর্কের ফসল। তবে প্রভাত ও সত্যকামের অবস্থান ভিন্নতর। প্রভাত প্রথম থেকেই পিতৃপরিচয়হীন। আর সত্যকাম যৌবনে পৌঁছে জানতে পারছে তার মায়ের স্বামী উষাপতি তার বাবা নয়। প্রভাত নিজেই অজান্তে তার বাবাকে হত্যা করেছে। আর সত্যকাম নিজের প্রকৃত পরিচয় পেয়ে নিজেকে ধুংস করার যজ্ঞে মেতে উঠেছে। শেষপর্যন্ত তার সামাজিক পিতা উষাপতির হাতে মারা গেছে।

সত্যকামের নামের মধ্যে আছে পৌরাণিক অনুবঙ্গ। পুরাণের সত্যকামও ছিল জারজ সন্তান। কিন্তু সে কর্মের দ্বারা নিজের কলঙ্কে জয় করেছিল। সে ছিল সত্যতার প্রতীক। কিন্তু শরদিন্দু এই পৌরাণিক মিথকে ভেঙে দেন। উপন্যাসের সত্যকাম নিজের কর্মের দ্বারা তার জন্ম-কলঙ্কে জয় করার চেষ্টাই করেনি। বরং লস্কট পিতার পরিচয়কেই সে সর্ব অঙ্গে ধারণ করেছে। সে ধনী পরিবারে বড়ো হয়ে উঠেছে। অর্থনৈতিক ক্ষেত্রে কখনোই সে প্রান্তিক নয়। সে তার দাদামশায়ের প্রভূত সম্পত্তির অন্যতম অংশীদার। সামাজিক ক্ষেত্রেও সে ধনী প্রতিষ্ঠিত বংশের সন্তান। কিন্তু ছোটবেলা থেকে মা-বাবার স্নেহ থেকে সত্যকাম বঞ্চিত। উষাপতি যে তাকে পছন্দ করে না তা সত্যকাম বুঝতে পারত। মা সুচিত্রাও ছিল নির্লিপ্ত। কারণ সুচিত্রার কানুনপুত্র সত্যকাম। উষাপতি বিয়ের পর জানতে পারে সুচিত্রা অসন্তুষ্ট। উষাপতি সব জেনে সুচিত্রাকে ছেড়ে যেতে চাইলেও পারেনি। কিন্তু দুজনের মধ্যে স্বামী স্ত্রীর স্বাভাবিক সম্পর্ক কোনোদিন গড়ে ওঠেনি। সত্যকাম শৈশব থেকে বাবা-মায়ের মধ্যে অ-সুস্থ সম্পর্ক দেখে বড়ো হয়েছে। বাবা মায়ের মধ্যে সম্পর্ক ভাল না হলে সন্তানের জীবনে নির্ভরযোগ্য আশ্রয় থাকে না। আশ্রয়হীনতা সন্তানের মধ্যে কখনো নিরাপত্তার অভাব বা কখনো হীনম্মন্যতা সৃষ্টি করে। আবার কখনো বা সন্তানকে বেরোয়া করে দেয়। সত্যকামের জীবনেও তাই হয়েছে। সে যৌবনে পৌঁছে যখন জানতে পারে উষাপতি তার বাবা নয়, তখন সত্যকামের কাছে স্পষ্ট হয় তার প্রতি উষাপতির অনীহার কারণ। এই অবস্থায় সত্যকাম চরম অসহায় হয়ে পড়ে। পৃথিবীতে তার কেউ নেই। সে তার মার কাছেও অবাঞ্ছিত। স্নেহহীন অবাঞ্ছিত জীবন বয়ে নিয়ে চলার মতো সাংঘাতিক যন্ত্রণা তাকে সহ্য করতে হয়েছে। সে যে তার পরিবারের বোঝা স্বরূপ তা সে আগেই বুঝেছিল। সে নিষিদ্ধ নেশায় আচ্ছন্ন হয়ে নিজের যন্ত্রণার উপশম চেয়েছে। একাধিক নারীর সঙ্গে জৈবিক সুখে মত্ত হয়ে যেন তার ইন্দ্রিয়পরায়ণ পিতার পরিচয়ই জাহির করতে চেয়েছে। পরিবারে তার প্রান্তিক অবস্থান তার মধ্যে এমন জটিলতা সৃষ্টি

করেছিল, যাতে তার মন সমাজ বহির্ভূত সম্পর্কে লিপ্ত হয়ে জান্তব আনন্দ পেত। নিজেকে শেষ করে সে উষাপতি বা সুচিত্রার ওপর যেন প্রতিশোধ নিতে চেয়েছিল। একসময়ে সে বোঝে তার মৃত্যু আসন্ন। তাকে হত্যার চক্রান্ত কে করেছে তা জেনেও ব্যোমকেশকে কারুর নাম বলে না সত্যকাম। এমনকি হত্যাকারীর শাস্তিও চায়নি সে। সত্যকামের জীবনে বঞ্চনা তাকে স্বৈচ্ছামৃত্যুর দিকে এগিয়ে নিয়ে যায়। আসলে আমরা যে সুস্থ সমাজে অবস্থান করি, তা যদি হয় কেন্দ্র, তবে তা থেকে দূরবর্তীস্থানে সত্যকামের বাস।

সত্যকাম, প্রভাতদের বুকের একেবারে বাইরে অবস্থান করে ভুবন ও মোহিনী। তারা মধ্যবিত্ত নয়। অর্থে, মেথায় সকল ক্ষেত্রেই একেবারে প্রান্তজ। সামাজিক স্তরেও একেবারে নিম্নবর্ণীয় ভুবন ও মোহিনী। বাঙলার বাইরে সুদূর উড়িষ্যা তাদের বাস। মোহিনী দাসীবৃত্তি করত। আর ভুবন মোটর কারখানায় কাজ করত। কষ্টে-সুখে নিজেদের মতো করে তারা ছিল সুখী। কিন্তু এক অর্থলোভী, দুরাচারী তাদের সেইটুকু সুখ থেকেও বঞ্চিত করল। কারণ আর্থিক সচ্ছলতার স্বপ্ন দেখেছিল ভুবন। তবে কোনো অপরাধের পথে ভুবন অর্থ উপার্জন করতে চায়নি। সে সুদখোর মহাজন প্রাণহরির কাছ থেকে ঋণ নিয়ে একটা ট্যাক্সি কেনে। প্রাণহরি ভুবন ও মোহিনীকে ব্যবহার করার জন্য টাকা ধার দিয়েছিল। “প্রাণহরি ভেবে দেখল, টাকা ধার দিলে ভুবন আর মোহিনী দুজনেই তার মুঠোর মধ্যে থাকবে; মোহিনীকে তখন হুকুম মেনে চলতে হবে। সে রাজী হল। রেজিস্ট্রি দলিল তৈরি হল, তাতে ধার - শোধের শর্ত রইল - মোহিনীর মাইনের পনেরো টাকা কাটা যাবে, ভুবন তার ট্যাক্সির রোজগার থেকে মাসে পঁয়ত্রিশ টাকা দেবে, আর প্রাণহরি নিজের দরকারে ট্যাক্সি ব্যবহার করবে তার জন্য পঁচিশ টাকা দেবে; এইভাবে প্রতিমাসে পঁচাত্তর টাকা শোধ হবে।”<sup>১৬</sup> এরপর অর্থলোভী প্রাণহরি মোহিনীকে নিয়ে অন্য খেলা শুরু করে। মোহিনীকে যৌন পণ্য করে ধনী দীলালদের ফাঁদে ফেলে জুয়ায় হারাতে থাকে। মোহিনী সব বুঝেও নিজেকে বাঁচিয়ে চলে। কিন্তু ট্যাক্সির টাকা শোধ না হলে মোহিনী যেতেও পারে না। কয়লা শহরে এসেও প্রাণহরি জুয়ার আড্ডা খুলে বসে। ধনী বাড়ির ছেলেদের মোহিনীর সাহায্যে হারাতে থাকে। একদিন সব জানতে পারে ভুবন। প্রাণহরি ২,০০০ টাকার বিনিময়ে মোহিনীকে অরবিন্দের কাছে বিক্রি করে দিয়েছে। অরবিন্দের যৌনলালসা দেখে ভুবন মাথা ঠিক রাখতে পারে না। সবক্ষেত্রে বঞ্চিত হতে হতে ভুবন এতদিন সব মেনে নিয়েছে। কিন্তু স্ত্রীর সম্মানের প্রশ্ন যেখানে, সেখানে ‘স্বামী’ ভুবন স্ত্রীর বঞ্চনা আর সহ্য করতে পারে না। রাগের মাথায় প্রাণহরিকে হত্যা করে ভুবন। ব্যোমকেশ ভুবন ও মোহিনীর পরিস্থিতি সহানুভূতির সঙ্গে বিচার করেন। প্রাণহরির মতো লোভী, দুরাচারীর হত্যার জন্য ভুবনকে কখনোই অপরাধী ভাবতে পারেন না ব্যোমকেশ। ভুবন সমাজের ক্ষমতাশালী মানুষদের কর্তৃক আজীবন বঞ্চিত, শোষিত হয়ে এসেছে। তাও কোনো প্রতিবাদ করেনি। কিন্তু দরিদ্র হলেও স্ত্রীর প্রতি ভালবাসা, দায়বদ্ধতা কোনো অংশেই কম নয় ভুবনের। তাই মোহিনীর অপমানে এক জটিল মানসিক পরিস্থিতির সৃষ্টি হয় ভুবনের মধ্যে। সেই ভয়ানক মানসিক অবস্থায় সে প্রাণহরিকে হত্যা করে বসে।

কেন্দ্রের সাথে প্রান্তের পার্থক্য একস্তরীয় নয়, এবং সরলরৈখিক তো নয়ই। প্রান্তজন বলতে বাংলা সাহিত্য বারবারই অর্থনৈতিক এবং সামাজিক প্রান্তজনদের দিকেই অঙ্গুলি নির্দেশ করেছে। বাংলা সাহিত্য সমালোচনাও মাত্রাতিরিক্ত গুরুত্বের সাথে গ্রহণ করেছে সেই সব অস্তিত্ববাসীদের। আর্থ-

সামাজিক দিক থেকে স্বচ্ছন্দ হয়েও মানুষের মনের গভীরে যে প্রান্তীয় জটিলতা থেকে যায় তাকে স্বীকার করতে আমাদের মন বোধহয় কোথাও আপোষ মীমাংসা করে নিয়েছে। অথচ তা আমাদের কাম্য ছিল না। ব্যোমকেশের কাহিনিগুলিতে আমরা সেটাই প্রতিপন্ন করার চেষ্টা করেছি। মিথ্যে কুস্তীরাম্বু বিসর্জনের পরিবর্তে মধ্যবিত্ত বা নিম্ন-মধ্যবিত্ত মানুষের ‘Marginal Complex’ এবং প্রান্তীয় অস্তিত্ব কীভাবে একজন মানুষকে অপরাধী করে তোলে তারই প্রতিবেদন ব্যোমকেশের এই আখ্যানগুলি।■

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## ভবেন্দ্ৰ নাথ শইকীয়াৰ চুটিগল্প ‘বৰ্ণনা’ত প্ৰতিফলিত যুগ পৰিৱৰ্তনৰ ছবি

ড° মৌচুমী দত্ত, সহকাৰী অধ্যাপিকা  
অসমীয়া বিভাগ, ডিব্ৰু মহাবিদ্যালয়, ডিব্ৰুগড়

০.০০ আৰম্ভণি : অসমীয়া সাহিত্যত যুদ্ধোত্তৰ যুগৰ এক বিশেষ গুৰুত্ব আছে। দ্বিতীয় মহাসমৰে বিধ্বস্ত কৰা সময়খিনিত চুটিগল্প লেখকসকল প্ৰায় নীৰৱ হৈ পৰিল। যুদ্ধোত্তৰ সময়ছোৱাত বহুতো সাৰ্থক লেখকৰ সৃষ্টি হ’ল। ড° ভবেন্দ্ৰ নাথ শইকীয়া এই সময়ৰ এজন বিশিষ্ট লেখক। উপন্যাস, চুটিগল্প, শিশু সাহিত্য সৃষ্টিৰ উপৰিও চলচ্চিত্ৰৰ জগতখনতো শইকীয়াদেৱৰ বিশিষ্ট অৱদান মন কৰিবলগীয়া। তেখেতৰ চুটিগল্পৰ সংকলনসমূহ— প্ৰহৰী, বৃন্দাবন, গহুৰ, সেন্দূৰ, শৃংখল, তৰংগ, এই বন্দবৰ আবেলি, আকাশ, উপকণ্ঠ, সাক্ষ্য ভ্ৰমণ, ভবেন্দ্ৰ নাথ শইকীয়াৰ শ্ৰেষ্ঠ গল্প : প্ৰথম খণ্ড : (পঞ্চাশৰ দশক)।

### ১.০০ বিষয়ৰ পৰিচয় আৰু পৰিসৰ :

মানৱিক প্ৰমূল্য আৰু মনোবিজ্ঞানগত দৃষ্টিভঙ্গীৰে বহুসংখ্যক গল্প লেখি অসমীয়া সাহিত্যলৈ বৰঙনি যোগোৱা ড° ভবেন্দ্ৰ নাথ শইকীয়াৰ ‘বৰ্ণনা’ গল্পটি এক লেখত ল’বলগীয়া সৃষ্টি। ১৯৭৫ চনতে লেখা এই গল্পটোৰ আধাৰত গঢ় লৈ উঠিছে তেখেতৰ ‘ইতিহাস’ (Exploration) চলচ্চিত্ৰখন। আমাৰ এই প্ৰবন্ধৰ পৰিসৰত গল্পটোৰ মাজত যুগ পৰিৱৰ্তনৰ ইতিহাস আৰু পৰিৱৰ্তনৰ ধামখুমীয়াত হেৰাই যোৱা এখন সমাজৰ চিত্ৰ কিদৰে অংকিত হৈছে সেই বিষয়ে আলোচনা কৰিবলৈ প্ৰয়াস কৰা হৈছে।

### ১.০১ ‘বৰ্ণনা’ত যুগ পৰিৱৰ্তনৰ স্বাক্ষৰ :

গল্পটোৰ আৰম্ভণিতে গল্পকাৰে তেখেতৰ নিজৰ বৰ্ণনা শৈলীৰে নগৰৰ দাঁতি কাষৰীয়া এটা অঞ্চলৰ ছবি দাঙি ধৰিছে। বিভিন্ন জীৱিকাৰ লগত জড়িত অঞ্চলটোৰ লোকসকলে পুৱাৰ লগে লগে নাদটোৰ পাৰত ভিৰ কৰেহি। বিশেষকৈ ফাকুৱাৰ দিনা পানী শুকাই তলি ওলোৱা নাদত মানুহৰ হেঁচা-ঠেলা আৰু ভিৰত পানী ঘোলা হৈ পৰে। ফাগুণ-চ’ত মাহতে স্থানীয় পৌৰসভাৰ মানুহে নাদটোৰ বোকা তুলি পৰিস্কাৰ কৰে। নাদৰ বোকাট উঠি আহে আমগছলৈ মৰা ফৰুটি, পিতলৰ ঘটি, বাঁহৰ স্কেল, ঘৰত সজাই থোৱা কাঠৰ পছকে ধৰি নানা ধৰণৰ সামগ্ৰী।

এটা নাদৰ পাৰ। তাতে গঢ় লৈ উঠে চুবুৰীটোৰ আন্তৰিকতা, আত্মীয়তা। নগৰৰ দাঁতি কাষৰীয়া এই অঞ্চলটোত সন্ধ্যা হ’লে চাৰিআলিৰ লেমটো জ্বলাবলৈ কান্ধত জখলা, হাতত কেৰাচিন তেলৰ টিন আৰু জেপত দিয়াচলাই লৈ এজন বিহাৰী মানুহ আহে। পদ্ম বুঢ়াই তাৰ লগত দুবাৰ-এবাৰ কথা পাতি কেৰাচিন তেল এচাকি খুজি লয়। পৌৰসভাৰ মানুহক নাদটো চাফা কৰিবলৈ তাৰ আগত কৈ পঠায়।

গল্পটোত চিত্ৰিত হৈছে ‘বৰ্ণনা’ নামৰ এজনী ছোৱালীৰ জীৱনৰ উঠা-নমা গতিৰ লগত যুগ পৰিৱৰ্তনৰ ইতিহাস। যি নামেৰে গল্পটোৰ নামকৰণো কৰা হৈছে। বৰ্ণনা জন্মৰ সময়ত চুবুৰীটোত স্বচ্ছন্দতা আছিল, গতিশীলতা আছিল। বিভিন্নজনে ভিন্-ভিন্ জীৱিকাৰ পথেৰে জীৱন যাপন কৰিবলৈ লৈছিল। হীৰাই মাৰোৱাৰীৰ বাৰান্দাত ভাৰা লোৱা মেচিনত লুঙী চিলায়, বলোৰামে বুধবৰীয়া হাটত বিক্ৰী কৰিবলৈ চাধা-গুড়ি আৰু লালীৰে ধপাত বনায়, নিবাৰণে ৰাঙা, হাতুৰী, বটালি আদি লৈ চিপাহীৰ কাঠৰ ঘৰ সাজিবলৈ যায়, গজেন ড্ৰাইভাৰে মহাজনৰ বাছ চলায়। বাছখন থ’বলৈ যাওঁতে চুবুৰীটোৰ এজাক ল’ৰা-ছোৱালীক তুলি নি চাৰিআলিটোত নমায়। মানিকীহঁতে ওকণি চাই মেল মাৰে, নেপালহঁতে ভটা-গুটি খেলে, দুদিনমান বৰষুণ নহাৰ অজুহাতত কিৰণহঁতে ভেকুলী বিয়া পাতে। ৰজনীহঁতে হৰিপদৰ হাৰমনিয়াম ধাৰলৈ আনি প্ৰছেচনৰ গানৰ অভ্যাস কৰে। চহৰত গোপাল বাবুৱে ভেৰাইটী শ্ব’পাতে, ৰঙীন পাতল কাগজত হেণ্ডবিল ছপায়। নেপালহঁতে শ্ব’ চায়। এখন দুখন ৰঙীন হেণ্ডবিল ঘৰলৈ লৈ আহে। বৰ্ণনা এমহীয়াতে তাইৰ নাম দিয়াৰ গুণা-গাঁথা হৈ থাকোঁতে নেপালে হেণ্ডবিলত থকা নামবোৰ চাই ভনীয়েকৰ নাম ‘বৰ্ণনা’ হ’ব বুলি কৈছিল। পিতাকে নামটো শুনি এইটোনো কেনে নাম বুলি মুখ বিদৰাইছিল। কিন্তু ভোলাই পিতাকৰ মুখতে টপৰাই কৈছিল—“তইনো কিডাল জান? এইবিলাকহে ভাল নাম।”

লাহে লাহে মনিব নোৱাৰাকৈ মানুহৰ হৃদয়ৰ স্পন্দনেৰে উজ্জীৱিত হৈ থকা এই অঞ্চলটোলৈ পৰিৱৰ্তন আহিছে। চকুৰে নমনাকৈ, বুকুৰে অনুভৱ নকৰাকৈ চুপি চুপি সোমোৱা পৰিৱৰ্তনে কিন্তু পাছলৈ চকুপানীৰ ঢল আনিছে, বুকুৰ উশাহ-নিশাহবোৰ বন্ধ কৰি দিয়াৰ উপক্ৰম ঘটাইছে। আধুনিক সভ্যতাৰ ধ্বজা উৰুৱাই গঢ়ি উঠা অট্টালিকাবোৰে সৰু সৰু জুপুৰিবোৰ পুতি পেলাইছে; নিঃশেষ হৈ গৈছে ইয়াৰ সহজ-সৰল জীৱনবোধ। কংক্ৰিটৰ দেৱালত ঠেকা খাই খাই এসময়ত প্ৰেম-ভালপোৱাবোৰ, সপোনবোৰ শেষ হৈ গৈছে।

ভেৰাইটী শ্ব’, ৰঙীণ হেণ্ডবিল, আধুনিক নামৰ মাজেৰে সোমাই অহা পৰিৱৰ্তনে তেতিয়াই গাঢ় ৰূপ ল’লে যেতিয়া পদ্ম বুঢ়াৰপৰা নুৰুদ্দিন পেস্কাৰে দুশ টকাত কিনি থোৱা মাটি বিধা জগমোহনে কিনি ল’লে। তাত তিনিমহলীয়া ঘৰ সজাৰ প্ৰস্তুতি চলিল। লগে লগে পদ্ম বুঢ়া আৰু তাত থকা চাৰিঘৰ মানুহ-বিষ্ণু, বলোৰাম, নিবাৰণ, মানিকীহঁত তিনি মাইল দূৰৈত থকা নৈ পাৰলৈ গুচি যাব লগা হ’ল। চুবুৰীটোত বৰ্তি থকা পৰম্পৰা আৰু একতাত এক গভীৰ আঁচোৰ লাগিল। জগমোহনে শেনচকুৰ দৃষ্টি আৰু ব্যৱসায়িক বুদ্ধিৰে গম পাইছিল চুবুৰীটোৰ ওচৰতে পকী ৰাস্তা হ’ব, আৰু কিছু দূৰৈত কল-কাৰখানা স্থাপন হ’ব। চুবুৰীটোলৈ সঘন আহ-যাহ চলিল ৰাধা কিষণ, চোহান সিং, কালী চক্ৰৱৰ্তী আদি অচিনাকি মুখবোৰ। চুবুৰীটোৰ আপোন আৰু চিনাকি মুখবোৰ ক্ৰমশ : চুবুৰীটোৰ বুকুৰপৰা হেৰাই যাবলৈ ধৰিলে। হলীৰাম, গজেন হ’তে ইয়াৰ মাটি বেচি কদমগুৰিৰ ফালে উঠি গ’ল। যোগেশ্বৰ, ৰজনীহঁতে ৰিজাৰ্ডত খুলি দিয়া মাটি ল’লেগৈ। ইয়াৰ মাজতে ৰস্তা নামৰ বুঢ়ী গৰাকীৰো মৃত্যু হ’ল। হৰিপদৰ

চিনাকি মুখবোৰ চুবুৰীটোত নোহোৱা হোৱাত সিও এদিন গুচি গ'ল বিড়ি কোম্পানীৰ এখন চালিৰ তললৈ। চুবুৰীটোৰ আপোন মানুহবোৰে এনেদৰে মাটি আৰু মানুহৰ মায়া এৰি নিজা নিজা সুবিধাৰে থিতাপি ল'লেগৈ। চুবুৰীটোলৈ সোমাই আহিল শিল, ইটা, বালি, কোৰ, খন্টি লৈ অবুজ ভাষাৰে কথা কোৱা অচিনাকি মানুহবোৰ। লগত আহিল কৰ্কশ শব্দৰে শিল, বালি, চিমেন্ট মিহলোৱা মেচিন।

বৰ্ণনাই বিছ বছৰ বয়সত মন কৰিলে চুবুৰীটো দুমহলীয়া, তিনি মহলীয়া ঘৰেৰে ভৰি পৰিল। কাষেদি পকী বাস্তা হ'ল। ডাঙৰ ডাঙৰ পকীঘৰবোৰৰ হেঁচাত বৰ্ণনাইতৰ খেৰী ঘৰটোৱে উশাহ নোপোৱা যেন হ'ল। বিষয়বস্তু বৰ্ণনাত নিপুণ গল্পকাৰৰ বলিষ্ঠ বৰ্ণনাৰে বৰ্ণনাইতৰ ঘৰটোৰ ৰূপ এনেকুৱা হ'ল—

“ঘৰটো ডেকা মানুহৰ মূৰত ট-টকৈ জিলিকি থকা, যাৰে তাৰে চিঙি দিবলৈ মন যোৱা একমাত্ৰ চুলিডালৰ নিচিনা হৈছিল।”

বৰ্ণনাৰ বাপেক ঢুকোৱাৰ পাছতে তাইৰ ককায়েক নেপাল আৰু ভোলাৰ কাজিয়া আৰম্ভ হয়। মাটি-বাৰী বিক্ৰী নেপালে মুকলিকৈ ওলাই যোৱা ভোলাক বন্দী কৰাৰ পাল পৰিল। সি চলাহী আৰু মন ভুলোৱা কথাৰে ভোলাকো সৈমান কৰালে — সি বনোৱা তিনিমহলীয়া ঘৰৰ সন্মুখৰ তিনিটা কোঠা ভোলাক দিয়াৰ আশা দি। কথামতে অৱশ্যে কাম হ'ল; কিন্তু ভোলাইতক দিয়া কোঠাত বিজুলী বাতি নজ্বলিল আৰু পানীৰ ব্যৱস্থা নহ'ল। বৰ্ণনাৰ ভনীয়েক ৰাণী ইতিমধ্যে এই ঘটনাক্ৰমৰ মাজতে জগমোহনৰ ঠিকাদাৰ ৰবিকুমাৰৰ লগত গুচি গ'ল।

সৰু অঞ্চলটোত যিদৰে অট্টালিকাৰে ঠাঁহ খাই পৰিল। সেইদৰে ঘৰবোৰো মানুহেৰে ভৰি পৰিল। চুবুৰীটো নতুন মানুহ, নতুন মুখ, নতুন চিন্তা, নতুন ধাৰণাই ঠাই ল'লে। টেলিফোনপেৰে মাজনিশা চাদৰপৰা শনিগ্ৰহ চাবলৈ বিচৰা শ্ৰী নিবাসন, টেক্স ইন্সপেক্টৰ মুকুন্দ লাল, কয়লাৰ ইঞ্জিনিয়াৰ পৰিতোষ, ৰিটায়াৰ্ড শিৱচৰণ, টেলিফোন অপাৰেটৰ মনোৰমা, ইয়ং বয়জ ক্লাবৰ পাৰ্থপ্ৰতিম, ধুনীয়া ছোৱালী ইভা আদি চৰিত্ৰবোৰৰ কাম-কাজ, ধৰণ-কৰণ, চলন-ফুৰনে চুবুৰীটোৰ আগৰ বাসিন্দা মানিকী, মধু, যোগেশ্বৰ, ৰম্ভা বুঢ়ী, পদ্ম বুঢ়ী, হৰিচন্দ, বিষ্ণু, হলীৰাম, নেপালহঁতৰ মুখবোৰ পাহৰাই পেলালে। অৱশ্যে মধু, কনতিলহঁত দুৰণিৰ নৈ পাৰৰপৰা অতীতৰ স্মৃতি বিচাৰি চুবুৰীটোলৈ আহে। ভোলাই দিয়া দোকানত আৰু সিহঁতৰ ঘৰত সোমাই ভাল-বেয়াৰ খবৰ লয়। ফ্লেটত থকা চাকৰিয়াল মানুহে এমাহৰ বাবে ডাঙৰ দোকানৰপৰা বজাৰ কৰি আনে, গতিকে ভোলাৰ দোকান নচলাৰ খবৰ পায়। ৰাণী কেঁচুৱাটো লৈ মাজে মাজে আহে মাকৰ ঘৰলৈ। কেঁচুৱাটোক থৈ কেতিয়াবা চিনেমা চাবলৈ যায় ৰাণী আৰু ৰবিকুমাৰ। কেঁচুৱাটোক থৈ যোৱা সময়খিনিত কেঁচুৱাৰ বাবে দি যোৱা দিহাখিনিত প্ৰকট হৈ পৰিছে সময়ৰ পৰিৱৰ্তনশীলতা। বালি-খুলি খেলি, নাদৰ পানীৰে গা ধুই ডাঙৰ হোৱা ৰাণীয়ে সম্পূৰ্ণ সুকীয়া ব্যৱস্থাবে সন্তান পালন কৰিছে। গল্পকাৰৰ বৰ্ণনাৰে—

“চামুচখন গৰম পানীৰে ধোৱা আছে, য'ত-ততে নথবি, চেনি দুচামুচ; গাখীৰ খুউৱাৰ আগতে বিব্ধন বান্ধি ল'বি, জাঙিয়া সলাবলগীয়া হ'লে এইটোৰপৰা অলপ পাউডাৰ দিবি; কান্দিলে এনেকৈ লাহে লাহে পিঠিত ঢকিয়াই অকণমান মেইন ৰাস্তাৰ ফালে উলিয়াই নিবি, তেতিয়া সি শুব।”

বৰ্ণনাৰ বয়স ত্ৰিছ বছৰ হওঁতে ভোলাই মৰাপাট কলত চাকৰি এটা পায়। চাকৰিটো কৰিবলৈ যাওঁতে ভোলাই মাকক হীৰা ককাইটি, মধু-কনতিলহঁতে খবৰ ল'ব বুলি জনাই যায়। অৰ্থাৎ যি কেইজন সিহঁতৰ

পুৰণা চিনাকি আপোন মানুহ। আধুনিকতাৰ পিঠিত উঠি ৰঙীন সপোন ৰচা যান্ত্ৰিক পৃথিৱীৰ বাসিন্দা ওচৰ-চুবুৰীয়াৰ ওপৰত ভোলাই আস্থা থাপিব পৰা নাই।

সময়ৰ সোঁতত, জীৱনৰ তাগিদাত বৰ্ণনাই অৱশেষত চুবুৰীটোলৈ অহা নতুন বাসিন্দা পৰিতোষ বাবুৰ ঘৰত ঘৰ সৰা-মোচা, কেঁচুৱা ৰখা কাম কৰিবলৈ লৈছিল আৰু পৰিৱৰ্তনশীল সময়ৰ ধামখুমীয়াত উটি ভাঁহি অৱশেষত ঠেৰু হীন হৈ পৰা বৰ্ণনাই জন্মৰেপৰা চিনাকি আপোন নাদটোৰ বুকুত জাঁপ দিছিল। মানুহৰ জীৱনলৈ সমাজলৈ সন্তপনে সোমাই অহা পৰিৱৰ্তনে অতি নিষ্ঠুৰতাৰে এখন সমাজ আৰু সেই সমাজৰ বাসিন্দাসকলক চেদেলি-ভেদেলি কৰি পেলালে।

নাদত পৰি মৃত্যু হোৱা বৰ্ণনাৰ শটো সকলোৰে সহযোগিতাত মধু, কনতিলহঁতে তুলি আনিলে। শটোক সাৰটি মধুৱে অন্তৰ্ভেদি যোৱাকৈ মাতিলে— ‘বাইটি, বাইটি।’ বুকুৰ ভিতৰৰপৰা ওলাই অহা শব্দটোৰ প্ৰতি সহাঁৰি জনাবলৈ কিন্তু সেই সময়ত বৰ্ণনাৰ নিষ্ঠৰ দেহাটোৰ বাহিৰে একো নাছিল। আধুনিক পদ্ধতিৰে পানীৰ সু-ব্যৱস্থা কৰি লোৱা আধুনিক সমাজখনে বৰ্ণনাইতক পানী টুপিৰপৰা বঞ্চিত কৰি ৰাখিছিল। সেয়েহে, সিহঁতৰ জীয়াই থকা মাকৰ পানীকণৰ বাবে বলোৰাম বুঢ়াই চিন্তা কৰিব লগা হৈছে। ‘জীয়েকৰ মৃতদেহ পোৱা নাদৰ পানী খাব জানো?’ বুলি কোনোবাজনে সন্দেহৰ প্ৰশ্ন তুলিছে। কিন্তু বৃদ্ধাই উপৰাই উত্তৰ দিছে— ‘খাম বাপু, খাম।’ এয়া জীৱনৰ বিচিত্ৰতা। জীয়াই থাকিবৰ বাবে পানী টুপি নহ'লেই নহয়। আনহাতে উপায়হীন বৃদ্ধাগৰাকীয়ে জীয়াই থকাৰ শেষ আশা নাদৰ পানী টুপিতে বিচাৰিছে, যি দৰে বৰ্ণনাই নাদটোকে জীৱনৰ শেষ উপায় বুলি গ্ৰহণ কৰি গ'ল।

২.০০ সামৰণি :

এটা নাদ, এটা চুবুৰী, চুবুৰীত বসবাস কৰা জনজীৱনৰ হাঁহি-ধেমালি, সুখ-দুখ, ৰীতি-নীতি পৰম্পৰাবোধ অতি নিখুঁতভাৱে বৰ্ণনা গল্পটোত বৰ্ণিত হৈছে। নাদৰ পাৰৰ ঘটনাক লৈ গঢ়ি উঠা বিষয়বস্তুৰে অৱশেষত নাদটোৰ পাৰতে পৰিসমাপ্তি লাভিছে। নাদ পৰিষ্কাৰ কৰা প্ৰথমবাৰ নাদৰপৰা উঠোৱা বস্তুবোৰতকৈ শেষৰবাৰ উঠোৱা বস্তুবোৰৰ আকাশ-পাতাল প্ৰভেদ। প্ৰথমতে পোৱা বাঁহৰ স্কেল, কাঠৰ পছ এইবোৰৰ ঠাইত হাৱাই চেণ্ডেল, মদৰ বটল, ষ্ট'ভৰ সাঁফৰ, ক্ৰিকেট বল, কনডেম্স মিক্স, হেৰিং মাছৰ টেমা আদিয়ে যুগৰ পৰিৱৰ্তনকে সূচাইছে।

গল্পটোত অতি নিপুণভাৱে এখন সমাজত যুগৰ পৰিৱৰ্তন কেনেকৈ সন্তপনে, উমান নোপোৱাকৈ ঘটে তাক দেখুওৱা হৈছে। প্ৰৱৰ্তিত মানৱ সভ্যতাৰ ইতিহাসত গাঁও সৃষ্টিৰপৰা নগৰ-মহানগৰ সৃষ্টিলৈকে দ্ৰুত পৰিবৰ্তন অৱশ্যস্তাৱী। কিন্তু এই ইতিহাসত বাৰে বাৰে এটা কথাই প্ৰমাণিত হৈ আহিছে যে ই বুৰ্জোৱা মানুহৰ ইতিহাস। য'ত মধু, কনতিল, মানিকী, ভোলা, বৰ্ণনাইতৰ জীৱনৰ কোনো মূল্য নাথাকে। কাৰোবাৰ প্ৰৰোচনাতে হওক অথবা বাধ্যত পৰিয়ে হওক ইহঁতে নিজৰ ইচ্ছা-অনিচ্ছা, ৰুচি-অভিৰুচি আনৰ বাবে জলাঞ্জলি দিবলৈ বাধ্য।

গল্পটোৰ সামৰণিয়ে প্ৰকৃতঅৰ্থত পাঠকক আশাব্যঞ্জক সঙ্কম বতৰা দিবলৈ নহ'ল। পিতৃভেটি ৰক্ষা কৰিবলৈ বন্ধপৰিকৰ ভোলাৰ মনৰ দৃঢ়তা জগমোহনৰদৰে ব্যক্তিৰ চালাকীৰ ওচৰত ধুলিস্যাৎ হৈ গৈছে। বৰ্ণনাৰ মৃত্যুৱেও যুগ পৰিৱৰ্তনৰ চাকনৈয়াত তিষ্ঠিব নোৱাৰি ভীৰুতাৰে জীৱনৰ পৰিসমাপ্তি বিচৰা মানসিকতাৰে প্ৰতিফলন ঘটাইছে।

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সেয়েহে সামৰণিত ক'ব পাৰি যুগৰ পৰিৱৰ্তনক নিখুঁত আৰু নিপুণতাৰে অংকন কৰা গল্পকাৰজনে পৰিসমাপ্তিত বলীৰ ওচৰত দুৰ্বলীৰ পৰাজয় মানি লৈছে। অৱশ্যে বস্তুবাদী আধুনিকতাৰ নামত প্ৰায় নিঃশেষ হৈ পৰা সাধুতা, সত্যতা, নৈতিকতাক এতিয়াও যে মানুহে জীয়াই থকাৰ সম্বল বুলি ভাবে সেইকথা মধু, কনতিল, বলোৰাম বুঢ়া আদি চৰিত্ৰৰ মাজেদি কিঞ্চিৎ দিবলৈ সক্ষম হৈছে বুলিব পাৰি। ■

প্ৰসঙ্গ সূত্ৰ :

১. হৃদয়ানন্দ গগৈ (সম্পা.) : গল্প আৰু শিল্প, জ্যোতি প্ৰকাশন, গুৱাহাটী, ২০০০ চন, পৃ. ৪৫৪।
২. উল্লিখিত, পৃ. ৪৫৫।
৩. উল্লিখিত, পৃ. ৪৫৯।

প্ৰসঙ্গ পুথি :

১. মহেশ্বৰ নেওগ : অসমীয়া সাহিত্যৰ ৰূপৰেখা, দ্বাদশ তাঙৰণ, চন্দ্ৰ প্ৰকাশন, গুৱাহাটী, ২০১২
২. যতীন্দ্ৰ শইকীয়া : বিষয় : চলচিত্ৰ আৰু অন্যান্য, বেদকণ্ঠ, যোৰহাট।
৩. হৃদয়ানন্দ গগৈ (সম্পা.) : গল্প আৰু শিল্প, জ্যোতি প্ৰকাশন, গুৱাহাটী, ২০০০ চন।

Khoj; Vol. VIII, 2016

ISSN No. : 2278-5272

## ‘লভিতা’ উপন্যাসত প্ৰতিফলিত

অসমীয়া সমাজ জীৱন আৰু কেন্দ্ৰীয় চৰিত্ৰ লভিতা

ড° বিজু মৰাণ, সহকাৰী অধ্যাপক,  
অসমীয়া বিভাগ, ডিব্ৰু মহাবিদ্যালয়

০.০০ অৱতৰণিকা :

জ্যোতিপ্ৰসাদ আগৰৱালা অসমীয়া সাহিত্য-সংস্কৃতিৰ জগতখনৰ এটা প্ৰাতঃস্মৰণীয় নাম। প্ৰথম অসমীয়া বোলছবি ‘জয়মতী’ নিৰ্মাণকে আদি কৰি গীত, নাটক আদি কলা চৰ্চাৰ জৰিয়তে তেখেতে অসমীয়া সাহিত্যৰ জগতখনত নিজকে প্ৰতিষ্ঠা কৰি থৈ গৈছে।

৯ খন নাটক ৰচনা কৰি অসমীয়া নাট্য সাহিত্যক সমৃদ্ধ কৰি থৈ যোৱা ‘লভিতা’ জ্যোতিপ্ৰসাদ আগৰৱালাৰ আন এখন মঞ্চ সফল নাটক। ১৯৪৮ চনত এই নাটকখনিয়ে প্ৰথম প্ৰকাশ লাভ কৰিছিল। তেখেতৰ জীৱনৰ শেষ বয়সৰ বহু অভিজ্ঞতা আৰু পৰিপকতাৰ সমাহাৰ ঘটা এই নাটকখনিত তেখেতৰ পৃথক নাট্যৰীতি আৰু দৃষ্টিভঙ্গী প্ৰকাশ পাইছে। পৰিকল্পিতভাৱে অসমীয়া নাট্য সাহিত্যক ভিন্ন ভিন্ন স্বাদেৰে ভৰাই তোলা জ্যোতি প্ৰসাদ আগৰৱালাৰ ‘লভিতা’ নাটকখনতো তেখেতৰ সুকীয়া নাট্যচিন্তা ফুটি উঠিছে। ইয়াৰ প্ৰমাণ ‘লভিতা’ৰ পাতনিৰ প্ৰথম বাক্যবাৰতেই দেখিবলৈ পোৱা যায়। তেখেতে লিখিছে — “লভিতা যদিও নাট্যকাৰে ৰঙ্গমঞ্চৰ কাৰণেই লেখা হৈছে, তথাপি ই গতানুগতিক নাটকৰ শাৰীত নপৰে।” নাটকখনত এটা সুসংবদ্ধ কাহিনীৰ অভাৱ নাটকখনিত লক্ষ্য কৰা যায়। ইয়াক পাশ্চাত্যৰ নতুন নাট্য চিন্তাৰ প্ৰভাৱ বুলি ধাৰণা কৰিব পাৰি।

অসমৰ জনসাধাৰণৰ ওপৰত বিয়াল্লিছ চনৰ বিপ্লৱ আৰু অসমৰ ওপৰেদি পাৰ হৈ যোৱা দ্বিতীয় মহাসমৰৰ টোৱে কেনেদৰে কোবাই গৈছিল তাৰ এটা নাটকীয় স্পৰ্শ দি যোৱাটো নাট্যকাৰৰ মূল উদ্দেশ্য। সেয়ে তেখেতে পাতনিত উল্লেখ কৰিছে — “ই এখন নাটকীয় বাস্তৱমূলক কাহিনী।”

০.০১ অধ্যয়ন পদ্ধতি :

আংগিককে আদি কৰি কেইবাটাও দিশত নতুন নাট্যচিন্তাৰ সমাৱেশ ঘটা জ্যোতি প্ৰসাদ আগৰৱালাৰ ‘লভিতা’ নাটকখনিৰ কেন্দ্ৰীয় চৰিত্ৰ ‘লভিতা’ আৰু সেই সময়ৰ অসমৰ সমাজ জীৱনক বিশ্লেষণাত্মক

দৃষ্টিভঙ্গীৰে ফঁহিয়াই চোৱাটো এই বিশ্লেষণৰ ঘাই উদ্দেশ্য।

### ১.০০ বিষয় বিশ্লেষণ :

জ্যোতিপ্ৰসাদ আগৰৱালাৰ যুগজয়ী সৃষ্টি ‘কাৰেঙৰ লিগিৰী’ নাটকখনৰ এটা শ্ৰেষ্ঠ চৰিত্ৰ হৈছে ‘শেৱালী’। ঠিক একেদৰে জ্যোতিপ্ৰসাদ আগৰৱালাই ‘লভিতা’ চৰিত্ৰটো অতি সুন্দৰকৈ সজাই তুলিছে। মানৱীয় দয়া-মমতাৰে উপচি থকা লভিতাৰ হৃদয়খন এহাতে আলফুলীয়া আৰু আনহাতে আধুনিক চিন্তা-চেতনাৰ সাঁচত গঢ়া আৰু দৃঢ়চেতা। পৰিস্থিতি সাপেক্ষে লভিতাই বৰ্তমানৰ সমাজত চলি থকা অনায়াস-অবিচাৰ, মাস্কাতাকলীয়া ৰীতি-নীতিক দলিয়াই পেলাব খোজে। নাট্যকাৰৰ ভাষাৰে — “অসমীয়া সাধাৰণ গাঁৱলীয়া ছোৱালীৰনো চৰিত্ৰবল কেনে, আগেয়ে নোহোৱা-নোপজা ঘটনাৱলীৰ বানপানীত তাই কিমানদূৰ নিঃসহায়ৰ দৰে উটি গৈছে আৰু কিমানখিনিতে সেই অভাৱনীয় অৱস্থাৰ সৈতে কি হিছাপে সৈমান নহৈ যুঁজ দিছে; কিমানখিনি নিজৰ আত্মবলৰ চিনাকী দি অৱস্থাক জিনি তাইৰ ভিতৰত লুকাই থকা অসমীয়া জাতিৰ চৰিত্ৰ বলৰ পৰিচয় দিব পাৰিছে, তাকেহে সেই সময়ৰ অসমত ঘটা নানা ঘটনাৱলীৰ মাজেদি ওলোৱা অসমীয়া সাধাৰণ ডেকা-ডেকেৰীৰ চৰিত্ৰবলৰ নিদৰ্শন পৰ্যবেক্ষণ কৰি নাট্যকাৰে ‘লভিতা’ৰ যোগেদি ৰাইজৰ আগত দাঙি ধৰিছে।”

তাৰ পাছতো তেখেতে মন্তব্য কৰিছে যে — “লভিতা আদৰ্শমূলক অসমীয়া ছোৱালীৰ চৰিত্ৰ নহয়।” উল্লিখিত কথা ফাঁকিৰপৰা বুজা গৈছে যে নাট্যকাৰে আদৰ্শমূলক অসমীয়া চৰিত্ৰৰপৰা ‘লভিতা’ক বহু পৰিমাণে আঁতৰাই আনি এটা নতুন ৰূপত সজাই তুলিছে। নতুন মাত্ৰা প্ৰদান কৰা হৈছে ‘লভিতা’ চৰিত্ৰৰ ওপৰত।

অসমৰ সমাজ জীৱনত বিয়াল্লিছৰ আন্দোলন আৰু দ্বিতীয় মহাসমৰৰ বিভীষিকা দেখুৱাবলৈ নাটকখনৰ আৰম্ভণি লহৰজান মৌজাৰ ফুলগুৰি নামৰ এখন গাঁৱৰপৰা আৰম্ভ কৰা হৈছে। ‘লভিতা’ ফুলগুৰি গাঁৱৰ বাণেশ্বৰ বৰুৱাৰ কন্যা। লভিতা চকুতলগা হোৱাৰ লগতে শিক্ষিতা। সেই সময়ৰ অসমত নাৰী শিক্ষাৰ ক্ষীণ প্ৰভাৱৰ মাজতে লভিতাক শিক্ষিতা যুৱতী হিচাপে দেখুওৱা কাৰ্যই প্ৰকৃততে অনাগত সময়ত লভিতাই যেন নতুন ৰূপত আত্মপ্ৰকাশ কৰিব তাৰ পূৰ্বাভাস নাট্যকাৰে অতি বুদ্ধিমত্তাৰে নাটকখনৰ আৰম্ভণিতে প্ৰদান কৰিছে। বিশুদ্ধ অসমীয়া পৰিৱেশ বিৰাজ কৰি থকা এখন ঘৰত লভিতাক দেখুওৱা হৈছে। ব’হাগ মাহৰ জাতিন্ধাৰ হৈ পৰা অসমীয়া গছ-গছনি, ফুল-লতিকাৰ লগতে দূৰৈৰপৰা ভাঁহি অহা বনগীতৰ মাতে অসমীয়া গ্ৰাম্য সমাজখনৰ এখনি ছবি দাঙি ধৰিছে। এনে আনন্দময় সময়ক দুঃসময় কৰি তুলিছিল সেই সময়ৰ পৰিস্থিতিয়ে। প্ৰকৃতিৰ কন্যা লভিতাৰ জীৱন চৰ্যাক কি দৰে পৰিস্থিতিয়ে কোঙা কৰি আনিছিল তাৰ আভাস প্ৰথম অংকৰ প্ৰথম দৰ্শনতে প্ৰকাশ পাইছে।

তদুপৰি সুকোমল মনৰ লভিতাৰ প্ৰণয়প্ৰাৰ্থী গোলাপৰ প্ৰসংগৰ উত্থাপন কৰি লভিতাৰ সখীয়েক সোণ, ৰূপ আৰু হীৰাই লভিতাৰ মানসিক জগতখনৰ পৰিচয় পাঠক-দৰ্শকৰ আগত দাঙি ধৰিছে। প্ৰথম অংকৰ প্ৰথম দৃশ্যৰ মাজভাগত ওপৰেদি এখন জাহাজ উৰি যোৱা প্ৰসংগই সকলোকে সচকিত কৰি তোলে আৰু সংকটপূৰ্ণ সময়ৰ ইংগিত দাঙি ধৰে। তদুপৰি ৰূপৰ মুখেৰে অসমীয়া নাৰীক নিগ্ৰো সৈন্যই নিৰ্যাতন চলোৱা বাৰ্তাই সকলোৰে মনলৈ সংশয় নামি অহাৰ বতৰা প্ৰদান কৰে। পৰিস্থিতিৰ ভয়াবহতা জগাই তোলাৰ ক্ষেত্ৰত প্ৰথম অংকৰ প্ৰথম দৰ্শনে গুৰুত্বপূৰ্ণ ভূমিকা গ্ৰহণ কৰিছে।

লভিতাৰ সাহসী চৰিত্ৰটোৰ প্ৰকাশ ঘটে প্ৰথম দৰ্শনটোতে। দেশৰ স্বাধীনতাকামী সৰু ছোৱালী এজনীয়ে নিচান লোৱা দেখি দাৰোগাই তাইক প্ৰহাৰ কৰিবলৈ উদ্যত হয়। স্বাধীনচিন্তীয়া লভিতাই এই কাৰ্যৰ প্ৰতিবাদ কৰি কৈছে — “ছিঃ ছিঃ ছিঃ ! ইমান তললৈ গ’লি — ইমান নীচ হ’লি ! তহঁতে পুলিচ হৈছে তিৰোতাক ৰক্ষা কৰিবলৈ, দুৰ্বলীক বল দিবলৈ, মানুহক অত্যাচাৰীৰপৰা এৰুৱাই আশ্ৰয় দিবলৈ। কিন্তু কৰিছ কি? কৰিছ কি? অকণমান ছোৱালীজনীক তিনিটা চাৰিটাই বৰমতা হৈ মাৰিবলৈ লাজ লগা নাই? তহঁতৰ পুৰুষালি এনেকুৱাই নেকি? ইমান নীচ, ইমান হীন, হাতত ক্ষমতা পাই বলীয়া হ’লি, পগলা হ’লি?” ... “চুপ নাথাকো, নাথাকো, নাথাকো, জানিছ গোলামৰ গোলাম ! আজিকালিৰ ছোৱালীয়ে পিষ্টল, বন্দুক, বৰতোপ, বোমা একোলৈকে ভয় নকৰে। পিষ্টল দেখুৱাই আজিৰ ছোৱালীক ভয় দেখুৱাবলৈ আহিছ?” ইয়াৰ জৰিয়তে লভিতাৰ আধুনিক আৰু নিৰ্ভীক মনোভাৱৰ পৰিচয় পোৱা যায়।

লভিতাৰ স্বজাতি আৰু দেশৰ প্ৰতি থকা প্ৰেমৰ নিদৰ্শন নাটকখনৰ ভালেমান সংলাপে দাঙি ধৰে। প্ৰথম অংকৰ প্ৰথম দৃশ্যৰ সামৰণিত লভিতাই পুলিচ চাহাবৰ ধমকিৰ উত্তৰ এইদৰে দিছে — “আজিকালিৰ ছোৱালীয়ে ভয় নাখায় চাহাব। গোটেই বৃটিছ গৱৰ্ণমেণ্টৰ বন্দুক, বৰতোপ আনিলেও চাহাব এই ভেটিৰপৰা এক খোজো আঁতৰ কৰিব নোৱাৰা জীয়াই থাকো মানে। মোৰ ভেটি, মোৰ ঘৰ, মোৰ মাটি, মোৰ দেশ — ইয়াত মোৰ মাতিবৰ অধিকাৰ আছে। নাযাওঁ ! নাযাওঁ ! এই ভেটিৰপৰা নাযাওঁ !”

পিতৃহাৰা হোৱা লভিতাই দৈৱ দুৰ্বিপাকত আশ্ৰয় ল’ব লগা হয় লহৰজান মৌজাৰ মৌজাদাৰৰ ঘৰত। তাতো লভিতাৰ কষ্ট আৰু দুৰ্দশাৰ অন্ত নপৰিল। সামন্তযুগীয় চিন্তা-চেতনা আৰু গভীৰ জাত্যাভিমানৰে সিক্ত মৌজাদাৰণীৰ বাবে লভিতাই আশ্ৰয় লৈ থকা কথাটো অসহনীয় হৈ উঠিল। কথাই কথাই দোষ খুঁচৰি ফুৰা বাবে মুকলিমুৰীয়া লভিতাই মৌজাদাৰণীক উদ্দেশ্যি ফ্লেভৰ উদ্গীৰণ ঘটালে — “সঁচা কথা ক’বলৈ কাৰ সাহ নহ’ব? নাথাকো মই এনেকুৱা ঘৰত। ঘৰে ঘৰে খুজি খাম। লুইতত জাঁপ দি মৰিমগৈ। তেও মই এনেকুৱা মানুহৰ ঘৰত নাথাকো, নাথাকো।”

ফণী শৰ্মাই ‘চিৰাজ’ নাটকত ‘চিৰাজ’ চৰিত্ৰৰ জৰিয়তে হিন্দু-মুছলমানৰ যি সম্প্ৰীতিৰ সাক্ষী গঢ়ি থৈ গৈছে তাৰে এখনি মনোৰম ছবি পোৱা গৈছে ‘ইলাহী বক্স’ চৰিত্ৰটোত। বহু সমালোচকে এই চৰিত্ৰটো চিৰাজৰে নতুন ৰূপ বুলিও আখ্যা দিছে। মৌজাদাৰৰ ঘৰৰপৰা গুচি আহোঁতে বাটত লগপোৱা মিলিটেৰীয়ে লভিতাক শাৰিৰীকভাৱে অপদস্থ কৰিবলৈ লওঁতে তাই তাৰপৰা পলায়ন কৰে আৰু ইলাহী বক্সৰ ঘৰত আশ্ৰয় লয়। ইছলামধৰ্মী ইলাহীয়ে লভিতাক একো সামগ্ৰী ৰান্ধি-বাঢ়ি নুখুৱাই গাখীৰ তপতাই দিব খুজিছে। তেখেতে কৈছে — “... গাখীৰকে অলপ তপতাই দিওঁ। তাকে খা মাই। তই হেন্দুৰ ঘৰৰ ছোৱালী ! ভাত দুটামান ৰান্ধি তোক দুটামান খুৱাবৰ মোৰ এক্তিয়াৰ নাই। আমাৰ মানুহৰ সমাজৰ নিয়ম এয়ে। হায় আন্ধা !” লভিতাৰ আত্মসন্মান ৰক্ষাৰ কৰাৰ লগতে আশ্ৰয় দিয়া ইলাহীয়ে হিন্দুধৰ্মী হোৱাৰ বাবে লভিতাক ভাত ৰান্ধি খুৱাবলৈ অসুবিধা অনুভৱ কৰিছে। সেই সময়ত ধৰ্মই মানুহৰ মাজত আনি দিয়া বিভেদে কেনেদৰে সমাজক ভাগ ভাগ কৰি ৰাখিছিল তাৰ সুন্দৰ নিদৰ্শন নাটকখনিত দেখিবলৈ পোৱা যায়।

নিষ্ঠুৰা লভিতাই প্ৰেমিক গোলাপৰপৰাও বৰ্জিতা হ’ব লগা হৈছে। এখন নদন-বদন ঘৰৰ ছোৱালী হৈ লভিতাই জীৱনত পোৱা দুখ-যাতনাৰ সীমা নাই। ইছলামধৰ্মী ইলাহী বক্সৰ ঘৰত আশ্ৰয় লোৱাৰ বাবেই গোলাপে সমাজৰ ভয়ত লভিতাৰ পাণি গ্ৰহণ কৰিব নোৱাৰে বুলি কোৱাত লভিতাৰ অন্তৰ ভাগি গৈছে

আৰু মনৰ ক্ষোভত এনেদৰে কৈছে — “আজিকালিৰ ডেকা ল’ৰা। আজিকালি উপজিছা, সেই বুলিয়েইনে? অকল আজিকালি উপজিলেই আজিকালিৰ ল’ৰা হ’ব নোৱাৰি। তোমাৰ মনটো আজিৰ দিনটো দুকুৰি বছৰ আগৰ ডেকাৰ দৰে। যি কথাটো সত্য বুলি ভাবো, তাক সমাজৰ ভয়ত ক’বলৈ সাহ নাই, কৰিবলৈ সাহ নাই।” আধুনিক চিন্তাৰ প্ৰতিভা লভিতাই জাত-পাতৰ বৰ্ণমালা চিনি নাপায়, চিনি নাপায় সমাজে প্ৰকৃততে বিচাৰে কি? লভিতাৰ মতে এইখন মানুহৰ পৃথিৱী। ইয়াত উচ্চ-নীচ জাতিভেদ, ধৰ্মীয় ভেদাভেদ ৰাখিব নাপায়। সেয়ে জন্ম হোৱাৰ সময়ে চিন্তাৰ আধুনিকতাক প্ৰতিফলিত নকৰে। লভিতাৰ কথাৰ সাৰমৰ্ম এয়াই।

প্ৰণয়প্ৰাৰ্থী গোলাপবদ্বাৰা প্ৰত্যাখ্যিত হৈ লভিতা দেশসেৱাৰ মনোভাৱেৰে নাৰ্ছৰ কামত সোমায়। ইয়াতে দেশৰ নিচান উৰুৱাবলৈ যাওঁতেই বিৰোধী পক্ষৰ গুলীয়ে লভিতাৰ বুকু থকা-সৰকা কৰে। লভিতাৰ ইচ্ছা অনুসৰি তাইক নিচানৰ তললৈ লৈ যোৱা হয়। মৃত্যুৰ পূৰ্বে কৈ যোৱা কথাখিনিৰপৰা লভিতাৰ গভীৰ স্বদেশ প্ৰেমৰ ছবিখন ফুটি উঠিছে এনেদৰে — “যাবৰ সময়ত মোৰ অসম আইৰ মাটিৰে কপালত এটা ফোঁট দিয়া — মোৰ দেশৰ মাটিৰে।”

যুদ্ধই সেই সময়ৰ অসমীয়া সমাজ জীৱনক আগুৰি থকা এখন নিদাৰুণ ছবি নাটকখনত দেখিবলৈ পোৱা যায়। সাধাৰণ জনতাৰ জীৱনৰ নিৰাপত্তা নথকা অসমৰ ৰাইজে সেই সময়ত বৰ দুৰ্ভোগ ভুগিবলগীয়া হৈছিল। সাধাৰণ কল বেপাৰীৰপৰা আৰম্ভ কৰি বয়োজ্যেষ্ঠ লোকলৈকে বিদেশী সৈন্যৰ অত্যাচাৰৰ সন্মুখীন হ’বলগা হৈছিল। তদুপৰি বিদেশী সৈন্যই নাৰীৰ সন্মান হানি কৰাৰ প্ৰয়াস কেইবা ঠাইতো দেখিবলৈ পোৱা যায়। লভিতাৰ সখী ৰূপে কোৱা এঘাৰ কথাত এনে এখনি ছবি দেখিবলৈ পোৱা যায় — “এ এ বাইটী! সিদিনা পাঁচোটা নিগ্ৰোৱে আমাৰ গাঁওবুঢ়াৰ জীয়েকক পছ খেদা দিলে নহয়। ভাইগে পুলিচৰ দাৰোগা এজন চাইকেল মাৰি আহিছিল — নহ’লে ইস্ ইস্ — বাইটী!”

লভিতাও এবাৰ কাণে কাণ মাৰিহে এনে অত্যাচাৰৰপৰা হাত সাৰিছে আৰু ইলাহী বজ্জৰ ঘৰত আশ্ৰয় লৈ প্ৰাণ আৰু সন্মান ৰক্ষা কৰিছে। সাতে সোতৰই মিলি সেই সময়ৰ সমাজ জীৱন আৰু সাধাৰণ লোকৰ জীৱনলৈ বিভীষিকা নমাই আনিছিল বিদেশী সৈন্যবিলাকে। এনে সংকটময় সময়ৰ এখনি সুন্দৰ ছবি নাটকখনিত প্ৰকাশ পাইছে।

অসমীয়া মানুহৰ মনলৈ নতুন আৰু উদাৰ চিন্তা-চেতনা বোৱাই আনিবলৈ কৰা প্ৰয়াস সমগ্ৰ নাটকখনতে দেখিবলৈ পোৱা যায়। চিন্তাৰ আধুনিকতা আৰু স্বদেশ প্ৰেম প্ৰতিষ্ঠা — এই দুটা প্ৰধান বিষয়ে নাটকখনক জীপাল কৰি তুলিছে আৰু লভিতা চৰিত্ৰটোকো অনন্য মাত্ৰা প্ৰদান কৰিছে। ■

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Khaj: Vol. VIII, 2016

ISSN No. : 2278-5272

## The Capacity to turn Experience into Language: A Voice - The significance of the phrase “The horror! The horror!” in Conrad’s *Heart of Darkness*

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Joseph Conrad’s novel *Heart of Darkness* depicts a very gloomy and confusing atmosphere, right from the beginning of the novel, and it further leads to confusion with Kurtz’s last words “The horror! The horror!”. Kurtz is certainly the most ambiguous character in the novel and he places and projects himself in such a diplomatic and ambiguous way that it shrouds the readers’ mind with darkness. The aim of this paper is to analyse how the words of a dying man “The horror! The horror!” embodies the dominating concerns and the whole spirit of the novel. The meaning of these words has been a topic of interest since the publication of *Heart of Darkness*, and was left ambiguous to the readers of the novel.

The novel offers a concise iconography of modern corruption and disorder as experienced by characters like Kurtz and Marlowe and their alienation, uncertainties and inner psychological complexities. “The horror” may at once refer to the effects of colonization, wilderness and power. At the same time it may also refer to the impact of colonization on the colonizers. As our narrator Marlowe narrates the story of undertaking a voyage in the quest of Kurtz, he recollects how he lands on the coast and walks into a shady grove where he sees black man dying. He is horrified at the sight, and the language that he uses to recount his experiences indicates his horror:

They were dying slowly- it was very clear. They were no enemies, they were not criminals, they were almost nothing earthly now, nothing but black shadows of disease and starvation lying confusedly in the greenish gloom.(26)

Marlow says that he is horror-struck to see the moribund shapes which he saw there. He also relates the terrible sight of the people who have been stripped of their humanity by colonialism and are merely turned into objects. Marlow admits that the English conquest, like all others, "means the taking of the earth away from those who have a different complexion or slightly flattered noses than ourselves."(9)

Marlow uses the unknown, remote and primitive Africa as a symbol for an evil and primeval force. Therefore we see that Marlow's sympathy for the oppressed blacks, when he sees them suffering and toiling is only superficial. He feels sorry for them when he sees them dying, but when he sees them healthy, practicing their customs, he feels nothing but abhorrence and loathing, like a good colonizer to whom such feeling offers a perfect rationalization for his policies. If (blacks) are evil then they must be conquered and put under the white man's rule for their own good. Thus, Marlow can sympathise only on a superficial level for the (blacks) but he has no desire to understand or appreciate people of any culture other than his own. Hence, we see that Marlow views things from his own ideological lens and fails to recognise that what is black in Africa is what has a right to be there. Therefore, the readers realise that Marlow's insight is incomplete and the moral darkness of Africa is not the simple darkness of native ignorance, but of white men who have blinded themselves and corrupted the natives by their claim to be light-bearers.

Moreover, the diction and imagery in the novel also play a key role in illustrating the daunting and appalling consequences of the brutal European imperialism in the Congo. In Marlow's narrative, Kurtz is seen as a figure of significance: a figure of God-like and diabolical superiority. He is not just an average European aristocrat. But he is the man who has the capability of diminishing morality through his "unsound" dark desires and actions (104). Moreover, like God, Kurtz has a crowd of "obedient worshippers" and "faithless pilgrims" who idolised and feared him(123). The words "worshippers" and "pilgrims" further signify Kurtz's supremacy and high social status. When Marlow arrives at the inner-station he describes Kurtz merely as a 'shadow' and 'a voice', and it is the power of his 'voice' which he uses as the best weapon in the jungle. So, when we first see Kurtz through Marlow's eyes he is wasted to the inanimate matter of his obsession, his face an ivory death mask, the maker of skeletons and

corpses, as is collapsed to a heap of bone. Marlow says that the jungle has claimed him morally as well as physically. According to Marlow Kurtz's depravity consisted of a terrible egotism which made him seek gratification of the various lusts in "unlawful" ways. These "unlawful" ways, however, seem to be nothing more than Kurtz's adoption of the customs of an African tribe. Marlow thinks that Kurtz has "taken a high seat amongst the devils of the land" because of his participation in certain tribal ceremonies which seem alien to Marlow. But the problem with Kurtz which Marlow does not realise is not that Kurtz went native, but that he did not go native enough- for Kurtz prevented the customs of the tribe, and making them a means to a deplorable end- namely, keeping the ivory flowing and colonialism a profitable venture for his employers. Thus, Marlow refuses to become enlightened about the significance of these customs and the rites of the Africans naturally stems from his conviction of the race. And he says that Kurtz's last words: "The horror! The horror!" refers to the blackness of his soul, as to what Kurtz has done to himself by mingling with the natives.

Whatever Kurtz exactly saw right before his death is left ambiguous. But the readers are of the view that what Kurtz has envisioned pushed him to cry out his final utterance. Kurtz has "kicked the very earth to pieces"(116) and allowed the desire for ivory to "consume his soul" during his life. Nevertheless, moments before his death, he "surrendered during that supreme moment of complete knowledge"(116). Hence, Kurtz's final utterance is a sudden realisation that his moral corruption and absurdity has done nothing else but tie him to the horrific adventures of "craven terror" and "hopeless despair"(116). His final words are based on his judgement upon the horrific nightmares that he created, ranging from the evil that consumed his soul to the dried heads on stakes that is placed outside his house. Through the use of such imagery and diction, Joseph Conrad is trying to convey that the notion of European imperialism in the Congo is nothing but a process of brutality, immorality, injustice, and selfishness and that the whole process of European imperialism for the sake of benefitting the African savages is a complete fallacy. Rather the process of colonization is just for the sake of exploitation and their (colonizers) own benefit.

However, Marlow says that the last words of Kurtz depict his moral victory. According to Marlow, Kurtz's utterance of these last words is the reflection of his awareness of the devilish acts that he performed throughout his life. Kurtz's life which is at the peak due to his passion for ivory is the result of the evil deeds he performed in the company of the savage. Marlow is of the view that on his death bed Kurtz has not found anything to be proud of, which is painful for him and

therefore he repented for the sins that he committed. He also felt that Kurtz realised that his life at the Congo started out really nice with the good intentions but it turned him into something horrible. Kurtz also realised that his treatment of the natives, his rebellious attitude and action and his own self-destruction are truly horrible and antithetical to the person he had been before he had entered the "heart of darkness". For Marlow, this kind of realisation can only come to someone who is a hardcore sinner, but who has some spark of goodness left in him. It is for this reason that Marlow says that Kurtz's last words is his moral victory, which is unsatisfactory, because a value judgement as he offers cannot be so easily made as giving final remark to the most complex utterance. And the readers are left open ended to meditate themselves like Marlow who at the end of the novel is seen to meditate like Buddha, and to see what Marlow has failed to see.

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## A Survey in Rohmoria Villages about the implementation of RGGVY Scheme

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#### Introduction:

India as a second highest populated country needs a well structured and successfully implemented governmental and nongovernmental welfare schemes for the gradual development of the people and their livelihood. The government of India has laden several schemes since the independence for the upliftment of poor people and for the availability of basic needs of the people. Due to some reasons like lack of state government's interest, lack of communication, the schemes could not make successful ordinance in several remote areas of India. Some government and nongovernmental organization are formed to examine the availability of governmental facilities in rural and urban areas or wherever it is succeeded.

A survey is a data collection tool used to gather information about individuals. Survey is commonly used in psychological research to collect self-report data from particulars. A survey may focus on factual information about individuals, or it might aim to collect opinions of the survey takers. A survey can be administered in couple of different ways. In one method, known as a structured interview, the researcher asks questions to each participant. In other method generally standardized to ensure that they have reliability and validity. Today the word survey is used most often to describe a method of gathering information from a sample of individuals. This sample is usually just a faction of the population being studied.



In this survey we try to deal with the distribution of electricity in this particular place. We also try to observe the implementation of RGGVY scheme in Rohmorla. Basically Rohmorla is very backward and rural area of Dibrugarh District situated on the bank of the river Brahmaputra. The main problem of this area is soil erosion.

The RGGVY scheme is an important scheme of Government of India. The scheme tries to electrify all the unelectrified villages of India.

#### Scenario of Rohmorla village:

Rohmorla, a village in Dibrugarh District, located almost 16 km towards east of the Dibrugarh Town on the bank of the river Brahmaputra. It covers an area of about 70 square kilometers. The main problem of Rohmorla is soil erosion. Because of the erosion, every year it losses about 60 hectares of land. Over the last 15 years, erosion has caused the loss of 28 villagers, six tea plantations, 10 schools and a police station in Rohmorla. The villagers have lost some parts of their paddy land and it remains an irresolvable problem.

#### Objectives of the study:

1. To observe the electricity facility of Rohmorla village.
2. To examine the implementation RGGVY scheme.
3. To observe how the people are facing the electricity problem.

#### Objective of RGGVY:

In order to attain National Common Minimum Programme (NCMP) goal of providing access to electricity to all rural households and electrification of all villages, Government of India, in April, 2005 conceived "Rajiv Gandhi Grameen Vidyutikaran Yojana" (RGGVY) to electrify all un-electrified villages / habitations and to provide access to electricity to all rural households in un-electrified and electrified villages in the entire country. The scheme covers electrification of all the villages in the country except the villages under the programme of Ministry of Non-conventional Sources (MNES) for providing electricity from non-conventional energy sources under their remote village electrification programme. With the launch of this scheme the existing "Accelerated Electrification of One lakh Villages and One Crore Households and the Minimum Needs Programme for rural electrification got merged with RGGVY.

The scheme is being implemented through the Rural Electrification

Corporation (REC) which has been designated as Nodal Agency by Ministry of Power.

The main objectives of the scheme are

- Basically electrifying every villages as well as habitations according to new guidelines.
- To provide proper electrification to every rural households.
- To offer electricity connection to every below poverty line (BPL) families with no charge.
- Guarantee by State Government for a minimum daily supply of 6-8 hours.

#### Methodology:

**Sampling technique:** For the study of Rohmorla Village we have selected the method of judgments sampling technique.

**Sampling units:** We have taken 20 households as a sample from four different villages.

#### Data Sources

##### Primary source

The study has been conducted by using both primary and secondary data sources. Primary data are collected from the households which we have taken as sample from the population of four villages.

##### Secondary source

Secondary data have been obtained specially from government reports that are available at the websites of the government.

#### A Survey of Rohmorla villages about the implementation of RGGVY Scheme: Analysis

For the purpose of the study about the implementation of RGGVY scheme in Rohmorla village. Under the study there are total 5 ward of this village.

The households samples are as follows:

Table No. 1 Liting Chuk

Sl. No.	Name of Households	Is BPL	BPL Offer	Electricity facility	Daily Supply
1	LEKHON GOGOI	Yes	No	Yes	5 Hours
2	DUDUL GOGOI	Yes	No	Yes	3 Hours

Table No. 1 shows the distribution of electricity among the two households of Liting Chuk. It also shows even though the households fall under the category of BPL, whether they received government facility or not and the survey shows that no governmental facilities are received by them. Among the two households, Lekhon Gogoi house who falls under the category of BPL receives only 5 hrs of electricity and that of the Dudul Gogoi house that does not fall under the category of BPL receives 5-6 hrs of electricity supply daily.

**Table No. 2 Guwal Chuk**

Sl. No.	Name of Households	Is BPL	BPL Offer	Electricity facility	Daily Supply
1	DURGA GOGOI	Yes	No	Yes	0
2	YEAN DAS	Yes	No	Yes	0

Table No. 2 shows the distribution of electricity among the two households of Guwalchuk. It also shows even though the household falls under the category of BPL, they are getting any governmental facilities. Both the households, Durga Gogoi house and Yean Das fall under the category of BPL, do not received electricity supply.

**Table No. 3 Borotichuk**

Sl. No.	Name of Households	Is BPL	BPL Offer	Electricity facility	Daily Supply
1	Hiren Das	Yes	Yes	Yes	4 Hours
2	Jiten Das	Yes	Yes	Yes	4 Hours

Table No. 3 shows the distribution of electricity and governmenta facilities of Borotichuk. From the table we have found that both the households i.e. Hiren Das and Jiten Das fall under the category of BPL who receive governmental facilities and four hours of electricity supply on daily basis.

**Table No. 4 Hakumora**

Sl. No.	Name of Households	Is BPL	BPL Offer	Electricity facility	Daily Supply
1	Bhupen Das	Yes	Yes	Yes	6 Hours
2	Habeshwar Das	No	No	Yes	6 Hours

Table No. 4 shows the distribution of electricity and governmenta facilities of Hakumora. It is found that Bhupen Das house falls under the category of BPL who receives 6 hrs of electricity and also governmental facilities while that of the

Habeshwar Das house doesn't fall under the category of BPL receives 6 hrs of electricity and no government facilities.

**Table No. 5 Natun Gaon**

Sl. No.	Name of Households	Is BPL	BPL Offer	Electricity facility	Daily Supply
1	Piliram Das	Yes	No	Yes	3 Hours
2	Porismita Das	Yes	Yes	Yes	4 Hours
3	Bolin Das	No	No	Yes	4 Hours

Table No. 5 shows the distribution of electricity and governmental facilities among the households of Natun Gaon. From the above table it is found that both the households i.e. Puliram Das and Porismita House receive 4 hrs of electricity but Puliram house receives no governmental facilities. Beside this Bolin Das house, who doesn't falls under the category of BPL receives 4 hours of electricity and no governmental facilities.

### Findings:

The RGGVY scheme is a development scheme of government of India implemented in 2005. But after a period 9 years, it has been found that the scheme had not been implemented to a great extent. In our survey we have found that out of 12 houses that we have taken as sample for the survey, there are still three houses left behind without electricity. To the rest of 9 houses which comes under the BPL, electricity is provided. They should be given free electricity but we have found out that all the households have bought the electricity connection by paying a certain amount of money to the contractor. But under this scheme a household falling under BPL, should be provided free electricity connection. In our survey we have also found that the used to be frequent power cuts in the villages. According to this scheme there must be at least 8 hours electricity in a day in the respective villages where the scheme is implemented. But in our survey we have found that the villages which we have taken for the study is debarred from getting electricity for this minimum 8 hours also. In our survey we have also found out that the villages lacks proper electricity connection. As the households are at a distance away from the electricity post, the households connect their electric from one household to another, which is very dangerous.

### Suggestion:

- ❖ The people of the village are still unaware about the scheme. So they

should be provided proper knowledge about the scheme.

- ❖ People should play strict role against the electricity board.
- ❖ The government and non governmental organization should try to create awareness program and provide proper knowledge among the people.
- ❖ The PRI members should take initiative for proper implementation of the scheme.

#### Conclusion:

In our survey we find that the people are not aware about the scheme, if they became aware about it and try to take the facilities of the scheme properly then the scheme will must be implemented successfully. The government and also the nongovernmental organization should try to uplift the people's awareness for achieving the facilities of the scheme properly.

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Khoj; Vol. VIII, 2016

ISSN No. : 2278-5272

## সোনোৱাল কছাৰী নাৰী সমাজ : কিছু দিশ আৰু চিন্তা

বশ্মিৰেখা সোনোৱাল, অনুৰূপ সদস্য

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০.০০ অৱতৰণিকা

০.০১ সোনোৱাল কছাৰীসকলৰ পৰিচয় :

নানা জাতি-জনগোষ্ঠীৰ সংমিশ্ৰণত গঢ়লৈ উঠা বৰ্তমানৰ বৃহত্তৰ 'অসমীয়া জাতি'ৰ অন্যতম অংশীদাৰ "সোনোৱাল কছাৰী"সকল অসমৰ এক প্ৰাচীন জনগোষ্ঠী। সোনোৱাল কছাৰী সকল কিৰাত সম্ভূত এটি অন্যতম জনগোষ্ঠী বুলি ইতিহাসবিদসকলে ক'ব খোজে। এই কিৰাত জনগোষ্ঠী সম্পৰ্কে বুৰঞ্জীবিদ ড° সুনীতি চেটাৰ্জীৰ মতে, কিৰাট জনগোষ্ঠী বুলিলে হিমালয়ৰ পাহাৰীয়া অঞ্চল আৰু ভাৰতৰ উত্তৰ-পূৰ্ব অঞ্চলত বসবাস কৰা মংগোলীয় গোষ্ঠীৰ অনাৰ্য লোকক বুজায়। দেখা যায় যে আমাৰ অসমকে ধৰি ভাৰতৰ পূৰ্বাঞ্চলীয় ৰাজ্যসমূহৰ মংগোলীয় জনগোষ্ঠীৰ লোকসকল মূলতঃ জনজাতিৰ তালিকাভুক্ত। যি কি নহওক এই কথা ঐতিহাসিকভাৱেই প্ৰমাণিত যে সোনোৱাল কছাৰীসকল কিৰাত সম্ভূত আৰু মংগোলীয় নৃ-গোষ্ঠীৰ। এই প্ৰাচীন জনগোষ্ঠী সোনোৱালসকলৰ এক স্বকীয় গোষ্ঠীগত পৰিচয় আছে। সামাজিক ৰীতি-নীতি, জীৱন-পদ্ধতি আচাৰ-লোকাচাৰ সাজপাৰ, গৃহনিৰ্মাণ খাদ্যাভাগ, গহনা-গাঠৰি, পূজা-পাৰ্বণ, গীত-মাত আদি সকলোতে স্বকীয় বৈশিষ্ট্যপূৰ্ণ কৃষ্টি সংস্কৃতিৰ মেটমৰা ভঁৰালেৰে চহকী সোনোৱাল কছাৰী জনগোষ্ঠী। আজিৰ পৰিবৰ্তিত পৰিস্থিতিত সময়ৰ ধামখুমীয়াত আৰু সাংস্কৃতিক সামাজিক আগ্ৰাসনৰ ফলত এই সমূহৰ কিছুমানে স্বকীয়তা হয়তো হেৰুৱাইছে আৰু কিছুমানৰ হেৰুৱাবৰ উপক্ৰম ঘটিছে। সেয়েহে এই স্বকীয়তাক ৰক্ষা কৰাৰ বাবে এখন সংগ্ৰামৰ প্ৰয়োজন অৱধাবিত হৈ পৰিছে। কাৰণ স্বকীয় কৃষ্টি-সংস্কৃতি অবিহনে স্বকীয় পৰিচয় আৰু স্বকীয় স্থিতি কেতিয়াও সম্ভৱ নহয়। লুপ্তপ্ৰায় কৃষ্টিক পুণৰুদ্ধাৰ, মৃত প্ৰায়ক পুনৰ সঞ্জীৱনী তথা বিজ্ঞানসন্মতভাৱে প্ৰণালীবদ্ধ চৰ্চা আৰু সংবৰ্দ্ধনৰ ব্যৱস্থাইহে কৃষ্টি-সংস্কৃতি সমৃদ্ধ ৰূপত জীয়াই ৰাখিব। এই সোনোৱাল সমাজৰ আধাঅংশ দখল কৰি থকা নাৰীসমাজৰ বিষয়ে সৰ্বজনস্বীকৃত ৰূপত উপস্থাপন কৰাটো সম্ভৱ বুলি আমি এতিয়াও আশ্বাস্ত নহয়, যদিও এক সম্যক ছবি

দাঙি ধৰাৰ প্ৰয়াস কৰিলো।

### ০.০২ অসমত সোনোৱাল কছাৰীসকলৰ বিস্তৃতি :

অসমৰ ডিব্ৰুগড়, তিনিচুকীয়া, শিৱসাগৰ, যোৰহাট, গোলাঘাট, ধেমাজি আৰু লখিমপুৰ জিলাত সংখ্যাগৰিষ্ঠভাৱে বসবাস কৰাৰ উপৰিও গুৱাহাটীকে ধৰি অসমৰ কেতবোৰ ঠাইত আৰু লগতে চুবুৰীয়া ৰাজ্য অৰুণাচল প্ৰদেশ আৰু নগালেণ্ডত এই সোনোৱাল কছাৰী জনগোষ্ঠীৰ লোকসকল সিঁচৰিত হৈ আছে।

### ০.০৩ সোনোৱাল কছাৰী নাৰীসমাজৰ এটি পৰ্যালোচনা :

পুৰুষ আৰু নাৰীৰ সমন্বয়তেই গঠিত হয় এখন সমাজ। এগৰাকী নাৰী অবিহনে এখন ঘৰ যেনেকৈ পূৰ্ণ নহয়, ঠিক সেইদৰে নাৰী বিহীন এখন সমাজৰ কল্পনাই কৰিব নোৱাৰি। সোনোৱাল কছাৰী সমাজ ব্যৱস্থাও তাৰ ব্যতিক্ৰম নহয়। সেয়েহে, সমাজৰ আধা অংশ দখল কৰি থকা নাৰীসকলে এই সমাজ ব্যৱস্থাত কেনে স্থান দখল কৰি আছে, সেই সম্পৰ্কে এক অধ্যয়ন কৰাটোৱেই এই আলোচনাৰ মূল বিষয়বস্তু। আন্ধাৰ নাথাকিলে যিদৰে পোহৰৰ অস্তিত্ব নাথাকে ঠিক সেইদৰে অতীত নাথাকিলে বৰ্তমানৰো কোনো অস্তিত্ব নাথাকিব। অৰ্থাৎ অতীতৰ ভেটিতেই বৰ্তমান প্ৰতিষ্ঠিত আৰু বৰ্তমানৰ ওপৰতেই ভৱিষ্যৎ নিৰ্ভৰশীল। সেয়ে, সোনোৱাল নাৰীসকলৰ অতীত আৰু বৰ্তমানৰ সামাজিক, ৰাজনৈতিক, অৰ্থনৈতিক, শৈক্ষিক, ধৰ্মীয় আৰু স্বাস্থ্য ইত্যাদি দিশৰ ক্ষেত্ৰত এক পৰ্যালোচনা কৰি ভৱিষ্যতৰ বাবে এটি যথোপযুক্ত তথ্য বাস্তৱসন্মত পথৰ সন্ধানতেই এই যাত্ৰা।

### ১.০০ বিষয় বিশ্লেষণ :

### ১.০১ অতীত আৰু সাম্প্ৰতিক সময়ত সোনোৱাল সমাজত নাৰীৰ স্থান :

সোনোৱাল নাৰী সমাজ অতীজৰে পৰা স্বাধীন আছিল। ৰজাৰ-ৰাণীয়েই হওঁক বা সাধাৰণ তিৰোতাই হওঁক সকলোৱে সমানে কাম-বন কৰিব লাগিছিল আৰু পুৰুষৰ লগতে সমানে চলা-ফুৰা কৰিব পাৰিছিল।

ব্ৰাহ্মণ্য সমাজৰ বাল্য-বিবাহ প্ৰথা, সতীদাহ প্ৰথা, বিধবা বিবাহ নিষেধ আদি কু-সংস্কাৰ আৰু অন্ধ বিশ্বাসবিলাক কছাৰী সংস্কৃতিত সমূলি নাছিল আৰু সকলোধৰণৰ উৎসৱ আৰু পূজা-পাতল আদিতো সমানে যোগদান কৰিব পাৰিছিল। ইয়াৰোপৰি বাল্য বিবাহ প্ৰথা নথকা হেতু সতি-সন্ততি কম পৰিমাণে আছিল, যাৰ বাবে নাৰীসকল স্বাস্থ্যৱতী আছিল।

কিন্তু যুগৰ পৰিবৰ্তনৰ লগে লগে সকলো পৰিবৰ্তন হ'ব ধৰিছে। সাম্প্ৰতিক সময়ৰ সতে খোজত খোজ মিলাই সোনোৱাল নাৰীসকলেও শিক্ষা, ৰাজনীতি, অৰ্থনীতি আদি সকলো দিশতে অংশ গ্ৰহণৰ বাবে আগবাঢ়ি অহা পৰিলক্ষিত হৈছে। বিজ্ঞান আৰু প্ৰযুক্তি বিদ্যাই যদিও মহিলা সকলক আগবঢ়াই নিছে, তৎসত্ত্বেও সাম্প্ৰতিক সময়ত মহিলাসকল যেন অতীতৰ দৰে নিৰাপদ নহয়।

প্ৰথমতে, দেখা যায় যে অতীতৰ নাৰীসকলে ঘৰৰ ভিতৰত থাকি যি নিৰাপত্তা অনুভৱ কৰিছিল সেয়া যেন আজি কিছু পৰিমাণে হ'লেও হ্ৰাস হ'ব ধৰিছে। কাৰণ আজি বিজ্ঞান আৰু প্ৰযুক্তিৰ যুগত আমাৰ

সমাজ যিমানেই আগুৱাই গৈছে সিমানেই যেন পতন ঘটিছে নৈতিক শৃংখলাৰ। অতীতৰ সমাজ ব্যৱস্থা মূলত : নৈতিক আদৰ্শৰ ওপৰত প্ৰতিষ্ঠিত আছিল আৰু সেই আদৰ্শ লাঘৱ কৰাটো পাপ বুলি গণ্য কৰা হৈছিল। উদাহৰণ স্বৰূপে, হত্যা, ধৰ্ষণ, লুণ্ঠন ইত্যাদি পাপ হিচাপে গণ্য কৰিছিল আৰু তেনে ঘটনাৰ কথা ঘৰৰ ল'ৰা-ছোৱালীৰ আগত কেতিয়াও অৱগত নকৰিছিল। কিন্তু এনে ঘটনা বৰ্তমান সময়ত নিত্য নৈমিত্তিক ঘটনাত পৰিণত হৈছে যাৰ বাবে সোনোৱাল সমাজতো আজি এনে ঘটনা বিৰল নহয়। হয়তো সেয়ে সাম্প্ৰতিক সময়ৰ নাৰীৰ নিৰাপত্তা যেন হ্ৰাস হ'ব ধৰিছে।

দ্বিতীয়তে, সমাজত ক্ৰমান্বয়ে বাঢ়ি অহা আন এটা ব্যাধি হৈছে 'যৌতুক প্ৰথা'। অতীততে সোনোৱাল সমাজত যৌতুক নিশ্চয় বাধ্যতামূলক নাছিল। কিন্তু বৰ্তমান প্ৰত্যক্ষভাৱে বাধ্যতামূলক নহয়, যদিও পৰোক্ষভাৱে বাধ্যতামূলক বুলি ক'লেও বঢ়াই কোৱা নহয়। সেয়ে আৰম্ভণিতে যদি এই ব্যাধি নিঃশেষ কৰিব পৰা নাযায়, তেন্তে ই কেৱল নাৰী সমাজৰ বাবে নহয় সমগ্ৰ সমাজৰ উন্নতিৰ এক অন্তৰায় হ'ব।

তৃতীয়তে, পৈণত বয়সত বিবাহ পাশত আৱদ্ধ হোৱাৰ হেতু অতীতৰ মহিলাসকলে সংসাৰ পৰিচালনাৰ জটিলতাখিনি সহজে গ্ৰহণ কৰিব পাৰিছিল। ফলস্বৰূপে পাৰিবাৰিক অশান্তি কম আছিল। কিন্তু বৰ্তমান অপৈণত বয়সত বিবাহ পাশত আৱদ্ধ হৈ সংসাৰৰ বোজা বহন কৰিব নোৱাৰি বিবাহ বিচ্ছেদ, আত্মহত্যা আদি পথ বাচি ল'ব লগীয়া হৈছে যিটো অতীততে নাছিল।

চতুৰ্থতে, সোনোৱালসকল সাধাৰণতে সহজ সৰল আৰু মৰমিয়াল স্বভাৱৰ। অন্য সমাজৰ তুলনাত সোনোৱাল সমাজত হাই-উৰুমিৰ পৰিমাণে কম আছিল, সেয়ে কিবা কাৰণত যদি মেল-মিটিং ইত্যাদি অনুষ্ঠিত হয়, তেন্তে কেৱল পুৰুষসকলেহে অংশ গ্ৰহণ কৰিছিল।

কিন্তু আজি সমাজ ব্যৱস্থাৰ পৰিবৰ্তন হৈছে যাৰ বাবে মহিলাসকলে এনে অনুষ্ঠানত অংশ গ্ৰহণ কৰি সোনোৱাল সমাজত নাৰী পুৰুষৰ সম মৰ্যাদাৰ প্ৰমাণ দাঙি ধৰিছে।

### ১.০২ অৰ্থনৈতিক দিশত সোনোৱাল কছাৰী নাৰীৰ স্থান :

অতীতৰ সমাজ ব্যৱস্থাৰ অৰ্থনৈতিক দিশত প্ৰধানকৈ কৃষিৰ ওপৰতেই গুৰুত্ব আৰোপ কৰিছিল। তিৰোতাসকলে পথাৰত ভূঁই ৰুই, ধান দাই, ধান বানি চাউল উলিয়াইছিল।

অতীতৰ দৰে আজিও নাৰীসকল উৎপাদনৰ ব্যৱস্থাৰ সতে জড়িত। অৱশ্যে বেচা-কিনাৰ ক্ষেত্ৰত (পুৰুষ বা নাৰী) ঘৰৰ মুৰব্বীজনৰ ওপৰতহে ক্ষমতা ন্যস্ত থাকে। অৰ্থনৈতিক স্বাধীনতাৰ অবিহনে এগৰাকী নাৰী কেতিয়াও মুক্ত হ'ব নোৱাৰে এই কথা উপলব্ধি কৰি বৰ্তমান বহু মহিলাই চৰকাৰী-বেচৰকাৰী প্ৰতিষ্ঠান আদিত কাৰ্যনিৰ্বাহ কৰি নিজৰ লগতে পৰিয়ালটিকো আৰ্থিক সকাহ প্ৰদান কৰিবলৈ সক্ষম হৈছে। চৰকাৰেও মহিলাৰ বাবে বিভিন্ন আঁচনিৰ জৰিয়তে অনুদান আগবঢ়াই মহিলাসকলক স্বাৱলম্বী হোৱাত উদগনি প্ৰদান কৰা দেখা গৈছে। তাৰোপৰি বৰ্তমান সময়ত বন্ধন, আৰ.জি.ভি.এন. আৰোহণ ইত্যাদি ইত্যাদি Micro Finance বোৰে মহিলাসকলক যথেষ্ট পৰিমাণে আৰ্থিক সকাহ দিয়া পৰিলক্ষিত হৈছে।

কিন্তু এই অৰ্থনৈতিক স্বাধীনতা লাভ কৰিবলৈ যাওঁতে এটা কথা মনত ৰাখিব লাগিব যে অৰ্থনৈতিক স্বাধীনতাতকৈ নাৰীৰ মৰ্যাদা সদায় উৰ্দ্ধত। সেয়ে আজিৰ এই প্ৰতিযোগিতাৰ যুগত দুৰ্বল মানসিকতা

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পৰিহাৰ কৰি নিজস্ব বিবেক-বিবেচনাৰ দ্বাৰা চৰকাৰী আৰ্চনি গ্ৰহণ কৰি বিজ্ঞান সন্মত পদ্ধতি প্ৰয়োগ কৰি আৰ্থিক স্বচ্ছলতা লাভ কৰাৰ মানসিকতা গঢ়ি তুলিহে হৈছে সময়ৰ আহ্বান।

#### ১.০২ শিক্ষাৰ ক্ষেত্ৰত সোনোৱাল কছাৰী নাৰীৰ স্থান :

লিখা-পঢ়াৰ ক্ষেত্ৰত কছাৰীসকল অন্য বিষয়ৰ দৰে আগবঢ়া নাছিল। সাধাৰণ লোকৰ কথা বাদেই ৰজাসকলৰ মাজতো লিখা-পঢ়া নাছিল। সম্ভৱতঃ প্ৰাচীন কালৰ পৰা ১২ শ শতিকালৈকে কোনো পঢ়াশালী নাছিল আৰু লিখা পঢ়াৰ চৰ্চাও হোৱা নাছিল। ক্ৰমশঃ শিক্ষাৰ প্ৰচলন হয় যদিও নাৰীসকলৰ শিক্ষাৰ ব্যৱস্থাটো আজিও বাধ্যতামূলক নহয়। পিতৃ-মাতৃসকলে নিজৰ ছোৱালীজনীক পুথিগত শিক্ষাৰে শিক্ষিত কৰাতকৈ এগৰাকী সুগৃহিণী বা এগৰাকী ভাল মাতৃ হোৱাতোহে বেছি গুৰুত্ব আৰোপ কৰে। ছোৱালীবোৰে কেৱল এটা দৰাৰ বাবে শিক্ষা আহৰণ কৰিব লাগে সেই ধাৰণা আজিও বহুতৰ মাজত আছে। তথাপি অতীতৰ তুলনাত বৰ্তমান মহিলাৰ শিক্ষাৰ হাৰ যথেষ্ট বৃদ্ধি পাইছে। কিয়নো এটা কথা আজি সকলোৱে উপলব্ধি কৰিব পাৰিছে যে এজন পুৰুষ শিক্ষিত হ'লে কেৱল তেওঁ নিজেহে শিক্ষিত হ'ব, কিন্তু এগৰাকী নাৰী শিক্ষিত হ'লে এটা পৰিয়াল শিক্ষিত হ'ব। তদুপৰি শিশুটিয়ে বেছিভাগ সময়ই যিহেতু মাতৃগৰাকীৰ কাষত থাকে গতিকে এটি সুন্দৰ পৰিৱেশ সৃষ্টি কৰি সন্তানৰ সুন্দৰ পৰিবেশ গঢ় দিয়াত মাতৃগৰাকীৰ ভূমিকা অপৰিহাৰ্য্য। তাৰ বাবে মাতৃগৰাকী শিক্ষিত হোৱাটো অতি প্ৰয়োজন। প্ৰতি গৰাকী নাৰীৰ অন্তৰালত যিহেতু এগৰাকী মাতৃ লুকাই থাকে সেইবাবে প্ৰতিগৰাকী নাৰীক শিক্ষিত কৰি তুলিলেহে এখন সুস্থ আৰু সৰল সমাজ আশা কৰিব পাৰি। এই কথা আজি সমাজৰ প্ৰায় প্ৰতিজন ব্যক্তিয়ে উপলব্ধি কৰিব পাৰিছে। যাৰ পৰিণতিত মহিলাৰ শিক্ষাৰ হাৰ যথেষ্ট বৃদ্ধি পাইছে।

#### ১.০৪ ৰাজনৈতিক ক্ষেত্ৰত সোনোৱাল কছাৰী নাৰীৰ স্থান :

ৰাজনৈতিক অধিকাৰ হৈছে ক্ষমতাৰ অধিকাৰ। সমাজৰ অন্যতম অংশ হিচাপে প্ৰত্যেক পুৰুষৰ সৈতে সমানে ৰাজনৈতিক অধিকাৰ সম্পৰ্কে চৰ্চা কৰাৰ অধিকাৰ প্ৰতিগৰাকী নাৰীৰো আছে, গতিকে স্বাভাৱিক ভাৱেই সমাজত চলি থকা ৰাজনৈতিক বাতাবৰণ, গতি, প্ৰকৃতিৰ স্বৰূপ জনাটো প্ৰয়োজনীয় কথা। সেয়ে ক্ষমতাৰ অধিকাৰৰ ক্ষেত্ৰত নাৰী সমাজো সমানে অংশীদাৰ হ'ব লাগিব। তেতিয়াহে সমাজ ব্যৱস্থাৰ পৰিৱৰ্তন হ'ব।

কিন্তু বাস্তৱত, তেনে হোৱা পৰিলক্ষিত হোৱা নাযায়। মুষ্টিমেয় সংখ্যক মহিলাইহে ৰাজনীতিত সক্ৰিয় অংশ গ্ৰহণ কৰাৰ বিপৰীতে সৰহ সংখ্যকৰ ক্ষেত্ৰত ৰাজনৈতিক সচেতনতা আজিও দেখা নাযায়। ৰাজনৈতিক সচেতনতা পুষ্ট হৈ সক্ৰিয় ভাৱে মহিলাৰ সংৰক্ষিত আসনৰ উপৰিও অন্য আসনসমূহতো সক্ৰিয়ভাৱে অংশ গ্ৰহণ কৰিব পাৰিলেহে সঁচা অৰ্থত মহিলাসকল উপকৃত হ'ব পাৰিব।

#### ১.০৫ সোনোৱাল কছাৰী নাৰীৰ চৰিত্ৰ :

কছাৰী জাতিৰ তিৰোতাসকল বৰ গুণী জ্ঞানী আৰু ধাৰ্মিক আছিল। তেওঁলোকে লক্ষ্মী পূজা পাতিছিল আৰু এই লক্ষ্মীপূজাকে আজিকালি কাতি বিহু বুলি কোৱা হয়। কাতি বিহু কছাৰী সংস্কৃতিৰ মায়নো বুঢ়ী বা লক্ষ্মী পূজাৰ মূলৰ পৰা উদ্ভৱ হোৱা উৎসৱ।

কছাৰীসকলৰ পুৰণি সংস্কৃত ভাষাৰ পুথিবিলাকে দানৱ, ৰাক্ষস, অসুৰ, দৈত্য আদি শব্দৰে আখ্যায়িত কৰিছে। সেই হিচাপে উমাদেৱী (মঙ্গোল বংশীয় কছাৰী ছোৱালী), ৰুক্মিণী (মঙ্গোল বংশীয় দেউৰী বা কছাৰী ছোৱালী) ৰ নাম সৰ্বজনবিদিত যদিও তেওঁলোক দানৱী আছিল। ইয়াৰোপৰি চিত্ৰাঙ্গদা, উলুপী, ভানুমতী ইত্যাদি নাৰীসকলে সেইকালৰ অসমৰ মঙ্গোল জাতীয় ছোৱালীবিলাক ৰূপে-গুণে যে গুণৱতী আছিল তাকেই প্ৰমাণিত কৰে। ঠিক সেইদৰে ৰাণী চন্দ্ৰপ্ৰভা ৰূপে গুণে দেৱী তুল্য বিদূষী আৰু ধৰ্ম পৰায়ণ আছিল। লিখা পঢ়া নাজানিলেও ও চিত্ৰ-বিচিত্ৰ ফুলাম ছবি আৰু ফুলবাচি যি চিত্ৰাকৰ্ষণ কৰিব পাৰে, তেনেকুৱা চানেকী আজি ভাৰত তথা পৃথিৱীতে বিৰল। আনহাতে নৃত্য গীততো কছাৰী ছোৱালীবিলাক নিপুণ আৰু আদৰ্শ স্থানীয় আছিল। ছোৱালীবিলাকৰ মুখৰ অলিখিত সাহিত্যৰ বিয়া নাম - বিহু নাম আদিয়ে আকাশ বতাহ ৰজন জনাই তোলে।

অতীতৰ দৰে বৰ্তমান সমাজতো গুণী, জ্ঞানী আৰু ধৰ্মপৰায়ণ মহিলাৰ অভাৱ নহয় যদিও বহু গৰাকী প্ৰচাৰৰ অভাৱত হয়তো এনেদৰে আঁতৰি যাব লগীয়া হৈছে আৰু বহু ক্ষেত্ৰত এগৰাকী নাৰীয়ে এগৰাকী ভাল বোৱাৰী হোৱাৰ আশাত নিজৰ আশা-আকাংক্ষা সৰ্বস্ব ত্যাগ কৰাও দেখা যায়। কিন্তু এইয়া বাস্তৱসন্মত নহয়। কিয়নো এনে কাৰ্যই আনৰ বাবে কৰি থাকোতে মহিলা গৰাকীয়ে নিজৰ জীৱন সম্পৰ্কে উপলব্ধি কৰিবলৈ সুযোগেই নাপায়। যাৰ বাবে এই মূল্যবান মানৱ জীৱন সম্পৰ্কে নুবুজাকৈয়ে ইহ সংসাৰ ত্যাগ কৰিবলগীয়া হয়। অৱশ্যে, বৰ্তমান এই ক্ষেত্ৰত কিছু পৰিৱৰ্তন নিশ্চয় নোহোৱা নহয়। কেৱল ঘৰৰ চাৰিবেৰৰ মাজত আৱদ্ধ হৈ নাথাকি বিভিন্ন ক্ষেত্ৰত মহিলাসকল অংশ গ্ৰহণ কৰাটোৱেই তাৰ প্ৰমাণ।

#### ১.০৬ সোনোৱাল কছাৰী নাৰীৰ স্বাস্থ্য :

কম বয়সত বিবাহ পাশত আৱদ্ধ নোহোৱাৰ বাবে অতীতৰ মহিলাসকল স্বাস্থ্যৱতী আছিল। ইয়াৰোপৰি বনৌষধি গুণৰ প্ৰভাৱো সোনোৱাল সমাজত আছিল।

অৱশ্যে, বৰ্তমান সেই পৰিবেশ নাই। কিয়নো বৰ্তমান তিৰোতাসকল আগৰ দৰে পৰিশ্ৰমী নহয়। ঠিক সেইদৰে খাদ্যাভাগ, জলবায়ু ইত্যাদি বিভিন্ন কাৰণত মহিলাসকল স্বাস্থ্যৱতী বুলি কোৱাটো নিশ্চয় সম্ভৱ নহ'ব। স্বাস্থ্যই অমূল্য সম্পদ। সেয়ে ইয়াক ধৰি ৰখাৰ বাবে ব্যৱস্থা গ্ৰহণ কৰাটো অতি প্ৰয়োজনীয়।

#### ১.০৭ সোনোৱাল কছাৰী নাৰীৰ সাজপাৰ আৰু অলংকাৰ :

সাজ-পোছাকৰ ক্ষেত্ৰত, সোনোৱালসকলৰ এটা সুকীয়া বৈশিষ্ট্য আছে। বিশেষকৈ গাঁৱৰ মহিলাসকলৰ ক্ষেত্ৰত এই ছবি অতি স্পষ্ট। মহিলাসকলে প্ৰধানকৈ মেখেলা, একঠিয়া, ৰিহা, চেলেং কাপোৰ আৰু খনিয়া কাপোৰ ইত্যাদি পৰিধান কৰিছিল। এই কাপোৰবিলাক তেওঁলোকে নিজে ঘৰতে প্ৰস্তুত কৰি লৈছিল। কাপোৰ বোৱা শিল্প বা কলাটো কছাৰীসকলৰ সুকীয়া সম্পদ আছিল। সোনোৱাল শিপিনীসকল ইমানেই পাৰ্গত আছিল যে, তেওঁলোকে আকাশেদি উৰি যোৱা চৰাইৰ ছবিও তাঁতত তুলি দিব পাৰিছিল বুলি কথিত আছে। তদুপৰি কাপোৰত বুটা বচা, বিবিধ ৰঙৰ মাজত চেৰেকা দিয়া, বিভিন্ন ধৰণৰ চৰাই মানুহৰ ছবি আৰু নানান ধৰণৰ ফুল বচাৰ কথাও পুৰণি কছাৰী সকলৰ উৎকৃষ্ট নিদৰ্শন। অসমীয়া সংস্কৃতিত কছাৰী সংস্কৃতিৰ এইয়া এটা মহৎ অৱদান।



মানুহ পৰিস্থিতিৰ দাস। পৰিস্থিতিৰ সতে আগবাঢ়ি যাবলৈ হ'লে পৰিৱৰ্তন অনিবাৰ্য। গতিকে সোনোৱাল কছাৰীসকলৰ মাজতো এই পৰম্পৰাৰ কিছু সাল-সলনি হোৱাটো অনস্বীকাৰ্য। যদিও বা বিহা, মেখেলা, চাদৰ, চেলেং আৰু খনিয়া কাপোৰৰ আদৰ কমি যোৱা নাই। তৎস্বতেও সকলো সময়তে এনে ধৰণৰ পোছাক পৰিধান কৰাটো সম্ভৱ নহয়। অৱশ্যে গ্ৰাম্যঞ্চলত বৰ্তমানেও ইয়াৰ প্ৰচলন থকাৰ বিপৰীতে নগৰাঞ্চলৰ মহিলা চাকৰিয়াল তথা সদাব্যস্ত মহিলাসকলে সময়োপযোগী অৰ্থাৎ সহজে পৰিধান কৰিব পৰা আধুনিক সাজ-পাৰ পৰিধান কৰা পৰিলক্ষিত হয়। পুৰণি মুগা বিহাৰ আৰ্হিৰে বৰ্তমানৰ সোনোৱাল কছাৰীসকলৰ গামোচাৰ দৰে সেউজীয়া আৰু হালধীয়া সূতাৰে বিহা প্ৰস্তুত কৰি বৰ্তমান মহিলাসকলে পৰিধান কৰাটো অতি বাস্তৱ পদক্ষেপ।

ইয়াৰোপৰি সোনোৱাল সমাজত প্ৰচলিত এবিধ লোকাচাৰ হৈছে 'ওৰণি' বা 'টকয়া'। বোৱাৰীসকলে জ্যেষ্ঠজনক সন্মান প্ৰদৰ্শনৰ অৰ্থে এই টকয়া ব্যৱহাৰ কৰে।

অলংকাৰ -

অলংকাৰৰ ভিতৰত প্ৰধানকৈ খাৰু, থুৰীয়া, গামখাৰু, চিৰিখাৰু, দুৰ্গদুগি, মাড়ুলি আৰু আঙুঠি ইত্যাদিয়েই প্ৰধান। বৰ্তমানেও নিৰ্দিষ্ট দিনত এই অলংকাৰ সমূহ পৰিধান কৰা হয় আৰু ইয়াৰ সুকীয়া মৰ্যাদা আছে।

২.০০ উপসংহাৰ - নাৰীসমাজৰ উন্নয়নৰ বাবে গ্ৰহণীয় পদক্ষেপ :

(১) এটা জাতিৰ প্ৰধান অঙ্গ হৈছে সেই জাতিৰ কৃষ্টি-সংস্কৃতি। স্বকীয় কৃষ্টি-সংস্কৃতি অবিহনে স্বকীয় পৰিচয় আৰু স্বকীয় স্থিতি কেতিয়াও সম্ভৱ নহয়। সেয়ে স্বকীয় কৃষ্টি-সংস্কৃতি জীয়াই ৰখাটো অতি প্ৰয়োজনীয়। কিয়নো এদিন অসমীয়া ভাষা এটা চহকী ভাষা আছিল। কিন্তু আজি এই চহকী ভাষাটোৱেই সংকটৰ গৰাহত। ইয়াৰ এটাই কাৰণ আজি বেছিভাগ অভিভাৱকে ল'ৰা-ছোৱালীক ইংৰাজী মাধ্যমত পঢ়ায় আৰু ঘৰতো অসমীয়া ভাষাটো শিকাত গুৰুত্ব নিদিয়ে আৰু ইংৰাজী কলেহে যেন সন্তানসমূহৰ পৰিচয় পায় এনে অনুভৱ কৰে। যাৰ পৰিপেক্ষিতত অসমীয়া ভাষা আজি সংকটৰ গৰাহত। ঠিক সেইদৰে সোনোৱাল জাতিটোও যাতে এদিন অস্তিত্বৰ গৰাহত পৰিব লগীয়া নহয়, তাৰ বাবে পৰিৱেশ সৃষ্টি কৰিব লাগিব। ঘৰৰ ল'ৰা-ছোৱালীক এনেদৰে গঢ় দিব লাগিব যাতে জাতীয় কৃষ্টি-সংস্কৃতিৰ সতে পৰিচয় হয় আৰু নিজৰ কৃষ্টি-সংস্কৃতি গ্ৰহণ কৰিবলৈ কুঠাবোধ নকৰে বৰঞ্চ গৌৰৱে অনুভৱ কৰে। তাৰোপৰি জাতীয় ঐতিহ্য বজাই ৰখাটো কৰ্তব্য আৰু দায়িত্ব বুলি উপলব্ধি কৰিব পাৰে।

(২) এখন সমাজ সূচাৰূপে পৰিচালনা কৰিবৰ বাবে নৈতিক আদৰ্শ অতি গুৰুত্বপূৰ্ণ। নৈতিক আদৰ্শৰ ওপৰত প্ৰতিষ্ঠিত সমাজতহে নাৰী সুৰক্ষিত। অন্যথা নাৰী সুৰক্ষাৰ বাবে থকা সকলো আইন, আইন হৈয়ে ৰ'ব।

(৩) ভাৰতবৰ্ষৰ নাৰীসকলৰ প্ৰধান সমস্যাসমূহৰ ভিতৰত অন্যতম হৈছে যৌতুক প্ৰথা। ইয়াৰ নিবাৰণৰ বাবে যদিও আইন প্ৰস্তুত হৈছে তথাপি নিতৌ যৌতুকৰ বাবে নাৰী হত্যা হৈয়ে আছে। নাৰীসকল আকৌ ডাইনীৰ দৰে কু-সংস্কাৰৰো বলি হ'বলগীয়া হৈছে। তাৰোপৰি নাৰীৰ মৰ্যাদা হানিকাৰক বিভিন্ন

কাৰ্যকলাপ, বিজ্ঞাপনত নাৰীৰ নগ্নদেহ প্ৰদৰ্শিত চৰকাৰী মাধ্যমসমূহতেই হৈ আছে আৰু বৰ্তমানেও চলি আছে ব্লু ফ্লিমৰ অবাধ প্ৰচলন, প্ৰকৃত অৰ্থত নাৰীসমাজক এই সমস্যাৰ পৰা উদ্ধাৰ কৰিবলৈ হ'লে সমাজৰ সকলো স্তৰৰ লোকে সহযোগিতাৰ হাত আগবঢ়াব লাগিব। তদুপৰি মহিলাসকলেও নিজৰ সমস্যা চিনাক্তকৰণ কৰিব পাৰিব লাগিব, তেতিয়াহে সমস্যা সমাধানৰ পথ প্ৰস্তুত কৰিব পৰা হ'ব। তুলনামূলক ভাৱে সোনোৱাল নাৰী সমাজ আজি শান্তিত আছে, কোনে জানে অহা কালি বা কি হয়? সেয়ে সময় থাকোতে সাৱধান হোৱাটো সময়ৰ আহ্বান।

(৪) বয়ন শিল্পত সোনোৱাল কছাৰী মহিলাসকলৰ নিপুণতাৰ পৰিচয় পৰিলক্ষিত হয়। জাতীয় সাজপাৰ জাতিৰ স্বকীয় বৈশিষ্ট্য ও দাঙি ধৰে। কিন্তু পৰিতাপৰ বিষয় এই যে এই বয়ন শিল্পৰ ক্ষেত্ৰত বিজ্ঞান আৰু প্ৰযুক্তিৰ প্ৰভাৱ যিদৰে পৰিব লাগিছিল তেনেদৰে দেখা নাযায়। ন ন প্ৰযুক্তিৰে এই শিল্পক আগুৱাই নিব পাৰিলে এফালেদি জাতীয় সাজপাৰ সহজলভ্য হ'ব, আনফালেদি মহিলাসকলৰ আৰ্থিক স্বাৱলম্বনৰ পথ প্ৰশস্ত হ'ব।

সময় পৰিৱৰ্তনশীল। পৰিৱৰ্তনশীল সময়ৰ সতে আগবাঢ়ি যাওঁতে সাজপাৰৰো কিছু পৰিৱৰ্তন হ'ব পাৰে, সেই বুলি মূল ঠাঁচৰ যাতে কেতিয়াও পৰিৱৰ্তন নহয়, তাৰ বাবে সদা সতৰ্ক হৈ থকা উচিত। কাৰণ অসম গৌৰৱ গামোচাখন গৈ কাৰোবাৰ ব্ৰাউজ বা চাৰ্ট হোৱাৰ দৰে আমাৰ জাতীয় ঐতিহ্য জীয়াই ৰখা সাজপাৰৰো যাতে তেনে পৰিস্থিতিৰ সন্মুখীন হ'বলগীয়া নহয়, তাৰ বাবে সকলো শ্ৰেণী ৰাইজে যাতে ব্যৱস্থা গ্ৰহণ কৰে। সেই দিশত চিন্তা কৰাটো অতি প্ৰয়োজনীয় বুলি বিবেচনা কৰিব পাৰি।

সহায়ক গ্ৰন্থ :

- ১) হাজৰীকা, ৰজনীকান্ত : "মঙ্গোল কছাৰী গুপ্ত ইতিহাস"  
প্ৰকাশক : শ্ৰী দয়াল শইকীয়া, খোৱাং আঠাবাৰী, ডিব্ৰুগড়, প্ৰথম সংস্কৰণ মে', ১৯৮৫
- ২) সোনোৱাল, মোহন : "সোনোৱাল কছাৰী সমাজ আৰু সংস্কৃতি"  
সোনোৱাল, গুণেশ্বৰ(সম্পা.) : প্ৰকাশক : সোনোৱাল কছাৰী সাহিত্য প্ৰকাশন পৰিষদ।  
প্ৰথম খণ্ড, প্ৰথম সংস্কৰণ, ফেব্ৰুৱাৰী ২০০১ চন।

মৌখিক তথ্য প্ৰদান কৰা ব্যক্তি -

- (১) : প্ৰমোদ সোনোৱাল।

## असम के हिन्दी भाषी साहित्यकार

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### शोध सारांश

स्वतंत्रता प्राप्ति से कुछ दिन पूर्व ही असम में हिन्दी का प्रचार पूर्ण रूप से माना जाएगा। यद्यपि इसका प्रारम्भ शंकरदेव-माधवदेव कृत ब्रजावली साहित्य से माना जाता है, तथापि उन्हें हम शुद्ध हिन्दी साहित्यकार न मानकर बल्कि उन्हें असमीया हिन्दी साहित्यकार मानना अधिक तर्क संगत होगा। लगभग १९३० में स्व. चन्द्रभूषण शर्मा का *स्वप्न तिलक* संज्ञक कविता संग्रह प्रकाशित हुआ। इस दृष्टि से स्व. शर्मा असम के प्रथम साहित्यकार और *स्वप्न तिलक* प्रथम कृति है और १९१९ में डिब्रूगढ़ से प्रकाशित *प्रकाश* नामक समाचार पत्र को इस अंचल का पहला समाचार पत्र कहेंगे।

सन् १९३४ ई. में गाँधीजी *असम अखिल भारतीय हरिजन सेवक संघ* की स्थापना हेतु आये। उसी समय गाँधीजी ने असम के लोगों को हिन्दी सिखने की सलाह दी और इस अंचल में हिन्दी प्रचारार्थ बरहज से बाबा राघव दास को भेजा। बाबा राघव दास ने असम का भ्रमण किया और अम्बिका प्रसाद त्रिपाठी (जोरहाट), शिव सिंहासन मिश्र (डिब्रूगढ़), सूर्यवंशी मिश्र (शिवसागर), श्री देवेन्द्र दत्त शर्मा (नगाँव), श्री वैकुण्ठ सिंह (गोलाघाट), धनेश्वर शर्मा (गुवाहाटी) से भेंट की और अंचल में हिन्दी प्रचार-कार्य का भार सौंपकर वे बरहज लौट गये। वही से हिन्दी प्रचार-प्रसार कार्य संचालन वे करते थे। इस प्रकार गाँधी के प्रभाव से १९३४ से असम में हिन्दी पठन-पाठन कार्य प्रारम्भ हो गया। १९३६ में बाबा राघवदास की अगुवाई में काका साहब कालेरकर, दादा धर्माधिकारी, श्री मन्नारामण अग्रवाल तथा मोटुरी सत्यनारायण असम आये। इन लोगों ने लोकप्रिय नेता गोपीनाथ बरदलै से भेंट की और उनकी अध्यक्षता में ३ नवम्बर १९३८ को *असम हिन्दी प्रसार समिति* का गठन किया गया, जिसका नाम कालान्तर में *असम राष्ट्रभाषा प्रचार समिति* कर दिया गया। १९४० में छपरा निवासी कमल देव नारायण

को समिति का संचालक बनाकर असम भेजा गया। वे हिन्दी असमीया साहित्य के शक्तिशाली सेतु थे। उन्होंने हिन्दी के साथ-साथ असमीया साहित्य की श्रीवृद्धि हेतु अथक परिश्रम किया। उन्होंने जयंती नामक द्विभाषिया पत्रिका का प्रकाशन-संपादन किया, जिससे असमीया साहित्य में प्रगतिवाद का जन्म हुआ और असम की हिन्दी लेखको प्रगतिशीलता खेमें से सम्बद्ध किया।

*असम राष्ट्रभाषा प्रचार समिति* ने १९४८ में बर्धा से अलग होकर अपना अलग परीक्षाएँ संचालित करना प्रारम्भ किया और उस समय से अबतक वह अबाध गति से संचालित हो रही है, जिससे हजारों की संख्या में हिन्दी शिक्षक निकल रहे हैं और वे हिन्दी की प्रगति अनेक विधि से कर रहे हैं। यहाँ हम असम के प्रमुख हिन्दी भाषी साहित्यकार का नाम उल्लेख कर रहे हैं जिन्होंने अपनी सेवा से हिन्दी का विकास असम में किया- छगनलाल जैन, डॉ० हीरालाल तिवारी, नवारुण वर्मा, कुबेनाथ राय, डॉ० कृष्णनारायण प्रसाद मागध, डॉ० धर्मदेव तिवारी शास्त्री, माया शंकर भारती, डॉ० अंजनी कुमार दुबे भावुक, श्री सुरेन्द्र सिंह, श्रीमती सुमदा पाण्डेय, श्री चितरंजन भारती, दिनकर कुमार, रविशंकर रवि, डॉ० सुधा श्रीवास्तव, डॉ० ताराकान्त झा, डॉ० अलख निरंजन सहाय, डॉ० हरेराम पाठक, डॉ० विश्वनाथ प्रसाद, श्री दिलीप भारती, डॉ० नन्दकिशोर सिंह, श्री अजयेन्द्र नाथ त्रिवेदी डॉ० कृष्ण मीहन झा, डॉ० विजय कुमार बर्मा।

### १. प्रस्तावना :

स्वतंत्रता प्राप्ति से कुछ दिन पूर्व ही असम में हिन्दी का प्रचार पूर्ण रूप से माना जाएगा। यद्यपि इसका प्रारम्भ शंकरदेव-माधवदेव कृत ब्रजावली साहित्य से माना जाता है, तथापि उन्हें हम शुद्ध हिन्दी साहित्यकार न मानकर बल्कि उन्हें असमीया हिन्दी साहित्यकार मानना अधिक तर्क संगत होगा। लगभग १९३० में स्व०, चन्द्रभूषण शर्मा का *स्वप्न तिलक* संज्ञक कविता संग्रह प्रकाशित हुआ। इस दृष्टि से स्व. शर्मा असम के प्रथम साहित्यकार और *स्वप्न तिलक* प्रथम कृति है। स्व. शर्मा की रचनाएँ कोलकाता से प्रकाशित *सन्मार्ग* और *विश्वमित्र* में प्रकाशित होती रहती थी। इसके अतिरिक्त उनकी लेखनी बराबर चलती रहती थी, जिसके परिणाम स्वरूप *प्रेयसी* नामक नाट्य काव्य *कहानी की होली* नामक कहानी संग्रह सामने आये।<sup>१</sup> इनके बाद अनिरुद्ध सिंह का नाम आदर के साथ लिया जाएगा, जिनके दो कविता संग्रह *आर्तनाद* और *शैवालिनी* प्रकाशित हुए। इसी कड़ी को आगे बढ़ाया रामस्वरूप ने, जिनके *तपोव्रती*, *यक्षसंदेश*, *कल्पना खड़ी हो गई* आदि कविता संकलन प्रकाशित हुए। यही यह स्पष्ट कर देना उचित होगा कि १९१९ में *प्रकाश* नामक समाचार पत्र का प्रकाशन डिब्रूगढ़ से हुआ, जिसे हम इस अंचल का पहला समाचार पत्र कहेंगे।

### २. गाँधी का आगमन :

सन् १९३४ ई. में गाँधीजी *असम अखिल भारतीय हरिजन सेवक संघ* की स्थापना हेतु आये। उसी समय गाँधीजी ने असम के लोगों को हिन्दी सिखने के सलाह दी और इस अंचल में हिन्दी प्रचारार्थ

बरहज से बाबा राघव दास को भेजा। बाबा राघव दास ने असम का भ्रमण किया और अम्बिका प्रसाद त्रिपाठी (जोरहाट), शिव सिंहासन मिश्र (डिब्रूगढ़), सूर्यवंशी मिश्र (शिवसागर), श्री देवेन्द्र दत्त शर्मा (नगाँव), श्री वैकुण्ठ सिंह (गोलाघाट), धनेश्वर शर्मा (गुवाहाटी) से भेंट की और अंचल में हिन्दी प्रचार-कार्य का भार सौंपकर वे बरहज लौट गये। वही से हिन्दी प्रचार-प्रसार कार्य संचालन वे करते थे। इस प्रकार गाँधी के प्रभाव से १९३४ से असम में हिन्दी पठन-पाठन कार्य प्रारम्भ हो गया।

१९३६ में बाबा राघवदास की अगुवाई में काका साहब कालेरकर, दादा धर्माधिकारी, श्री मन्नारामण अग्रवाल तथा मोटुरी सत्यनारायण असम आये। इन लोगों ने लोकप्रिय नेता गोपीनाथ बरदलै से भेंट की और उनकी अध्यक्षता में ३ नवम्बर १९३८ को *असम हिन्दी प्रचार समिति* का गठन किया गया, जिसका नाम कालान्तर में *असम राष्ट्रभाषा प्रचार समिति* कर दिया गया। उक्त समिति की देख-रेख के लिए मुजफ्फरपुर निवासी यमुना प्रसाद श्रीवास्तव को वर्धा से संचालक बनाकर भेजा गया।

१९४० में छपरा निवासी कमल देव नारायण को समिति का संचालक बनाकर असम भेजा गया। वे हिन्दी असमीया साहित्य के शक्तिशाली सेतु थे। उन्होंने हिन्दी के साथ-साथ असमीया साहित्य की श्रीवृद्धि हेतु अथक परिश्रम किया। उन्होंने *जयंती* नामक द्विभाषिया पत्रिका का प्रकाशन-संपादन किया, जिससे असमीया साहित्य में प्रगतिवाद का जन्म हुआ और असम की हिन्दी लेख को प्रगतिशीलता खेमें से सम्बद्ध किया। कमलदेव नारायण का हिन्दी-असमीया दोनों भाषाओं पर पूरा अधिकार था। उन्होंने अनुवाद कार्य किया। दुर्भाग्य है कि उनके ऊपर न तो हिन्दी में और न असमीया में अधिक सामग्री उपलब्ध होती है। डॉ. जितेन दास ए. सी. एस. ने अथक परिश्रम कर उनसे सम्बद्ध कुछ सूचनाएँ एकत्र की हैं अवश्य, पर उसका भी अब तक प्रकाशन नहीं हो पाया है।

### ३ स्वतंत्रता पश्चात :

*असम राष्ट्रभाषा प्रचार समिति* ने १९४८ में वर्धा से अलग होकर अपना अलग परीक्षाएँ संचालित करना प्रारम्भ किया और उस समय से अबतक वह अबाध गति से संचालित हो रही है, जिससे हजारों की संख्या में हिन्दी शिक्षक निकल रहे हैं और वे हिन्दी की प्रगति अनेक विधि से कर रहे हैं। यहाँ हमारा विवेच्य प्रश्न है *असम के हिन्दी भाषी साहित्यकार*। आगामी पंक्तियों में हम उक्त विषय पर संक्षेप में विचार करेंगे।

### ३.१. छगनलाल जैन :

स्व. छगनलाल जैन हिन्दी-असमीया के अघोत पंडित थे और वे बहुमुखी प्रतिभा के धनी थे। आपने *पूर्वज्योति* पत्रिका का प्रकाशन-संपादन किया। आप *असम साहित्य सभा* के सदस्य थे और उसके कई पदों पर रह चुके थे। आपने उपन्यास, कहानी, नाटक, रेडियो नाटक, राष्ट्रभाषा अभिधान आदि विधाओं में रचना की। आपका उपन्यास *राह और रोड़े* पाठ्य पुस्तक के रूप में स्वीकृत रहा है। इससे

इनकी ख्याति सर्वत्र फैल गयी। इसके अतिरिक्त *हँसते-हँसते जीना* (कहानी संग्रह), *इंसान की खोज* (ध्वनि नाटक), *संघर्ष* (नाटक), *राष्ट्रभाषा और व्याकरण शिक्षा*, *राष्ट्रभाषा शब्द संग्रह* और *राष्ट्रभाषा अभिधान* इनकी रचनाएँ हैं।

### ३.२. डॉ० हीरालाल तिवारी :

डॉ० हीरालाल तिवारी ने पूर्वोत्तर में महाविद्यालय तथा विश्वविद्यालय स्तर पर हिन्दी के प्रथम व्याख्याता हैं। हिन्दी व्याख्याता के साथ-साथ आपने हिन्दी प्रचार का काम स्वयंसेवी संस्था तथा गुवाहाटी रेडियो स्टेशन से किया। आपकी प्रतिभा उसमें बहुत मुखरित होती थी। आपने काशी हिन्दू विश्वविद्यालय से *काशिका के लोकगीत* विषय पर पीएच.डी. उपाधि प्राप्त की, जो कालान्तर में *गंगाघाटी के लोकगीत* के नाम से पुस्तकाकार रूप में प्रकाशित हुई। उन्होंने *भास्कर वर्मन* नामक ऐतिहासिक नाटक लिखा, जिससे उनको अधिक ख्याति मिली। इसके अतिरिक्त *भींडी के फूल* संज्ञक गद्य गीत से उनके अन्दर छिपा व्यंग्यकार रूप उजागर हुआ है। इसके साथ ही उनकी अनेक कविताएँ भी यत्र-तत्र प्रकाशित हुई। डॉ० हीरालाल तिवारी का निधन २००२ अप्रैल में हो गया।

### ३.३. नवारुण वर्मा :

असम की हिन्दी को गति देने में स्व. नवारुण वर्मा का सर्वाधिक श्रेय है। उन्होंने स्वतंत्र रचना के साथ-साथ असमीया का हिन्दी में अनुवाद कार्य किया। उन्होंने लगभग ग्यारह असमीया ग्रंथों का हिन्दी में अनुवाद किया इसके साथ ही ग्यारह मौलिक रचनाएँ भी हिन्दी में की। इस तरह हिन्दी साहित्य भण्डार को उन्होंने अनुवाद और मौलिक दोनों प्रकार की रचनाओं से समृद्ध किया है। इन पर विशद एवं स्वतंत्र रूप से विश्लेषण करने की आवश्यकता बनी हुई है। वस्तुतः आप बहुमुखी प्रतिभा के धनी व्यक्ति थे। यही कारण है कि उन्होंने हिन्दी साहित्य की अनेक विधाओं को अपनी रचना से समृद्ध किया है।

### ३.४. कुबेर नाथ राय :

स्व० कुबेर नाथ राय नलबाड़ी महाविद्यालय में अंग्रेजी के प्राध्यापक थे। इन्होंने हिन्दी साहित्य को ललित निबन्ध कला को पूरी ऊँचाई दी। *प्रिया नीलकण्ठी*, *रस आंखेटक*, *गंधमादन*, *निषाद बाँसुरी* और *लौह मृदंग* आदि उनकी प्रमुख ललित निबन्ध संकलन हैं। आधुनिक जीवन मूल्यों पर करारा व्यंग्य इनके निबंधों की अन्यतम विशेषता है। परम्परागत रुढ़िवादिता को त्यागने का आग्रह भी इनके निबंधों में पाया जाता है।

### ३.५. डॉ० कृष्णनारायण प्रसाद मागध :

सन १९७० में गौहाटी विश्वविद्यालय में हिन्दी विभाग प्रारम्भ हुआ। डॉ० मागध ने अक्टूबर १९७० में उक्त विभाग में व्याख्याता के रूप में कार्यभार ग्रहण किया और उनकी जिज्ञासु प्रतिभा ने उन्हें

असमीया साहित्य से जोड़ दिया और उन्होंने १९७२ में सूरदास और शंकरदेव के भक्त्यात्मक गीतों का तुलनात्मक अध्ययन विषय पर शोध प्रबन्ध तैयार कर बिहार विश्वविद्यालय मुजफ्फरपुर की डी० लिट् उपाधि हेतु प्रस्तुत किया। डॉ० मागध मौन विद्यानुरागी अध्ययन-साधक है। उन्होंने हिन्दी-असमीया के बीच मजबूत सेतु का काम किया। वे अपने आप में सम्पूर्ण संस्था हैं, जिन्होंने निजी अध्ययन के साथ अन्य लोगों को भी अध्ययनशील बनाया। इनकी समस्त रचनाओं को नीचे लिखे भागों में विभक्त किया जाएगा। (१) हिन्दी साहित्य के इतिहास (२) काव्यशास्त्र (३) व्याकरण (४) समीक्षा (५) देवी-देवता विषयक (६) संपादक (७) अनुवादक। आपके कृतित्व और व्यक्तित्व पर अरुणाचल विश्वविद्यालय ईटानगर में पीएच. डी० उपाधि प्राप्त हो चुकी है। भविष्य में भी आपकी रचनाओं पर शोधकार्य होने के द्वार खुले हुए हैं।

### ३.६. डॉ० धर्मदेव तिवारी शास्त्री :

पूर्वोत्तर में हिन्दी प्रचार-प्रसार का कार्य आपने तो किया ही, साथ ही देश के विभिन्न विश्वविद्यालयों से आप किसी न किसी रूप में सम्बद्ध हैं। उनकी सक्रियता निरन्तर बनी हुई है। उनका भाषा प्रेम अत्यन्त सजीव और प्राणवान है। यही कारण है कि आप हिन्दी, अंग्रेजी के अतिरिक्त संस्कृत, असमीया, बंगला, गुजराती भाषा के जानकार हैं। आप १९६८ में होजाई कॉलेज, नगाँव में व्याख्याता पद का कार्यभार ग्रहण करने के पूर्व बिहार के लखीसराय महाविद्यालय में व्याख्याता एवं अध्यक्ष पद पर कार्यरत थे। १९६९ में काँटन कॉलेज, गुवाहाटी में आप व्याख्याता एवं हिन्दी विभागाध्यक्ष के रूप में कार्यरत हुए तथा १९८१ में गौहाटी विश्वविद्यालय के हिन्दी विभाग में रीडर नियुक्त किये गये। वहीं से आपने आचार्य एवं अध्यक्ष पद से अवकाश ग्रहण किया। आपने *हिन्दी और असमी के पौराणिक नाटक* नामक शोध प्रबन्ध पर पटना विश्वविद्यालय की पीएच. डी. उपाधि प्राप्त की। आप व्याकरण, भाषा-विज्ञान, भारतीय काव्य शास्त्र से अच्छे जानकार हैं तथा सफल प्राध्यापक। आप आलोचक, निबंधकार के साथ कवि भी हैं। इनकी रचनाओं को निम्न श्रेणी में विभक्त किया जा सकता है। (१) आलोचक (२) निबंधकार (३) व्याकरणिक (४) कहानीकार (५) कवि (६) अनुवादक। आपकी असमीया व्याकरण, राम चन्द्रिका का विश्लेषणात्मक अध्ययन, विविध विचार बिन्दु (आलोचना) अभाव देवता (कविता संग्रह) विषम रेखा (कविता संग्रह) प्रकाशित रचनाएँ हैं। आप भाषा तथा वर्तनी के सजग प्रयोक्ता थे। आप के व्यक्तित्व एवं कृतित्व विषय पर एम. फिल का लघुशोध प्रबन्ध प्रस्तुत हुआ है।

### ३.७. माया शंकर भारती :

स्व.मायाशंकर भारती मूलतः व्यवसायी थे अवश्य, पर हृदय से साहित्यकार तथा बुद्धि से चिन्तक, समाज सुधारक तथा धर्म परायण व्यक्ति थे। इस दृष्टि से उनका व्यक्तित्व बहुमुखी कहा जाएगा। भारती के सहृदय कवि रूप को द्रोणाचार्य-एकलव्य की कथा ने झकझोर दिया, जिसके

फलस्वरूप दायित्व बोध संज्ञक खण्डकाव्य की रचना हुई, जिसमें द्रोणाचार्य ने एकलव्य के प्रति किये अपने अमानवीय कार्य से संन्यस्त है और पाश्चात्ताप करते हैं। इस प्रकार भारती ने द्रोणाचार्य को नये रूप में चित्रित किया है।

### ३.८. डॉ० अंजनी कुमार दुबे भावुक :

डॉ० दुबे नेहरू महाविद्यालय, पैलापुर, कछार के हिन्दी विभाग में व्याख्याता हैं। आप पत्र-पत्रिकाओं में तो लिखते रहते हैं, साथ ही अब तक आपकी लगभग ग्यारह रचनाएँ प्रकाशित हैं, जिनमें नाटक, कहानी, कविता, आलोचना, निबन्ध आदि विधाओं की कृतियाँ हैं। इनकी रचनाओं की संप्रेषणीयता सहजता, सरलता के कारण बोधगम्य बनी हुई है।

### ३.९. श्री सुरेन्द्र सिंह :

श्री सिंह श्री तरुणराम फुकन हाई स्कूल, मालीगाँव, गुवाहाटी में शिक्षक पद पर कार्यरत हैं। आप कवि हृदय के व्यक्ति हैं। आपकी कविताओं में सम-सामयिक परिस्थितियों का चित्रण के साथ ही समाज में फैले अनाचार-दुराचार अनैतिकता के प्रति विद्रोहात्मक आक्रोश है। कल्पना की रेत पर काव्य संग्रह की अनेक कविताएँ उक्त दृष्टि को पुष्ट करती हैं।

### ३.१०. श्रीमती सुभदा पाण्डेय :

श्रीमती पाण्डेय आज पूर्वोत्तर के हिन्दी साहित्यकारों में बहुचर्चित नाम हो गया है। इनकी लगभग पन्द्रह पुस्तकें प्रकाशित हो चुकी हैं, जिनमें शिशु साहित्य, कविता, कहानी, गीत, गजल, निबन्ध आदि अनेक विधाओं की रचनाएँ हैं। आप अनवरत लेखन कार्य में संलग्न हैं। आपकी रचनाओं का प्रकाशन देश के विभिन्न अंचलों से प्रकाशित होने वाले पत्रों में प्रकाशित होती रहती हैं। सबसे महत्वपूर्ण बात यह है कि जब असम विश्वविद्यालय, सिलचर में हिन्दी विभाग प्रारम्भ किया गया, तब से श्रीमती पाण्डेय की सक्रियता स्मरणीय बनी हुई है।

### ३.११. श्री चितरंजन भारती :

श्री भारती कछार पेपर मिल में कार्यरत हैं। आप हिन्दी साहित्य के कई विधाओं में लिखते हैं। आपकी कहानी संग्रह, उपन्यास, लघु-कथा, नाटक, निबन्ध प्रकाशित रचनाएँ हैं। आप कविता भी करते हैं, जिसमें हास्य-व्यंग्य विद्यमान रहता है।

### ३.१२. दिनकर कुमार :

दिनकर कुमार मूलतः कवि और अनुवादक हैं। इन दिनों हिन्दी सेंटिनल दैनिक समाचार पत्र के संपादक हैं। असमीया साहित्य के उपन्यास, कहानी, कविता का अनुवाद कर इन्होंने हिन्दी पाठकों का असमीया साहित्य से परिचय कराया है। इसके अतिरिक्त इनकी मौलिक रचनाएँ भी प्रकाशित हुई हैं। इसके साथ ही इन्होंने दूरदर्शन के लिए धारावाहिक भी लिखा है।

### ३.१३. रविशंकर रवि :

रवि जी मूलतः पत्रकार और समीक्षक हैं। इनके निबन्ध और कविताएँ पत्र-पत्रिकाओं में बराबर प्रकाशित होते रहते हैं। **बन्दूक की भाषा** नामक कविता में शान्ति अहिंसा के महत्व को स्थापित किया गया है और बन्दूक की कार्यवारी को बर्बरता का निशानी बताया है। इसी क्रम में दैनिक पूर्वोदय के संपादक श्री सत्यानन्द पाठक का नाम आदर के साथ लिया जाएगा। इन्होंने हिन्दी और मैथिली में उपन्यास की रचना की है। इसके साथ ही आप कहानी, निबन्ध, कविता भी लिखते हैं।

### ३.१४. डॉ० सुधा श्रीवास्तव:

डॉ० श्रीवास्तव एक साथ ही कवयित्री, कहानीकार, उपन्यास लेखिका हैं। उनके लेखन से असम के हिन्दी साहित्य को नयी दिशा मिली है। देश की कई पत्रिकाओं में आपकी रचनाएँ प्रकाशित होती रहती हैं। इनकी कविताओं में यथार्थ को उजागर करने के लिए प्राणवान प्रतीकों का सहारा लिया गया है। इसकी सहज और सरल प्रेषणीयता बोधगम्य हो गयी है।

### ३.१५. डॉ० ताराकान्त झा :

डॉ० झा ने पाण्डु कॉलेज के हिन्दी विभाग के अध्यक्ष पद से अवकाश ग्रहण किया है। इनका व्यक्तित्व अत्यन्त सरल और सहृदय है। इन्होंने असमीया के अंकिया नाट और मैथिली के कीर्तनिया नाटकों का तुलनात्मक अध्ययन विषय पर शोध प्रबन्ध प्रस्तुत कर पीएच. डी. की उपाधि प्राप्त की है। कालान्तर में आपने महापुरुष शंकरदेव और असम का सत्र संस्थान नामक पुस्तक प्रकाशित करवायी। आप मूलतः निबन्धकार और समीक्षक हैं। आपकी भाषा स्पष्ट, तर्कशील और संप्रेषणीयता के अनुकूल होती है।

### ३.१६. डॉ० अलख निरंजन सहाय :

बिहार प्रान्त के मुंगेर जिला अन्तर्गत लौह नगरी जमालपुर में जन्म लेने वाले डॉ० अलख निरंजन सहाय भागलपुर विश्वविद्यालय से हिन्दी में स्नातकोत्तर की शिक्षा पायी तथा १९८१ में डॉ० शिवनन्दन प्रसाद के मार्ग दर्शन में **पिछले दशक (१९६५-७५) के हिन्दी एकांकी-नाटकों में व्यक्त सामाजिक चेतना** विषय पर पीएच. डी. की उपाधि पायी। १९७९ से अध्यापन सेवा से जुड़े, डॉ० सहाय, सम्प्रति, डिब्रू महाविद्यालय में हिन्दी विभाग के अध्यक्ष पद से सेवा निवृत्त हुए।

हिन्दुस्तानी, विश्व भारती, राष्ट्र-नियंता तथा अन्य कई पत्र-पत्रिकाओं में इनकी साहित्यिक आलोचनात्मक तथा शोधपरक आलेख प्रकाशित हुए हैं तथा समाज से जुड़े विविध समकालीन विषयों पर वे नियमित रूप से लिखते आ रहे हैं।

पत्रकारिता तथा साहित्य के क्षेत्र में उल्लेखनीय अवदान के लिये कई संस्थाओं ने इन्हें सम्मानित किया है।

इनके द्वारा प्रकाशित ग्रंथ : **मुक्तिबोध : अनुभूति की नई तराश, काव्यांजलि** (संपादित), **गद्य-कथा-साहित्य** (संपादित) है।

### ३.१७. डॉ० हरेराम पाठक :

डॉ० पाठक डिगवोई महिला कॉलेज के हिन्दी-विभाग के अध्यक्ष हैं। आप अध्ययन-लेखन से अनवरत साधनारत हैं। आप मूलतः समीक्षक और निबन्धकार हैं। यों कभी-कभी आप कहानी कविता की भी रचना करते हैं, जिनका प्रकाशन पत्र-पत्रिकाओं में होता रहता है। आप हिन्दी और असमीया साहित्य के अच्छे जानकार हैं। आपने **पूर्वांचलीय राज्यों के साहित्यकारों का हिन्दी को योगदान** संज्ञक शोध-प्रबन्ध पर लखनऊ विश्वविद्यालय की डी. लिट् उपाधि प्राप्त की, जिसका प्रकाशन हो चुका है। प्रस्तुत अध्ययन से पूर्वोत्तर के विभिन्न प्रान्तों में जो हिन्दी का प्रचार-प्रसार हुआ है, उसका लेखा-जोखा तैयार हो गया है और इससे हिन्दी साहित्य के इतिहास को नयी दृष्टि प्राप्त होगी ऐसी आशा है।

### ३.१८. डॉ० विश्वनाथ प्रसाद :

डॉ० प्रसाद आचार्य एवं अध्यक्ष, हिन्दी विभाग, असम विश्वविद्यालय, सिलचर की रचनाओं से असम की हिन्दी को नयी दिशा मिली है। आप पूर्णरूप से गंभीर आलोचक हैं। आप गंभीर चिन्तक के साथ-साथ गंभीर अधीत विद्वान हैं। सहृदयतापूर्ण आपका व्यक्तित्व आपके व्यवहार को सहज-सरल बना देता है।

### ३.१९. श्री दिलीप भारती:

आप साप्ताहिक **प्रेरणा भारती** के संपादक के साथ-साथ कवि-निबंधकार हैं। आप की रचनाएँ बराबर पत्र-पत्रिकाओं में प्रकाशित होती रहती हैं, जिनमें राष्ट्र प्रेम की प्रमुखता रहती है, जिसमें यथार्थ बोध तज्जन्य पीड़ा को उजागर किया गया है।

### ३.२०. डॉ० नन्दकिशोर सिंह:

डॉ० सिंह, अध्यक्ष, हिन्दी विभाग, प्रागज्योतिष कॉलेज, गुवाहाटी में कार्यरत थे और उन्होंने वही से अवकाश ग्रहण किया। आप मूलतः समीक्षक और निबन्धकार हैं जिनका प्रकाशन समय-समय पर पत्र-पत्रिकाओं में होता रहा है। पाठ्य पुस्तक निर्माण, संपादन कार्य भी आपने किया है।

### ३.२१. श्री अजयेन्द्र नाथ त्रिवेदी :

श्री त्रिवेदी गुवाहाटी यूको बैंक में राजभाषा अधिकारी रहे हैं। आप हिन्दी-अंग्रजी-संस्कृत में समान अधिकार रखते हैं और तीनों में निबंध समीक्षा बराबर लिखते रहते हैं, जिनका प्रकाशन स्थानीय दैनिक समाचार पत्रों तथा राष्ट्रीय स्तर की पत्रिकाओं में होता रहता है। कुशाग्र बुद्धि, तर्कशील शैली, पैनी दृष्टि से आपकी रचनाएँ परिपूर्ण हैं।

अन्त में डॉ० विदय कुमार वर्मा, डॉ० कौष्ण मोहन झा, डॉ० कृष्णकान्त झा, अध्यक्ष, हिन्दी-



विभाग, दरंग कॉलेज, तेजपुर, डॉ० दिनेश प्रसाद वर्मा, अध्यक्ष, हिन्दी विभाग, रंगापाड़ा कॉलेज, तेजपुर, प्रकाश झा. सौमित्रम्, रविकान्त नीरज, अशोक राय, आदि के नाम भी लिये आँगे। इनके साथ ही राम निरंजन गोयनका, कपूरचन्द पाटनी, किशोर कुमार जैन, विनोद रिंगानिया, राजकुमार झाझारी आदि लोगों की रचनाओं से असम की हिन्दी सशक्त बनी है।■

संदर्भ :

१. डॉ० कृष्ण नारायण प्रसाद मागध - असम प्रान्तीय हिन्दी साहित्य, पृष्ठ ६२
२. प्रो० जगमल सिंह- साहित्य मनीषी, पृष्ठ १४३

Khoj: Vol. VIII, 2016  
ISSN No. : 2278-5272

## **Choice Based Credit System (CBCS) in the under graduate colleges of Assam – An evaluative approach**

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### **Introduction**

The Indian Government recently made the Choice based Credit System (CBCS) mandatory for all 400 public universities at the undergraduate and postgraduate level. The academic reforms recommended by the UGC in the recent past have led to overall improvement in the higher education system. However, due to a lot of diversity in the system of higher education, there are multiple approaches followed by universities towards examination, evaluation and grading system. While the Higher Education Institutions (HEIs) must have the flexibility and freedom in designing the examination and evaluation methods that best fits the curriculum, syllabi and teaching-learning methods, there is a need to devise a sensible system for awarding the grades based on the performance of students. Presently the performance of the students is reported using the conventional system of marks secured in the examinations or grades or both. The conversion from marks to letter grades and the letter grades used vary widely across the HEIs in the country. This creates difficulties for the academia and the employers to understand and infer the performance of the students graduating from different universities and colleges based on grades. The grading system is considered to be better than the conventional marks system and hence it has been followed in the top institutions in India and abroad. So it is desirable to introduce uniform grading system. This will facilitate student mobility across institutions within and across

countries and also enable potential employers to assess the performance of students. To bring in the desired uniformity, in grading system and method for computing the cumulative grade point average (CGPA) based on the performance of students in the examinations, the UGC has formulated these guidelines.

CBCS aims to redefine the curriculum keeping pace with the liberalisation and globalisation in education. The basic idea is to look into the needs of the students so as to keep up to date with development of higher education in India and abroad. CBCS allows students an easy mode of mobility to various educational institutions spread across the world along with the facility of transfer of credits earned by students. The choice based credit system provides a 'cafeteria' type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning, It is desirable that the HEIs move to CBCS and implement the grading system.

#### Grading system around the globe

All the major higher education institutions across the world are implementing a system of credits. For instance, we have the European Credit Transfer System (ECTS) in Europe's universities, the 'National Qualifications Framework' in Australia. There is the Pan Canadian Protocol on the Transferability of University Credits. In the UK, we have the Credit Accumulation and Transfer System (CATS). Even the systems operating in the US, Japan, etc. are based on credit system.

The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses). Course usually referred to, as 'papers' is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/term papers/ assignments/ presentations/ self-study etc. or a combination of some of these. Under the CBCS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students. **Credit Point** is the product of grade point and number of credits for a course.

**Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit per semester is equal to one hour of teaching, which includes both lecture (L) or tutorial (T) or two hours

of practical work/field work (P) per week. A study course can have only L component or only T or P component or combination of any two or all the three components. The total credits earned by a student for each semester is L+T+P.

#### Types of Courses:

Courses in a programme may be of three kinds: **Core, Elective and Foundation**. There may be a **Core** Course in every semester. This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study. **Elective** course is a course which can be chosen from a pool of papers unrelated to their discipline. This means if you're a computer science student, you can still opt for history as an elective. It may be:

- ☐ Supportive to the discipline of study
- ☐ Providing an expanded scope
- ☐ Enabling an exposure to some other discipline/domain
- ☐ Nurturing student's proficiency/skill.

An elective may be "Generic Elective" focusing on those courses which add generic proficiency to the students. An elective may be "Discipline centric" or may be chosen from an unrelated discipline. It may be called an "Open Elective."

The **Foundation Courses** may be of two kinds: Compulsory Foundation and Elective foundation. "Compulsory Foundation" courses are the courses based upon the content that leads to Knowledge enhancement. They are mandatory for all disciplines. Elective Foundation courses are value-based and are aimed at teaching that works with values.

Each semester will have about six courses with about 20 credits. For example four hours of teacher student contact hours in theory class room per week is considered as four credit course. If it is two hour student teacher class contact then it is equivalent to two credits. If it is lab teaching then four hours lab is equal to two credits, likewise. As the UG course is of three year duration with six semesters then if each semester is 20 credit, a student will study UG course for a total of 120 credits (6 semester x 20 credits each = 120 credits). But the total credit study can vary from 90 to 120 credits depending on the university system

#### Examination and Assessment

The HEIs are currently following various methods for examination and assessment suitable for the courses and programmes as approved by their respective

statutory bodies. In assessing the performance of the students in examinations, the usual approach is to award marks based on the examinations conducted at various stages (sessional, mid-term, end-semester etc.) in a semester. Some of the HEIs convert these marks to letter grades based on absolute or relative grading system and award the grades. There is a marked variation across the colleges and universities in the number of grades, grade points, letter grades used, which creates difficulties in comparing students. The UGC recommends the following system to be implemented in awarding the grades and CGPA under the credit based semester system across the institutions and also recommends the following system of checks and balances which would enable Universities effectively and fairly carry out the process of assessment and examination.

- i) In case of at least 50% of core courses offered in different programmes across the disciplines, the assessment of the theoretical component towards the end of the semester should be undertaken by external examiners from outside the university conducting examination, who may be appointed by the competent authority. In such courses, the question papers will be set as well as assessed by external examiners.
- ii). In case of the assessment of practical component of such core courses, the team of examiners should be constituted on 50 – 50 % basis. i.e. half of the examiners in the team should be invited from outside the university conducting examination.
- iii). In case of the assessment of project reports / thesis / dissertation etc. the work should be undertaken by internal as well as external examiners.

#### Letter Grades and Grade Points:

Two methods -relative grading or absolute grading- have been in vogue for awarding grades in a course. The relative grading is based on the distribution (usually normal distribution) of marks obtained by all the students of the course and the grades are awarded based on a cut-off marks or percentile. Under the absolute grading, the marks are converted to grades based on pre-determined class intervals. To implement the following grading system, the colleges and universities can use any one of the above methods. The UGC recommends a 10-point grading system with the following letter grades as given below:

#### Letter Grade Point

O (Outstanding)=10, A+(Excellent)=9, A(Very Good)=8, B+(Good)=7, B(Above

Average)=6, C(Average)=5, P (Pass)=4, F(Fail)=0, Ab (Absent)=0.

A student obtaining Grade F shall be considered failed and will be required to reappear in the examination. For non credit courses 'Satisfactory' or 'Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA. The Universities can decide on the grade or percentage of marks required to pass in a course and also the CGPA required to qualify for a degree.

#### Computation of SGPA and CGPA

The UGC recommends the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

a. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student and the sum of the number of credits of all the courses undergone by a student, i.e

$$SGPA (S_i) = \sum (C_i \times G_i) / \sum C_i$$

where  $C_i$  is the number of credits of the  $i$ th course and  $G_i$  is the grade point scored by the student in the  $i$ th course.

b. The CGPA is also calculated in the same manner taking into account all the courses undergone by a student over all the semesters of a programme, i.e.

$$CGPA = \sum (C_i \times S_i) / \sum C_i$$

where  $S_i$  is the SGPA of the  $i$ th semester and  $C_i$  is the total number of credits in that semester.

c. The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcript as shown below.

#### Illustration of SGPA

Course	Credit	Grade Letter	Grade Point	Credit Point (Credit x Grade)
Course 1	3	A	8	3 x 8 = 24
Course 2	4	B+	7	4 x 7 = 28
Course 3	3	B	6	3 x 6 = 18
Course 4	3	O	10	3 x 10 = 30
Course 5	3	C	5	3 x 5 = 15
Course 6	4	B	6	4 x 6 = 24
	20			139

Thus SGPA =  $139/20 = 6.95$

#### Illustration for CGPA

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6
Credit: 20 SGPA: 6.9	Credit: 22 SGPA: 7.8	Credit: 25 SGPA: 5.6	Credit: 26 SGPA: 6.0	Credit: 26 SGPA: 6.3	Credit: 25 SGPA: 8.0

$$\text{Thus CGPA} = \frac{20 \times 6.9 + 22 \times 7.8 + 25 \times 5.6 + 26 \times 6.0 + 26 \times 6.3 + 25 \times 8.0}{144} = 6.73$$

iv. Transcript (Format): Based on the above recommendations on Letter grades, grade points and SGPA and CCPA, the HEIs may issue the transcript for each semester and a consolidated transcript indicating the performance in all semesters.

#### Advantages of Choice Based Credit System

- The CBCS offers a 'cafeteria' approach in which the students can choose courses of their own choice.
- The credit system allows a student to study what he prefers in his own sequence as per his interests.
- They can learn at their own pace.
- They can opt for additional courses and can achieve more than the required credits.
- They can also opt for an interdisciplinary approach to learning.
- Inter college/university migration within the country and outside becomes easy with the transfer of Credits. This means that it will be easier for foreign universities to come and offer courses in India.
- Can opt for one part of the course in one institute and the other part in another institute. This will help in making a clear choice between good and bad colleges/ institutes.
- The students have more scope to enhance their skills and more scope of taking up projects and assignments, vocational training, including entrepreneurship.
- The system improves the job opportunities of students.
- The system will help in enabling potential employers assess the performance of students on a scientific scale.

#### Criticisms against CBCS

Opposing the CBCS, Delhi University Teacher Association, President Nandita Narain says, "The CBCS is meant to mainly benefit only the private universities, and not institutions like Delhi University, which cater to a huge and varied population. Just like the Four Year Undergraduate Programme, CBCS is another experiment being conducted on students which will only make them suffer. CBCS is without any direction, a move taken without considering the infrastructure restraints of the university. The trend of earning credits and not undergoing the required rigour, satellite teachers and an online course will adversely affect the quality of students in our country. Narain further added, "UGC is not acting in a very responsible manner and again trying to push through a drastic change just before admissions are about to begin for the next academic session. The move is not very constitutional and ignores the fact that universities have been given the right to frame their own syllabi and curricula due to the mass population of students who come from all backgrounds. Some other intellectuals have said that this is not workable, particularly in an institution as vast as Delhi University which caters to thousands of students from a varied background, geographically, culturally, economically etc. It happens in private universities where the cost structure is very high. Furthermore, time is a major constraint." "The concept of common curriculum being propagated by the present government can't be imposed. Where is the flexibility of choice provided? As far as the availability to choose from unique subject combinations is concerned, there is a serious derth of number of qualified teachers for the same. Regular and permanent appointments need to be made to ensure that teaching learning is stable". "We cannot blindly follow the US, we are not such a sound economy. Due to the OBC reservations and other factors, very soon there is going to be a huge mix of students' population which will have special need. The one size fits all approach will not work and the government cannot be blind to the need of education, and has to stop experimenting with the students' future. More concrete and developmental steps need to be taken in the field of education." To implement the CBCS at UG level, very massive office automation, classroom teaching using ICT facilities, MOOCs, WiFi facility, Virtual classrooms and library facilities, automation of examination, transparency in evaluation, digital evaluation and digital printing of marks cards and degree certificates are essential with security features.

#### Views in Favour :

In the midst of all this heated debate, many universities, particularly the

private universities, have a very different take on CBCS. Nikhil Sinha, founding vicechancellor, SNU, says, "We have been following the recently notified CBCS since 2011. Students have the option of pursuing programmes with major and minor combination, double majors and also have the option to change their major midway. The undergraduate programmes have been structured to allow flexibility to the students to design their own course and fulfill the credit requirements. This is in line with the UGC guidelines."

According to Sinha, the new system would help in programme portability and institution portability. "However, it might be a challenge for a student of a small college to migrate to a university because of different accreditation processes. Thus it becomes imperative to strengthen the accreditation processes along with the credit system."

This year, the Institute for International Education estimates that India is the number two country of origin for foreign students in the US, with over 1.2 lakh students studying there, contributing an estimated \$3.3 billion. Therefore, a major percentage of the education fraternity decided to follow the internationally widespread CBCS. Under CBCS, students will be able to pursue three types of courses foundation, elective and core. Students must pursue core subjects every semester and are free to pick electives from a pool of subjects unrelated to their disciplines. This means if you are a computer science student, you can still opt for history as an elective. A study of varied subjects widens students' horizon and exposure. The current framework suggests allotting 50 per cent of the total credits to core subjects, 25 per cent to applied core subjects, 20 percent to interdisciplinary subjects and five per cent for foundation courses. With this interdisciplinary approach, students can choose to develop different skills like communication, writing and debating through their electives and emerge as more employable individuals

### Conclusion :

It is too early to say whether CBCS will be successful or not. The UGC has always initiated measures to bring efficiency and excellence in the Higher Education System of India. The basic motive is to expand academic quality in all aspects, right from the curriculum to the learning teaching process to examination and evaluation systems. However, so far multiple methods are followed by different universities across the country towards examination, evaluation and grading system. Considering this diversity, the implementation of the choice based credit system seems to be a good system in assessing the overall performance of a student

in a universal way of a single grading system. In this backdrop of huge contradictions in views and perception, we need to understand that a particular system can have different implications in different situations and institutions. There can be more deliberations on this issue between the authorities implementing CBCS, the teacher fraternity and the students, whose future is at stake and see what can be done to make the system successful and do away with its lacunae and problems.■

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## **Green Transport- An Immediate need for Sustainable Development**

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Anthropogenic activities depend mostly on the exploitation and consumption of natural resources which cause a wide range of environmental degradation. Everybody now understands that conservation of our natural resources is critical to the survival of future generation. Our future depends on the preservation and improvement of the natural resources.

There is a perception that industrialisation, urbanization and deforestation are the leading factors responsible for climate change. But the present system of transportation based on combustion of fossil fuel generate serious environmental, economic and social damage and are highly unsustainable. At present transportation is considered as a major contributor in the global climate change. It accounts for almost 23% of the world's total CO<sub>2</sub> emissions from fossil fuel combustion. Of these total CO<sub>2</sub> emissions road transport accounts for 75% and this share is increasing every day. Around 95% of all road transportation depends on oil and this results in environmental degradation in terms of energy use, Green House Gas (GHG) emissions as well as air and noise pollution. In view of this burning problem there has been a growing world wide concern for sustainable transport and green transport.

### **What is Green Transport?**

We have heard about the terms such as green economics, green banking, green technology etc. meaning less harmful kind of activity to the nature or environment friendly activities. Likewise green transport means any kind of transportation activity that is eco friendly and does not have any negative impact

on the environment. In other words, the transport systems which ensures energy efficiency, less carbon emissions and less harmful to the mother nature can be termed as Green Transport. It is defined as one that supports environmental sustainability through the protection of the global climate, eco system, public health and above all natural resources. Green Transport involves effective and efficient resource utilization, changes in transport structure, control of private vehicles and development of vehicles capable running by renewable energy sources like solar, wind, bio fuel etc.

However, the reality is that the majority of transport except for walking and other non-motorized modes is not green or sustainable. Increasing vehicular emissions leading to poor air quality have significant negative impact on public health. The increase in private car uses is a major contributor to the emissions of GHG.

Presently, with the current size of the urban population, Indian cities are facing severe traffic congestion, deteriorating air quality, increasing emissions of GHG from the transport sector. As a result of the rapid increase in urban population and economic activities, India has experienced a rapid growth of motor vehicles in last decade. The total number of motor vehicles in India increased from 52.37million in 2000 to 121.63 million in 2011 i.e. an average growth rate of 9% per year. In fact the growth rate in the number of vehicles has been much faster than that of population. Many Indian cities have been ranked among the most polluted in the world.

Transport consume more than half of global liquid fossil fuel (IEA 2008). This sector accounts for nearly 18% of the total energy consumed in India, second only to the industrial sector. In the similar way of the 260 metric tone CO<sub>2</sub> emissions released by the transport sector in 2010, 87% were on accounts of road based vehicular activities. If it is allowed to continue, overall transport CO<sub>2</sub> emissions can come close to 1000 MT by 2030.

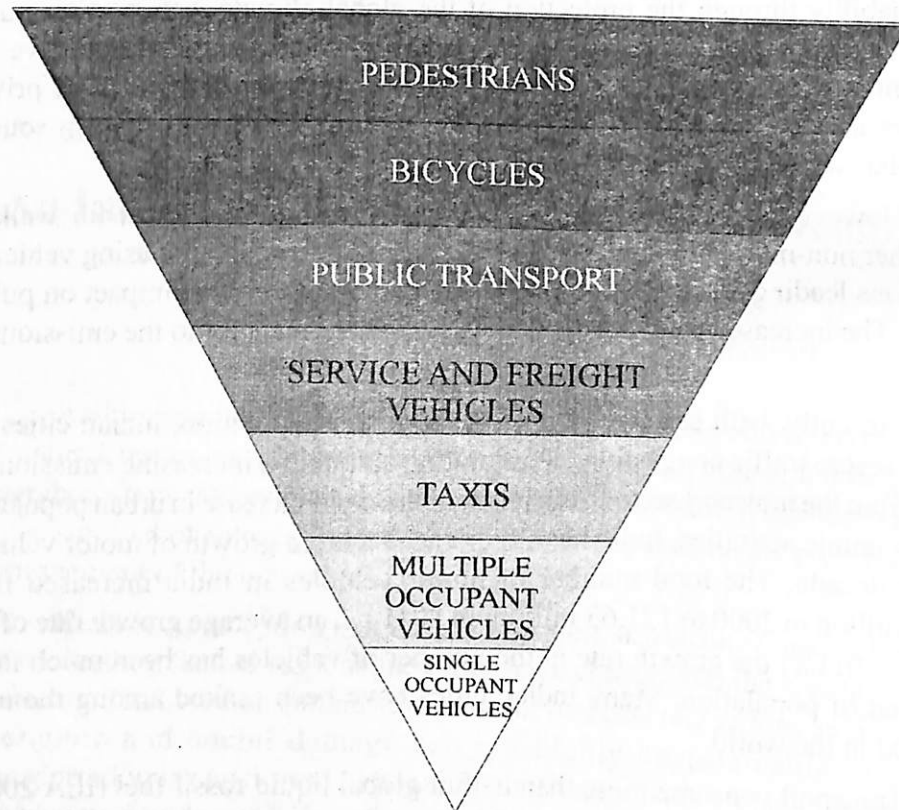
### **Impact of Rapid Motorization**

We cannot think of transportation without having pollution problems. Both seem to go hand in hand. Rapid growth of motorization has resulted in a number of problems as given below.

- a) Congestion.
- b) Reduced Travel speed.
- c) Pollution and loss of biodiversity.
- d) Energy consumption.

e) Occurrence of Road accidents.

### Green Transport Hierarchy



The above green transport Hierarchy reflects the fact that the largest portion of pedestrian walking being the most green mode with top priority and the smallest portion of single occupant vehicles being the least green mode with least priority. It also suggests that if it is possible, single occupant vehicles should be avoided. Though it is much more comfortable and convenient to drive one's own private vehicle, but being a responsible citizen, we should go for green transposition modes. China has been the pioneer country in this respect where people use bicycles on a large scale to go to office or to market everyday. If our neighbor country china can popularize this mode of transportation why can't we do so? This needs public awareness and participation.

### Green Highway Policy:

It is a new concept that includes construction of road ways with environmental approach. The aim of this concept is that growth and development should go hand in hand with sustainability of the eco system and public health.

Govt. of India has taken important steps to meet the challenges from time to time. In 2006 it has adopted National Urban Transport Policy. An important objective of the policy is to reduce or contain environmental risks which can be achieved by (a) paradigm shift from personal vehicles to public transport and non-motorized transport. (b) Greater public transport capacity.

Recently, Union Minister of Road Transport and Highways and Shipping launched the Green Highways Policy 2015. The aim of the Policy is to promote greening of highway corridors. If it is implemented with its set objectives, the policy will help in making India pollution free by reducing the forest gap as prescribed by the National Forest Policy. The govt. of India is also supporting introduction of e-rickshaws in cities as ecological means of transport.

Public transportation is considered as sustainable solution for cities to improve pollution problem and congestion. Shifting to more environment friendly modes of transport such as public and non-motorized transport would reduce green house gases. This demands more public awareness and participation. Kajriwal govt. in New Delhi has adopted a new policy at the appropriate time in making it mandatory to ply odd and even number vehicles at an alternate day in the week. Such an innovative policy will help in reducing the green house gases and congestion in the roads.■

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## Impact of Irrigation on Cropping Intensity in Assam : *A Panel Data Model Analysis*

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### ABSTRACT :

Importance of agriculture in Assam is very high, as 86% of population is still located in rural areas and their main source of livelihood is agriculture. Utilisation of agricultural land in Assam is low as most of the area are cultivated only once in a year. Factor influencing utilisation of land in general and cropping intensity in particular falls in various categories such as infrastructure related (irrigation), technological (HYV seeds), institutional (property rights), factor market etc. Irrigation is a key factor in raising cropping intensity in monsoonal climates. This paper presents extent and variation in cropping intensity across different agro-climatic zone of the Brahmaputra valley of Assam. This paper also investigates irrigation as a significant factor in determining cropping intensity in the valley with the help of a panel data model.

Key- Words : Cropping intensity, Irrigation, Brahmaputra Valley,

### 1. INTRODUCTION

As per 2011 census 86% of population of Assam was still located in rural areas. Importance of on agriculture in terms of contribution to State Domestic Product and proportion of population dependent on it continues to be higher in the state higher than the rest of the country<sup>1</sup>. With high and increasing density of

<sup>1</sup> Contribution of Agriculture to Net State Domestic Product at 1993-94 prices in the year 2001-2002 was 33.09% 'Statistical Handbook of Assam' 2005.

population<sup>2</sup> the pressure of population on land has also been on the rise resulting in declining average size of operational holding<sup>3</sup>. Despite the growing scarcity of agricultural land, its utilization continues to be low as most of the areas are cultivated only once in a year. Factor influencing utilisation of land in general and cropping intensity in particular falls in various categories such as infrastructure related (irrigation), technological (HYV seeds), institutional (property rights), factor market etc. Irrigation is a key factor in raising cropping intensity in monsoonal climates. This paper aims to examine irrigation as an important determinant of cropping intensity in Assam. The Brahmaputra Valley not only accounts for more than half of agricultural land of the state but is endowed with rich surface and ground water resource for development of irrigation. The other two regions of the state, namely the Hill and the Barak Valley are not as richly endowed for development of irrigation, a critical infrastructure for intensive use of land.

### 1.1 Significance of the Study

In a State like Assam, where population pressure is very high and land resources are very meager, proper exploitation of land resource is of strategic importance. In Assam, as in other States, the severe constraints in increasing the land area and the pressure of growing population, reflected in growing aggregate demand, have made it inevitable that further increases in agricultural output can come through only improving land productivity and intensive land utilisation<sup>4</sup>. An improper allocation of resource results in output being less than the potential minimum. Quite often the farmers are faced with the problem of judicious and efficient use of resources; particularly land, which is in acute short supply.

### 2. OBJECTIVES

The specific objectives of the study have been formulated as the following:

- (a) To study the extent and variation in cropping intensity across different agro-climatic zone of the state.

<sup>2</sup> Assam had a density of 397 persons per square km. as against 382 persons per square km of India as per 2011 census

<sup>3</sup> The average size of operational holding is 1.17 hectare as per Economic Survey 2005-2006 Government of Assam

<sup>4</sup> Hayami and Ruttan have discussed with reference to Japan and the Philippines how a countries facing land area constraints could still achieve high rates of growth in agriculture through biological innovations and irrigation development, permitting higher productivity on net sown area and increased output through expansion of multiple cropped area.

- b) To investigate irrigation as a factor responsible for determining intensity of cropping.

This paper has six sections. Section 3 presents the data source and methodology of the study. Section 4 presents the extent and variation in cropping intensity across different agro-climatic zones. Section 5 presents a panel data model of cropping intensity at different agro-climatic zone. Section 6 ends with few concluding remarks.

### 3. DATA SOURCE AND METHODOLOGY

The study is based on secondary data. Secondary data on area, production and yield of various crop, rainfall and irrigation, tube-wells in different districts will be compiled from reports called Basic Agricultural Statistics of the Directorate of Agriculture, Government of Assam. Data on irrigation from other sources will have to be compiled from the State Irrigation Department. The data on land use pattern, pattern on land holding, population, agricultural work-force will be compiled from economic surveys and Statistical Handbooks and also from agricultural census published by the Directorate of Economics and Statistics of government of Assam. Such secondary data will enable analysis of the problem by carrying on district level comparison.

Analysis of the district level secondary data using simple statistical tools such as ratio, percentage and average will suffice to examine spatial variation in cropping intensity and other background condition. For examination of this spatial variation in terms of factors such as availability of irrigation, a Panel data model will be formulated. It will be possible to use econometric modeling for panel data analysis as district level data will be available and collected for a numbers of years.

There are three relevant methodological issues which need to address while studying the relationship between irrigation and cropping intensity. One related to the very definition of cropping intensity, especially the issue its adjustment for the length of the period for which different crops occupy land from the date of their preparatory tillage to final harvesting. The second one related to the definition of irrigation variable for multiple regression purpose. Here, careful attention has to be given while choosing between gross and net irrigated area statistics on one hand, and relating the chosen one either to gross or net cropped/sown area on the other.

The third methodological issue is related to the specification of the regression model. Satya Sai (1990) rightly does not favour log-linear specification, because "a log-linear specification is not appropriate as it envisages the intensity of cropping to be zero when irrigation level is zero- in rain-fed conditions of India the intensity

of cropping, when expressed in per cent terms, is anticipated to be little over 100" (p. 299).

Finally, one has to duly reckon with the inherent biases in the estimated impact of irrigation on cropping intensity due to the unavoidable omission of some relevant variables from a regression equation.

### 4. EXTENT OF THE CROPPING INTENSITY IN ASSAM

Assam is divided into 27 administrative districts. These districts are further sub-divided into 54 "Sub-divisions." Every district is administered from a district headquarters with the office of the Deputy Commissioner, District Magistrate, Office of the District Panchayat and usually with a district court.

The districts are delineated on the basis of the features such as the rivers, hills, forests, etc. and majority of the newly constituted districts are sub-divisions of the earlier districts.

Cropping intensity has been calculated for the different districts of Assam for a period of 2007-08 to 2010-11(see table 1). Kokrajhar, Lakhimpur, Dima Hasao has the highest cropping intensity in the state as much as 207.42 in Kokrajhar in 2010-11. Similarly, Lakhimpur district's cropping intensity increases from 190.99 in 2007-08 to 206.15 in 2010-11. The cropping intensity in N.C. Hills district was at 150 in 2007-08 to 2008-09 but it further jumps to 194.33 in 2009-10 and then to 200.50 in 2010-11. Among the district in lower Assam viz., Dhubri, Goalpara, Bongaigaon, Kamrup(R) Kamrup(M), Nalbari, Barpeta has almost similar cropping intensity. Cropping intensity in Dhubri was 112.95 in 2007-08 and it was 128.75 in 2010-11. Kamrup(R) and Kamrup(M) has similar cropping intensity. 102.21 and 112.11 in 2010-11 respectively. Nalbari has slightly higher cropping intensity in comparison to lower Assam district, which were 186.18 in 2007-08 (including Baska). It was 170.43 in 2008-09 and then declined to 168.19 in 2010-11.

Sonitpur, Darrang, Nagaon, Morigaon, Chirang and Udalguri districts are situated in middle Assam. Chirang has the highest cropping intensity of 191.76 in 2010-11 among the districts of middle Assam followed by Sonitpur at 160.71 in 2010-11. Among the district of Upper Assam, Dibrugarh, Sibsagar and Jorhat has similar cropping intensity pattern. Sibsagar has lowest cropping intensity among the three districts with 107.24 in 2010-11 followed by Dibrugarh, which rises from 104.35 in 2007-08 to 115.44 in 2010-11. Jorhat has higher cropping intensity compare to Sibsagar and Dibrugarh. In 2007-08, Jorhat has cropping intensity of 134.25 and increases to 147.52 in 2010-11. Among the Barak Valley



district, Karimganj and Hailakandi has slightly higher cropping intensity than Cachar. Cachar has a cropping intensity of 133.53 in 2007-08 and the same was at 139.30 in 2010-11. Karimganj district cropping intensity has declined from 155.99 in 2007-08 to 136.09 in 2010-11. Similarly, Hailakandi district had a cropping intensity of 152.99 in 2007-08 but it further declined to 145.64 in 2010-11.

**Table 1: District Wise Cropping Intensity in Assam**

Sl. No.	Name of District	2007-08 <sup>@</sup>	2008-09	2009-10	2010-11
1	Cachar	133.53	142.83	144.77	139.30
2	Karimganj	150.85	137.01	138.01	136.09
3	Hailakandi	152.99	142.58	142.61	145.64
4	Dhubri	112.95	127.76	128.46	128.75
5	Goalpara	148.50	152.73	159.54	163.21
6	Kokrajhar	190.31	168.48	193.84	207.42
7	Bongaigaon	209.21(Chirang)	160.51	160.84	154.80
8	Kamrup( R)	119.91(R+M)	100.57	102.62	102.12
9	Kamrup( M)	--	103.67	105.80	112.11
10	Nalbari	168.18(Baska)	170.43	166.38	168.19
11	Baska	--	211.08	193.87	208.75
12	Barpeta	106.59	156.82	165.59	166.17
13	Sonitpur	160.16	161.29	153.48	160.71
14	Darrang	128.01(Udalguri)	136.18	142.17	148.45
15	Nagaon	127.24	126.53	123.64	122.74
16	Morigaon	127.87	119.82	132.50	137.39
17	Chirang	--	187.66	190.03	191.76
18	Udalguri	--	155.40	159.90	159.39
19	Sivsagar	108.54	116.43	113.32	107.24
20	Jorhat	134.25	134.97	143.90	147.52
21	Golaghat	126.72	127.81	151.28	155.31
22	Lakhimpur	190.99	192.93	199.52	206.15
23	Dhemaji	173.94	166.24	166.16	178.12
24	Dibrugarh	104.35	109.52	113.92	115.44
25	Tinsukia	145.61	139.65	141.28	140.30
26	Karbi Anglong	156.00	159.13	158.74	160.26
27	Dima Hasao	150.53	150.35	194.33	200.50

Source: Author's own calculation based on data from Statistical Handbook of Assam, 2012, Directorate of Economics and Statistics, Government of Assam

Note: @ The area under newly created districts namely-Chirang, Kamrup (M), Baksa and Udalguri are with the original districts from which created due to non availability figures from revenue circles.

Baska, a district under Bodoland Territorial Council has the highest cropping intensity of 208.75 in 2010-11 and Kamrup(R) has the lowest cropping intensity of 102.12 in 2010-11.

The newly created districts viz. - Chirang, Kamrup (M), Baksa and Udalguri are with the original districts from which created due to non availability figures from revenue circles in 2007-08.

#### 4.1 Cropping Intensity in Different Agro-Climatic Zones of Assam

The total geographical area of Assam has been divided into three natural divisions, viz. the Brahmaputra Valley, the Barak Valley and the Hills. The Brahmaputra and Barak Valley has been separated by the Hills. The total geographical area covered by the Brahmaputra Valley is 72 percent and rich in alluvial land and it accommodates 85 percent population of the State. On the other hand, with only 9 percent of total geographical area, 12 percent population resides in the Barak valley. The Hills comprising of two districts Karbi Anglong and Dima Hasao has 19 percent of total geographical area, accommodating a little more than 3 percent of population of the State.

While the State has been divided into the above mentioned three natural divisions, the entire state has been broadly divided into six (6) Agro Climatic Zone.

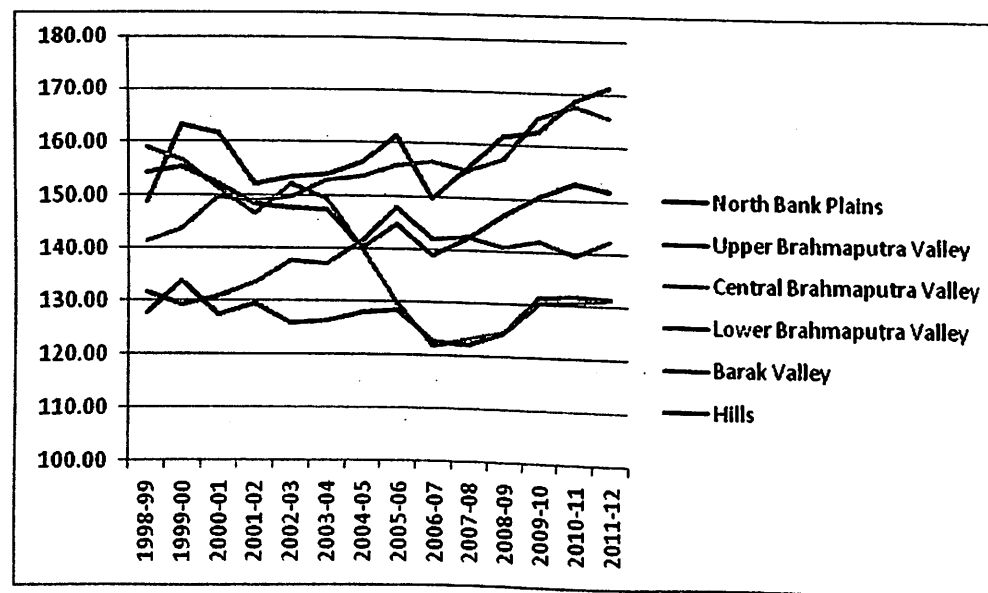
The plains comprising of the Brahmaputra Valley and the Barak Valley, are largely similar in terms of the farming system whereas the hills differ distinctly from the plains in terms of the system of cultivation. The method of cultivation in the plains of Assam is almost similar to the method that exists in most part of India (Bezbaruah 1994). Paddy especially the one grown during the rainy season of summer and harvested in winter (Winter Paddy) is the principal crop grown in plains. Besides, jute is also grown during this time. On the other hand, crops like rape and mustard, potato, vegetables and sugarcane are grown during the winter season when rainfall is sparse. These crops are, however, not grown in a large scale.

The figure 1 shows the cropping intensity in different agro-climatic zones. The North bank plain has shown an upward trend from 2006-07. But before that, from 2000-01 to 2005-06, the cropping intensity was low. The Central Brahmaputra valley has shown a declining trend from 2004-05 although it has high cropping intensity from 1998-99 to 2004-05. The upper Brahmaputra valley and the lower Brahmaputra valley maintain a steady rate in cropping intensity. The Hills also steadily have shown an increasing cropping intensity throughout the period. The



Barak valley has also shown an increasing trend in cropping intensity in the study period.

**Figure: 1 Trend of Cropping Intensity across Different Agro-Climatic Zone**



Source: Author's own calculation from data based on Statistical Handbooks, Various issues

## 5. PANEL DATA ANALYSIS OF CROPPING INTENSITY AT DIFFERENT AGRO-CLIMATIC ZONE OF THE STATE

It is widely perceived that the key to raising intensity of cropping in monsoonal climates is the development of irrigation. In this regard, Dhawan and Datta (1992) assess the actual impact of irrigation on intensity of cropping. Defining irrigation variable as a ratio of gross irrigated area to net sown area, they have found definite evidence of close relationship between irrigation development and the rise in intensity of cropping at the all-India level. Similarly, Karunakaran and Palanisami (1998) in a study in Tamil Nadu find definite evidence of close positive relation between irrigation development and intensity of cropping. Sometimes, it seems that there are some studies to suggest that irrigation development takes place as a result of initiation for higher cropping intensity. Gogoi (1993) mentioned the urgency of irrigation for multiple cropping in the context of desire for more food. According to her the urgency of irrigation for multiple cropping was felt in Assam in late sixties as unexpected population explosion and frequent floods caused food scarcity in the State. Occasional draught during monsoon season

also made it a necessary even in that period. Along with these factors, gradual introduction of high yielding varieties of rice and wheat in the state with emphasis on multiple cropping had increased the demand for irrigation. It is noteworthy to mention that although Assam is gifted with many rivers, harnessing of this large water resources is not very easy. There is constantly shifting tendency in the rivers, specially the Brahmaputra as its banks are either subject to erosion or siltation.

Other studies point out that it is not only the availability of the irrigation infrastructure but also its quality which have a bearing on cropping intensity. Dutta (2002) in a study in the Brahmaputra valley of Assam finds that the intensity of cropping tends to be higher for farms operating with private irrigation than for farms with government irrigation provided irrigation where the maintenance, management and utilisation are relatively poorer. Similarly, Dhawan and Datta (1992) also call for enquiry to verify the veracity of the general impression that the irrigation impact on intensity of cropping rises as we move from tank irrigation to canal irrigation, and onto well irrigation.

However, the positive relation between irrigation and cropping intensity does not seem to be universal. For instance, Bezbaruah and Roy in a study in the Barak valley of Assam find a significant negative relationship between irrigation and cropping intensity. They rationalise their finding in terms of the ground realities of the Barak valley. "With relatively small land holdings, the farmers in the Barak Valley cultivate primarily for home consumption..... In the absence of irrigation, the farmers are unable to apply fertilizers adequately to utilise the full yield potential of (their main) crop. Hence under such conditions the farmers may be compelled to increase the intensity of cropping to meet their essential requirements." (Bezbaruah and Roy, 2002: p 176).

A priori, availability of irrigation should facilitate cropping intensity in a situation like Assam. Though Assam receives abundance of rainfall the most of it is concentrated in the monsoon season which enables cultivation of its main crop 'the winter rice' virtually without artificial irrigation. But in the absence of irrigation facilities farmers are left with only un-remunerative low productive choice of crops for the dry season which would not encourage farmers to raise cropping intensity. On the other hand, availability of irrigation can enable farmers to cultivate the short duration high yielding varieties and/or alternative remunerative crops like vegetables and induce them to go for multiple cropping. In the 1990s irrigation capacity in the Brahmaputra Valley districts in Assam has been substantially enhanced through extensive installation of tube wells. To what

extent expansion of irrigation capacity has induced intensification of agriculture in the valley warrants closer examination.

As irrigation has a prominent in influencing cropping intensity, a panel data model for the different agro-climatic zones of the state has been designed. It is inevitable to take different climatic zone instead of different districts. The reason is four new districts had been created in the state in different period. Kamrup (Metro) district has been created by bifurcating the old Kamrup district on 3<sup>rd</sup> February 2003. On the other hand, three new districts viz. Chirang, Baksa and Udalguri under Bodoland Territorial Council (BTC) came into existence from February 10, 2003. The different agricultural data for the four newly created districts are available from 2008-09 onwards. As five or six years data on agriculture merely says anything to arrive at a conducive conclusion. Hence, a longer period has to be considered to conclude from the secondary data. Therefore, instead of district, different agro- climatic zone of the State has been taken into consideration. Data on district basis may not be available for few years, but agro-climatic zone wise these are available at the Directorate of Statistics and Economics, Govt. of Assam.

Therefore, a dummy variable regression model has been constructed to analysis the relation between cropping intensity and area under irrigation.

As already mentioned, Assam has six different agro-climatic zones on the basis of climate, rainfall and temperature, terrain, soil characteristics and land use pattern. For all the agro-climatic zone, data on irrigation and cropping intensity has been collected for 14 years from 1998-99 to 2011-12. At first, the total cropped area (TCA) and net sown area (NSA) for different agro-climatic zone has been calculated to arrive at cropping intensity by dividing the former by latter multiplied by hundred. Similarly, area under irrigation (IRR) has been calculated by dividing Gross irrigated area (GIA) by Gross cropped area (GCA) multiplied by hundred.

For six agro-climatic zones, five dummies have been included in the model to avoid the situation of 'dummy variable trap (perfect colinearity).'

Thus, the model has formulated as follows:

$$CI_{it} = \alpha_0 + \alpha_1 D_{1i} + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \alpha_4 D_{4i} + \alpha_5 D_{5i} + \beta_1 IRR_{it} + u_{it}$$

Where,

CI = Cropping intensity

IRR = percentage of total area cropped area under irrigation

$D_1, D_2, D_3, D_4$  and  $D_5$  area dummy variables and 'u' is random disturbance term with usual properties of OLS.

$D_1 = 1$  if the observation belongs to North Bank Plains (NBP), 0 otherwise;

$D_2 = 1$  if the observation belongs to Upper Brahmaputra Valley (UBV), 0 otherwise;

$D_3 = 1$  if the observation belongs to Central Brahmaputra Valley (CBV), 0 otherwise;

$D_4 = 1$  if the observation belongs to Lower Brahmaputra Valley (LBV), 0 otherwise;

$D_5 = 1$  if the observation belongs to Barak Valley (BV), 0 otherwise;

With the help of STATA 11 software, the model has been estimated as shown in table 2.

**Table 2: Results of Panel Data Regression of Cropping Intensity in Assam**

Test for Fixed effects and Random Effects	Hausman Test Chi <sup>2</sup> [1] = 0.01 Prob. = 0.000 Result: Fixed effects model is appropriate	Standard Error	P-value
Test of Heteroskedasticity	Breusch-Pagan Test Chi <sup>2</sup> [1] = 2.35 Prob. = 0.1250 Result: No Heteroskedasticity		
Variables/ Constant	Estimates of the Coefficients/ values		
Intercept	136.26***	4.36	0.000
IRR	2.33***	0.50	0.000
D <sub>1</sub>	14.77***	3.46	0.000
D <sub>2</sub>	-8.96**	4.61	0.055
D <sub>3</sub>	-7.58**	3.08	0.016
D <sub>4</sub>	6.81	3.84	0.081
D <sub>5</sub>	1.60***	4.60	0.728
R <sup>2</sup>	0.74	-	-
F [6,77]	36.69***	-	0.000

Figures within () and [] are standard error and the degrees of freedom respectively, \*\*\*, \*\*, \* indicates significant at 1, 5 and 10 percent respectively

In the estimated regression equation, irrigation coefficient is statistically significant as the *p values* of the estimated *t* coefficients are extremely low. This signifies that the irrigation is an important factor in determination of cropping intensity. The value of the coefficient for irrigation (IRR) is positive, implying that the increase in the area of irrigation increase the cropping intensity.

All the agro-climatic dummies are statistically significant. This implies that there are some unique features (*may be managerial talent*) of each agro-climatic zone, which influence cropping intensity in different ways.

The  $R^2$  value is very high (74.09%) which signifies a good fit of the model to the data. The F-test is also significant.

The above model suffers from the omission of few relevant variables like area under HYV, tractorisation, other mechanisation and labour availability. As these variables are positively related with both cropping intensity and irrigation, one may find the presence of an upward bias in the estimated coefficient of irrigation variable.

## 6. CONCLUSION

By boosting agricultural production and stabilising it, irrigation plays a vital role in the economic development of the State. The above findings also prove irrigation as a determinant of cropping intensity. It may be reasonably stated that the positive impacts of irrigation on cropping intensity, thereby increasing utilisation of agricultural land in the Brahmaputra valley of State has been beneficial and it will also result in wide-spread development of State.

It is important to conclude here that greater attention should be given to water management due to increasing water scarcity. Planning for irrigation is a crucial component of water management. At the start of each irrigation season, a farmer needs to have irrigation programme and cropping pattern which will maximise economic return or water-use efficiency.

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## Appendix A :

Assam has comprised of three different valleys, viz. the Brahmaputra Valley, the Barak Valley and the Hills. The Brahmaputra Valley not only accounts for more than half of agricultural land of the State but is endowed with rich surface and ground water resource for development of irrigation. The other two regions of the state, namely the Hill and the Barak Valley are not as richly endowed for development of irrigation, a critical infrastructure for intensive use of land.

ii) The different agro-climatic zone of the State based on climate, rainfall and temperature, terrain, soil characteristics and land use pattern has shown in the below table:

**Table: A1 Agro-climatic Zones in Assam**

Climatic Zone	District	Agricultural Production
North Bank Plain (NBP)	Dhemaji, Lakhimpur, Sonitpur, Darrang, Udalguri	Rice, rape and mustard and sugarcane
Upper Brahmaputra Valley (UBV)	Tinsukia, Dibrugarh, Jorhat, Sibsagar, Golaghat	Rice, rape and mustard and sugarcane
Central Brahmaputra Valley (CBV)	Nagaon, Morigaon	Rice, jute, rape, pulses and mustard
Lower Brahmaputra Valley (LBV)	Kamrup, Goalpara, Dhubri, Kokrajhar, Bongaigaon, Barpeta, Nalbari, Baksa, Chirang	Rice, jute, rape and mustard, potato, wheat and pulses
Barak Valley (BV)	Cachar, Hailakandi, Karimganj	Rice, sugarcane and potato
Hills (H)	Karbi Anglong, Dima Hasao	Maize and sugarcane

Source: <http://online.assam.gov.in/agricultureandrrigation> accessed on 31/ 01/2015

## **Attitude of the people towards generation and disposal of solid waste: A micro level study in Dibrugarh District**

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### **1.1 Introduction**

Human activities create waste and the ways through which waste is handled, stored, collected and disposed of should be maintained in a systematic and scientific way. An inefficient way for collecting and disposing of wastes may lead to a serious problem to the environment as well as human existence. Waste generation is an inevitable phenomenon for each and every household. But solid waste generation, specially due to its high population pressure, is regarded as a big problem in urban areas due to various factors. Increase in population density has led to the increase in the volume of waste. In urban areas, especially in the rapidly urbanizing cities of the developing world, problems and issues of municipal solid waste management are achieving significant importance. Public awareness of and attitudes towards waste can affect the entire solid waste management system. All steps in solid waste management from household waste storage to waste segregation, recycling, collecting frequency, amount of littering, willingness to pay for services and disposal facilities depend on public awareness and participation. Thus awareness and attitudes of people for having a clean environment are very crucial for the success of a solid waste management system.

### **1.2 Importance of the Study**

Generation of wastes is an inevitable phenomenon for each and every household. However, improper disposal of wastes may create several

environmental problems. That is reason why management of solid wastes is becoming a challenge for households. Various factors like people's negligence, ignorance, poor economic condition, limited knowledge of environment etc influence the generation of a huge amount of solid waste. The management of urban and industrial solid wastes is one of the everyday issues that policy makers at national and regional level are faced with considering the importance of the problem, the researcher has made an attempt to study the consciousness of people for protecting environment via proper management of waste and their willingness to pay for that. Since research has showed that one of the major problem related to proper waste management is the inadequate budget compared to solid waste generation, so the researcher is also trying to study the demand side of proper waste management and possibility of cost sharing by the households which will be a vital help for the planners.

### **1.3 Objective of the study:**

The objective of this paper is

1. To study people's consciousness towards protecting environment though proper disposal of solid waste.
2. To study satisfaction level of people regarding existing Practice of waste disposal
3. To find out people's willingness to pay for better waste management

### **1.4 Methodology :**

Dibrugarh district is one of the leading districts of Assam so far as population figure is concerned. Out of the six towns of Dibrugarh districts, the researcher has selected Dibrugarh town purposively for the study. The all total 22 wards of Dibrugarh can be classified as residential, residential cum commercial and commercial depending on their predominant characteristics. As the study is mainly concentrated on the Attitude of households regarding generation and disposal of solid waste, so we have taken only residential and residential cum commercial areas of the town. Out of the 22 wards, a total of 6 wards comprising 3 residential wards( East Chowkidinghee, Seujpur and Mancotta) and 3 residential cum commercial wards (Jiban Phukan Nagar, Middle Chowkidinghee and Khaliyamari) has been taken for the survey. 15% households from each sample ward have been taken up which stood at 120 households. The required information is collected from the field through personal interview with the respondents using a structured questionnaire which incorporated various issue of generation of solid waste and



its management.

The researchers has used both primary and secondary data for the study. The relevant secondary data are collected from journals, books, internet and various other sources.

## 1.5 Main findings of the study

### 1.5.1 Waste generation in the household

The rapid growth of population and the changing life style is increasing the waste generation through out the world, specially in developing countries. These waste are primarily produced by residential ,institutional and commercial sources. When the household waste generation data per day per household in the sample area is calculated, it is found ( table 1) that out of the total waste which is 120.65 kg,59.18% is generated from the residential area and rest from the residential cum commercial area. Again the table reveals that waste generated per household per day is also higher in residential area as compared to the residential cum commercial area. However, per capita waste generation per day is slightly higher in residential cum commercial area as compared to the rest.

**Table:1**

**Amount of waste generation**

Area	Waste generation Kg/HH/per day	Total waste generation Kg/per day	Per capita waste generation Kg/per day
Residential	1.02	71.4 (59.18)	.204
Residential cum commercial	.985	49.25 (40.82)	.219
All area	1.06	120.65 (100)	0.21

Source:Compiled from field study (Figures in brackets indicate percentage)

### 15.2 Types of waste generated

The study also focussed on the types and proportion of solid waste generated in the sample area. Among the different types of waste, kitchen waste is the major waste in terms of volume and quantity of the selected households. It accounts for nearly 85% of the total waste. It is followed by Paper waste and other types of waste which constitutes 6.08% and 4.38% respectively. Other types of waste includes battery ,dust etc. Packing waste content is 2.56% whereas the remaining 1.98% is plastic waste

### 1.5.3 Disposal of waste by the households

Table 2 shows the various ways by which the households manage the waste generated from their houses. Among the sample households, 39.17% of them throw the waste in the municipal dustbin. In case of 35% of the sample households, waste is collected by the collectors. Only 2.5% of the households use the waste to prepare the compost. If we study areawise, it is seen that in case of residential area, highest percentage of households ie 41.4% take the help of waste collectors to dispose their waste. Second position is occupied by the households (32.89%) who throw their waste in the municipal dustbin. Coming to residential cum commercial area,48% of the households use municipal dustbin to throw the waste and this percentage is highest in that area. It is followed by the households from where waste is collected by the collectors and their percentage is 26. During interview, it is come to know that most people of this area do not use municipal waste collection service because for that they have to pay rupees 50 per month.

### 1.5.4 waste collected by the collectors

Table 3 shows that out of 42 sample households who are served by the collectors, 88.095% are served by the municipal collectors and rest employ wage workers to collect the waste. In both the sample areas, municipal workers play a dominant role regarding waste collection. Besides the households who employs wage workers to collect waste, those who are served by municipal collection system have to pay fee on monthly basis. During the survey, the researcher come to know that some households are hiring workers for waste collection because in their area municipal waste collectors do not come

**Table:2 Methods of waste disposal**

Methods of waste disposal	Residential	Residential cum commercial	All area
Collected by collectors	29 (41.4)	13(26)	42(35)
Throwing inside boundary	6 (8.57)	3(6)	9(7.5)
Throwing in open area	5 (7.14)	7(14)	12(10)
Throwing in municipal dustbin	23(32.89)	24(48)	47(39.17)
Prepare the compost from waste	2(2.86)	1(2)	3(2.5)
Burn	5(7.14)	2(4)	7(5.83)
Other	0	0	0
Total	70(100)	50(100)	120(100)

Source:Compiled from field study (Figures in brackets indicate percentage)

**Table:3**  
**Types of waste collectors**

Area	Municipal Collectors	Wage workers	others	Total
Residential	25(86.21)	4(13.79)	0	29(100)
Residential cum commercial	12(92.31)	1(7.69)	0	13(100)
All area	37(88.095)	5(11.905)	0	42(100)

Source:Compiled from field study (Figures in brackets indicate percentage)

#### 1.5.5 Satisfaction with the present waste collection system

The notion of the households towards the present collection system was also captured through the questionnaire. Out of 42 households, 80.95% households are satisfied with the existing waste collection system. Areawise, percentage of satisfied household in residential area is 79.31% and it is 76.92% in residential cum commercial area. However, 19.05% households are not satisfied by the service provided by the collectors. We have asked the people their reasons for dissatisfaction. Some households are not happy with the service, because even though they pay rupees 50 per month, the collectors allow them to give two bags of waste for two days, i.e. one bag for each day. If they want to give more waste than that amount, they have to pay extra money. Moreover, instead of 2 days which was decided, the municipal collectors come in a gap of 3 or 4 days. However, no complaint is found in case of private collectors. While interviewing, it is found that 57.14% of the sample households do not have any idea where the collected waste is disposed though 4.76% of the households think that disposal of collected waste is environmentally safe, but 38.1% of them feel that disposal of waste is not safe for the environment. Areawise perception of the people regarding environmentally safe disposal of waste is shown in table 4.

**Table:4**  
**Satisfaction with the existing waste collection service**

Area	Satisfied with the present collection system			Environmentally safe disposal of the collected waste		
	Total No. of HH with Door to Door Collection	Satisfied	Not Satisfied	Yes	No	Don't know
All areas	42(100)	34 (80.95)	8 (19.05)	2 (4.76)	16 (38.1)	24 (57.14)
Residential	29 (100)	23 (79.31)	6 (20.69)	3 (10.35)	11 (37.93)	15 (51.72)
Residential cum commercial	13 (100)	10 (76.92)	3 (23.08)	2 (15.38)	2 (15.38)	9 (69.24)

Source:Compiled from field study (Figures in brackets indicate percentage)

#### 1.5.6 Willingness to pay for better waste management

One of the objective of the paper is to study the willingness of the people to pay for better waste management. During the study, it is found that 63.33% of the households are ready to pay for protecting the environment by proper management of waste. However, the rest 36.67% households do not care whether disposal of waste is environmentally safe or not. Areawise study has shown that 64.29% of the households in residential area have showed their interest to pay for better waste management and that percentage is 62 in residential cum commercial area. Areawise people desire to pay for environmentally safe waste management practice is shown in the table below

**Table:5**  
**Willingness to pay for better waste management**

Area	Yes	No	Total
All area	76 (63.33)	44(36.67)	120 (100)
Residential	45(64.29)	25(35.71)	70(100)
Residential cum commercial	31(62)	19 (38)	50 (100)

Source:Compiled from field study (Figures in brackets indicate percentage)

### 1.5.7 Reasons for not willing to pay

The sample households have shown numbers of reasons for not paying for better waste management practice. 29.55% of the sample households do not want to pay because their income is not sufficient and therefore they can not afford extra expenses. It is followed by the households who do not want to pay because amount of waste generated by their houses are very little and percentage of such households is 22.73%. 20.455% households have shown various other reasons like they can use municipal dustbin, most of the waste is reused etc. However, in residential cum commercial area, the main reason for not paying is the little amount of waste generated and this reason is given by 31.58% households. But in both the areas, low income is one of the major factors for which people are not ready to pay.

### 1.6 Epilogue

The present study shows that out of total waste generated in the sample area, more than half amount of waste is generated by the residential area. However per capita waste generation per day is slightly higher in residential cum commercial area as compared to residential area. 85% of these waste constitutes household waste which includes rotten vegetables, fruits, peels of vegetables etc. Less than 10% of the waste comprises of paper waste and other types of waste ie battery, dust etc.

So far as collection of waste is concerned, it is found that majority of the households ie 39.17% of the sample households throw the waste in the municipal dustbin. In case of 35% of the sample households, waste is collected by the collectors. Areawise study has shown that nearly 41.45 % of the households of residential area use municipal waste collection service while the percentage of same in residential cum commercial areas is only 26%. One of the reason for which majority of people in residential cum commercial area are not using municipal service is the monthly fee

Among the households who are served by collectors, 88.095% are served by the municipal collectors and rest employ wage workers to collect the waste. In both the sample areas, municipal workers play a dominant role regarding waste collection.

During the study, the researchers came to know the notion of the households towards the present collection system. Though 80.95% households are satisfied with the present waste collection system, a few percentage of households are

totally not happy by the service provided by the municipal collectors. One of the reason for this dissatisfaction is the irregularity of the collectors. While interviewing, it is found that 57.14% of the sample households do not have any idea where the collected waste is disposed though 4.76% of the households think that disposal of collected waste is environmentally safe, but 38.1% of them feel that disposal of waste is not safe for the environment

During the study, it is found that 63.33% of the households are ready to pay for protecting the environment by proper management of waste. However, the rest 36.67% households do not care whether disposal of waste is environmentally safe or not. Areawise study has shown that 64.29% of the households in residential area have showed their interest to pay for better waste management and that percentage is 62 in residential cum commercial area.

The sample households who do not want to pay for better waste management have shown numbers of reasons for not paying the monthly fee. Majority of the them i.e 29.55% of the sample households do not want to pay because their income is not sufficient and therefore they can not afford extra expenses. It is followed by the households who do not want to pay because amount of waste generated by their houses are very little and percentage of such households is 22.73%. 20.455% households have shown various other reasons like they can use municipal dustbin, most of the waste is reused etc. However in residential cum commercial area, the main reason for not paying is the little amount of waste generated and this reason is given by 31.58% households. But in both the areas, low income is one of the major factors for which people are not ready to pay.

### 1.7 Conclusion

Although policy makes focus their attention to tackle the challenge of waste generation, but still solid waste generation and disposal is becoming a challenge for each society, especially in the developing world. Waste generation, specifically over generation and improper waste disposal can be increasingly recognized as the underlying cause of the waste problem. Our study has taken an attempt to find out the causes of waste generation and people attitude towards disposal of the same. The main key for tackling this problem is on the hands of public. Cooperation among the people and planners can bring efficient solution for this waste management problem. Therefore attempts must be made to improve the willingness to pay for waste management services in city and other region. To achieve this, the government should concentrate first on awareness programme

about the consequences of mishandling and benefits of payment for proper waste management. ■

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Khaj: Vol. VIII, 2016

ISSN No. : 2278-5272

## Equity in Education

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### ABSTRACT:

In education, the term equity refers to the principle of fairness. It is often used interchangeably with the related principle of equality. Equity encompasses a wide variety of educational models, programmers and strategies that may be considered fair, but not necessarily equal. Equity in education is the means to achieve equality. Equity means distribution of something to special needs. Educational equity refers to equity in education, is a measure of achievement, fairness and opportunity in education. Educational equity is dependent on two main factors-fairness and inclusion. These two factors are closely related and are dependent on each other for true academic success of an educational system.

Keywords: Equity, Equality, Education.

### INTRODUCTION:

#### CONCEPT OF EQUITY:

In education, the term equity refers to the principle of fairness. Which it is often used interchangeably with the related principle of equality, equity encompasses a wide variety of educational models, programmers and strategies that may be considered fair, but not necessarily equal. It has been said that "equity is the process, equality is the outcome," given that equity – what is fair and just may not, in the process of educating students, reflect strict equality – what is applied, allocated or distributed equally.

Equity in education is the means to achieve equality. It intends to provide

the best opportunities for the students to achieve their full potential and to address instances of disadvantage which restrict educational achievement. It involves special treatment / action taken to reverse the historical and social disadvantages that prevent learners from accessing and benefiting from education on equal grounds. Equity measures are not fair but are implemented to ensure fairness and equality of outcome.

Equity means distribution of something to special needs. It recognizes that some are at a larger disadvantage than others and aims at compensating for these peoples misfortunes and disabilities in order to make sure that everyone is capable of being the same type of healthy lifestyle. Equity recognizes this uneven playing field and aims to take extra measures by giving those who are in need more than others who are not. Equity aims at making sure that everyone's life style is equal even if it may come at the cost of unequal distribution of access and good.

#### CONCEPT OF EQUALITY:

The American Library Association defines equality as "access to channels of communication and sources of information that is made available on even terms to all a level playing field is derived from the concept of fairness as uniform distribution, where everyone is entitled to the same level of access and can avail themselves if they so choose. In this definition of equality no one person has an unfair advantage. Everyone is given equal opportunities and accessibility and are then free to be what please with it. However, this is not to say that everyone is then inherently equal.

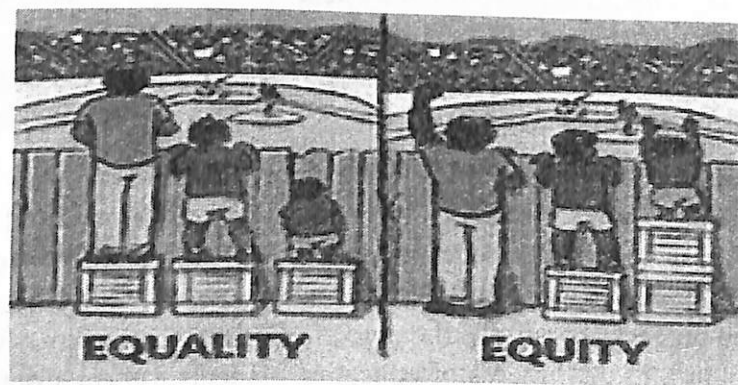


Fig:1 Equality vs Equity  
Equality= Sameness; Equity=Fairness

Fig: 1 very clearly explains the differences between equality and equity. The three men were given equal size box but it was unable to satisfy their needs. Because their heights are different. On the basis of their heights the tallest man doesnot required any box but the shortest man required two boxes .Another example is , suppose there are 40 students in class five of similar age group. If we provide equal size shirts to all the students then it will not fit all, following the principle of equality.Because the size of shirt will vary from each other. On the other hand, if a child is hungry then food is his primary requirement then shirt or any expensive goods.

Government of Assam has been providing computers/laptops to all those students who secure 1<sup>st</sup> division in HSLC on the basis of equality. But here equity is questionable, because there are many places in Assam where there is no electricity. In such condition what the students will do with computers /laptops? In such situation we need equity in place of equality .

#### EDUCATIONAL EQUITY:

Educational equity refers to equity in education, is a measure of achievement, fairness and opportunity in education. The study of education equity is often linked with the study of excellence and equity.

Educational equity is dependent on two main factors –

- i) The first is fairness, which implies that factors specific to one's personal conditions should not interfere with the potential of academic success.
- ii) The second factor is inclusion, which refers to a comprehensive standard that applies to everyone in a certain education system.

These two factors are closely related and are dependent on each other for true academic success of an educational system. The growing importance of education equity is based on the premise that now, more than ever before, an individual's level of education is directly correlated to the quality of life he or she will live in future. Therefore, an academic system that practices educational quality is a strong foundation of a society that is fair and thriving.

In a democratic society, no one is considered superior or inferior in respect of status or nature of work. It believes in the equality of rights and opportunities for all. Not only that equal political rights are guaranteed to all but equal opportunities are provided to all members for their full growth and all round development according to their capacities, capability and natural endowment.



## OBJECTIVES:

- 1) To Know the meaning of equity in education.
- 2) To know about the role of present government initiative concerning equity in education.
- 3) To study about the contribution of 12<sup>th</sup> five year plan.

## METHODOLOGY:

This paper is based on secondary data collection like books, journals, magazines and internet.

## CONSTITUTIONAL PROVISIONS REGARDING EDUCATION:

The constitutions of India came into force on January 26, 1950. A number of important provisions which have a direct or indirect bearing on education have been included in the constitution. The preamble of the constitutions states, "we the people of India having solemnly resolved to constitute India into a Sovereign, Socialistic, Secular, Democratic, Republic and to secure to all its citizens.

Justice – social, economic and political

Liberty – of thought, expression, belief, faith and worship.

Equality – of status and opportunity and to promote among them all;

Fraternity- assuring the dignity of the individual and the unity of the Nation; in our Constituent Assembly this twenty-sixth day of November 1949, do hereby adopt, enact and give to ourselves this constitution."

Art. 14. Equality before law.

Art. 15. Prohibition of discrimination on grounds of religion, race, caste, sex or place of birth.

Art. 16. Equality of opportunity in matters of public employment.

Art. 17. Abolition of Untouchability.

Art. 29. Protection of interest of minorities.

Art. 30. Right of minorities to establish and administer educational institutions.

Art. 41. Right to work, to educational and to public assistance in certain cases.

Art. 45. Provision for free and compulsory education for children, until they complete the age of fourteen years.

Art. 46. Promotion of education and economic interests of scheduled castes, scheduled tribes and other weaker sections.

Art. 337. This provides for special provision with respect to educational grants for the benefit of Anglo-Indian community.

Art. 350. A Facilities for instruction in mother tongue at the primary stage of education to children belonging to linguistic minority groups; and president may issue such direction to any state as he considers necessary or proper for securing the provision of such facilities.

Art. 351. Directive for the development of the Hindi language.

## HISTORICAL BACKGROUND:

**VEDIC PERIOD** – Vedic education was free to everyone. There is mention of such families in which the father is Vaishya, the son Vedic poet, and the mother is a labourer doing grinding. Thus, the members of all the castes were free to gain their higher education and this statement is supported by Vajurveda. Similarly there are also evidence in Rigveda that many Rishis of Rigveda were Kshatriyas such as Ambreesh, trasadaya and Answamedha etc. The composer of Dattatreya Brahman, Mahidas was the son of a Shudra Mother. So, all the four castes were eligible for gaining education in Vedic period. Education of girls were looked after in the same way that of boys and many amongst them gained highest education.

**POST-VEDIC EDUCATION** – No reference is found about the education of 'Vaishyas' and 'Shudras'. The aim of the life of 'Vaishyas' was laid down as agriculture, trade and commerce.

They didn't take any interest in the intellectual education. The condition of Shudras was even worse. They were not free to get 'Vedic' Knowledge now as they could in Vedic age. The women in post Vedic period were not enjoying the social and education privileges as they did in Vedic age. However, their religious position was quite safe.

**EDUCATION IN DHARMA SHASTRAS** – The Absence of social justice in education is particularly observed in case of partiality towards the education of all the Varnas other than Brahmin and also of the women. The entire education system was entrusted to Brahmanas.

**BUDDHIST EDUCATION SYSTEM** – Buddhist education system was opposed to caste system. This system insisted that the student may be admitted on his

persona; merit and not on the basis of his family or caste. The Buddhist nuns and monks, therefore, came from all castes.

**MUSLIM EDUCATION** – The education during the Muslim rule was mostly free. Education was compulsory, specially for boys. Regarding education of women, there was 'Pardah' system prevailing, yet 1<sup>st</sup> Lam did not oppose the education of women.

**WOOD'S DISPATCH (1854)** – The Dispatch recognized the need for development of women education as the duty and responsibility of the government.

**HUNTER COMMISSION (1882)** – This commission made certain recommendation the education of Harijans and Backward classes, Hill Tribes, Women education and Muslim education. It was made mandatory on the part of schools teachers and inspectors to make judicious efforts to remove caste prejudices.

**HARTOG COMMITTEE (1929)** – Hartog committee recommended that the harijans should receive education along with other caste Hindus and not in separate school. Equal importance should be given to the education of the boys as well as girls. Equal amount should be spent on both.

**SARVODAYA SOCIETY** – Sarvodaya was the foundation of M.K. Gandhi's philosophy of education. Sarvodaya aims at all round development of all, without distinction of caste, creed, sex and nationality.

**SERGEANT REPORT (1944)** – In India, two types of inequalities are found in the field of education –

- (a) In the education of boys and girls, and
- (b) In the education of developed and backward classes.

To remove these inequalities, lower secondary education should be made free upto the end of the Fifth Five Year Plan and there after in the period of 10 years, higher secondary and university education should be given free to the poor and meritorious students.

**NATIONAL POLICY ON EDUCATION (1968)** – This policy made various recommendations for the equalization of educational opportunities –

- (a) Good educational facilities should be provided in rural and other backward areas.
- (b) Emphasized on girls education.

- (c) Develop education among the backward classes and especially among the tribal people.

**NATIONAL POLICY ON EDUCATION (1986)** – According to NPE – 1986 Equality of education means “to provide for equal opportunity to all not only in a access but also in the condition for success.” Equality of educational opportunity has been taken as “equalization of access by as suitable manipulation of education inputs (like physical facilities and equipment in schools, quality of teachers and curriculum, and financial assistance for the poor).

### **PRESENT GOVERNMENT INITIATIVES IN THE EDUCATIONAL SCENARIO OF INDIA:**

Elementary level of education and equity through 12<sup>th</sup> Five Year Plan –

In 12<sup>th</sup> five year plan, Sarva Shiksha Abhiyan (SSA) is continued to be the flexive programme for developing elementary education of India in order to rule the rights to elementary education for each and every child. There are four strategies under SSA during the 12<sup>th</sup> five year plan.

- i) Strong focus on learning outcomes.
- ii) Addressing residual access and equity gaps.
- iii) Focus on teacher and educational leadership.
- iv) Linkage with other sectors and programmes.

In order to achieve the second strategy further strategies are-

- i) Targeting out of school children.
- ii) Focus on Schedule Caste / Schedule Tribe students.
- iii) Establishment of residential school.
- iv) Special provision for child with special needs.
- v) Special provision for girls.
- vi) Focus on educationally backward minorities.

However, with the Right to Education (RTE) Act. 2009 having come into effect from April 2010, is now a fundamental right of all children to demand eight years of quality elementary education. Effective enforcement of this right requires that vision, strategies and norms of the SSA are aligned with the mandate under the RTE. To achieve UEE in a planned and time bound manner, a much higher level of funding and also better targeting of uncovered and under covered

population will be necessary. Flexible and concerned efforts are needed to reach out to the out of School children (O<sub>o</sub>Sc). Bridging the social and gender gaps in enrollment with regard to Sc, ST and minorities would receive special attention. Recognizing the importance of private schools, the RTE Act. mandates that all schools, whether they receive financial aid from the government or not, must reserve 25.0% seats for children from disadvantaged households.

#### **SECONDARY LEVEL OF EDUCATION AND EQUITY THROUGH 12<sup>TH</sup> FIVE YEAR PLAN :**

During the 12<sup>th</sup> five year plan period Rashtriya Madhyamik Shiksha Abhiyan (RMSA) is considered as a single comprehensive scheme to address the issues of the quality and equity is Secondary education. This is planned that RMSS should be gradually extended to the higher secondary stage of education. There are most important centrally sponsored schemes that benefit the Secondary school students of different categories and backward which can be mentioned under equity dimension at Secondary level.

- i) Girls hostel scheme.
- ii) Residential school scheme.
- iii) Inclusive education for children with disability

The centrally funded Kendriya Vidyalayas (KVs) and Navodaya Vidyalayas (NV) have emerged as premier public education institutions in secondary education. The 12<sup>th</sup> five year plan, also emphasized, to offer pre-vocational courses in classes IX and X.

#### **HIGHER EDUCATION AND EQUITY DIMENSION IN 12<sup>TH</sup> FIVE YEAR PLAN :**

The thrust area of 12<sup>th</sup> five year plan stress on higher education for each. Quantitative and qualitative expansion which automatically includes equity dimensions specifically 12<sup>th</sup> five year plan emphasize on –

- i) Significant enhance in funding for equity related measures.
- ii) Evolve a differential response to the various dimensions of inequality.
- iii) Consolidate a range of schemes specially those which address the inter section of more than one dimension of disadvantages. Therefore, it is sure that in the context of equity the 12<sup>th</sup> five year plan intense to pay special attention to rural and urban inequalities, gender disparities, persons

with disabilities as well as marginalized social groups of the social.

As mentioned in the draft plan of Rashtriya Uchchattor Shiksha Abhiyan (RUSA) most stress should be on development of action plans both states as well as institutions with special consideration of guidelines for equity based development. Any growth in higher educational sector must create opportunities for women, disadvantage classes and differently abled. Also development must have a greater focus on serving the rural and tribal areas. The plan appraisal process would take this aspect into account which deciding the allocation of money. Special interventions through innovative strategies will be encouraged in the whole implementation process. Well standardized equity strategies must be formed in the entire planning.

At present, the Government of Assam has provided for free admission for the students whose parents income is below of Rs.1.00 lakh only per annum from all sources. Definitely it is an encouraging initiative taken by the Government of Assam in motivating the economically poor students toward education and achieving equity dimension in education.

#### **EQUITY THROUGH 12<sup>TH</sup> FIVE YEAR PLAN IN NORTH-EAST:**

The North-East region has special challenges which need new and innovative solutions. It has enormous developmental potential, but it's growth has been slow. Development of infrastructure, better connectivity, greatly improved access to trade with the rest of the country. The low level of private investments in the region are due to the perception of limited opportunity and difficult logistics and access.

There is good potential for development of hydropower in Arunachal Pradesh, Sikkim and other states of the region. Development of road infrastructure is critical for faster completion of many of these power projects because movement of heavy equipment to remote areas is not possible without an effective road linkage. There are other business opportunities within North-East Eastern States especially Assam, Tripura, Meghalaya, Mizoram, Manipur and Nagaland with Bangladesh and South East Asia. Development of waterways transport coil also generate economic activity in the regions. Tourisms is another high potential area which can be developed with tourist circuits to showcase the culture, history and immense natural beauty of the area. Expansion of railways and air landing strips can help development of a regional transport network which is essential for improving connectivity of the region.

## CRITICAL ANALYSIS OF EQUITY:

Providing equity is not enough the people must be able to receive the equity at all levels of education. For this awareness among the parents and adults is very important. Our constitution provided equality to all but still it's goal is not achieved. Inequality is there in different aspects. There is provisions of reservation but it should be on economic ground because all SC / ST / Minorities are not poor and all Brahmins are not rich. Enrollment specially in higher education must be on merit basis. Equity principles must be followed instead of equality. The need of different people, different group is different. So, same treatment is not beneficial to all. Along with equity, Access is also very important. Thus, 12<sup>th</sup> five year plan intense to ensure universal access and enrolment. Sarva Shiksha Abhiyan (SSA) stress on for areas including addressing residual access and equity gaps. ■

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Khoj: Vol. VIII, 2016

ISSN No. : 2278-5272

## A Sociological Study of Mishing Tribe of Assam : Need for New Development Approach

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In the tribal scenario of Assam there are 14 hills scheduled tribe and also 9 plains schedule tribes. The list of plains scheduled tribes comprise viz., Barman in Cachar, Bodo Kachari, Deori, Hojai, Kachari Sonowal, Ialung, Mech, Mishing and Rabha. Among these plains tribes numerically after the Bodo the Mishing is the second largest tribe in Assam. The Mishing constituted 2.07 percent of the total population of Assam up to 1991 (Das, 1994: 4). The state of Assam is the melting pot of diverse race and cultures at different historical periods. Racially the people of Austrics, Aryans, Mongoloids, Negritos etc. had the penetration in Assam and at different points of time the configuration of the same has helped for the formation of the great Assamese Community. Linguistically, also these different racial groups spoke different languages of Aryans, Monkhmer and broadly Sino-Tibetan families. As such on a closer examination it has been found by the linguists that the Mishing tribe is speaking language which belongs to the Tibeto-Burman branch of Sino-Tibetan family of language. Physiographically the Mishing tribe is found to be inhabited in the districts of Lakhimpur, Dibrugarh, Sibsagar, Jorhat, Golaghat and Sonitpur. One of the peculiarities of the Mishing tribe is that they lived mostly in the riverine areas and they are well adapted to these areas for their living after migrating from the hills of present Siang and Subansiri districts of the present Arunachal Pradesh. The whole area of the Mishing habitat lies approximately between 93° E and 97° E longitudes and 27° N and 28° N latitudes. Because of their preferences to live in the riverine areas of the above stated districts of Assam which are criss-crossed by the tributaries of the mighty

river the Brahmaputra which is flowing from east to west in the Brahmaputra valley and which has length of approximately 700 kms. and breadth of 52-60 kms.; they are known as riverine tribal people. Now the whole gamut of the problem of the development / modernization lies in the Mishings settings because of the frequent occurrences of flood every year during the rainy seasons. Due to the ravages of the floods every year the landscapes of the Mishing settings are changing through the formation of new dales and wiping out of the earlier ones and this situation force the Mishing people to shift their dwelling houses in search of safer places from one place to another. This transitory nature of their dwelling pattern puts a stumbling block in the initiation of the different development and modernization programmes in their habitats though the problem is not created by them, rather it is the wrath of nature in which they are the victims as flood is perennial to them. Hence, an attempt is made in this paper to make a taxonomical exercise about the defects of the different developmental programmes which are initiated by the central as well as state governments in a blanket pattern in all tribal areas of pan India including the areas of the Mishing tribe. While making taxonomical exercise other concomitant factors like socio-cultural system, language, and other problems of the Mishing tribe are also taken into consideration.

However, before going straight into the problems at first in a kaleidoscopic way an effort is made to discuss the Mishing ecology in general covering their housing pattern, socio cultural system and their language problem as mentioned in the earlier paragraph.

As stated earlier, the Mishings are the riverine people and to protect themselves from flood which comes almost every year they construct their houses with the raised platforms which are five feet above the ground. The length of the houses is generally 20 to 60 metres in length and 10 to 15 metres in breadth. The houses are rest on wooden poles and the raised platforms are made of split bamboos and roofs of the houses are covered with thatches. In front of every Mishing house a spacious verandah is also constructed for sitting purpose which is nothing but the extension of the raised platform of the main house without side walls. The long rectangular shaped house is thinly partitioned in to several rooms for each individual family keeping an open passage from front door to the rear door. In a typical Mishing house persons ranging from 40 to 125 Nos. are found to reside. It is possible because in the Mishing society the joint family system is widely prevalent which might be due to their ecological settings as more hands are required to withstand the wrath of natural calamities like flood which compells

them to shift their houses from one place to another due to the change of landscape and also to acquire minimum sustainable food items by the different members of the households – both male and female members to save them from starvation.

From the above it is clearly visible that the Mishing ecology itself called for area specific development approach because the geomorphology of the Mishing is not static but changeable every year.

The concomitant problems like the socio-cultural practices of the tribe is also not congenial and also adaptable to augment any developmental / modernization programme more specifically in their economic sphere. The Mishings are always living in a Mishing culture area where still efficient utilization of time for various economic activities is still lacking. They are basically agriculturists and they cultivate mostly rabi variety of paddy during winter – through broadcast method as in summer their cultivable fields are under heavy flood. Because of traditional plough cultivation, using draught animals, absence of high yielding varieties of seeds, frequent changing of sub-soil characteristics due to the ravages of floods, the production of paddy is not sufficient for many Mishing households in various Mishing inhabited areas of the different districts of Assam. The frequent change of sub-soil characteristics of the cultivable fields of the Mishings where they raise their crops puts them in a very dreadful situation and many a times their survival is put under threat. This is a situation which negates the implementation of different development / modernization programmes in the agricultural sphere through the input of modern technologies viz., using of inanimate sources of power (tractor, power tiler etc.), irrigation facilities, hybrid varieties of seeds, fertilizers to get maximum out put from the areas cultivated by them. Our various field studies in the Mishing villages of Jorhat and Sonitpur districts showed that mechanization of agriculture in the Mishing dominated areas under different development programmes could not get any momentum as was expected mainly because of frequent changes of sub-soil characteristics as the perennial floods always change the sub-soil of the cultivable lands of the Mishings and at times it is observed that the highly productive lands which are loamy in nature turn into unproductive sandy land after occurring a flood. As such blanket pattern of the input of modern technologies in the agricultural settings of the Mishing dominated areas proved ineffective. The tractors, power tillers, and other mechanization process of agriculture may not be beneficial for effective cultivation of crops- paddy and other cash crops etc. in the ecological settings of the Mishing tribe in general though under different plan periods various schemes were adopted



under the auspices of Integrated Tribal Development Project for the upliftment of the tribal dominated areas of the country. Hence, it is noticed that under blanket pattern of the introduction of different schemes for development in the Mishing areas also specially in the field of agriculture through input of modern agricultural machineries like power tiller, tractors, diesel engine shallow tube well are tried but the response from the Mishing people is not up to the extent as it is expected. The main reason is the frequent changes of their ecological settings and further ironically it is also revealed in our field study that most of them are not in a position to mortgage their cultivable and other land to the financial institutions for getting various loans earmarked for beneficiaries to purchase the above stated agricultural machineries even if some of them are found interested as the land tenure systems of the Mishing dominated areas are different than that of the other cultivable areas held by the non-Mishing cultivators and the systems are proved ineffective in making input of the agricultural machineries for modernizing agriculture by the Mishing cultivators. Our field study showed that in Banhfala and Neul Mishing villages of Jorhat sub division, Namoni Borpamua Mishing village of Majuli sub division of Jorhat district, Jamuguri, Arimora, Purani Bheti and Teteliguri Mishing villages of Sonitpur district showed that the villagers of these villages do not own cultivable, homestead and orchard land under Myadi Patta agreement (30 years lease). The land in Banhfala and Neul area are the Debottar land (these land are owned by the Satras – a type of religious institution which was established at different times of the Ahom rule in Assam – and as such the Satras are the real owners of land. The agreement regarding land between Satra and Mishing cultivators of the Mishing villages viz., Banhfala and Neul is that the cultivators are owning Eksona Pattas (one year lease agreement). This arrangement of lease is renewed yearly. Because of this arrangement the land do not belong to the cultivators and they cannot mortgage the same to the financial institutions for getting necessary loans to buy agricultural equipments. In village Namoni Borpamua also the Mishing cultivators are not having land under Myadi patta – 30 years lease agreement. They are cultivating the govt. land which are known as Torjubad land govt. land given to the cultivators under one year lease agreement. As such the villagers of this village also are not in position to get agricultural equipment through bank finance as they are not in a position to mortgage the land for necessary financing. Likewise, the villagers of Jamuguri, Arimora, Purani Bheti and Teteliguri of Sonitpur district are owning cultivable land under one year lease agreement of the govt. land which are also Torjubad land. This is a serious handicap in modernizing Mishing tribe in general through

the input of modern technology in the field of agriculture under general tribal development programmes undertaken by the central as well as state governments though during our field study we could find many enterprising youths who sincerely wanted to modernize their agricultural production through input of modern technology with necessary finance from banks and other financial institutions.

As stated earlier that the Mishnings are still nourishing the joint family system and as such many of the able bodied male and female persons though engaged themselves in agricultural activities, but a careful scrutiny in our studied villages revealed that a majority of them are under disguised unemployment (Nurkse, 1967) as per capita land is not sufficient to utilize the available manpower to the fullest extent so that the return could be quite sufficient to maintain a parity between input of manpower and output in the form of raising agricultural product.

The Mishing are basically agriculturists and they stick to agriculture as the mainstay of their lives. With the opening up of these Mishing dominated areas by connecting them through development of certain infrastructural inputs like road, electricity, plying of vehicle between urban centre and this Mishing dominated areas helped a few innovative persons to embark upon business ventures like buying and selling of animals – cash crop paddy etc. However our field study which was conducted in 7 villages showed that due to the nonexistent of capital (Cash money) in their hands they are always depending on the middle men for selling their product and also other items of sale. As result a huge amount of profit is syphoned away by the middle men from these Mishing business men. Concomitantly, their cultural practices are not effective for attitudinal changes – to make them time conscious as well as profit conscious when some one is started engaging himself in business activities and also to develop innovativeness for opting better way of life. It has been found that in our studied village settings of the Mishing tribe a few male persons are engaged in business like buying and selling of animals like bullocks, pigs etc. but these business ventures are not rewarding enough for them. For example a person had to engage himself for buying pigs or bullocks from his own village or surrounding villages and after that he sells these in local hats and bazars. It has also been found that while searching the animals for buying the same a person had to spend two full working days and when he later on sale it many a times his profit margin does not compensate him enough at the prevailing minimum daily wage rate being given to a daily wage worker who is working in private or public enterprises.

Our field study also showed that the Mishing people in the studied village

settings are yet to develop venturesomeness (Rogers, 1962). Because of the lack of venturesomeness the Mishing people in the studied village settings are suffering from sub-culture of peasantry (Rogers, 1969: 25-38) and modernization syndrome. The sub-cultures of peasantry pointed out by Rogers (1969) were as follows :

Mutual distrust in interpersonal relations, perceived limited good, dependence on and hostility towards govt. authority, familism, lack of innovativeness, fatalism, limited aspirations, lack of deferred gratification, limited view of the world and low empathy. These sub-cultures are found among the people of the studied village settings. As such from micro generalization of our field study has helped us to make a macro generalization on the foci of the problem of modernization and this calls for the new development approach which would be dealt in the posterior paragraphs.

Another concomitant problem for modernization among the Mishings is their education. No doubt, the education is considered as one of the primary forces of social change and modernization. In the sphere of formal education the picture of the formally educated Mishing persons is quite dismal. Our field study which was conducted on 7 Mishing villages of three different districts showed that around 50-60% of the population were found to be illiterate, around 20-25% of the population of the studied villages were found educated up to primary level, around 15-20% of the population of the villages were high school dropouts. A very negligible number of persons i.e. 1-2% of the population were found to be educated up to college level in the studied village settings. The numbers of graduates, post graduates and other vocationally educated persons comprised hardly between 0.15% - 0.20% of the total populations of the studied village settings. As such it can be seen that the formal education which is considered as motor of modernization process, the vast majority of the Mishing population are still lagging behind in getting themselves educated formally and thereafter to tread the path of modernity.

While making a taxonomical exercise on the problem as to why the Mishing people are lagging behind in educating themselves properly, it has been found that certain socio-cultural factors are acting as hindrances for getting themselves formal education up to a certain expected level. These socio-cultural factors are described as under:

- (a) The Mishings in their own houses or in their villages for conversation purpose use their own mother tongue which is completely different from

Assamese language. Barring a few minor classes at primary level in the rest of the classes of primary level the medium of instruction is Assamese. This is a major hindrance for the Mishing children as they are not habituated in speaking Assamese language in their early childhood as the Mishing language dominates as the main lingua franca in their households and villages right from the primary level of education, in reality they take Assamese language as the second language. As such mastery over the Assamese language in many cases of the Mishing children do not become possible which results high dropouts at the primary level itself.

- (b) In the high school stage the conditions of the Mishing students become more deplorable as they are to take English as one of the principal language for their studies. Already at the primary level in case of many Mishing primary students, Assamese as a secondary language acts as a bar to education and now the earlier Assamese language dovetailed with the English language cause further damage in their educational career for the reason that they cannot make themselves at ease in reading and writing of both the languages. This is another reason for which the rate of dropouts is more in high school and college levels of education in case of the Mishing students.
- (c) In case of other vocational as well as specialized education like engineering, medical sciences etc. require good command over English language which somehow is not possible for a great majority of the Mishing students. Except a few negligible number of Mishing students who could educate themselves in professional courses till now the trend of educating in professional courses by the Mishing students themselves is not at all healthy.

From the above it could be seen that for development of the Mishing tribe needs a new approach which should be congenial for their all round development. This issue is discussed below.

First the educational system which is at present continuing in the Mishing tribe dominated areas should be properly tuned to attract the psyche of the Mishing students right from primary level to atleast to the secondary level of education. The medium of instruction if necessary like that of the Bodos of Assam should be restricted only to the two principal languages -either Assamese and English or Mishing and English. In the Bodo dominated areas they have accepted Bodo and English as their medium of instruction up to secondary level. Such exercise could

be made in case of Mishing dominated areas by accepting Mishing and English as their medium of instruction. However, in doing so sincere efforts should be made to write text books in Mishing language which would be required at different classes of primary as well as secondary level. The necessary manpower needed for teaching at various levels in different schools of the Mishing dominated areas should be sufficiently available and the concerned education departments should pay greater attention in meeting the total requirement of the teachers needed for the schools of the Mishing dominated areas. The infrastructural facilities of the educational institutions of the Mishing dominated areas should be properly developed with necessary funding from the state government. It is widely accepted that education is the precursor to the development process/modernization, as such right from the present if the Mishing youths are given good exposure to formal/ vocational education then it would help for widening their mental cosmogony. Further education would inculcate in them the spirit of venturesomeness which is the key psychological factor of modernization of a community.

Secondly, the state government should draw area specific planning for development of different ecological settings of the Mishings by including the local people of the particular areas for which plans of development to be chalked out so that the local people with their own experience could guide the planners for making effective planning. Further the local people should be given opportunity to engage themselves at the stage of implementation of the planning process. This would pave the way for faster development of the different Mishing dominated areas as the local Mishing people would treat themselves as actors in the planning as well as implementation processes. In various facets of the modernization of the Mishing tribe the area specific planning for area specific development should be taken as foci, as one Mishing ecological setting is different from another Mishing setting. Further, it is to be noted that while making input of modern technology in the sphere of agriculture and allied area in Mishing dominated areas ecologically specific and viable technologies should be made as inputs. In this process local youths should also be taken into consideration e. g. in case of boat making.

Use of non conventional energies like wind energy and solar energy have got good potentials in providing electricity to the community halls -commonly known as 'murungs' which in turn could be used for lighting of the halls and providing power to run televisions, community radio sets etc. in different dales of the mighty river the Brahmaputra and its tributaries where these Mishing tribal people usually live.

Agro-plantation has got good potential in the Mishing dominated areas. Planting of fast growing species like *Bombax Malabaricum* would provide income to the Mishing tribal people in their respective areas within a very short span of years as it is observed that this specie is growing well in the ecological settings of the Mishings. The wood of this tree is mainly used for match sticks. Cottage industry like match splint industry based on the systematic plantation of this specie has much scope in the Mishing dominated areas. Cultivation of cash crops like *Cajanas cajan* citrus fruits like *Kordoi* and similar varieties and the canning of the juice of the same may bring good income to the Mishing tribal people.

In the Mishing dominated areas, different varieties of fresh water fish are abundantly available in seasons. If these fishes could be dried by using waste heat drier-driers run on agro-wastes like left over stalks of paddy in the paddy fields after reaping may be packed and transported to the market heads for getting immediate cash income.

To conclude, it may be pointed out that while above few inputs would be effective along with development of infrastructures ranging from communication, education, power etc. provided 100% sponsored development for a period of minimum five years with all necessary inputs should be made from the state as well as central governments; only then like 'oil stain' (Wertheim, 1964) the development/ modernization process would augment in the Mishing dominated areas. ■

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## Swachh Bharat Abhiyan and its Implementation by Municipal Corporation- an Overview of the Present Scenario of the Mission

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India, is on the verge of development, yet it is matter of disappointment that although it has been advancing in rapid pace in technology, industrialization, etc, still its lacking behind when it comes to cleanliness. Cleanliness here doesn't regards to cleanliness of religious activities or kitchen. It's not in our behavior to keep our surrounding clean and sanitized. At the most we keep our own houses clean and it is of no concern of ours to be careful about streets, lanes, parks or other public places. Even after many years of Independence, it is really shameful that Indians are famous for their unhygienic behavior.

Recently, a new Government has come into power and one of its main priorities are to make India clean. And for the same objective, the Government has launched a scheme in the name of "*Swachh Bharat Abhiyan*". The Government has associated the Abhiyan with Father of Nation, Mahatma Gandhi as he was a great champion of the cleanliness cause of the country and throughout his life was involved in activities related to sanitation and hygiene.

### About Swachh Bharat Abhiyan :

Swachh Bharat Abhiyan is also called as the Clean India Mission or Clean India drive or Swachh Bharat Campaign. It is a national level campaign run by

the Indian Government to cover all the backward statutory towns to make them clean. This campaign was officially launched by the Prime Minister, Narendra Modi on 145<sup>th</sup> birth anniversary of the Mahatma Gandhi on 2<sup>nd</sup> of October, 2014 at Rajghat, New Delhi.

The aim of the mission is to cover all the *rural and urban areas of the country* to present this country as an ideal country before the world. It is the biggest ever cleanliness drive in the country. The goal now is to achieve Swachh Bharat by 2019, by improving the levels of cleanliness in rural areas and making Gram Panchayats Open Defecation Free (ODF). Specific

### Objectives are:

- Elimination of open defecation.
- Conversion of insanitary toilets to pour flush toilets.
- Eradication of manual scavenging.
- 100% collection and scientific processing/disposal/reuse/recycling of municipal solid waste.
- A behavioral change in people regarding healthy sanitation practices
- Generation of awareness among citizens about sanitation
- Supporting urban local bodies in designing, executing and operating waste disposal systems.
- Facilitating private-sector participation in capital expenditure and operation and maintenance costs for sanitary facilities.

SBA has 2 sub-Missions -

1. Swachh Bharat Mission (Gramin)
2. Swachh Bharat Mission (Urban).

### About Swachh Bharat Abhiyan :

There is no doubt about the fact that Prime Minister Narendra Modi's Swachh Bharat Abhiyanas awakened the spirit of cleanliness among the citizens of the country, especially of the urban India. There is no doubt about the fact that the message of maintaining cleanliness and hygiene has reached the ears of thousands of people all across the country.

The cleanliness campaign has its doses of glamour and publicity too with

many celebrities, bureaucrats and politicians joining in the mission, wielding the broom in front of the camera, and this has also become a fashionable idea of the elite and middle classes to pose, click and upload as a part of the Swachh Bharat Abhiyan.

Yes, agreed, each and every citizen has the responsibility to keep the surroundings clean for the community's own well-being.

Yet, it's also time now to address certain fundamental and structural issues that act as barriers to the country being more clean and hygienic. Take the case of the national Capital; it is a matter of fact that there are paid workers in massive numbers, fake and real, called safai karamcharis to maintain cleanliness in the city. The Delhi High Court has criticized and blamed the MCD for not carrying out the Swachh Bharat campaign in a proper manner and wasting public money as the safai karamcharis are not doing their job. In such a condition, it will be a big problem to make the abhiyan a success in the national Capital. It has been reported that in Delhi, there are more than 50,000 municipal safai karamcharis and more than 11 lakh safai karamcharis across the country. The judges said, "If there is safai karamcharis posted in every municipal zone, then why there is no cleanliness? Swachh Bharat Abhiyan is not going to kick off in this manner." The bench also added that safai karamcharis should not consider their duty as a simply 9 to 5 job. It is necessary that the municipal magistrates should check and monitor the cleaning done by these Government karamcharis or workers.

#### Conclusion :

So, it can be said that the campaign that started with a positivity is on the pavement where it would get loads of hurdles and obstacles yet, if the municipal authority also does its duty well than the Abhiyan will be soon become a successful one. ■

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## Emerging trend of Women Entrepreneurship and Its Impact on the Women Workers of the Tea Gardens of Assam

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### I. Introduction:

A 'Woman Entrepreneur', in general terms, can be defined as any individual woman or a group of women, who initiate, organize and operate a business enterprise. Government of India has defined women entrepreneurship as an enterprise owned and controlled by a women having a minimum financial interest of 51% of the capital and giving at least 51% of employment generated in the enterprise to women.

Women entrepreneurship has been recognised as an important source of economic growth of a country. Women entrepreneurs create new jobs for themselves and others and also provide society with different solutions to management, organisation and business problems. However, they still represent a minority of all entrepreneurs. Women entrepreneurs often face gender-based barriers while starting and growing their businesses, like discriminatory property, matrimonial an inheritance laws and/or cultural practices; lack of access to formal finance mechanisms; limited mobility and access to information and networks, etc.

### II. Objectives of the Study:

1. To know about the raising trend of women entrepreneurs in the state of



Assam.

2. To understand the problems faced by women entrepreneurs in establishing an industry.
3. To know about the impact of the women entrepreneurship on the women workers of the tea gardens of Assam.
4. To find out the remedies and give suggestions.

### **III. Area of Study:**

The study will cover the women entrepreneurs as well as tea garden women workers of Dibrugarh District only.

### **IV. Hypothesis:**

The study will be based on the null hypothesis that the concept of women entrepreneur is quite negligible amongst the women workers of the tea gardens of Dibrugarh District.

### **V. Collection of Data:**

The data about employment pattern of women workers has been collected from the following tea estates:

1. BASMATIA TEA ESTATE  
P.O.: Lahool, Dibrugarh - 786010
2. DESAM TEA ESTATE  
P.O.: Kalapani, Dibrugarh - 786610
3. TINKONG TEA ESTATE  
P.O.: Tinkong, Dibrugarh - 786612
4. RAJGARH TEA ESTATE  
P.O.: Rajgarh, Dibrugarh - 786611

The sample tea gardens are randomly selected under Dibrugarh District. These four sample tea gardens are selected at random irrespective of their ownership pattern and sizes. The primary data are supported by secondary data collected from books, publications of leading journals both published and unpublished thesis, Govt. bulletins etc. The primary data are collected by interviewing 50 women workers each from all four sample tea estates with the help of Interview Schedules and Questionnaires prepared for the purpose.

### **VI. (a) Brief Profile of Dibrugarh Town:**

Dibrugarh is situated on the banks of the Brahmaputra River, in Upper Assam, India, about 435 kilometres (270 mi) north east of Guwahati. It is the gateway to the three tea producing districts of Tinsukia, Dibrugarh, and Sivasagar. These three areas account for approximately 50% of India's Assam tea crop and this gives Dibrugarh its rightly earned sobriquet as the Tea City of India. Oil and Timber are the other big two industries in and around Dibrugarh.

### **VI.(b) Dibrugarh District Population 2011:**

In 2011, Dibrugarh had population of 1,326,335 of which male and female were 676,434 and 649,901 respectively. In 2001 census, Dibrugarh had a population of 1,185,072 of which males were 613,555 and remaining 571,517 were females. Dibrugarh District population constituted 4.25 percent of total Maharashtra population.

### **VI (c) Economy of Dibrugarh District:**

Tea and oil are the major revenue earners for the district. Dibrugarh is the largest tea exporter in India. It has the largest area covered by tea gardens. The entire district is surrounded by tea plantations and has tea factories. Many tea gardens are of more than 100 years old. A few of the major tea gardens are: Bokel T.E., Mohanbari T.E., Alimur T.E., Jalannagar (N) and Jalannagar (S) T.E.s, Borborooah T.E. etc. The majority of the population are farmers and tea garden workers.

### **VII. Development of Entrepreneurship in the North Eastern Region of India:**

In the North Eastern region of India, designed and methodical efforts in entrepreneurship development began in the 70's and Assam is the pioneer in this field. In 1973, Assam started a novel experiment on entrepreneurship development by setting up district level agencies known as Entrepreneurial Motivational Training Centres (EMTC) to identify, select, and train prospective entrepreneurs and provide them all support services to start and run their enterprises.

Entrepreneurship is a difficult undertaking as it calls for innovative ideas, risk-taking, strong business acumen and effective leadership in all aspects of business. It's a challenging role for a woman but growing sensitivity towards the role of a thinking individual and increasing economic independence has made it possible today for several women to don the entrepreneur's hat.

The modern concept of women entrepreneurship took shape in this

region of the country from the eighties. Contrary to the popular notion that women from the north east are still backward, they have come a long way now and have established themselves as successful and thriving entrepreneurs not only in the region but also beyond the boundaries of the nation.

Like most women entrepreneurs in India, these women from the NE region have also embarked on their entrepreneurial journey in a relatively smaller scale, mostly based out of their homes. They began with traditionally women-oriented business like beauty and well-being, garments, fashion, handloom and handicrafts etc, mostly without any formal training or a rigid business framework.

Women from the region have realized the potential resources of the region and have initiated various entrepreneurial activities in order to tap the natural wealth of the region.

Handloom and Handicrafts have been playing an important role in the economies of the NE states. According to a study sponsored by NEDFi (2002), NE contributes 19.18% of total number of handicrafts units in India, 21.71% in terms of artisans and 79.58% in terms of value of production. Every state in the region has some unique items of production that have been highly appreciated within the country and also abroad. Handloom and handicrafts products from the NE have excellent brand value.

#### ***VIII. Development of Entrepreneurship in Assam:***

In Assam, industries like tea, cane and bamboo, pottery, metal works of brass and bell, wood carvings, weaving and toys have immense prospects. The work of making Japi is also popular in Assam. Furniture pieces of cane and bamboo are exclusive to Assam and are exported. The skill of Terracotta makes everything including idols of Gods and mythological creatures and the pottery tradition in Assam results in wonderful items like earthen pot and pitchers, plates, incense stick holders and earthen lamps. Assam also fashions many types of toys like clay toys, pith, wooden and bamboo toys, cloth toys, cloth-and-mud toys. Besides, Cotton, 'Eri', 'Pat' and 'Muga' Silk are the weaving heritages of the region.

#### ***IX. Findings:***

Hunger deaths, domestic violence, low wages and other health concerns like stress and malnourished tea pluckers are serious cause of concern. Surveys conducted by various NGOs have found out that being underweight and anaemic is very common amongst the women folk, while infant and maternal mortality rate

has always remained high. On the other hand, deaths have occurred due to the excessive consumption of alcohol (locally prepared). Many a times hunger or starvation deaths have also been reported, which is so because of the abandoning of the workers by their respective tea garden owners or manager without paying their dues and salaries, when they aren't able to find alternatives to earn their livelihood. Work liberty totally depends upon the nature of work and the mercy of the tea garden managers or owners. The minimal wages to the labourers and full time work don't allow them to get access to proper medical facilities and nutritious food and additional work engagement. The workers sometimes being unable to bear the burden of maintaining their children are compelled to send them to neighbouring town and villages to work as domestic help or as any other unskilled labourer. This leads to a large number of school dropouts, ultimately creating an unskilled labour force for the country. The general appearance of the tea pluckers is sickly and lustreless as they are overburdened with work and lot of stress. Illiteracy and over burden of work do not allow any women worker to think beyond their present employment. Starting up of any enterprise of their own is a far reaching dream for them. The owners/ managers will never allow their worker to go for another enterprise of any sizes as they are afraid of losing chief labour force. The NGOs can play a significant role to create awareness specially the women workers about their rights, available work opportunities and power in this regard. They can organise workshops to literate women workers. We hope, once they are awakening, they would come up to start up or join women based enterprises which will certainly help them to better up their economic conditions.

The present study, based on the null hypothesis that the concept of women entrepreneur is quite negligible amongst the women workers of the tea gardens of Dibrugarh District holds good here.

#### ***X. Suggestions and Conclusion:***

The tea industry of Assam is more than 180 years old by now. The cultivation of tea on small holding is comparatively a recent development. This Small tea cultivation is an integral component of large scale tea industry of the entire state by producing nearly 25 per cent of total tea production of the state. It provides ample avenues for self employment of educated unemployed youths besides engaging family members. In many empirical researches, it has been observed that small scale tea cultivation was widely recognized as an integral part of economic development of many countries and region of the world. There is a large scope for entrepreneurial involvement as it provides employment,

generates income, wealth and act as a key force for economic growth of a region. It has also been found that there are 68,465 Small Tea Growers in Assam contributing nearly 5 lakh families associated with small tea plantation. It has the potentiality of the transform of socio-economic condition of rural Assam. The cultivation of tea on small holding is the green revolution of Assam which empowering many people for the first time and rejuvenating the state's economy. These private initiatives taken up by small tea growers may cultivate the spirit of entrepreneurship and would strengthen the backbone of the rural economy of Assam.

The women workers may opt for other engagements such as opening up of small scale or micro industries such as pickle, spices, papad, candle, incense stick, bamboo furniture, cane furniture etc. Generally these small industries require less financial burden with better scope for improvement. Govt. can play a significant role in providing finance to such women workers with less interest rate through different subsidies and schemes. Once the women accept new opportunities and challenges, they will never look back and set example for other women.

It is a truth that there are gender prejudices almost everywhere. There is also constant competition and antagonistic approach from their male counterparts that make things more difficult for them. It is not an easy path to tread upon but there are several women entrepreneurs in India who have made their mark against all heavy odds, social pressures and cultural shackles. Great people like Mahatma Gandhi also actively encouraged women's participation in public life as he said, "Woman is the companion of man gifted with equal mental capacities. She has the right to participate in the activities of man...." Hope, the future of women will be bright with equal respect and opportunities to men in our society.■

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## Ethics in Insurance Selling: A Case study of selected Insured in Dibrugarh Town

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#### Abstract

India is a vast country with a huge population base of 125 crores. These 125 crore people are a treat to any of the financial service providers, be it Insurance, Banking, Mutual Fund Agencies and the like. But the fact is, tangible goods like soaps, toothpastes, furniture, land, building, etc, are only demanded by people. They feel the need for buying these products. But it is not the same with Intangibles like Insurance and Life Insurance in particular. Life insurance penetration in India is still very low. There are public and private insurance companies that are all trying to reach potential customers using various means and ways. It has been rightly said that "Life Insurance is sold, not bought." People themselves do not feel its importance and requirement unless some forcibly explains the benefits of purchasing insurance. Not many people understand what insurance is and how it works. Moreover the fruits of insurance are recovered after a long period as compared to the tangible products; hence it is not that lucrative for people. Traditionally agents have pushed sales of life insurance to a great extent both ethically and unethically.

Therefore, this paper is an attempt to analyse the behaviour of Insurance Agents in selling insurance. It also tries to find out the effect of ethics on the reputation of Insurance Companies. The data for the paper has been collected using both primary and secondary sources.

**Keywords:** *Tangible goods, Intangibles, Selling, Insurance, Life Insurance, Agents, Ethics.*

## 1.1 Introduction:

Selling is both an art and a science. It is an art in the sense that every sales person brings his own distinct style in the way he communicates, builds rapport and relations with prospective buyers, engages in the fact finding and presents solutions. It is easy to market and sell tangible daily necessities like bread and butter, FMCG like soaps, toothpastes etc. because these are demanded by people. But to sell an idea like Life Insurance- a promise that would be realised only in the future is not an easy task. Till 1993, Life Insurance Corporation of India was the only player in the market for all Life Insurance needs. Thereafter, the Malhotra Committee was set up to explore and recommend changes for development of the industry including the reintroduction of an element of competition in the form of entry of private players. Hence, Life Insurance Industry today stands as 24 insurance companies registered as "Life Insurance" companies. In the era of cut-throat competition, these companies with their Sales force are all set to penetrate the Indian market in a very responsive manner. It is typically the sales person who has to go to the prospect and induce the need to buy. Here ethics come into play. Ethics is used to denote a set of principles for morally correct behaviour. In selling, ethics implies acting with honesty and integrity in one's all dealings with customers and all other associates.

## 1.2 Objectives of the study:

- 1.2.1 To throw light on the insurance selling practices by Insurance agents.
- 1.2.2 To find out the satisfaction level of customers in buying Insurance.
- 1.2.3 To find out the effect of ethics on Insurance companies.

## 1.3 Research Methodology:

The paper is descriptive and analytical in nature. Database comprise both Primary as well as Secondary sources.

Primary data have been collected through a detailed questionnaire which has been designed for distribution to Life Insurance Industry customers who are in possession of at least one Life Insurance Policy. Convenience sampling technique was used for this, Sample size being 50.

Secondary sources like books, magazines, journals and internet sources have also been referred.

## 2. Significance of the study:

The Life Insurance Agents/Life Advisors mounted with pressure of increasing

Sales targets, sometimes act unethically and sell products not as per customers' needs but as per his/her own needs that would be helpful in attaining targets. The result of this mis-selling is that the agents who have mis-sold sooner or later lose all their credibility in the market as customers who have had bitters experiences bad mouth about them to others. Moreover, the companies and the industry as a whole get a bad name and this is reflected in loss of business and decline of growth. Mis-selling can have adverse effects both for the company in terms of reputation and the individual agent through the erosion of trust. Therefore, the study finds relevance in verifying the behaviour of Insurance Agents whether they sell with ethics or without ethics.

## 3. Ethics in Life Insurance:

Ethics is derived from the ancient Greek word 'ethos' which means customs or habits. The term "ethics" is the study of whatever is right and good for human beings to run their life smoothly. Wikipedia defines business ethics as "a form of applied ethics or professional ethics that examines ethical principles and moral or ethical problems that arise in a business environment". Insurance business is totally based on trust between insurers and the insured as it involves Utmost Good Faith.

The foundation of insurance contract is based on integrity, trust and expectation that the insurer will pay the amount which was promised to be paid and in the manner understood by the insured. In most cases, the customer is convinced to purchase a product which he does not understand or enter into a contract that he or she has not read nor would understand if he had read. The structure of the insurance industry is such that, most of the agents are paid incentives on attainment of minimum target of sales. In their anxiety to fulfill targets, agents sometimes do not provide clarity to customers as regards the policy terms. Hence, they act unethically.

At the time of selling the policy, it may happen that the agent had not misinformed the customer, but at the same time did not explain the clear implications of the terms of the policy either. In this case neither the company nor the agent conveyed anything wrong, but it led to a sale which is not in accordance with the understandability of the customer consequently leading to problems in the future. The pressure to achieve sales targets on agents and other distributions, many a times, results in unethical practices at the grass root level. The existing gap between customer expectations and insurability of risk can be filled by ethical practices of sales personnel.

### 3.1 Why Insurance Agents act unethical?

- Self Interest sometimes morphs into greed and selfishness, which is unchecked self-interest at the expense of someone else.
- Some agents equate moral behaviour with legal behaviour, disregarding the fact that even though an action may not be illegal, it still may not be moral.
- Professional duty can conflict with company demands: a purely self-interested agent would choose that course of action which contains the highest returns to himself or herself.
- Individual responsibility can wither under the demands of the client: sometimes the push to act unethically comes from the client.

### 3.2 Major areas of Unethical behaviour in Insurance sector:

**3.2.1 Misrepresentation: stating one thing as another:** Any advertisement for insurance is considered unfair if it fails to identify the product as insurance and this is applicable to advertisements by the company and its agents. The agent has to comply with the rules at the point of sale such as explaining the exact benefits and features of the insurance product. The regulation mentions that the scope of insurance benefits should be clearly stated in the prospectus that is shown to the prospect.

**3.2.2 Illustrations:** All companies follow a standard format for providing sales illustrations. It is mandatory to provide illustrations with two scenarios, one optimistic and one conservative. It is considered unethical to present only one scenario and suggest that the illustrated one will be correct. According to 2008 IRDA guidelines on ULIPs, the policyholder must sign the business illustration along with the proposal form.

**3.2.3 Replacement:** Surrender, reduced in amount, changed to reduced paid-up insurance, changed to extended term insurance, taking a policy loan to buy a new policy, more than 25% withdrawal from an existing policy to purchase a new policy is not generally in the best interests of the policyholder.

**3.2.4 Advice:** Legal or tax advice imparted by a non-Attorney or a non-CA, an insurance agent for instance is unethical behaviour.

### 4. Analysis of Data Collected from the Policyholders:

NAME OF THE INSURER	FREQUENCY	%
Life Insurance Corporation of India (LIC)	23	46
Kotak Mahindra Old Mutual Life Insurance Co. Ltd	10	20
SBI Life	10	20
HDFC Life	06	12
Birla Sun Life	01	02
<b>TOTAL</b>	<b>50</b>	<b>100</b>

The above table reflects the Name of Insurer of the insuring public from which data was sourced. 23 of these respondents which represent 46% are insured from the Public Insurer LIC, while from the Private Sector 11 respondents are insured by the Kotak Mahindra Old Mutual Life Insurance Co. Ltd. which represent 20%, 10 respondents being insured by SBI Life which represent 20%, 6 respondents are insured by the HDFC Life which represent 12% and only 1 respondent being insured by Birla Sun Life which represents 02% of the total sample.

TYPE OF POLICY	FREQUENCY	%
TERM	10	20
ENDOWMENT	15	30
MONEY-BACK	12	24
ULIP	13	26
<b>TOTAL</b>	<b>50</b>	

The above table reflects the Type of Policy purchased by the insuring public from which data was sourced. 10 of these respondents which represent 20% are Term plan holders representing 20%, 15 respondents representing 30% are Endowment plan holders, 12 respondents representing 24% are Money-back plan holders and 13 respondents representing 26% of the total sample are ULIP holders.



Are you satisfied with the Life Insurance Policy you have?	FREQUENCY	%
YES	34	68
NO	16	32
<b>TOTAL</b>	<b>50</b>	<b>100</b>

The above table shows the level of satisfaction of the insuring public from which data was sourced. 34 of these respondents which represent 68% are satisfied with the policies they have and 16 respondents are found dissatisfied representing 32% of the sample in hand.

Do you think the Life Insurance Agent was ethical in selling the policy to you?	FREQUENCY	%
YES	34	68
NO	16	32
<b>TOTAL</b>	<b>50</b>	<b>100</b>

The above table shows the percentage of the insuring public who feel that the Life Insurance Agent was ethical or unethical in selling Insurance. 34 of these respondents which represent 68% feel that the Life Insurance Agents are ethical in selling the Life Insurance policies and only 16 respondents representing 32% of the sample in hand opine that Life Insurance Agents acted unethical and resort to mis-selling.

If not, what kind of unethical behaviour was adopted by your Advisor/ Agent??	FREQUENCY	%
MISREPRESENTATION	10	63
ILLUSTRATION	04	25
REPLACEMENT	00	00
ADVICE	02	12
	16	100

The above table reflects the kind of unethical behaviour adopted by their Advisor/Agent amongst the insuring public from which data was sourced. 10 of these respondents which represent 63% resort to Misrepresentation in selling, 04 respondents responded that Illustration is the kind of unethical behaviour adopted to sell Insurance to them thereby representing 25% of the sample and only 02 respondent feels that he/she was sold the Insurance policy by the agent through wrong advice. Replacement as an unethical behaviour was not found in the study with any of the respondents.

Would you suggest anyone to purchase a Policy from the same Life Insurer as yours?	FREQUENCY	%
YES	34	68
NO	16	32
<b>TOTAL</b>	<b>50</b>	<b>100</b>

The above table shows that all the satisfied insuring public, that is, 68% of the respondents would suggest others to purchase a Policy from the same Life Insurer as theirs. While the rest dissatisfied lot representing 32% of the sample would not suggest anyone to purchase a policy from their Insurer.

## 1. Findings & Conclusion:

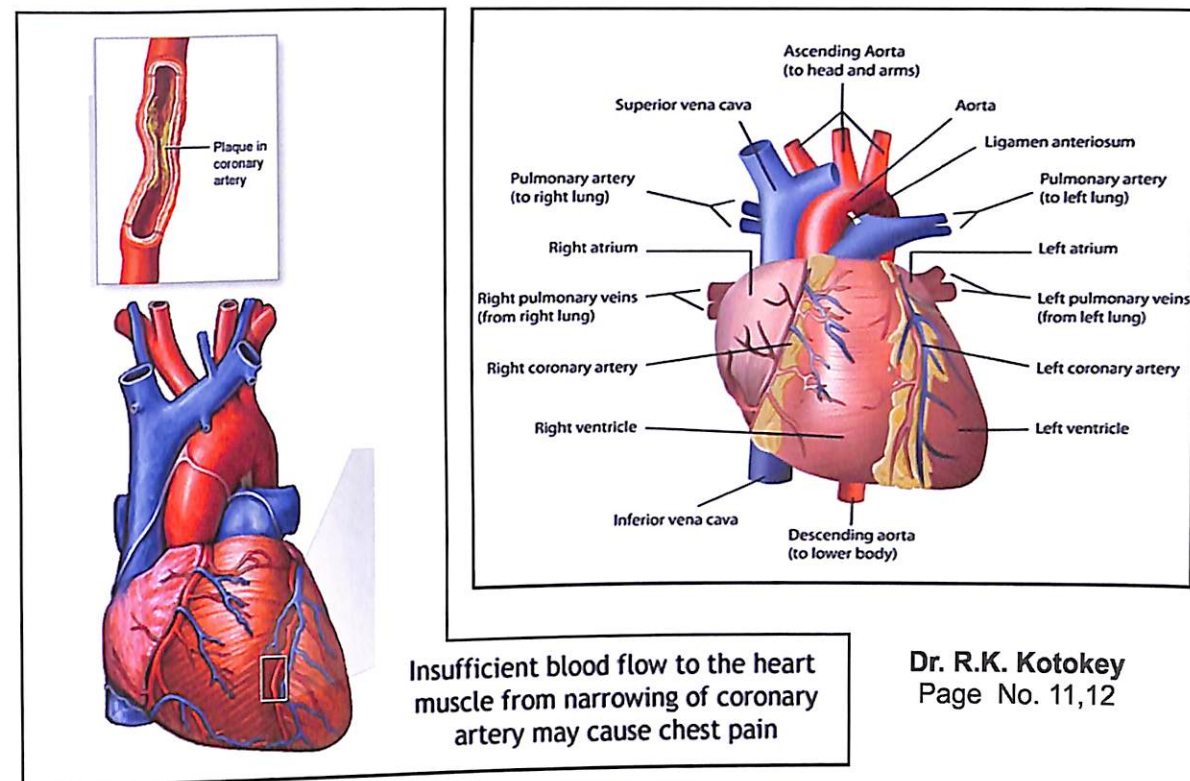
In the context of the presentation of the aforesaid set of data and their subsequent analysis, the paper concludes that Life Insurance Advisors/Agents sometimes act unethically, thereby resulting in Mis-selling which is bad both for the company they represent and the individual insured on the other hand. It is evident that not all policyholders are satisfied with the Life Insurance policies they have, these have been sold to them either through misrepresentation or wrongful illustration or replacement or incorrect advice. As a result, these unsatisfied lot of customers feel that they have been victimised and hence hold a wrong notion about the company directly. They would bad mouth about the company to others which would result in loss of business to other competitors. Hence, this mis-selling should be checked at the company level and correct recruitment of ethical agents should be assured. Some of the measures and suggestions to overcome unethical practices are listed hereunder:

- ♦ Imparting training of ethics to the agents.
- ♦ Aligning the organizational culture to ethical behaviour.
- ♦ Making the policy phraseology simple and understandable.
- ♦ Creating healthy competition among peers.
- ♦ Having a proper commission structure for the intermediaries.
- ♦ Clear communication of company's objectives to customers and implication of its products.

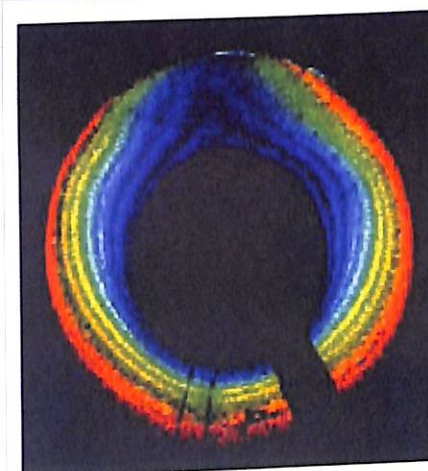
Therefore, every insurance company and its advisors should follow a high standard of ethical practices that can lead by example for other companies to follow. ■

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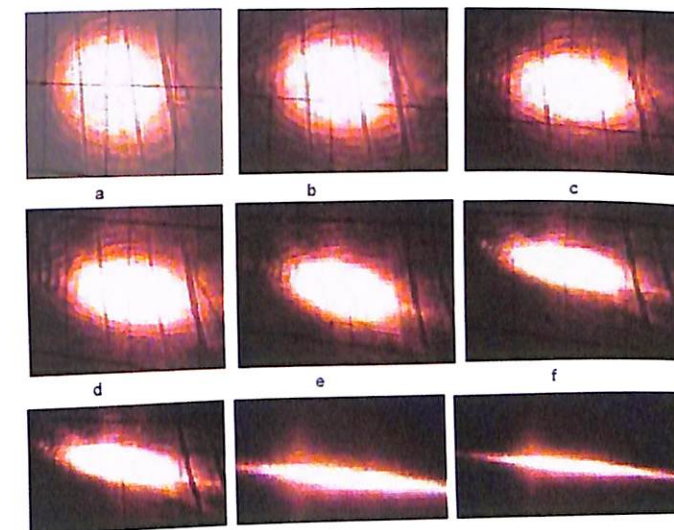
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**Figure 2:** The use of an arc lamp makes it possible to visualize separated isothermal lines for example in annular natural convection - From Charrier-Mojtabi(1993)

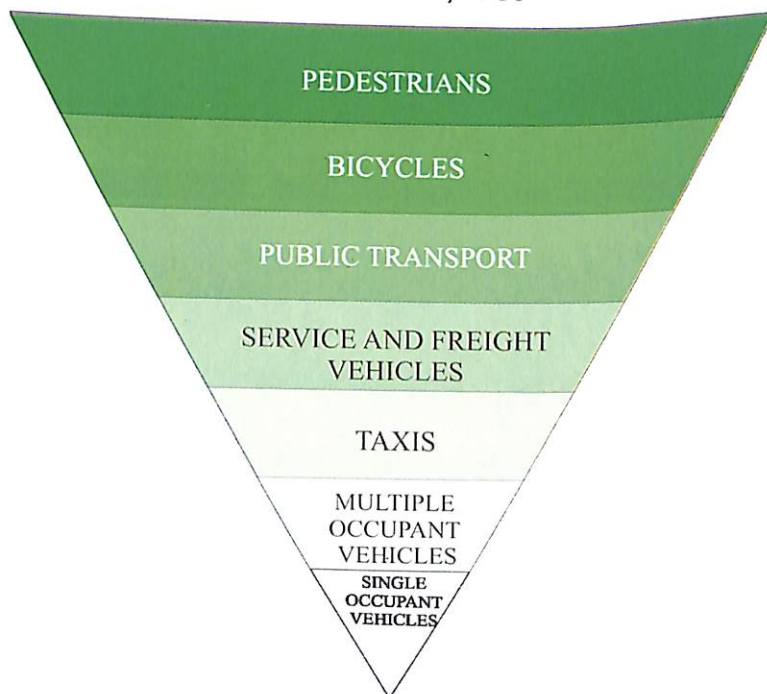


**Figure 3:** Time evolution diffusion fringe pattern in Christiansen cell.





Isthalapadma (*Hibiscus mutabilis*) plant with flower.  
**Atanu Konwar, P. 66**



Green Transport Hierarchy  
**Prasanta Kr. Bora, p. 180**