

# **IMPACT**

## **The Future Makers**



*Vol.3. 2016-17*

**Central Research Committee  
Shri Shikshayatan College, Kolkata**

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**The Future Makers**

**Vol. 3. 2016-17**



**Central Research Committee  
Shri Shikshayatan College, Kolkata**

## **IMPACT VOLUME III**

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## **FROM THE EDITOR'S DESK**

The Central Research Committee, Shri Shikshyatan College, functioning since March 2014, has been bringing out its Journal IMPACT, comprising of articles submitted by students as part of their Summer Project.

This volume in addition to the summer projects has a report on collaborative students' project.

We take pride in presenting the Third Volume of IMPACT. IMPACT is aimed primarily to facilitate research among young undergraduate and post-graduate scholars. The best article, submitted as summer project has been chosen by each department for publication.

The articles, chosen from various streams of study, facilitate an inter-disciplinary scholarly culture that has been a part of the tradition that Shri Shikshyatan College has always cherished and nurtured. We hope to continue broadening the research perspectives through IMPACT.

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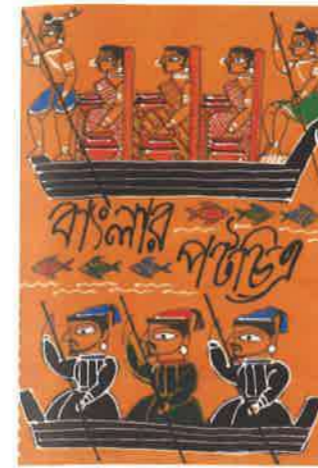
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## বাংলার পটচিত্র

প্রকল্প : ২০১৬-২০১৭ (বাংলা বিভাগ)

গ্রন্থনা : তৃতীয় বর্ষ

সমীক্ষা ও সাক্ষাৎকার : প্রাক্তন (বাংলা বিভাগ)

## পটচিত্র সম্পর্কে কিছু ধারণা

পটের উপর আঁকা চিত্রকে পটচিত্র বলে। ইংরাজীতে একে scroll painting বলা হয়। এটি প্রাচীন বাংলার অন্যতম সাংস্কৃতিক ঐতিহ্য। প্রাচীনকালে যখন কোনো রীতিসিদ্ধ শিল্পকলার অস্তিত্ব ছিল না, তখন এই পটশিল্প বাংলার শিল্পকলার ঐতিহ্যের বাহক ছিল। যারা পটচিত্র অঙ্কন করেন তারা বহুকাল থেকে পটুয়া নামে পরিচিত।

পট শব্দের প্রকৃত অর্থ হল 'কাপড়'। শব্দটির উৎস সংস্কৃত পট। বর্তমানে এই শব্দটিকে ছবি, ছবি আঁকার মোটা কাপড় বা কাগজের খন্ড ইত্যাদি অর্থেও ব্যবহার করা হয়। পটের উপর তুলির সাহায্যে রঙ লাগিয়ে বস্তুর রূপ ফুটিয়ে তোলাই পটচিত্রের মূল কথা। এতে কাহিনীর ধারাবাহিকতা চিত্রিত হতে থাকে। প্রায় আড়াই হাজার বছর ধরে পটচিত্রে উপমহাদেশের শিল্প জনজীবনের আনন্দের উৎস, শিক্ষার উপকরণ এবং ধর্মীয় আচরণের অংশ হিসাবে ব্যবহৃত হয়ে এসেছে। বাংলাদেশের পটচিত্রের মধ্যে গাজীর পট ও কালিঘাটের পট বিশেষভাবে উল্লেখযোগ্য। পট মূলত দুই ধরনের — ১। ঢৌকা পট - এগুলোর আকার ছোটো হয়।

২। জড়ানো পট - এ ধরনের পট ১৫-৩০ ফুট লম্বা এবং ২-৩ ফুট চওড়া হয়।

কাপড়ের উপর গোবর ও আঠার প্রলেপ দিয়ে প্রথমে একটি জমিন তৈরী করা হয়। সেই জমিনের উপর তুলি দিয়ে বিভিন্ন চিত্র অঙ্কিত হয়।

### পটের প্রকারভেদ

বিষয় বৈচিত্র্য অনুসারে সংগৃহীত পটগুলি বিভিন্ন প্রকারের হতে পারে, যেমন - চকসুদনপট, যমপট, সাহেবপট, কালিঘাটপট, গাজিপট, সত্যপীরের পট, পাবুজীপট ইত্যাদি। সাধারণভাবে পটকে ছয়ভাগে ভাগ করা যেতে পারে

১) বিষয়নিরপেক্ষ, ২) রাজনৈতিক, ৩) ঐতিহাসিক, ৪) ধর্মীয়, ৫) সামাজিক, ৬) পরিবেশগত।

উদাহরণস্বরূপ বলা যেতে পারে বিষয় নিরপেক্ষ পটগুলির মধ্যে যেকোনো ধরনের নর-নারীর ছবি অথবা শিল্পচিত্র দেখা যায় এবং সামাজিক পট বলতে বোঝায় সামাজিক সচেতনতা বৃদ্ধির জন্য যে





পটচিত্রগুলি অঙ্কিত হয়, যেমন - পাল্‌স পোলিও টীকাকরণ অভিযান, ম্যালেরিয়া দূরীকরণ, সাম্প্রদায়িক সম্প্রীতি, বৃক্ষরোপণ, এড্‌স সশস্ত্রীয় সচেতনতা বৃদ্ধি, মানবাধিকতার ও নারী নিগ্রহ বিরোধী সচেতনতা বৃদ্ধি সংক্রান্ত পটচিত্র।

### ইতিহাস

বিদ্যুতের ব্যবহার প্রাচীন প্রথাগুলির ক্ষেত্রে পরিবর্তন আনলেও পটচিত্রের ক্ষেত্রে এটি সত্য নয়। পটচিত্রের সমৃদ্ধ ইতিহাস আছে। গ্রাম বাংলায় পটুয়ারাই দীর্ঘদিন ধরে পট তৈরী করে এসেছেন।

এই পটুয়ারা 'চিত্রকর' জাতিভুক্ত। এই পটুয়ারা পেশাদার শিল্পী যাঁরা তাঁদের জীবিকা নির্বাহের জন্য ছবি আঁকতেন ও সঙ্গীত পরিবেশন করে থাকেন। সঙ্গীতের বিষয়বস্তু পৌরাণিক, সমসাময়িক বা লোকায়ত বিষয়ের উপর নির্ভরশীল। প্রজন্মান্তরে গ্রাম থেকে গ্রামে এই পটুয়ারা তাদের পট নিয়ে গিয়ে মঙ্গলকাব্য বা অন্যকোনো সঙ্গীত পরিবেশন করেন অর্থের বিনিময়ে।

প্রায়-সকল লোকসংস্কৃতি গবেষকদের লেখায় এটাই স্পষ্ট যে, প্রধানত ধর্মের প্রচার ও প্রসার ঘটানোর জন্যই পটচিত্রের উদ্ভাবন। অবশ্য পরবর্তীকালে অর্থ উপার্জনের জন্যও এর গুরুত্ব বৃদ্ধি পায়। শিল্পীদের দৈনন্দিন জীবনে পূর্বের সাদামাটা পটচিত্রকে আকর্ষণীয় করার জন্য পরবর্তীকালে ছড়ার মতো করে সুর ও তাল সমন্বয়ে কিছু কথা সাজিয়ে এর সাথে যুক্ত করা হয় সঙ্গীত। সেটাই হল প্রকৃত পটগান। ধর্ম প্রচারের জন্য এই পটগান ব্যবহারের কারণ পর্যালোচনা করতে গিয়ে দেখা যায় তখনকার সময় বিভিন্ন ভাষাভাষী ও নীরব মানুষের জন্য ছবির ভাষা বেশি আকর্ষণীয় ও গ্রহণযোগ্য ছিল।



ছবি ও গান মিলিয়ে সম্পূর্ণতা মানুষের কাছে সহজে পৌঁছে যাচ্ছে। দর্শক অনেক বেশি উপলব্ধি করছে। পটগানের



ইতিহাস অথবা এর প্রাচীনত্ব নিয়ে আলোচনা করতে গিয়ে বলা হয় — মানুষের ভাষার প্রথম প্রকাশ ঘটে চিত্রের মাধ্যমে। ধারণা করা হয় সপ্তম ও অষ্টম শতকে প্রথম পটচিত্র তৈরী করা হয়। সপ্তম শতকের প্রথমদিকে রচিত বাণভট্টের 'হর্ষচরিত'-এ যমপট ব্যবসায়ীদের উল্লেখ আছে — রাজা হর্ষবর্ধন নিজে এক পটুয়াকে কতকগুলি ছেলের মাঝে বসে পট বোঝাতে দেখেছিলেন। বৌদ্ধধর্ম প্রচারের উদ্দেশ্যে বুদ্ধজীবনী ও জাতকের কাহিনী পটচিত্রের মাধ্যমে দেখানো হত। অষ্টম শতকে রচিত বিশাখ দত্তের 'মুদ্রারাক্ষস' নাটকে এর উল্লেখ আছে। এছাড়া কালিদাসের 'অভিঞ্জ্ঞান শকুন্তলম' ও 'মালবিকাগ্নিমিত্র' নাটক, ভবভূতির 'উত্তররামচরিত' এবং ভট্ট রচিত 'হরিভক্তি বিলাস' নামক গ্রন্থে পটচিত্রের বিভিন্ন বিষয়ে আলোচনা আছে।

অনেকে মনে করেন বাংলার পট শিল্পীরা বৌদ্ধযুগের চিত্রকরদের উত্তরসাহক। এ সম্পর্কে ড. দীনেশ চন্দ্র সেনের মন্তব্য — পটুয়ারদের পূর্ব পুরুষ মঙ্গলী উপাধিধারী বৌদ্ধরা বুদ্ধের সময় হতে পটচিত্র এঁকে বৌদ্ধধর্ম প্রচার করত।

একসময় ভারতবর্ষের প্রায় সর্বত্রই পটচিত্রের প্রচলন ছিল। প্রাচীন ভারতীয় শাস্ত্র কাব্যাদিতে পটের অনেক প্রমাণ

আছে। গুজরাটে এখনও 'চিত্রকরী' এর অস্তিত্ব আছে। এই 'চিত্রকরী' হচ্ছে পটগানের গুজরাতি ভাষা এবং সেখানকার পটুয়ারা বাংলার পটুয়ারদের মতো ঘুরে ঘুরে পট দেখিয়ে অর্থ উপার্জন করে।



বাংলাতেও কোনো এক সময় পটুয়ারা পট দেখিয়ে, গান শুনিয়ে যেমন অর্থ উপার্জন করত তেমনি সমাজের দরিদ্র মানুষদের শিক্ষিত দান করত।

শুধুমাত্র বৌদ্ধ কিংবা হিন্দু পৌরাণিক অলৌকিক কাহিনীকে আশ্রয় করেই পটগান রচিত হয়নি, মুসলিম কাহিনী নিয়েও পটগান তৈরী হয়েছে যেমন - গাজী কানহর পটগান। গাজীপীরকে মনে করা হত বাঘের দেবতা। পূর্ববঙ্গে বেশি প্রচলিত ছিল এই গাজী কানহর পট। প্রফুল্ল উপাধি পূর্ববঙ্গের গাজীর পট নাচানোর বর্ণনায় এক স্থানে একটি চিত্রের উল্লেখ করেছেন - "গাজী সাহেব ব্যাঘ্রের উপর সম্যাসী ও চারিদিকে উর্ধ্বপুচ্ছ ব্যাঘ্রাদির পলায়ন।"

ড. সুকুমার সেন - তাঁর 'ইসলামিক বাংলা' গ্রন্থে গাজীর পট নামে একটি আলোকচিত্র দিয়েছেন, শশধারী বাঘের উপর গাজীর মনুষ্যমূর্তি অঙ্কিত দেখা যায়। এছাড়াও গাজী - কানহর-চম্পাবতীর জীবনকে কল্পনা করে তাদের জীবনের ধারাবাহিকতার উপর পটগান রচিত হয়েছে।



অবশ্য প্রাচীন পটের প্রত্ন নিদর্শন নেই বললেই চলে। তবে বিদেশের বহু মিউজিয়ামে প্রাচীন পট সংরক্ষিত আছে যার মধ্যে অক্সফোর্ড All Souls College, ম্যানচেস্টারে John Rylands Library এবং আয়ারল্যান্ডের Chester Beatty Library তে রাখা আছে সাত থেকে আটটি আকর্ষণীয় পটচিত্র। এগুলির মধ্যে

আবার Chester Beatty Libraryতে রাখা পাঁচটি সবচেয়ে বেশি প্রাচীন। ভাগবত ও পুরাণের গল্পে অঙ্কিত এই পাঁচটি আনুমানিক পনেরো শতকের। মসলিন কাপড়ের তৈরী ও দেশীয় রঙে আঁকা এই পাঁচটির দৈর্ঘ্য ১৭০ ফুট এবং প্রস্থ মাত্র ২ ইঞ্চি। ধারণা করা হয় গাজীর পটচিত্রগুলি ষোলো শতকের। ইসমাইল গাজীর আবির্ভাব পনেরো শতকের শেষের দিকে মনে করা হয়।

অবশ্য ষোলো শতকের কবি মুকুন্দরামের চণ্ডীমঙ্গল কাব্যে পটচিত্রের উল্লেখ পাওয়া যায়। অক্সফোর্ডে All Souls College এর পটটি সতেরো শতকে অঙ্কিত এবং ম্যানচেস্টারে John Rylands Library এর পটটি ১৮৭০ সালে অঙ্কিত।

### পটচিত্রের বিভিন্ন রূপভেদ

বাংলায় পটচিত্রের দুটি রূপকল্প দেখা যায় - পৌরাণিক ও ঐতিহাসিক পট।

#### ● ঐতিহাসিক পট

ঐতিহাসিক পটের উপজীব্য, যা এর নাম থেকেই প্রকাশিত তা হল ঐতিহাসিক ঘটনাবলী, যেমন - দ্বিতীয় বিশ্বযুদ্ধ, আজাদ হিন্দ বাহিনী ও নেতাজী সুভাষ চন্দ্র বসু, আণবিক বোমাবর্ষণ ইত্যাদি।







### ● পৌরাণিক পট

পৌরাণিক বিভিন্ন গাথা ও গল্প এই পটের উপজীব্য, সেগুলি হল - রাবণবধ, সীতাহরণ, রাজাহরিশচন্দ্র, কৃষ্ণলীলা, দুর্গালীলা, সাবিত্রী-সত্যবান, মনসামঙ্গল, চন্দ্রীমঙ্গল, ধর্মমঙ্গল, অন্নদামঙ্গল ইত্যাদি।



### অঙ্কন পদ্ধতি

‘পট’ শব্দের অর্থ ছবি আঁকার কাপড়, যা বর্তমানে ‘ক্যানভাস’ নামে পরিচিত। পটের পরেই আসে পটচিত্র। সহজকথায় পটচিত্র বলতে আমরা পটের উপর অঙ্কিত কোনো ছবিকে বুঝি। অবশ্য পরবর্তীতে কাগজ কিংবা মাটির তৈরী বড় খালার উপর চিত্র অঙ্কিত হলেও তাকে পটচিত্র বলা হয় কারণ, পরবর্তীকালে এর নামকরণে মাটির পাত্রের সংকেত পাওয়া যায়।

জমিন তৈরীর পর অঙ্কন কাজ শুরু হয়। এক্ষেত্রে বিভিন্ন দেশজ রঙের ব্যবহার উল্লেখযোগ্য। ইঁটের গুড়ো, কাজল, লাল সিঁদুর, সাদা খড়ি, আলতা, কাঠকয়লা ইত্যাদি। পটটিকে কয়েকটি অংশে ভাগ করে কাজ করা হয় এবং রঙের মধ্যে লাল, নীল, হলুদ, গোলাপি, বাদামি, সাদা এবং কালো ব্যবহৃত হয়।

### প্রায় হারিয়ে যাওয়া পটগান এখন উন্নয়ন যোগাযোগের অন্যতম মাধ্যম

পটগান বাংলাদেশের প্রায় হারিয়ে যাওয়া একটা লোকসংস্কৃতি। প্রায় দুই হাজার বছর প্রাচীন এই লোকসংস্কৃতি ১৯৬০ সালের পরবর্তী সময়ে এই পটগান ক্রমশ বিলুপ্ত হতে থাকে। প্রায় হারাতে থাকা এই পটগান, বর্তমানে আবারও ফিরে আসছে নতুন রূপে। বিভিন্ন বেসরকারি উন্নয়ন সংস্থাগুলি পটগানকে ব্যবহার করেছে উন্নত যোগাযোগ মাধ্যম হিসাবে। বিশেষ করে ‘রূপান্তর’ নামক খুলনার উন্নয়ন সংস্থা পটগানকে নতুন করে তুলে এনে আবার জনপ্রিয় মাধ্যমে পরিণত করতে মুখ্য ভূমিকা পালন করেছে।



### পটগানের নবজন্ম

বাংলাদেশে বিশেষ করে দেশের দক্ষিণ-পশ্চিমাঞ্চলের ঐতিহ্যবাহী এ পটগান ১৯৬০ সালের পর থেকেই বিলুপ্ত হতে শুরু করে। পটুয়ারা পটগান শুনিতে তাদের জীবিকা নির্বাহ করতে ক্রমশ ব্যর্থ হয়। একারণে তারা পটগান পরিহার করতে শুরু করে। খুলনা অঞ্চলে বিগত শতকের শেষ দশকে ‘রূপান্তর’ নামে এক বেসরকারি উন্নয়ন সংস্থা সাংস্কৃতিক কর্মকাণ্ড বিকাশের মাধ্যমে সচেতনতা সৃষ্টির কাজ

করতে গিয়ে ১৯৯৪ সালে মংলা অঞ্চলে এ বিলুপ্তপ্রায় পটগানের সন্ধান পান। সংস্থার প্রধান নির্বাহী স্বপন গুহ এবং পরিচালক রফিকুল ইসলাম খোকন এর অভিজ্ঞ চোখ বুঝে নেয় এ মাধ্যমটির কিছু পরিবর্তন



সাধন করলেই তা উন্নত যোগাযোগের ক্ষেত্রে একটি অসাধারণ মাধ্যম হয়ে উঠতে পারে। তারা এলাকায় আয়োজন করলেন পটগান প্রতিযোগিতা। একাজে তাদের উৎসাহিত করেছিলেন মংলা এলাকার প্রবীণ শিক্ষক ও সংস্কৃতি কর্মী কৃষ্ণপদাধিকারী।

‘রূপান্তর’ প্রথম পটটি উপস্থাপন করে ১৯৯৮ সালের ৫ই জুন বিশ্ব পরিবেশ দিবস উপলক্ষে বাগেরহাট জেলার রামপাল উপজেলায়। অবশ্য পটগানটিও তৈরী হয়েছিল সুন্দরবনের পরিবেশকে ঘিরে। ‘রূপান্তর’ পটগান নিয়ে আরও বিভিন্ন গবেষণা করে। উল্লেখ্য ‘রূপান্তর’ এর পটগানগুলি কোনো পৌরাণিক কিংবা অলৌকিক কাহিনী নিয়ে নয়। এটিকে আসলে উন্নয়ন যোগাযোগের মাধ্যম হিসাবে ব্যবহার করা হয়েছে। যে কারণে অনেক বেশি দর্শককে একসাথে দেখানো এবং তাদের দৃষ্টি আকর্ষণ করার জন্য পটচিত্র, সুরের বৈচিত্র্য এবং উপস্থাপনের ভঙ্গিও অনেকখানি পরিবর্তন করা হয়েছে।

এরূপ পটগানকে চতুর্থ প্রজন্মের পট বলা হচ্ছে। এই পটগান ক্রমশ ব্যাপকতা পাচ্ছে ও সর্বসাধারণের মধ্যে মর্যাদা ও জনপ্রিয়তা লাভ করেছে। ‘রূপান্তর’ এর পটগান এখন জনসচেতনতার এক প্রধান মাধ্যম হিসাবে ব্যবহৃত হয়। ‘রূপান্তর’ এর চতুর্থ প্রজন্মের পটগান উন্নয়ন যোগাযোগের মাধ্যম হিসাবে ব্যবহৃত হলেও এখন অনেক এন.জি.ও. এই শিল্পকে সংরক্ষণের প্রচেষ্টায় মেতে উঠেছে। ‘রূপান্তর’-এ পটগানের প্রযুক্তি বিষয়ে অন্যান্য এন.জি.ও. কে প্রশিক্ষিত করার ব্যবস্থা করেছে। এটাই ‘রূপান্তর’-এর সার্থকতা যে তারা যা শুরু করেছিল তা এখন অন্যরা গ্রহণ করে আত্মস্থ করছেন। এতে বাংলাদেশের বিলুপ্তপ্রায় একটি লোকসংস্কৃতি মাধ্যম তার ঐতিহ্য ফিরে পেয়েছে।



## কালীঘাটের পটচিত্র সম্পর্কে ধারণা

### কালীঘাটের পটচিত্র

কলকাতার কালীঘাট মন্দিরের এলাকায় আঠারো শতকের শেষভাগ ও গোটা উনিশ শতকে চিত্রকলার ক্ষেত্রে এক স্থানীয় ধারা প্রচলিত হয়। এই শিল্পরীতি এখন কালীঘাট চিত্রকলা বা কালীঘাট পটচিত্র নামে পরিচিতি লাভ করে। উপনিবেশিক শাসনের ফলে গ্রামবাংলার জনজীবনের ভারসাম্য বিনষ্ট হয়। গ্রামের পটুয়ারা তাদের জীবিকার উপায়





হারাতে থাকে। এর ফলে কলকাতার কাছাকাছি অঞ্চলগুলি থেকে প্রধানত ২৪ পরগণা, হাওড়া ও মেদিনীপুর জেলার অঞ্চলগুলি থেকে পটুয়ারা কালীঘাট মন্দিরের আশে পাশে এসে ভিড় জমাতে থাকে এবং সস্তা কাগজে ও স্থানীয়ভাবে উৎপাদিত জলরং দিয়ে দেবদেবীর ছবি এঁকে সেগুলি ভক্ত ও তীর্থযাত্রীদের কাছে বিক্রি করতে থাকে। সস্তা দামের এই পটচিত্রগুলি বেশ জনপ্রিয়তা লাভ করে। প্রথমদিকে পটুয়ারা সনাতন ধর্মীয় বিষয়বস্তু অবলম্বনেই ছবি আঁকত। তবে শহর-নগর জীবনের সংস্পর্শে আসার পর তারা সমসাময়িক ও লোকায়ত বিষয়বস্তু অবলম্বনেও পটের ছবি আঁকা শুরু করে। এভাবে ইংরেজ সাহেবদের জীবনের নানা বিষয় এবং কলকাতার বাবুদের জীবনকে নিয়ে তাঁদের আঁকা পটচিত্রগুলি আরও বেশি জনপ্রিয় হয়ে ওঠে। পটুয়ারা তাদের চিত্রকর্মে অসাধারণ রসবোধের পরিচয় দিয়ে নগর জীবনের নানা অসঙ্গতি তুলে ধরে। সুনির্দিষ্টভাবে বলা যায়, লোকপর্যায়ে পুতুল নাচ ও ক্ষুদ্রাকার নানা মূর্তি থেকেই কালীঘাট পটচিত্রের অনুপ্রেরণা এসেছিল। পটুয়ারাদের সাবলীল তরঙ্গায়িত ধারায় বেরিয়ে আসা তুলির আঁচড়ের সৌন্দর্য, বিশেষ করে একটা সুসঙ্গতি মাধুর্য আনার কৌশল, বিশ্বয়কর পর্যবেক্ষণ ক্ষমতা, সারল্য ও মাত্রাজ্ঞান কালীঘাট পটচিত্রের জন্য বড় রকমের সুখ্যাতি নিয়ে আসে।

### শম্ভু আচার্য

২০১৩ সালের ১লা ফেব্রুয়ারি (১৯ মাঘ ১৪১৯, ১৯ রবিউল আওয়াল ১৪৩৪) ঢাকার 'দৈনিক ইত্তেফাক' নামক পত্রিকায় এক চিত্রপ্রদর্শনীতে পটশিল্পী শম্ভু আচার্যের সাক্ষাৎকার প্রকাশিত হয়। সেখানে তিনি তাঁর কাজ ও শৈল্পিক ভাবন সম্পর্কে এক স্পষ্ট ধারণা দিয়েছেন।

## ঢাকার 'দৈনিক ইত্তেফাক' পত্রিকায় প্রকাশিত বাংলাদেশের বিখ্যাত পটচিত্রশিল্পী : শম্ভু আচার্যের সাক্ষাৎকার

মুন্সীগঞ্জ সদর উপজেলার কালিন্দীপাড়ায় সপরিবারে বসবাসকারী উপমহাদেশের বিখ্যাত পটচিত্রশিল্পী শম্ভু আচার্য আপন মনে অনবরত বিভিন্ন রঙে পটচিত্র এঁকে যাচ্ছেন। পটচিত্র আমাদের নিজস্ব শিল্পরীতি, বাঙালি জীবন-জীবিকা আর ইতিহাস ঐতিহ্য, শিল্পরচি পটচিত্রে প্রকাশ পায় — এই ধারণাকে আত্মস্থ করে শম্ভু আচার্য এ শিল্পকে বিশ্বপরিসরে সুপরিচিত করে বাংলাদেশের জন্য বয়ে এনেছেন বিরল সম্মান। ২২শে জানুয়ারি থেকে ৩১শে জানুয়ারি পর্যন্ত চলেছে তাঁর পটশিল্প প্রদর্শনী। বিজ্ঞাপনি সংস্থা এক্সপ্রেসনের পৃষ্ঠপোষকতায় প্রদর্শনীটি চলেছে ঢাকা আর্ট সেন্টারে। এই বিখ্যাত পটশিল্পীর সাক্ষাৎকার নিয়েছেন মোহাম্মদ মোর্শেদ নাসের।

এই সাক্ষাৎকারে তিনি বলেন — তাঁর কাজ, পরিচিতি সব কিছুতেই এক্সপ্রেসনের যথেষ্ট অবদান আছে। এক্সপ্রেসনের এর কর্ণধার রামেন্দু মজুমদারের শুভানুধ্যানেই তিনি আজকের শম্ভু আচার্য। রামেন্দুবাবুই তাঁকে হাত ধরে

নিয়ে আসেন শিল্পকলা অ্যাকাডেমিতে, ১৯৯৪ সালে। ২০১০ সালে এক্সপ্রেসনের দশম বার্ষিকীতে শম্ভু আচার্যের প্রথম এক্সিবিশন হয় গ্যালারি চিত্রকে। এক্সপ্রেসনের বিশ বছর পূর্ণ উপলক্ষে এটি তাঁর দ্বিতীয় এক্সিবিশন। কিন্তু বাংলাদেশে সব মিলিয়ে এটি চতুর্থ এক্সিবিশন দেশের বাইরেও হয়েছে প্রদর্শনী। ২০০৩ সালে প্রথম প্রদর্শনী, তারপর ২০০৬ সালে দ্বিতীয় এক্সিবিশন হয় গৌতম চক্রবর্তীর গ্যালারি কায়াতে, ২০০৭ সালে ইউরোপীয় ইউনিয়নের পঞ্চাশ বছর পূর্ণ উপলক্ষে আলিয়াঁস ফ্রসেজে। ২০০৭ সালের চিন্তা থেকে এক এক্সিবিশন করেন এবং সেই চিন্তা থেকে পাঁচ বছরের চেষ্টায় চলতি এক্সিবিশনটির আয়োজন করেন।



শম্ভু আচার্য এবং তাঁর পরিবারের সক্রিয় ভূমিকায় পটশিল্পের পুনর্জাগরণ ঘটে। বর্তমানে এই শিল্পকলার অবস্থা সম্পর্কে প্রশ্ন করলে তিনি জানান, বর্তমান অবস্থা আগের চেয়ে অনেক ভালো। তাঁর বিশ্বাস - “পৃথিবী গোল, ঘুরে ফিরে আবার এক জায়গাতেই আসতে হবে আমাদের। আর শিকড়ের প্রতি সবার আকর্ষণ চিরন্তন।” পটশিল্প আদিকালের শিল্প। মাঝখানে ভাটা পড়লেও তাঁর বাবা, পটশিল্পীদের অষ্টম পুরুষ, মঞ্চে পিছনেই কাজ করে গেছেন। পুরুষ ন্যাশনাল কাপ কাউন্সিল শম্ভু আচার্য ও তাঁর বাবাকে আবিষ্কার করে। এবার এক্সিবিশন করে তিনি উপলব্ধি করতে পারলেন যে - আবার আগের মতই মানুষের আগ্রহ বেড়েছে পটশিল্পের প্রতি। তাই তিনি মনে করেন, আগামীদিনে পটশিল্পের ব্যাপক প্রসার পরিলক্ষিত হবে।

এদেশের সাধারণ মানুষকে পটশিল্প সম্পর্কে জানানোর সত্যিকার অর্থে কোনো উদ্যোগ আছে কিনা এ বিষয়ে নানা মতভেদ আছে। কিন্তু এ প্রসঙ্গে শম্ভু আচার্য বলেন - এ বিষয়ে উদ্যোগ নিতে হলে আর্ট ইনস্টিটিউট হতে পারে, স্কুলে এর প্রশিক্ষণ হতে পারে, এছাড়া বিভিন্ন ওয়ার্কশপ হতে পারে। কিন্তু এই উদ্যোগেরই অভাব। তবে তিনি নিজে উদ্যোগে কিছু ওয়ার্কশপ করার চিন্তা করেছেন, যাতে সবাই পটশিল্প সম্পর্কে জানতে ও শিখতে পারে। একসময় তাঁর অবর্তমানেও তাঁর প্রতিনিধিত্ব করার মানুষগুলোকে তিনি গড়ে যেতে চান। তাঁর পরিবারের সকলেই এর সাথে জড়িত। তাঁর সন্তান পটশিল্পীদের দশম পুরুষ হবে, সেও কাজ করছে। তিনি আরও বলেন --- চারুকলা থেকে ডাকলেই যে পটশিল্প শেখানো হবে সেটা বড় কথা নয়। তিনি নিজে যেমন গাছতলায় এর চর্চা করতে পারেন, তেমন নদীর ধারেও পারেন। চারুকলার মোজাইক করা দেওয়াল, মোজাইক করা গ্যালারি বড় কথা নয়। এক প্রতিষ্ঠানে গিয়ে শিখতে হবে, বা শেখাতে হবে - এমন কোনো বাধ্যবাধকতা নেই। বিশেষ দিনে বা কোনো জাতীয় উৎসবেও তিনি শেখাতে পারেন।

পটশিল্প নিয়ে তাঁর নির্দিষ্ট কোনো পরিকল্পনা আছে কিনা এ বিষয়ে প্রশ্ন করলে জানান কিছুদিন আগে ইউরোপীয় ইউনিয়নের প্রতিনিধি গিয়েছিলেন একটি ইনস্টিটিউট করার জন্য। তিনি নিজ উদ্যোগে কাজটি করার পরিকল্পনা করেন। বুয়েটের ইঞ্জিনিয়ারদের সঙ্গে নিয়ে। কিন্তু এই ইনস্টিটিউট শম্ভু আচার্য ধরে রাখতে পারবেন কিনা, বা তাঁর গ্রামে যে পরিবেশ সেখানে এই ইনস্টিটিউট টিকে থাকতে পারবে কিনা, বা ছাত্র-ছাত্রী পাবেন কিনা - এসব নিয়ে কিছুটা চিন্তিত। তিনি যে গ্রামে থাকেন সেখানকার মানুষের এ বিষয়ে তেমন কোনো শিক্ষা বা ধারণা নেই, তাই ইউরোপীয় ইউনিয়নের এত টাকা খরচা করে ইনস্টিটিউট তৈরী করার পর যদি তার সঠিক ব্যবহার না হয়, তবে লাভ কী? সব মিলিয়ে তিনি সিদ্ধান্ত নেন, যেভাবে আছে সেভাবে চলুক। কেউ যদি নিজের ইচ্ছায় শিখতে আসে, তাহলে তিনি শেখাবেন। তিনি চান



পটশিল্পকে ছড়িয়ে দিতে, যাতে সবাই কাজটি জানে এবং শেখে। যেকোনো জায়গায়, যেকোনো সময়েই পটশিল্পের কাজ হতে পারে, কিন্তু কোনো ইনস্টিটিউটের মাধ্যমে হতে হবে এমন কোনো কথা নেই। কারণ এখনো তেমন পরিস্থিতি তৈরী হয়নি, এবং এটি তিনি অভিমান থেকে নয়, বাস্তবতা থেকে বলছেন।

সেবারের প্রদর্শনীতে তাঁর কাজের বিষয়বস্তু প্রসঙ্গে বলেন, এক্সিবিশনে ধর্মীয় দিক থেকে শুরু করে ইতিহাসের



অনেক দিক টানা হয়েছে। রামায়ণ, মহাভারত, মনসামঙ্গল, পদ্মপুরাণ আছে বিষয় হিসাবে, আর গাজীর পট তো আছেই। রয়েছে সৃষ্টি, ঐতিহ্য, গ্রাম বাংলার চিরন্তন সামগ্রী — কলস, মাছকুটা, টেঁকি, বৈষ্ণব-বৈষ্ণবী, নৌকা, শিকা কেশবিন্যাস প্রভৃতি। তাঁর কাজ মূলত বাংলাদেশ এবং ওদেশের গ্রামাঞ্চল নিয়ে। কাজ করার সময় প্রসঙ্গে তাঁর বক্তব্য — তিনি প্রায় সবসময়ই কাজ করেন ২৪ ঘন্টার প্রায় ১৮ ঘন্টা তিনি কাজ করেন। তবে তা কোনো নিয়ম করে নয়, তিনি

বরাবরই কাজ করতে ভালোবাসেন। কাজ করার সময়কে তিনি অবসরের সময় বলে মনে করেন।

সেবারের প্রদর্শনীতে বেশ ভালোই সাড়া পেয়েছেন, অনেকের প্রশংসাও পেয়েছেন। আর এই প্রদর্শনীর মাধ্যমে তিনি একটি 'মেসেজ' দেওয়ার চেষ্টা করেন যে - পটশিল্প এভাবেও করা যায়। অনেকেই জানতেন না, অনেকেই শোনেননি হয়তো তাই তাদের মাঝে এই 'মেসেজ'টা পৌঁছে দেওয়াই ছিল শিল্প আচার্যের মূল লক্ষ্য।

ভবিষ্যতের কাজ তার পরিকল্পনা — শুধু ধর্মীয় পট কিংবা কৃষ্টি বিষয়ক পট নয়, তিনি একটি স্বাধীনতার পট করেছেন। ১৭৫৭ সাল থেকে ১৯৭১ সাল পর্যন্ত ২০ খন্ড ছবি দিয়ে সমাপ্তি হয়ে গেছে আজ থেকে ১১ বছর আগে, এবং এবার তা নিয়ে তিনি প্রদর্শনীর অপেক্ষায়। এর মধ্যে রয়েছে পলাশীর যুদ্ধ, দ্বিতীয় বিশ্বযুদ্ধ, ফরাজী আন্দোলন তিতুমীরের বাঁশের কেলা, ভাষা আন্দোলন — এভাবে এগিয়েছে কাজটি। আর যতজন বুদ্ধিজীবী শহীদ হয়েছেন তাঁদের পোট্রেট পটশিল্পের ধারায় নিয়ে আসেন। এর গীতিকাব্যও লেখা হয়ে গেছে তাঁর। তাঁকে এই ইতিহাস ও গীতিকাব্য দিয়েছেন ড. এনামুল হক সাহেব। তাঁর যথাসাধ্য প্রচেষ্টায় তিনি মনে করেন এটা একটা ইতিহাস হতে পারে। শিল্প আচার্যের নামকরণ করেন - 'মহাপুরুষের অন্তর্ধান শহীদ মুজিবনামা'।

#### যামিনী রায়

বিখ্যাত শিল্পী যামিনী রায়, তাঁর প্রথম কাজ শুরু করেন পাশ্চাত্যের অন্ধনরীতিতে। পরে তিনি ঐতিহ্যবাহী কালিঘাটের পটশিল্পকে নিজের কাজের মাধ্যম হিসাবে তুলে নিয়ে পটশিল্পকে বিশ্ববাসীর কাছে বিখ্যাত করেন। যামিনী রায় কোনো পটুয়া নন। পটুয়ারা হলেন একটি পেশাভিত্তিক লোকগোষ্ঠী যাদের প্রধান পেশা বংশানুক্রমে নিজেদের বিশেষ রীতিতে পট অঙ্কন ও প্রদর্শন বা বিক্রয় করা।

### শিকড় সন্ধানী : যামিনী রায়

'পটুয়া শিল্প' নামক একটি প্রবন্ধে যামিনী রায়ের শিল্পী সত্ত্বার একটি বিশেষ দৃষ্টিভঙ্গি উন্মোচিত হয়। যামিনী রায় পটচিত্র শিল্পী - তাঁর রেখা ও রং কথা বলে। অবনীন্দ্রনাথ ঠাকুরের দৃষ্টিতে তিনি ছবি লেখেন। রং ও রেখা শিল্পী অন্তরভাবনাটিকে যেমন মূর্ত করে তোলে, তেমনি তাঁর বিশ্লেষণ ও পটভূমিকার পর্যালোচনায় কখনো কখনো তাঁর কথার সাহায্য নিতে হয়। শিল্পী যামিনী রায়ও এই প্রবন্ধে তাঁর জীবনে বাংলাদেশের হৃদয় থেকে জেগে ওঠা দেশীয় শিল্প

ঐতিহ্যকে আধুনিক যুগ জীবনের পটভূমিকায় প্রতিষ্ঠা দিয়েছেন। তিনি বোঝাতে চেয়েছেন ঐতিহ্যের ওপর ভিত্তি করেই যেমন সংস্কৃতির সমৃদ্ধি ঘটে, তেমনি জাতিগত চেতনার মহত্বও ধরা পড়ে। আলোচ্য প্রবন্ধে যামিনী রায়ের কেবল শিল্পবোধ নয় স্বদেশ চেতনাও দীপ্যমান।

যামিনী রায় দেশীয় ঐতিহ্যে, দেশীয় প্রকরণ ও উপাদানে দেশের অন্তরাঙ্গাকে তাঁর শিল্পে মহতী রূপ দিয়েছেন। উনিশ শতকীয় নবজাগৃতি যেখানে শিল্পে ইউরোপীয় চিন্তাধারার প্রাবন এনেছিল, তাতে ভেসে না গিয়ে যামিনী রায় স্বদেশী শিল্পের শিকড়কে আঁকড়ে ধরেছিলেন। তাই আপাত দৃষ্টিতে যে পটুয়া শিল্প উপেক্ষিত তাকেই তাঁর সাধনার ক্ষেত্র হিসাবে নির্ধারিত করেন। যামিনী রায়ের ঐতিহ্যের এরূপ পুনর্মূল্যায়ন মনে করিয়ে দেয় বিষ্ণু দে-র উচ্চারণ "জল দাও আমার শিকড়ে" ("জল দাও")

পটুয়া শিল্পের ভিত্তি দানা বেঁধেছিল পুরাণের ওপর। যেখানে তারা আগাগোড়া এক সামান্য লক্ষণের জগৎ আবিষ্কার করেছিলেন যা শিল্পের প্রাথমিক মূর্ত। সংহিতা পুরাণের যে জটায়ুকে শিল্পী যামিনী রায় আঁকেছিলেন তা মর্ত্য লোকের কোনো পাখি নয়, কিন্তু তবুও পাখির গঠনই তার মধ্যে গড়ে উঠেছিল ও এক আশ্চর্য বিশ্বাসের জগতে এই বৈশিষ্ট্যই বিশুদ্ধ শিল্পের ভিত্তিকে সুদৃঢ় করেছিল।

ইউরোপীয় শিল্পের সঙ্গে দেশীয় শিল্পের এখনই প্রধান পার্থক্য। যে শিল্প পুরাণ ভাবনাকে তথা ঐতিহ্যকে ত্যাগ করে পরিবর্তনের স্রোতে গা ভাসিয়েছে সেই শিল্পকে যামিনী রায় অনুসরণ করেননি। ইউরোপীয় শিল্পে পুরাণ ভাবনা ভেঙে যাওয়ার পর শিল্পীরা জীবন নির্ভর কোনো বিশ্বাস খুঁজে পেল না, এল অস্থিরতা। কিন্তু বাংলার পটুয়া শিল্প তার

ঐতিহাসিক ভিত্তি থেকে বিচ্যুত না হওয়ায় এখনো সজীব। 'ভাব ও আঙ্গিক' এর মেলবন্ধনে পুরোনো বিশ্বাসের ভিত্তি জাতীয় প্রাণকে পল্লবিত করে পটুয়া শিল্প তাই এখনো স্বতন্ত্র ভাবে উজ্জ্বল।

এ শিল্পরূপের দুটি রূপ একদিকে পুরাণ বিশ্বাস, অন্যদিকে দৈনন্দিন জীবনের চেহারা। পুরোনো ভিত্তি সুদূরকে আকর্ষণ করে, দৈনন্দিন সীমানায় দায়িত্ব দেয়, সীমা ও অসীমের মেলবন্ধনে পটুয়া শিল্প পোশাকি শিল্পকে পরাজিত করেছে। এখানে ইউরোপীয় শিল্পের দৈন্যদশা থেকে তার শ্রেষ্ঠত্ব। ইউরোপীয় শিল্প কেবল পুরাণ বিশ্বাস হারায়নি, বরং বন্ধন নতুন বিশ্বাসও গড়তে পারেনি, কেবল আধুনিক শৌখিনতার পালিশে নিজেকে নিখুঁত করার নেশায় মেতেছে।

কবি বিষ্ণু দে-র লেখা থেকে জানা যায় - তথাকথিত পাশ্চাত্য ভাবনার ছবি থেকে লোকায়ত শিল্পের দিকে সরে আসার মুহূর্তে, যামিনী রায়ের মনের অসহায় দোলাচলের গভীর সংকটকালে রবীন্দ্রনাথের একটি লেখা তাঁকে কী আশ্চর্যরকম আলোর পথ দেখিয়েছিল, সে লেখাটির নাম 'তপোবন'। বিষ্ণু দে জানিয়েছেন যামিনী রায়ের ব্যক্তিগত





বইয়ের সংগ্রহে থাকা সেই প্রবন্ধের কয়েকটি জায়গায় পেন্সিল দিয়ে যামিনী রায় লিখে রেখেছিলেন - 'আমার মনের কথা গল্পের সবাই মূর্তির দিকে চলে আসে। বাবাই আমাকে বলতেন "কালীঘাটের পট্টা তুই আজ লিখায় পড়লাম।' অর্থাৎ শুধুই ছবিতে নয়, যামিনী রায়ের শিল্পী জীবনের দ্বন্দ্ব-সংকটের দুর্বোলে নির্ধারিত পথের জাঁক, এইটা এখন তো হারিয়ে যাচ্ছে, এইটাকে তুই ধরে রাখার চেষ্টা কর।' আর নিশানা দেখিয়েছেন সেই রবীন্দ্রনাথ। যামিনী রায়কে লেখা রবীন্দ্রনাথের শেষ চিঠিতে তিনি বলেন - তাঁর কাছে ছবির অর্থ এমনতেও আমার সবরকম কাজ করারই ইচ্ছে হয়, যেমন -- ছবি যখন আঁকি তো ছবি হল "সে একটি নিশ্চিত প্রত্যক্ষ অস্তিত্বের সাক্ষী। তাঁর ঘোষণা যতই স্পষ্ট হয়, যতই সে হয় একান্ত, ততই সে হয় ভালো। আঁকি, মূর্তি গড়ার সময় মূর্তি গড়ি, স্কালচারও করতাম, শুধু যে পট্টা আঁকি তা নয়, তিন চার তাঁর ভালো মন্দের আর কোনো রকম যাচাই হতে পারে না।" আবার বুদ্ধদেব বসুর কাছে সাক্ষাৎকার পর্বে চিত্রকলা প্রসঙ্গেরকম কাজ করি। এবার আস্তে আস্তে আমার পট্টের বাজারটা বেশ ভালোই লাগছে, বিভিন্ন রবীন্দ্রনাথ তাঁর অত্যন্ত আধুনিক মত ঘোষণা করে বলেন - "ছবিটা ছবিই, বেশি কিছু নয়, তার কমও নয়।... ভারতীয় গ্যালারি আছে যারা আমায় অনবরত অর্ডার দিয়ে যায়।

অজস্র ও সব কিছু না।" পরে যামিনী রায়ের কঠোর সেই একই সুর, প্রায় সেই একই কথার প্রতিধ্বনি শোনা যায়: **কোন কোন গ্যালারিতে কাজ করছেন এখন ?**

পরিলক্ষিত হয় রবীন্দ্রনাথের ভাবনার প্রগাঢ় ছায়ায় যামিনী রায় কিভাবে আবৃত রেখেছিলেন নিজেকে। ছবি প্রসঙ্গে তিনি উঃ বেশিরভাগ সব Tejas Art Gallery। আর সব বাইরে থেকে, বিদেশ থেকে, দিল্লি বলেন - "ছবি ছবিই। ছবি মানুষের রচিত। মানুষের রচিত সবকিছুর মধ্যে তার ধর্ম, তার চরিত্র, দৈনন্দিন জীবনের ঋণ থেকে আসে। তারপর এখানে তো একটা মার্কেট আছেই, সব গ্রাহকরা আসে সেখানে। চিত্রার সমস্ত কিছু পরিচয় পাওয়া যায়।" এখানে বিস্ময় জাগে অগ্রজের ভাবনা কিভাবে অনুজের মধ্যে অনুরণিত হয়েছে এখন এতোটাই চাপ যে আমি এঁকে কুলাতে পারি না। আর এই সব কাজ তো তাড়াতাড়ির ওঠে। এভাবে কতজনের কাছে রবীন্দ্রনাথ নিজের অজান্তেই হয়ে উঠেছেন নিভৃত আশ্রয়, চলার পথে অগ্রপথিক রাজনা, তাই আমি ওদের থেকে সময় চেয়ে নি। তাড়াহুড়ো করলে হবে না।

অন্ধকারে পথ চেনাতে হাতে তুলে দিয়েছেন আলোর মশাল, আর সেই মশালের দীপ্তিতে যামিনী রায় বেছে নিয়েছেন: **গ্রাহকরা বেশিরভাগ কিরকম বিষয়বস্তু কেন্দ্রিক পট্টের অর্ডার দেন ?**

তার দেশীয় শিল্পী সত্ত্বাকে এবং পটচিত্রকে এগিয়ে নিয়ে যান শীর্ষে যেখানে শিল্পীর সাথে দর্শকও অনুভব করেন শিকড়ের: **দেব দেবী অনেকেই চায় না। বেশিরভাগ সব বাবু ক্যারিকচার এর ওপর - বাবু ফলচারটা চায়। এগুলো সব আমার নিজস্ব ভাবনাচিত্রায় করা। আমি তো আগে কপি করতাম, ধীরে ধীরে বাবা বললেন, "কপি করছিস কর, কিন্তু নিজস্বতাটা রাখবি। শুধু কপি করলে, কপির মধ্যেই থেকে যাবি। তোর নতুন কাজ বেরাবে না। কাজকে ভাঙার চেষ্টা কর।"**

এক চিরন্তন টান, যা কখনো অস্বীকার করার নয়, যাকে এড়িয়ে চলা প্রায় অসম্ভব।

## একটা সাক্ষাৎকার : ভাস্কর চিত্রকর

### পরিচিতি : বর্তমানে কালীঘাটের একমাত্র পটচিত্র শিল্পী

কালীঘাটে বর্তমানের একমাত্র শিল্পী 'ভাস্কর চিত্রকর'-এর সঙ্গে কথা হলো - বংশ পরম্পরায় পাওয়া চিত্রকর উপাধিটুকু পাওয়া কঠোর, আরও কিভাবে গোছানো যায়। দেখবেন আমার এখনকার আঁকা আর আগেকার আঁকার অনেকটা তফাৎ সাথে নিয়ে, হারিয়ে যাওয়া পটচিত্রকে পুনরুদ্ধার করে আধুনিকতার মোড়কে তাকে দর্শকের দৃষ্টিতে উচ্চতর আসদেখতে পাওয়া যায়। আমি হালকা করে ছাড়ি না। ওর মধ্যে যাতে আরও কিছু করা যায়, জামাটা যাতে আরও সুন্দর করা



বসান তিনি। বাবা দুলাল চিত্রকর এর অনুপ্রেরণা তাঁকে এগিয়ে দিয়েছে তাঁয়, মুখের গঠনটা যাতে আরও সুন্দর হয় - এই চেষ্টাই চলতে থাকে। একজন বিখ্যাত মেক্সিকান আর্টিস্ট Frida Kahlo স্বপ্নের জগতে।

শুধুমাত্র পটচিত্র শিল্পী হিসাবেই নয় - ছবি আঁকার সঙ্গে সঙ্গে মূর্তি গড়ার জস্থানের একজন দুটো নিয়ে গেছে ও বিভিন্ন স্কালচার তৈরির কাজেও তাঁর দক্ষ প্রতিভার পরিচয় পাওয়া যায়। এটা অর্ডার দিয়েছে।

বর্তমানে "Tejas Art Gallery"-তে কাজ করে নিজের প্রতিভাকে ছড়িয়ে: **Art form হিসেবে পট চিত্রকেই**

দিচ্ছেন দেশ থেকে বিদেশের দরবারে। পাশ্চাত্যের প্রভাব তার শিল্পে ধ: **বেছে নেওয়ার কারণ কী ?**

পড়লেও 'কালীঘাট স্টাইলে' তিনি এতে প্রাচ্যের রূপ দেন। এভাবে: **পট আঁকাটাকেই আমি বেছে**

প্রাচ্য-পাশ্চাত্যের সংমিশ্রণে তাঁর ছবি।

উঃ চিত্রকর নামেই আমাদের বংশ পরম্পরায় পটের ছবি আঁকা হত।

থেকেই আমার বাবা আঁকতেন, তাঁর বাবা আঁকতেন, তাঁর বাবা আঁকতেন; এ: **আছেই। এর সাথে সাথে মূর্তি গড়ার**

করেই চলে আসছে। তবে মাঝে যখন পটের বাজার খারাপ চলছিল, ধী: **দাদাদের সাহায্য করি। ঠাকুরের**



ভাস্কর চিত্রকরের আঁকা

Frida Kahlo এর আঁকা



চোখও আমি আঁকি। যত নিখুঁত কাজ আছে তার দিকে আমি এগিয়ে যাই।

প্রঃ বর্তমানে পটচিত্রের কি অবস্থা?

উঃ মাঝে মাঝে একেবারেই শেষ হয়ে গিয়েছিল, সেখান থেকেই আমি ধরলাম। আমি প্রায় ১৯৮৯/৯০ থেকে আঁকা শুরু পদবী ছিল। ঠাকুরের কাজে তিনি আমাকে ওড়িয়ে আমি জ্ঞানত অবস্থা থেকেই করি। বাবা খুব প্রেসার দিত আমায়। বাবাও বুঝতে পারতেন যে এটা আমি পারবো। ঠাকুরের কাজে তিনি আমাকে ওড়িয়ে আমি জ্ঞানত অবস্থা থেকেই প্রেসার করতেন না, বলতেন - “যা তুই গিয়ে ছবি আঁক। অন্তত পক্ষে এক ঘন্টা ছবি আঁক, তারপর এসে মূর্তি গড়বি।” চিত্রকরই শুনে আসছি। আমার বাবার আমাদের চার ভাইদের মধ্যে ছবি আঁকার বিষয়ে বাবা আমাকেই বেশি প্রেসার করতেন এবং বাবাও খুব ভালো ছবি আঁকতেন।

প্রঃ আপনার কাজে সৃষ্ণতার যে পরিচয় পাওয়া যায় সেটাও কী বাবার থেকে পাওয়া?

উঃ না, ওগুলো আমার নিজস্ব। বাবা দেখেও বলতেন - “বাঃ ভালো হয়েছে।” যেমন বাবু বাজারে যাচ্ছে তার জামাঘেঁষে। তখনকার দিনে রাজবাড়ির দেওয়ালেতে সব বর্ডার আঁকা হত এবং জানলার পাশে আলপনা আঁকা হত। আমার দাদু নক্সা, ওপরে যে কাক বসে আছে সেই কাকের শেড় দিয়ে আসল কাকের রূপ দেওয়া হয়েছে। বিড়ালটা যেমন পটেওগুলো খুব সুন্দর করে করতেন।



পুরনো একটা বিষয়। এই বিড়ালেরও খুব চাহিদা আছে। আমি করেছি বিড়াল সেতার বাজাচ্ছে মুখের মাছ আছে এবং মুখের মাছটা বজায় রেখে আর নতুন কিছু করতে আমি বিড়ালের সাথে নানা যোগ করেছি।

প্রঃ বিদেশী পটচিত্রের সাথে বাংলার পটচিত্রের তুলনা করতে গেলে কে এগিয়ে আছে বা আপনার মনে হয়?

উঃ কে এগিয়ে আছে সেটা কি করে বলব! সবাইকানটা আমার বলবে! তবে চাহিদাটা বলতে পারি! পটের চাহিদা আগেকার পটচিত্রের থেকে এখনকার পটচিত্রের চাহিদা বৃদ্ধির একমাত্র কারণ কী

বলবে! তবে চাহিদাটা বলতে পারি! পটের চাহিদা আগেকার পটচিত্রের থেকে এখনকার পটচিত্রের চাহিদা বৃদ্ধির একমাত্র কারণ কী

বলবে! তবে চাহিদাটা বলতে পারি! পটের চাহিদা আগেকার পটচিত্রের থেকে এখনকার পটচিত্রের চাহিদা বৃদ্ধির একমাত্র কারণ কী

বিদেশে ভীষণভাবে আছে। আমাদের এখানে যারা আসে, তাদের সেই একই কথা - কি করে শেষ হয়ে গেল? কেন হয়ে গেল? আর বিদেশি যারা আসে তারা সব কিনি নিয়ে চলে যায়। প্রবাসী বাঙালীরাও বেশ কয়েক বছর বিদেশে থাকে পর কলকাতায় এলে কালীঘাটে আসে এবং পট কিনি নিয়ে যায়। এরকম কিছু প্রবাসী গ্রাহক আমারও আছে।

প্রঃ মুসলিম পট - হাজির পট সম্পর্কে কিছু বলুন -

উঃ আমাদের যেমন চৌধুরী আছে, মন্ডল আছে, হিন্দু-মুসলমান ব্যাপারটা আছে, চিত্রকরদের মধ্যেও সেরকম আছে। তাই পটের মধ্যে মুসলিমও আছে। ধর্মটা যার যার নিজস্ব ভাবনা। কিন্তু আমি ছোটবেলা থেকে ধর্ম জাত কোনোদিকিই ঠিক করে, স্বর্ণকার সোনার কাজ করে, কর্মের ওপরেই সবকিছু ভিত্তি করে। আমি এবং বাবা কোনোদিনই ধর্ম মানতাম।

প্রঃ হাজির পটের ওপর আপনার কোনো কাজ আছে?

উঃ না, আমার কোনো কাজ নেই। এগুলো সব মেদিনীপুরের নয়াগ্রাম, পিংলা ওখানকার মুসলিম শিল্পীদের করা বাংলাদেশের যারা পটশিল্পী তাঁরাও এই ধরনের কাজ করেন। সেখানকার মানুষও আমার কাছে আসে। কলকাতায় সবাই আমার সাথে দেখা করে, মানুষ হিসাবে ওরা খুব ভালো। আমার কাছে যেমন মেদিনীপুরের - ইয়াকুব চিত্রকর, আনবর চিত্রকর, খোকন চিত্রকর, বাপি চিত্রকর আসেন এবং আসলেই তাদের একই কথা - “ভাস্কর কী আঁকা হচ্ছে”

তখন আমার কাজ দেখাই।

প্রঃ চিত্রকরের আগে আপনাদের কী



কী ছিল সেটা আমি বলতে পারব না। আমার দাদুও এই নামে পরিচিত ছিলেন, তাঁর নাম ছিল কচিনাথ চিত্রকর। বাবার মুখে শুনেছি দাদুর বেশিরভাগ কাজ ছিল লাহোরে। দেশভাগের আগে দাদু প্রায়ই লাহোরে

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যেমন আমি রামদেব ও আম্মা হাজারেও করেছি। এখন পৌরাণিক বা ঐতিহাসিকের থেকে বাবু কালচার বেশি গুরুত্ব পাই।  
পটচিত্রে।

প্রঃ এটা কী বলা যেতে পারে যে - এখনকার মানুষ অনেক বেশি আধুনিক ও সৌখিন তাই এই কালচারটাকে ধরে রেখেছে?

উঃ ঘর সাজানোর ইচ্ছা তো সবার মধ্যেই থাকে। খালি দেওয়াল কেউই পছন্দ করে না। আগেকার মানুষ এই সৌখিনতা অবসরই পেত না। তাই এরকম সৌখিন মানুষ থাকলেও খুব কমই ছিল।

প্রঃ আপনি কেমন দামে বিক্রি করেন আপনার ছবি?

উঃ বেশিরভাগ ২৫০০/৩০০০/৪৫০০ এর কাছে। আবার ফিগারের ওপর নির্ভর করে, যেমন কিছু ফিগারের দাম ২০০০/২৫০০। এছাড়া বাদবাকি ৩০০০-৪৫০০ এর মধ্যেই থাকে। সবাই যাতে নিতে পারে সেই ভেবেই এই দাম।

প্রঃ আধুনিকতার প্রতিচ্ছবি হিসাবে 'selfie' তুলছে ছবিটি সম্পর্কে কিছু বলুন -

উঃ এই ছবিটা সর্বপ্রথম কিনেছিলেন বাঙলার এক ডিরেক্টর জয়া বচনের জন্মদিনের উপহার হিসাবে। আর রিসেন্ট ছবিটা কিনেছে বাইচুং ডুটিয়া।

প্রঃ হারিয়ে যাওয়া পটকে রক্ষা করার জন্য আপনার পরামর্শ কী?

উঃ এর জন্য সবার আগে সরকারকে এগিয়ে আসতে হবে, তা নাহলে হবে না। বাদবাকি যারা আসেন তাঁরা বলেন



“স্কুল করে দিচ্ছি, সেখানে শেখান।” কিন্তু আমি বেসরকারি ভাবে এগোতে চাই না। বেসরকারি মানেই সেখানে দুর্নীতি সবার মতো আমিও চাই আমার কাজ আরও ছড়াক দেশ-বিদেশে। আমার কাজ যেন সব চুকে যাবে। সরকার যদি উদ্যোগ নেয় তবে একটা স্কায়গায় গিয়ে পৌঁছায় এই আমার ইচ্ছা। এই যে আমার ছবি দেশ-বিদেশে যায় এইটাই খোলা হোক, শেখানো হোক, ঠিক আছে। আমার কাছে আমার ভালো লাগে। মানুষজন ঘরে আসে এইটাই ভালো লাগে। আমি কাজ করেই যাব এতে আসে তারা সরকারি নয়, অন্য সব সংস্থা থেকে আসে, যদি ভালো হয় তো হবে, কারণ ভালো তো সবাই চায়। আমি কোনো সংস্থার মধ্যে নেই।

প্রঃ আপনি কি শেখান?

উঃ আমাকে শেখানোর জন্য বলে, কিন্তু এত কাজের মধ্যে বাঙলা সংস্থা ওরা দাম ঠিকই দেয়। আমার ছবিও ওরা কিনেছে, আমি যা দাম বলেছি তাই তাই পারি না। আবার মাঝে মাঝে একজন দুজন বাড়িয়েছে। অন্য পটুয়াদের ছবিও ওরা কেনে দামে কখনো খামতি রাখে না। দাম সবাই সঠিকই পায় তাও যদি কেউ একথা

শিখতে আসলে তাদের কিছুটা শিখিয়ে দিয়ে বলি আবার তোমরা কর। আমি একটা জিনিস ওদেরকেও বলি যে শেখল থাকে যে দাম পাচ্ছে না, তবে বলব ভুল বলছে। আমার ছবি আমি দুই-তিন হাজারে বিক্রি করেছি, এবার যদি আমার নিজের কাছে। আমি নিজের ইচ্ছায় বড়ো হয়েছি, কারুর কাছে শিখিনি কোনোদিন। আমার বাবা আমাকে প্রেসার শিখিয়ে দিচ্ছে। কারণ যে কিনেছে তার দিকটাও আমাকে ভাবতে হবে। কিন্তু নিজে হাতে ধরে কোনোদিন শেখায়নি। বাবা আমার কাজ দেখে ধরেই নিত যে ও পারবে। উনি বলতেন “ঠাকুরকে ছবি প্রত্যেক মানুষের ঘরে যাবে এটাই সবচেয়ে আনন্দ। এবার কেউ যদি বলে দাম পাচ্ছি না, তবে কিছু বলার নেই কাজ পরে করবি, আগে ছবি আঁক।” আমায় যদি কেউ বলে শেখানোর জন্য আমি বলি আমি কিছুটা শিখিয়ে দিচ্ছি, কারণ আমি আমার ছবি বিক্রি করে ভালো দাম পাই।

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প্রঃ অর্ডারের জন্য যে দুই-তিনবার করে ছবি আঁকেন তাতে একটু হলেও তো তফাৎ থাকে? এতে গ্রাহকদের কি প্রতিক্রিয়া হয়?

উঃ তা একটু তফাৎ তো থাকবেই এবং সেটা আমি আগে থেকেই গ্রাহকদের জানিয়ে দিই। কোনো ছবি প্রথম আঁকার পর দ্বিতীয়বার যখনই করব তখন সেটা কখনোই পুরোপুরি কপি হয় না একটু পার্থক্য থেকেই যায়। কোনো আর্টিস্টের পক্ষেই সম্ভব নয় একবার কিছু আঁকার পর দ্বিতীয়বার আবার ছবি সেটা আঁকা, কিছু না কিছু খুঁত থেকেই যাবে। ভালোও হতে পারে আবার তুলনায় খারাপও --- সেটা গ্রাহকরা বলতে পারবে, কারণ আমি তো আর ছাপছি না, হাতে করছি।

প্রঃ এ বাড়ির পরবর্তী প্রজন্মের কোন চিত্রকরকে পাওয়া যাবে আবার?

উঃ ওটা আমি কি করে বলব? এখন আমার কাজ আমি করে যাচ্ছি। আমার ভাইপো আছে কিন্তু ও এখন ছোটো। ওকে আঁকতে বলি কিন্তু সে বিষয়ে ওর তেমন কোনো মনোযোগ দেখি না। তাই আমি জানি না ও কি করবে। ওর মতো বয়সে আমি সবসময় ছবি আঁকতাম। আকাশবাণীর মাঠে ক্রিকেট খেলতাম এবং ওখান থেকে ফেরার সময় পার্কস্ট্রিটে নেমে জাভমেন্ট আর্ট কলেজে চুকে কাজকর্ম দেখতাম।

শুধু ছবি নয় স্কালচার কিভাবে করছে, ওর গঠন কিভাবে করছে সব জানলা দিয়ে দেখতাম। এই যে তুমি বসে আছ মাটি পেলে কুড়ি-পঁচিশ মিনিটের মধ্যে তোমার মুখের আদল গড়ে দেব। ওখান থেকেই স্কালচার শেখা আমার। তারপর এখন মাঠেও যাওয়া হয় না কলেজেও যাওয়া হয় না।

প্রঃ একজন পটচিত্রশিল্পী হিসাবে আপনি কি স্বপ্ন দেখেন?

উঃ শিল্পের চাহিদা বৃদ্ধির সাথে সাথে কি সাধারণ শিল্পীরাও তাঁর প্রাপ্য মর্যাদা পাচ্ছেন? আমার দিক থেকে বলছি আমি যতদূর ঘুরে দেখেছি দাম সবাই সঠিক পাচ্ছে। যেমন -

বাংলা সংস্থা ওরা দাম ঠিকই দেয়। আমার ছবিও ওরা কিনেছে, আমি যা দাম বলেছি তাই

আমার ছবিও ওরা কিনেছে, আমি যা দাম বলেছি তাই

আমার ছবিও ওরা কিনেছে, আমি যা দাম বলেছি তাই

আমার ছবিও ওরা কিনেছে, আমি যা দাম বলেছি তাই

প্রঃ পটচিত্র শিল্পী হিসাবে গর্বিত হওয়া এমন কোনো ব্যক্তি

আমার ইচ্ছা আছে বিদেশে একবার ঘুরতে যাব। ২০০৫ সালে আমায় যাওয়ার কথা ছিল আমার একটা শো এর জন্য, কিন্তু সেই প্রোগ্রামটা ক্যানসেল হয়ে যায়। মমতা ব্যানার্জী ওই প্রোগ্রামটা নিয়ে গিয়েছিল মারও যাওয়ার কথা ছিল, এমনকি সব কাগজপত্রও তৈরী ছিল, কিন্তু

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ওদের প্রোগ্রামটাই নষ্ট হয়ে যায়।

পরে জানলাম প্রোগ্রামটা হয়নি। বিদেশ যাওয়ার এই ইচ্ছাটাই বেশি ছিল, কিন্তু হল না। ঠিক আছে আবার পরে হবে।  
সবথেকে বড় কথা কাজ করে যাওয়া আমি তাই-ই করছি।

### সমীক্ষা : পটচিত্র সম্পর্কে দর্শকদের মতামত (অংশ বিশেষ)

নাম : আনন্দী চট্টোপাধ্যায়, প্রথম বর্ষ, বাংলা বিভাগ

কলেজের নাম : শ্রী শিক্ষায়তন কলেজ

- ১। পট আঁকার প্রকৃত শব্দ কী  
ক) কাগজ খ) মাটির পাত্র গ) কাপড় ঘ) জানি না।
- ২। পট কয় ধরনের হয়?  
দুই ধরনের
- ৩। পট আঁকার ক্ষেত্রে নীল রঙ ভেজ থেকে সংগ্রহ করা হয় সেটি কি?  
ক) অপরাঞ্জিতা ফুল খ) শিম পাতা গ) ভুযোকালি
- ৪। হারিয়ে যাওয়া পট চিত্র কী আবার ফিরিয়ে আনা হচ্ছে?  
ক) হ্যাঁ খ) না গ) জানি না
- ৫। মূল পটুয়া শিল্পের সাথে কালীঘাটের পটের কোনো পার্থক্য আছে কী?  
আছে। কালীঘাটের পটের ছবিগুলির বিষয় অন্য পটুয়া শিল্পের থেকে আলাদা।
- ৬। এর মধ্যে যামিনী রায়ের ছবি কোনটি?  
ক) সূর্যমুখী ফুল খ) গণেশ জননী গ) মোনালিসা ঘ) কোনোটিই না
- ৭। গাজীর পট কোন ধর্মের অন্তর্গত  
ক) হিন্দু খ) ইসলাম গ) বৌদ্ধ ঘ) জানি না।
- ৮। বর্তমান একজন পটচিত্র শিল্পীর নাম লেখ।  
জানি না।
- ৯। পটের ইংরাজী প্রতিশব্দ কী?  
জানি না।
- ১০। হারিয়ে যাওয়া পটচিত্রকে বাঁচিয়ে রাখার উপায়গুলি কী হতে পারে বলে তোমার মনে হয়?  
i) প্রাচীন শিল্প কর্মগুলিকে যথাযথভাবে সংরক্ষণ করা।  
ii) পটচিত্রের যথাযথ প্রশিক্ষণের ব্যবস্থা করা।

নাম : তিয়াসা মোদক, প্রথম বর্ষ, বাংলা বিভাগ

কলেজের নাম : শ্রী শিক্ষায়তন কলেজ

- ১। পট আঁকার প্রকৃত শব্দ কী  
ক) কাগজ খ) মাটির পাত্র গ) কাপড় ঘ) জানি না।
- ২। পট কয় ধরনের হয়?  
জানি না
- ৩। পট আঁকার ক্ষেত্রে নীল রঙ ভেজ থেকে সংগ্রহ করা হয় সেটি কি?  
ক) অপরাঞ্জিতা ফুল খ) শিম পাতা গ) ভুযোকালি
- ৪। হারিয়ে যাওয়া পট চিত্র কী আবার ফিরিয়ে আনা হচ্ছে?  
ক) হ্যাঁ খ) না গ) জানি না
- ৫। মূল পটুয়া শিল্পের সাথে কালীঘাটের পটের কোনো পার্থক্য আছে কী?  
না
- ৬। এর মধ্যে যামিনী রায়ের ছবি কোনটি?  
ক) সূর্যমুখী ফুল খ) গণেশ জননী গ) মোনালিসা ঘ) কোনোটিই না
- ৭। গাজীর পট কোন ধর্মের অন্তর্গত  
ক) হিন্দু খ) ইসলাম গ) বৌদ্ধ ঘ) জানি না।
- ৮। বর্তমান একজন পটচিত্র শিল্পীর নাম লেখ।  
জানি না।
- ৯। পটের ইংরাজী প্রতিশব্দ কী?  
জানি না।
- ১০। হারিয়ে যাওয়া পটচিত্রকে বাঁচিয়ে রাখার উপায়গুলি কী হতে পারে বলে তোমার মনে হয়?  
i) পটুয়া শিল্পীদের ফিরিয়ে আনা।  
ii) পট বিষয়কে নিয়ে এগিয়ে রাখা।



নাম: তপোজ্ঞানাহা, প্রথম বর্ষ, ইংরাজি বিভাগ

কলেজের নাম: শ্রী শিক্ষায়তন কলেজ

১। পট আঁকার প্রকৃত শব্দ কী

ক) কাগজ খ) মাটির পাত্র গ) কাগড় ঘ) জানি না।

২। পট কয় ধরনের হয়?

জানি না

৩। পট আঁকার ক্ষেত্রে নীল রঙ ভেজা থেকে সংগ্রহ করা হয় সেটি কি?

ক) অপরাজিতা ফুল খ) শিম পাতা গ) ডুয়ো কালি

৪। হারিয়ে যাওয়া পট চিত্র কী আবার ফিরিয়ে আনা হচ্ছে?

ক) হাঁ খ) না গ) জানি না

৫। মূল পটুয়া শিল্পের সাথে কালীঘাটের পটের কোনো পার্থক্য আছে কী?

জানি না

৬। এর মধ্যে যামিনী রায়ের ছবি কোনটি?

ক) সূর্যমুখী ফুল খ) গণেশ জর্ননী গ) মোনালিসা ঘ) কোনোটিই না

৭। গাজীর পট কোন ধর্মের অন্তর্গত

ক) হিন্দু খ) ইসলাম গ) বৌদ্ধ ঘ) জানি না।

৮। বর্তমান একজন পটচিত্র শিল্পীর নাম লেখ।

জানি না।

৯। পটের ইংরাজী প্রতিশব্দ কী?

জানি না।

১০। হারিয়ে যাওয়া পটচিত্রকে বাঁচিয়ে রাখার উপায়গুলি কী হতে পারে বলে তোমার মনে হয়?

জানি না।

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## COMPARATIVE ACCOUNT OF ACETIC ACID CONTENT IN DIFFERENT TYPES OF VINEGAR

Summer project (2016-17) undertaken by Chemistry Department :  
Neesha Sharma, Sneha Shaw, Farha Bint Alam and Tuba Naaz (3rd Year, B.Sc., General)

### Introduction

Vinegar is a household name. Vinegar is used in almost all kitchens worldwide and also in India. With the introduction of different kind of cuisines in our lifestyle it has become as common a condiment as tomato sauce and pickle. The vinegar that is most widely used is non-fruit vinegar, which is essentially diluted acetic acid. There are several companies which make and market this type of vinegar. But a quick look around any supermarket specially in the aisle of international food will show that it is not the only kind of vinegar available. The aim of this project is to find the acetic acid content in the different kinds of vinegar and to give a plausible explanation to the difference in their acetic acid content, if any. This project also aims to gather knowledge about the different kinds of vinegar and their difference in terms of manufacture, raw material, uses and region of origin.

### Methodology

Different kinds of vinegars were brought from Spencers, in Mani Square Kolkata. Non fruit vinegar of our different manufacturers were brought:

Spencers,

RUK

MV

Natural Garden- a brand made in USA. Apart from this

Apple Cider Vinegar from Natural Garden

Red Wine Vinegar

White Wine Vinegar was bought. Apart from this,

Heikfelds Chilly Vinegar

Heikfelds Spicy Vinegar was also bought.

The acetic acid content of these vinegars were determined by acidimetric titration, using phenolphthalein indicator.

## Methods of preparation of Vinegar

Vinegar is a liquid produced from the fermentation of ethanol in a process that yields its key ingredient, acetic acid. The acetic acid concentration ranges from 4 to 8% by volume for vinegar. Natural vinegars also contain smaller amounts of tartaric acid, citric acid and other acids. Vinegar is important as a preservative and condiment as it is being produced since centuries. It is produced through the action of acetic acid on dilute solutions of ethyl alcohol, derived from yeast fermentation. It is also produced from fermented cider, fruit juices or other fermented alcoholic solutions.

### The manufacturing process:

There are various different methods, for the preparation of vinegar

1. The Orleans process- Wine vinegars are made using a fermentation method known as Orleans process. This method is made famous by a French scientist and was named after a small town in France named, Orleans, known as the city of vinegar. It is a slow continuous process. High grade vinegar is used as a starter culture, to which wine is added at weekly intervals. The vinegar is fermented in large [ litres] capacity barrels. Approximately 65 to 70 litres of high end vinegar is added to the barrel along with 15 liters of wine. After a week a further 10 to 15 liters of wine is added and the process is repeated at weekly intervals. After about four weeks, vinegar can be drawn from the barrel or more wine is added to replace the vinegar.
2. The quick vinegar method- Because the Orleans process is slow, others methods have been adapted to speed up the process. The German method is one such method. It uses a generator which is an upright tank filled with beech wood shavings and filled with devices which allow an alcoholic solution to trickle down through the shavings in which the acetic acid bacteria are living. The tank is not allowed to fill as that would exclude oxygen which is necessary for fermentation. Near the bottom of the generator are holes which allow air to be drawn in. The air rises through the generator and is used by the acetic acid to oxidize the alcohol. The oxidation also releases a considerable amount of heat which must be controlled to avoid causing damage to the bacteria.
3. Natural Fermentation:  
It can be made easily by fermentation of fresh sap in plastic or earthen jar until it becomes sour. Then pack into plastic bottles and place under the heat of sun for few days. The very common package used is 1.5 litres coke bottle. Sugar palm and coconut sap are common examples.

### Apple Cider Vinegar:

Apple cider vinegar also known as cider vinegar or ACV, is a type of vinegar made from cider or Apple must and has a pale to medium amber colour. Organic ACV contains mother bacterial culture or acetobacter of vinegar its cob web like appearance can make vinegar look slightly congealed.

Apple cider is the name used in United States and parts of Canada for unfiltered, non-alcoholic beverage made from apple. It is used in salad dressing, marinades, food preservatives and chutneys among other things. It is made by crushing apples and squeezing their liquids out. Bacteria and yeast are added to it to start the alcoholic fermentation process, and the sugars are turned into alcohol. After the fermentation process, the alcohol is converted into vinegar by acetic acid forming bacteria Acetobacter. Acetic acid and Maleic acid gives vinegar its Sour taste.

**Health benefits** -The most popular vinegar in the International health community is Apple cider vinegar. It has claimed to have all sorts of benefits some of which are supported by science. This includes weight loss, lower blood sugar levels and improved symptoms of diabetes. The six most important health benefits of apple cider vinegar by scientific research are

1. high in acetic acid which has potent biological effects . vinegar is made in a two step process. the first step exposes crushed Apple to yeast which ferment the sugar and turn them into alcohol. In Second step bacteria are added to the alcoholic solution which further ferment the alcohol and turns it into acetic acid, the main active compound of vinegar. organic unfiltered apple cider vinegar also contains, strands of proteins, enzymes and friendly bacteria.

2. ACV only contains about 3 calories per tablespoon, which is very low. There are not many vitamins or minerals in it but it contains a tiny amount of potassium. Quality ACV also contains amino acids and antioxidants.

3. It can kill many types of bacteria- Vinegar can kill pathogens including bacteria. it has traditionally been used for cleaning and disinfecting, treating nail fungus, lice, warts and ear infection. Hypocrites the father of modern medicine used vinegar for cleaning of wounds over 2000 years ago. Vinegar has been used as a food preservative and studies show that it inhibits bacteria like E.coliform growing in the food and spoiling it. It helps in removing acne when applied on skin.

4. Lowers blood sugar level and fights diabetes - Type II diabetes is characterised by elevated Bloodsugars, either in context of insulin resistance or an inability to produce insulin. The most effective way to keep blood sugar levels stable is to avoid refined carbohydrates and sugar but ACV may also have a powerful effect. This vinegar benefits insulin function by improving insulin sensitivity during a high carbohydrate meal by 19 to 34 %. Reduces blood sugar by 34% when eating 50 g of white bread, 2 tablespoons of apple cider vinegar before bedtime can reduce fasting blood sugar by 4% .

5. It helps in weight loss also. Several studies suggest that vinegar can increase satiety, helps eat fewer calories and even lead to actual pounds loss of weight on the scales. Vinegar along with high carb meals increases feelings of fullness and make people eat 200 to 275 fewer calories for the rest of the day. A study in obese individual showed that daily vinegar consumption helped to reduce belly fat , waist circumference, lower blood triglycerides and weight loss in 12 weeks.

6. Lowers cholesterol and reduces risk of heart disease – cardiovascular disease is currently world's biggest cause of death. ACV contains the antioxidant chlorogenic acid which protect the LDL



cholesterol particles from being oxidised, a critical process in heart disease. Observational studies from Harvard on human evidences show that woman who ate salad dressings with vinegar had reduced heart risks.

6. It also may have protective effect against cancer – cancer is a terminal disease characterised by uncontrolled growth of cells. Some studies shows that vinegar can kill cancer and shrink tumours. But it is definitely premature to make any recommendation on cancer treatment by ACV based on current research.

Adverse health effects- ACV is a natural tonic. Unfortunately it has some side-effects when taken in large doses.

1. Delayed stomach emptying – it prevents blood sugar spikes by reducing the rate at which it leaves the stomach and enters the lower digestive tract. This slows down its absorption into the bloodstream. The effect may worsen symptoms of gastroparesis, common in type 1 diabetes, which include heartburn and nausea.
2. Low potassium level- In accordance with a natural standard review the high acetic acid content of ACV causes low Potassium level of our blood and also reduces bone mineral density with excessive consumption
3. Damaged tooth enamel- the high acidity levels of undiluted ACV can destroy our tooth enamel when consumed orally. Besides giving yellow tinge to our teeth, It increases our dental sensitivity as well

#### Wine Viengars:

Wine vinegar – it is made from red or white wine, and it is most commonly used vinegar in southern and central Europe, Cyprus and Israel. Better quality wine vinegars are matured in wood for up to 5 years and exhibit a mellow flavour. These vinegars tend to have a lower acidity than white or red wine vinegar. Expensive wine vinegar are made from varieties of wine, like Sherry, Champagne, and Port wine.

Red wine vinegar - as the name implies red wine vinegar is made from red wine, though the product is non-alcoholic. The vinegar is acidic and is often used in salad dressing and marinades. The red wine vinegar offers a variety of other potential health benefits.

Low-fat, low calorie ingredient- Redwine vinegar has very low calorie and does not contain any fat. Using this on foods such as tossed green or pasta salad adds a burst of flavour with out adding any amounts of fat and calories. It is saturated and has low trans fat.

Trace nutrients – 1 tablespoon of red wine vinegar does not supply huge doses of any nutrients, but it does contain traces of several key vitamins and mineral. It contains tiny amount of iron which our body to make red blood corpuscles and prevent anaemia. It also contain traces of potassium and vitamin c. Because Redwine vinegar is sour, it contains resvaretol, which might help to reduce

risk of cancer and slow or inhibit the growth of cancerous tumours. Red wine vinegar also contains polyphenols which are compounds from plants that act as anti-oxidants to reduce cell damage caused by environmental factors.

#### White wine vinegars

Like Redwine vinegar the white wine vinegar also contains fewer calories but packs a lot of flavour. It lowers cholesterol and triglyceride levels. Because white wine vinegar has a neutral taste, it can be paired with a variety of foods. It is used to add a bit of acidity to foods or to make salad dressings. Since white vinegar is purified and distilled and because of high acid content it well suits to make pickles, mustard and canned foods.

Non-health benefits – in addition in addition to several health benefits wine vinegar offers some non-health benefits. According to vinegar institute it acts as a herbicide and kills weeds and invasive plants. Unlike chemical pesticide, it does not contribute to air and water pollution. It also serves as a natural disinfectant for cleaning inside the home and out. It is our low-cost, eco-friendly alternative to chemical spray and cleaners.

#### Side effects of wine vinegar –

Hypokalaemia - It means lower than normal level of potassium in the bloodstream. Excessive ingestion of wine vinegar leads to hypokalaemia. The symptoms are weakness, muscle cramps and fatigue.

Osteoporosis – it is a condition in which the bones become weak and brittle and easily fractures. It is due to low calcium content in the bones. When excessive wine vinegar is ingested it interferes with absorption of calcium from stomach.

Hyperreninemia- this is a condition in which there is a elevated renin level in the blood stream it leads to hypertension and kidney dysfunction.

Thus vinegar optimise the taste of salad, gives us many health benefits but we should carefully check in the use as excessive of anything is bad and vinegar should also be used in moderation without having to worry about its side affects.

There are many other types of vinegar which were not included in the study, mainly due to its availability in the local and online market.

#### Other Types of Vinegar

Balsamic vinegar

Rice vinegar

Apple cider vinegar



Cane vinegar

Beer vinegar

Coconut vinegar

Raisin vinegar

**Balsamic Vinegar:** In Italian - "Aceto Balsamico" is a vinegar originating from Italy. The original cost traditional balsamic vinegar is made from a reduction of cooked white trebbiano grape juice, and used as condiment. It has been produced in Modena and Reggio Emilia.

**Uses:** Commercial grade balsamic vinegar is used in salad dressings, dips, marinades, reductions and sauces. In Emilia, Romagna, traditional vinegar is most often served as drops on top of chunks of parmesan reggiano and mortadella as an anti pasto. It is also used sparingly to enhance steaks, eggs, or grilled fish as well as on fresh fruit such as strawberries and pears and on plain custard and gelato.

**Rice Vinegar-**It is made from fermented rice, a rice wine in China, Japan, Korea and Vietnam. It is mostly popular in cuisines of east and south east Asia. It is available in white, light yellow, red and black varieties.

White rice vinegar has a mild acidity with a somewhat flat and uncomplex flavor. Some varieties of rice vinegar are sweetened or otherwise seasoned with spices or other added flavouring.

Black rice vinegar, made from black glutinous rice is most popular in China and it is also widely used in other east Asian countries. It is made simply from rice and water through fermentation, rice vinegar like all vinegar has that acidic punch that on its own can be hard to swallow.

**Uses and Importance-** Full of anti oxidants, and essential amino acids, rice vinegar aids everything from immunity to digestion and much more.

Sushi rice is seasoned with this blend of rice vinegar.

**Malt Vinegar-** Malt Vinegar also called aleghau and is commonly found in United Kingdom and Canada.

It is made by melting barley, causing the starch in the grain to turn to Maltose. Then an ale is brewed from the Maltose and allowed to turn into vinegar which is then aged. It is typically light brown in colour.

**Uses: Diet Aid-** Malt vinegar is used to promote weight loss by using it to replace high calorie spreads such as mayonnaise.

**Calcium Absorption-** Using malt vinegar daily reportedly aids the body in Calcium Absorption.

**Food Cleanser-** Giving fresh fruits and vegetables a malt vinegar bath before consuming reportedly

the harmful chemical residue of pesticide that may have been used during the growing.

**Beer Vinegar-** Vinegar made from beer is produced in the United Kingdom, Germany, Austria and Netherlands.

Its flavor depends on the particular type of beer from which it is made. It is often described as having a malty taste. The one produced in Bavaria is light golden colour with a very sharp taste.

**Coconut Vinegar-** It is used extensively in south east Asia, India and Srilanka.

Coconut tree grows in nutrient rich, often time volcanic soils, which allows the coconut flowers to produce a sap that is low glycemic and has practically neutral pH. The sap is aged for months to a year during which time it naturally ferments. It is then delicately harvested and bottled as vinegar, a mixture with incredible health benefits like other coconut products.

**Uses:**

Used as salad dressing and marinades

Used for beauty benefits and used as a cleanser and toner which kills bacteria thus preventing acne.

It is used in south Asian cuisines, especially in India and Srilanka, like in Goan cuisine.

**Cane Vinegar-** It is made from sugarcane juice, is most popular in Philippines, in particular in the northern region. A white variation has become quite popular in Brazil.

Two ways of producing cane vinegar is generally practiced. One way is to simply place sugarcane juice in large jars till it becomes sour by direct action of bacteria and sugar. The other way is through fermentation to produce a local wine known as Basi. Low quality base is then allowed to undergo acetic acid fermentation that converts alcohol into acetic acid. Contaminated Basi also becomes vinegar.

**Use:**

It is used in pickling

It is used in Japan to inhibit the growth of leukemia.

It helps to get rid of stones in bladder, urinary problems, and vision problems.

**Raisin Vinegar-** As the name implies it is made from raisins. It is called "khal" in Arabic and is used in different customs in Middle east. This vinegar is also produced in Greece. It is a mild tasting, cloudy brown vinegar made from raisins.

**Uses-** It is used in salad dressings

It is used with cinnamon to bolster its flavor in middle eastern cuisines.



**Experimental Procedure:**

**Chemicals required:-**

- 1) oxalic acid
- 2) vinegar
- 3) phenolphthalein

**Apparatus required:-**

- 1) burette
- 2) pipette
- 3) conical flask
- 4) stoppers bottles
- 5) Beakers

**Procedure:-** 1) 100ml of (N/20) oxalic acid was supplied as the primary standard solution.

2) 250ml of approximately 1/40 (N) NaOH solution was supplied. This was the secondary standard solution.

3) NaOH solution was standardised against oxalic acid solution using 25 ml aliquot of the acid. Phenolphthalein was the indicator of choice. The data was recorded in a tabular form.

4) 2ml of vinegar and 23ml of water was pipette out in a 250ml conical flask and titrated against standardised NaOH solution. The titration was at least repeated twice and phenolphthalein used as an indicator.

**Working formula:-** The concentration of acetic acid was calculated using,  $V_x S_x = V_y S_y$

Where,  $V_x$  = Volume of NaOH used, i.e burette reading

$S_x$  = the Strength of NaOH used

$V_y$  = Volume of acetic acid taken, i.e 2ml

$S_y$  = Strength of acetic acid, i.e to be calculated.

**Table 1:-Standardisation of NaOH with oxalic acid**

No. of obs.	Volume of Oxalic acid (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of Oxalic acid used	Strength of NaOH
1.	25	16.6			$25 \cdot N/20 = x \cdot V$
2.	25	16.6	16.6	N/20	$X = 0.075 (N)$
3.	25	16.6			

**Table 2:-Titration of DNV White Vinegar with NaOH using phenolphthalein as indicator**

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	14.8		0.075 (N)	0.554 (N)
2.	2	14.7	14.77		
3.	2	14.8			

**Table 3:-Titration of Weikfield Chilli Vinegar with NaOH using phenolphthalein as indicator**

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	17.3		0.075 (N)	0.65 (N)
2.	2	17.4	17.33		
3.	2	17.3			

**Table 4:-Titration of White Wine Vinegar with NaOH using phenolphthalein as indicator**

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	26.8		0.075 (N)	1.008 (N)
2.	2	26.9	26.87		
3.	2	26.9			

**Table 5:-Titration of DRUK Synthetic White Vinegar with NaOH using phenolphthalein as indicator**

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	19.6		0.075 (N)	0.734 (N)
2.	2	19.5	19.57		
3.	2	19.6			



Table 6:-Titration of Dr. Oetker Funfoods Spicy Vinegar with NaOH using phenolphthalein as indicator

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	18.7		0.075 (N)	0.701 (N)
2.	2	18.7	18.7		
3.	2	18.7			

Table 7:-Titration of Red Wine Vinegar with NaOH using phenolphthalein as indicator

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	26.7		0.075 (N)	1.004 (N)
2.	2	26.9	26.77		
3.	2	26.7			

Table 8:- Titration of Spencer's Non-Fruit Vinegar with NaOH using phenolphthalein as indicator

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	25.8		0.075 (N)	0.963 (N)
2.	2	25.6	25.67		
3.	2	25.6			

Table 9: Titration of American Garden Natural Vinegar(White) with NaOH using phenolphthalein as indicator

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	22.4		0.075 (N)	0.843 (N)
2.	2	22.5	22.47		
3.	2	22.5			

Table 10 :- Titration of American Garden Natural Vinegar(Apple Cider) with NaOH using phenolphthalein as indicator

No. of obs.	Volume of Vinegar (ml)	Volume of NaOH (ml)	Mean Volume (ml)	Strength of NaOH used	Strength of acetic Acid (N)
1.	2	22.9		0.075 (N)	0.859(N)
2.	2	22.9	22.9		
3.	2	22.9			

Table 11

Serial No.	Type of Vinegar	Acetic Acid Content [Concentration in Normality/N]
1	DNV White Vinegar	0.554 (N)
2	DRUK White Vinegar	0.734 (N)
3	Spencer's White Vinegar	0.963 (N)
4	American Garden White Vinegar	0.843 (N)
5	American Garden Apple Cider Vinegar	0.859 (N)
6	Red White Vinegar	1.004 (N)
7	White Wine Vinegar	1.008 (N)
8	Spicy Vinegar	0.701 (N)
9	Chilly Vinegar	0.65 (N)

Conclusions:

White Vinegar of different companies vary in their content of acetic acid.

Wine Vinegars have more acetic acid than white vinegar.

Amongst the two wine vinegars, there is no appreciable difference in the amount of acetic acid.

Apple Cider Vinegar has marginally more acetic acid than the corresponding white vinegar of the same company. It might be due to the Maleic Acid from the apple.

Spicy and Chilly Vinegar has so difference in terms of acetic acid content, i.e the spices and chilly added to it does not contribute significantly to the acidity factor.



### Future Scope:

1. This work can be carried forward by the next year students by doing the test on other different kinds of vinegar, that can be procured from other cities if possible.
2. The components of wine vinegars can be analysed separately to see which one is contributing the extra acidity.
3. An attempt can be made to prepare vinegar naturally in the lab and its acetic acid content analysed in a similar manner.

### References:

1. Wikipedia
2. Authoritynutrition.com
3. livestrong.com
4. Timesofindia.com
5. Busycooks.com
6. Chopsticksny.com
7. Organicfacts.com
8. Ruhlman.com
9. Coconutsecrets.com
10. Fruitsinfo.com
11. Peoplespharmacy.com
12. Themadfermentationist.com

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## INDIA : NO MORE AN UNDER DEVELOPED COUNTRY

By Srijata Bagchi and Sohini Maity, B.Sc. 1<sup>st</sup> year, Economics Honours

### Introduction

Eugene Stanley defined an underdeveloped country as, "A country characterized by mass poverty, which is chronic and not the result of temporary misfortune and obsolete methods of production and social organizations, which means that the poverty is not due to poor natural resources and hence could presumably be learned by methods already proved in other countries."

Prof. Jacob Viner is of the opinion that an underdeveloped country "is a country which has good potential prospects for using more capital or more labour or more available capital resources or all of these, to support its present population on higher level of living or if its per capita income level is already fairly high, to support a large population on a not lower level of living."

According to the UN group of states, "We have had some difficulty in expressing the term underdeveloped countries'. We use to mean countries in which per capita real income is low when compared with the per capita real income of the United States of America, Canada, Australia and Western Europe. In this sense an adequate synonym would be poor countries."

The Planning Commission of India offered a definition of underdeveloped country, as one "which characterized by the co-existence, in greater or lesser degree, of unutilized or under-utilized manpower on the one hand and of the unexploited natural resources on the other."

The top ten underdeveloped countries according to the UN report are: [in descending order]

Mozambique

Guinea

Burundi

Burkina Faso

Eritrea

Sierra Leone

Chad

Central African Republic

Democratic Republic of Congo

Niger



## Methodology

The methodology used in this study is descriptive, and to some extent analytical. The analysis has been done on the basis of secondary data, available in the reviewed literature and official Government of India websites. The study begins by explaining the key characteristics of India's underdevelopment in the initial years after independence along with underlying factors due to which they were caused. It then proceeds on to the facts and figures regarding the different measures of development and how they have changed over the years in the fields of income, capital formation, agricultural production, unemployment, level of technology and educational facilities. It ends with a conclusion and a list of the references used to prepare the study.

## Analysis

The characteristic features of economic underdevelopment in India since independence are presented below:

- The primary characteristic feature would be low income. After independence India was among the few poorest countries of the world at that time. The Government of India had used techniques of 'Democratic Planning' to boost the low levels of income prevalent at that time. In spite of such attempts India still remains to be an underdeveloped country in terms of per capita income.
- Low level of per capita income results in poor purchasing power of the masses and hence leads to poor standard of living. Though the Indian Government has taken initiatives, India has a long way to go to uplift the physical quality of life of the people.
- Capital is supposed to be an immensely important factor of development. Creation of domestic savings, its mobilization and its investment in productive channels, leads to capital formation in a country. In 1950-51, the net savings and investment rate was around 6 per cent, these rates did increase during the planned period. It went on to increase to 23 per cent in 1998. However, it is not adequate enough in view of the growing population pressure.
- Heavy population pressure or population explosion, along with a high growth rate of population is another characteristic of high underdevelopment. According to the provisional reports, the population of India went from 361 million approx in 1951 to 846 million approx in 1991. It showed a high rate of increase due to various reasons such as: High Birth Rate, Falling Death Rate and Influx of Refugees.
- The occupational structure of India is highly dependent on agriculture for their livelihood with a part of the primary sector. In 1994-95 only 33 per cent of the NDP was contributed by the primary sector. Therefore even though a majority of people depend on agriculture, the comparatively much lower productivity in this sector.

Although the national income of India had increased during the plan periods, it was not distributed properly among different sections of society. The sixth 5 Year Plan Document showed that the top 10 per cent of the rural households owned about 51 per cent of the rural assets and the bottom 30 per cent had only 2.5 per cent of rural assets. This indicated a huge gap in the distribution of income and wealth. This situation remained almost unaltered in 1971 also.

The rapid growth in population along with inadequate job opportunity resulted in unemployment and underemployment situation in India. The problems of disguised and seasonal unemployment in the agricultural sector arise due to high number of farmers in comparison to the cultivated land they are working on. The latter occurs due to the absence of good irrigation and subsidiary occupational opportunities. The problem of high unemployment among educated and skilled workers in urban areas has also increased in India during the plan periods. Due to these reasons the rates of unemployment and underemployment keep increasing and are difficult to be done away with.

Another major problem the Indian economy suffers from is low levels of technology and skill-formation. The low productivity in Indian agriculture and industries are largely a reflection of technological backwardness. Although the application of modern technology has increased considerably yet it remains insufficient in Indian industries. This is mostly due to expensiveness of the techniques and equipments, considerable degree of skill for their application, inadequate capital, inadequate personnel and improper education.

In answer to the questions and problems raised so far on the principle characteristics of India as a less developed economy could be provided through the following:

Despite more than six decades of planned economic growth around 40 per cent of the total population are still subject to extreme poverty. This section of society is deprived of the minimum standard of living and some of the bare necessity of life. This leads to the creation of a vicious circle of poverty as shown in the figure below.

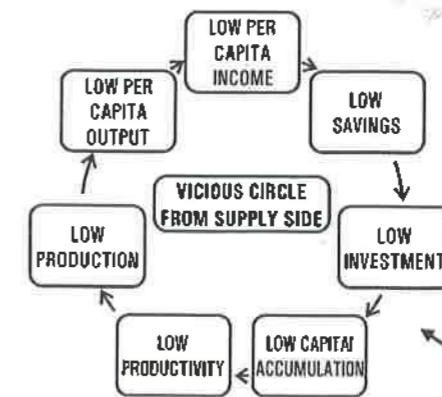


Fig. 1



The low per capita income generates low savings; low savings means low investment and hence low capital formation. This results in low productivity and low national output. With a growing population, a low level of national output would mean the low per capita output and income which makes the circle complete. This circle as shown in the figure is generated due to an inadequate supply of capital.

We can explain this cycle from the demand side as well. On the demand side low per capita income would mean low purchasing power and a narrow market. This leads to low investment. Therefore capital formation remains at a low level resulting in low productivity, low production, low per capita output as shown in the figure below.

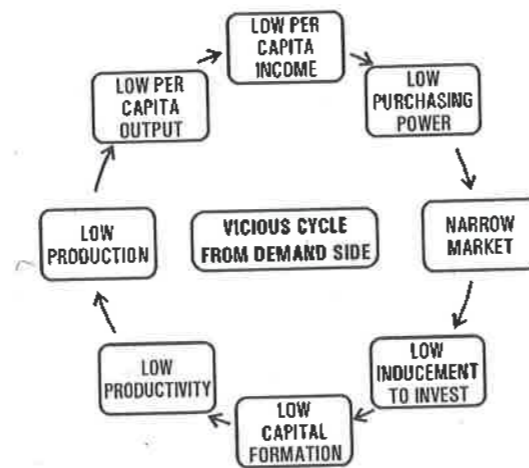


Fig. 2

- The essence of entrepreneurship lies in creating something new in the market place. In the event of short supply of resources it is entrepreneurial talent which is needed to bring investment and higher innovative capabilities in the economy. In the case of India there is a serious lack of entrepreneurship. This is mostly due to lack of communications, transportation, supply of materials, well developed money market and supply of infrastructural facilities. As a result proper utilization of different factors of production does not reach its optimum level leading to slow per capita output growth.
- The vicious circle of poverty could not also be broken due to the obsolete setup by various international forces. These forces hinder capital accumulation, investment, entrepreneurial and technological growth in less developed countries. Economists believe that even after independence from colonialism, the foreign colonial capitalists act as agents of monopoly capitalism and they use foreign trade, investment and even foreign aids to transfer the economic surplus from our country to the power centres of developed countries.
- Higher incidence of illiteracy and low efficiency of the work force in most of the less developed countries also indicate a poor quality of human capital. An improvement in the mental ability

and physical capability of the people would mean an increase in human capital because this enables more production.

When we review the condition of India over the years, from after independence to recent times, we see how economic underdevelopment transforms into economic growth and it is only then that the dynamic characteristics of India's developing economy that become prominent. This can be explained by the following:

Economic growth measured in terms of GDP has always remained one of the principle objectives of India's 5 Year Plans. The drastic increase of India's GDP from the period after independence to the present times has been great. The annual compound growth rate and per capita NNP increase was from 3.6 per cent and 1.80 per cent in the First Plan to 6.7 per cent and 4.6 per cent respectively during the Eighth Plan.

The structure of National Income that is the contribution of different sectors in the National Income of India has also changed since the Plan Periods. The contribution of the primary sector to the National Income declined from 55 per cent to 27 per cent from 1950-51 to 1999-2000. This shows the economic shift and dependence from agriculture to industrialization which is a part of the secondary sector.

At the beginning of the Plan Period, gross domestic savings and gross domestic capital formation remained only 8.9 per cent and 8.7 per cent respectively. By the end of the Eighth Plan these rates have increased up to 23 per cent and 24 per cent respectively.

In 1950-51 total production of food grains was only 50 million tonnes approx. which increased to 209 million tonnes in 1990-2000. The average yield of food grains per hectare also increased from 872 kg to 1,697 kg during that period. Another important achievement in this field would be that the per capita net availability of food grains per day increased from 395 grams to 466 grams from 1951-2000.

The industrial structure has been widely diversified covering broadly the entire range of the consumer and capital goods industry. India has attained self-sufficiency in almost all consumer goods. Growth of capital goods production has been especially impressive industrial capacity has increased substantially in mining and metallurgical industries, chemical and petrochemical industries, fertilizers and various other capital goods industries.

When we talk about changes in the Indian foreign trade over time we notice that both export and import structures have changed in India since the Plan Periods. There has been a continuous decline in the importance of agriculture and allied products in Indian exports. For example in 1960-61 the agricultural share in total export earnings was about 44 per cent which declined to 15 per cent in 1999-2000. On the other hand the share of manufactured items in our export earnings increased from 45 per cent to 32 per cent during the same period.

Several steps were taken to counteract the problem of poor health and educational facilities which had led to unemployment and underemployment in the earlier years. The Government of India extended health facilities to the maximum number of people by increasing the number of primary health centres from 725 in 1951 to 22,002 in 1997. Further the number of hospitals was increased from 2,694 in 1951 to 13,692 in 1992. Due to all this the average life expectancy at birth



increased from 41 years to 61 years in the same period. In the field of education the number of primary schools was increased from 2.2 lakhs in 1957 to 7.4 lakhs in 1995. The number of students involved also increased from 19 million to 109 million during the same school period. This led to an increase in the average literacy rate from 18.3 per cent to 852.2 per cent in the same period.

- Last but not the least the changes brought about by the Planning Commission of India over the years paved the way for modernization in the framework of economic activity. There was not only a shift in the sectoral composition of National Income from agriculture to industries, but also an advancement in technology and institutional innovation. Breakthrough in Indian agriculture took place in the form of the application of high yielding varieties of seed, chemical fertilizer and better irrigation facilities. In the industrial sector, increasing application of computers, sophisticated machines, improvement in fuel efficiency of prime mover and improvement in the commercial use of non-conventional energies led to wide-scale improvement in this sector.

### Conclusion

We can now point out in brief the reasons as to which we can reach the conclusions that the Indian economy is no longer an underdeveloped economy but a developing one. The answer to the question is follows:

At a time when India lacked the democratic planning to boost the lower levels of income and among the poorest countries in the world, it was the Plan Periods that brought about an increase in the per capita and NNP and National Product. These Plan Periods led to an increase in domestic savings and capital formation from the low rates that prevailed earlier. The high dependence on agriculture also saw a sectoral shift from it to industrialization. High levels of unemployment in rural and urban areas due to seasonal fluctuations and improper education and skill transformed into better quality human capital and job opportunities due to increase in health and educational facilities. Finally, low levels of technology saw immense breakthrough in the fields of agricultural and industrial production due to better utilization and innovation of natural resources. These changes brought about since the post-independence period brings us to the conclusion that India may have been an underdeveloped country in the past but is now a developing country and not underdeveloped anymore.

### References

- Banerjee A. and Mazumdar B. (2015): Fundamentals of Economic Principles and Problems, S. Chand Publishing Co. Ltd.
- Datt Gaurav and Mahajan Ashwani (2015): Indian Economy, 71<sup>st</sup> Edition, S. Chand Publishing Co. Ltd.
- Panagariya Arvind and Bhagwati Jagdish (2014): Why Growth Matters, Public Affairs Books.
- [www.bls.gov.in](http://www.bls.gov.in);
- [www.worldbank.org.in](http://www.worldbank.org.in)
- [www.censusindia.gov.in](http://www.censusindia.gov.in)
- [www.oecd.org](http://www.oecd.org)
- [www.hdr.undp.org](http://www.hdr.undp.org)
- [www.economicstimes.com](http://www.economicstimes.com)

## REPORT ON A SURVEY ON USAGE OF LIBRARY FACILITIES

By - Arwa Limdiwala, Sreshtha Gupta, Tanya Jaiswal.

BA 2nd year Education Honours

### Introduction

All around the world every organisation or institution has objectives to achieve which is not possible without systematic resources which facilitate the progress of performance in all activities and help to accomplish the goals and objectives. Such resources in an educational institution include library which nurture the development of the individual to prosper in their life.

A library of 21st century are just not the storehouse of knowledge but an effective mechanism to facilitate the dissemination of knowledge, promoting information and knowledge sharing while at the same time supporting the growth of knowledge and the achievement level of the student.

Collection of information resources in print or in other form that is organised and made accessible for reading or studying is called a library.

Library is not only a rich source of books, or a comfortable place for extra reading but also a treasure house of knowledge and an absorbing centre for inquisitive mind. It preserves the great thoughts, the beautiful imaginations and the accumulated wisdom of ages. Libraries preserve knowledge so that none is lost, organise knowledge so that none is wasted and makes knowledge available so that none is deprived.

Library is the centre of intellectual life of an educational institution. It has sources of information available at all times for reference. It provides light literature for passing time and entertainment. It provides a quiet place and an environment which encourages reading and studying. It is much more than distributing books. It provides stimulating, inspiring and comfortable atmosphere for studies. It is rather an alive workshop as it broadens the horizon of individual.

### Functions of a library

A library promotes self study and self education. It supplements classroom work by providing opportunity of wider independent study. Library broadens the field of interest and the area of information. It places before the students a rare masterpiece and rich sources of wisdom giving authentic information to students and developing study habits in them as library introduces silent reading, reading for pleasure, etc. Libraries have necessary procedure and rules which help students learn, handle costly and precious books and keep them unspoiled. It also provides an opportunity for the right and productive use of one's leisure time which channelise our time and energy in right direction which otherwise would be wasted inculcating the power of new ideas and new arguments through books. It also enhances the imagination power, language ability and power of expression by providing students for preparation for various activities likes debates, quiz, etc. Library helps individual escape boredom and worry as books are a true companion in loneliness and in the state of stress.



and depression providing opportunities which enable them to discover and develop their true talents and interest giving rise to all round development of personality.

### Our college library

Our college library was established in 1955 with the inception of college. The library hours Monday to Friday is 7:30am to 7:30pm and 9am to 2pm on Saturday.

Our college library is managed and maintained by the ministerial staffs who are responsible for inspecting the identity cards of students during the entry to and exit from the library and also to issue the books and help search for the required books for students, general library staffs who are working as librarians in the college since 2004 and security staffs to ensure that students do not carry any weapons or unnecessary items inside the library who contribute to the human resources of our college library giving excellent services.

Material resources in the library includes more than 44,000 books with 50 printed journals and online journals and making it an e-resource as our library is member of two national networks.

Facilities provided by our college library includes computerized entry and exit system, central air conditioned, separate study room for faculty members, baggage counter, close circuit camera, reprography facilities, internet facilities and grievance box. Various activities are conducted in college library like open book examinations, Srigyan- a book exhibition, Vidyasagar Diwas, library orientation, book talk and panel discussion by students.

### Survey

A survey was conducted by the department of education to know the usage of college library by the students of 2nd year session 2016-2017 with the following objectives:

- To find out the patterns of **library usage** by the students of 2<sup>nd</sup> year – **services, utilization, frequency and duration of visit, frequency of borrowing of books, category of books borrowed, use of internet and reprography facilities.**
- To find out the **extent of attendance of the students towards maintenance of library resources and discipline.**
- To **rate the satisfaction level** of students with regard to **various aspects of the library.**
- To see the **trend of student usage** with regard to **services and books availed, approach of staff and frequency of visit, in comparison with an earlier survey conducted in 2014.**

The tool used was a questionnaire prepared by the department of education that has been used in earlier surveys, with some modifications.

### SAMPLE :

Students of 2<sup>nd</sup> year

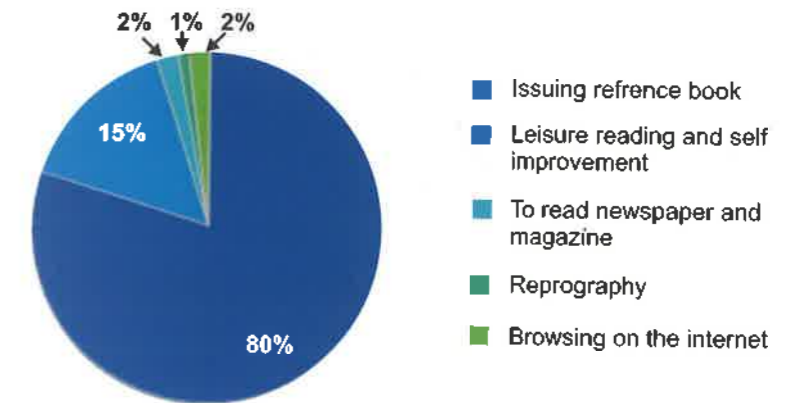
- BA – 54, ● BSc. – 26, ● BCom – 20

### Findings

The first question was based on the purpose and reason for using the college library



Main reasons for using the library

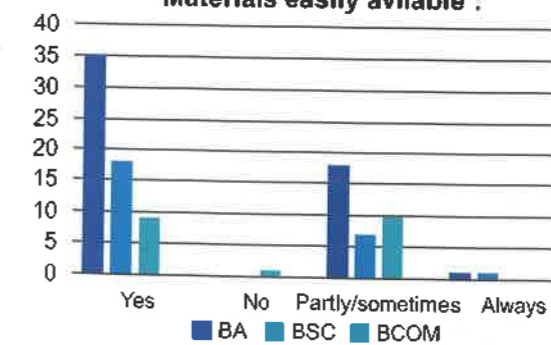


where we found that, 80% of students use library for issuing books for reference, 15% of the students use library for leisure reading and self improvement, 2% of students use to read newspaper and magazines, another 2% use for browsing internet and 1% of students use it for reprography services.

The second question was based on whether the materials are easily available to students or not where we found out that, BA students were mostly satisfied as compared to other departments as 35% of BA students whereas 19% of BSc. and 9% of BCom students always met their requirements.



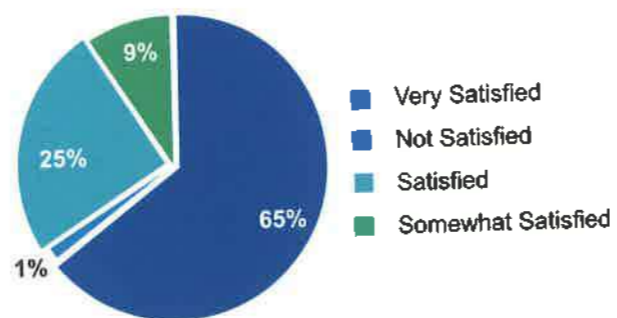
Materials easily available :





The third question talked about the approachability of the library staff

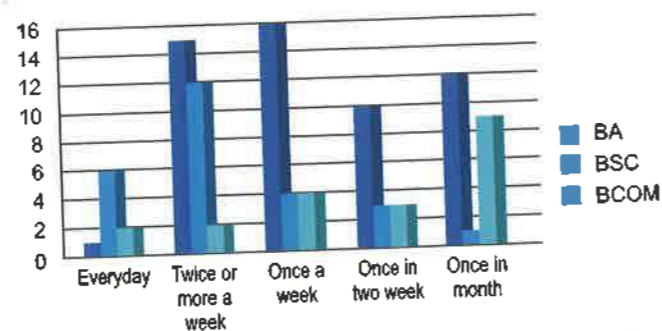
### APPROACHABILITY OF THE LIBRARY STAFF :



where we found out that, 65% of the students were very satisfied, 25% students were satisfied, 9% students were somewhat satisfied and whereas 1% of students were not satisfied

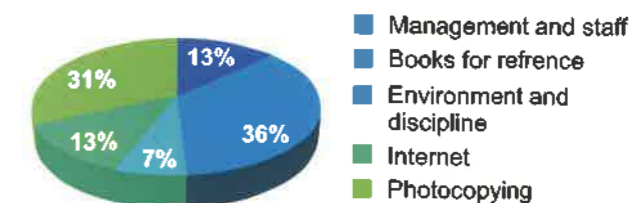
The next question was about the frequency of visits to the library where we found out that, 16% students in BA department visited library once a week, 12% of students from BSc. department visited library twice or more in a week and whereas 9% of students from the department of BCom visited library once in a month.

### Frequent visits to the library ?



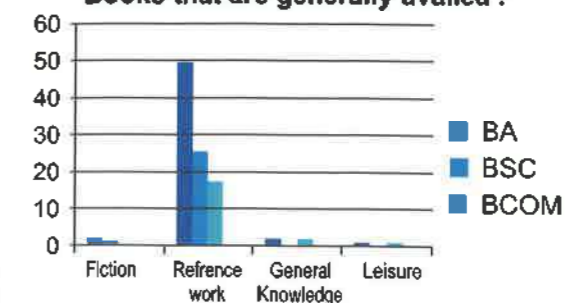
The next question was based on the services of the library which requires improvement we found out that, 36% of students said borrowing for references should be improved, 31% students said internet facilities should be improved, 13% of students said management should be improved, another 13% of students said that staffs should be improved and 7% of students said the quality of environment and discipline in the library should be improved.

### Service of library that requires improvement



The next question asked about the types of books availed by the students where we found out that, 49% of students of BA department avail reference books as compared to 25% BSc. students and 15% to Bcom students.

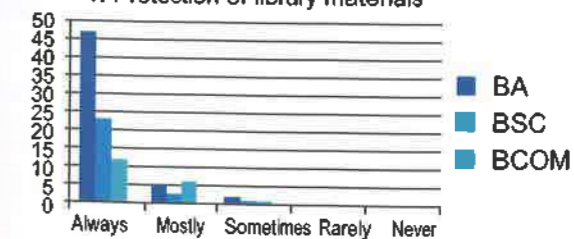
### Books that are generally availed :



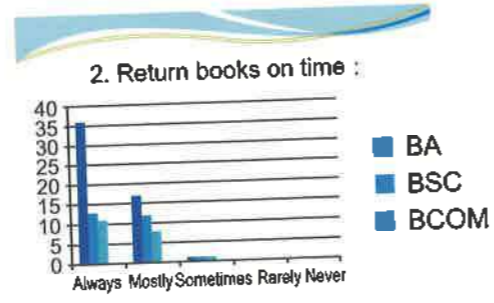
The next question was about the role of students towards the maintenance of library resources and discipline where we found out that, 45% of BA students protected library materials as compared to 22% of BSc. students and 11% of BCom students.

### Findings regarding student's responsibility towards maintenance of library resources and discipline

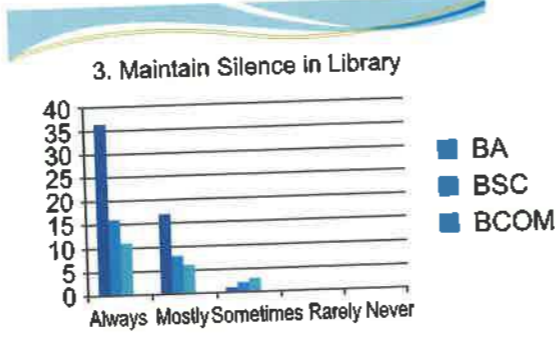
#### 1. Protection of library materials



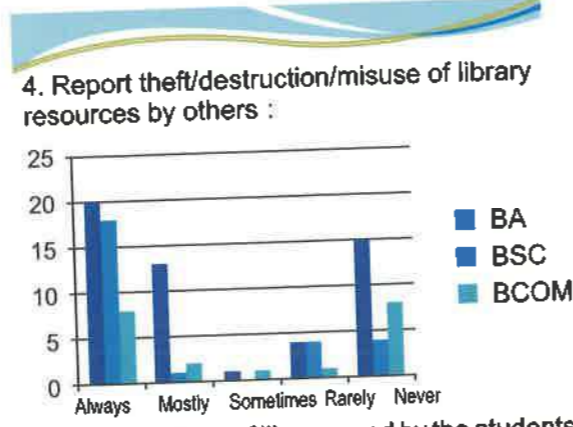
It was also noted that 47% of BA students returned books on time as compared to 12% of BSc. and 11% of BCom students.



36% of BA students maintained silence in library as compared to 26% of BSc. students and 11% of BCom students.



It was also found out that 20% of BA students reported misuse or destruction of library resources as compared to 18% of BSc. students and 8% of BCom students.

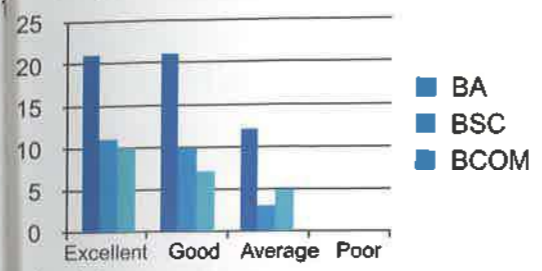


The next question was based on the type of library used by the students where we found out that 21% of students use central library, whereas 24% of students use e-library, 18% of students use seminar library and 37% of students use subject library.

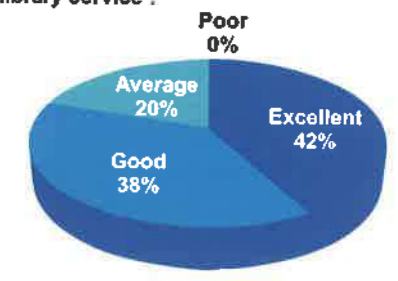
The next question asked students whether they are members of any other library apart from our college library where we found out that, 11% of students were members of other libraries as well apart from the college library whereas 89% of students were only members of the college library.

The last question was asked to know the satisfaction level of the students from the services provided by the college library where we found out that, 42% of students rated excellent for the library, 38% of students rated good and 20% rated average for the services provided by the library. There were no negative comments for our college library.

General Library service - A Comparative study :



General library service :



**Students' suggestions**

But there is always scope for improvement which was suggested by the students to enhance our library further which included the following ;

- 1. To encourage blogging,
- 2. To manage noise better,
- 3. Faster internet facilities,
- 4. Maintenance of books,
- 5. Addition of more fiction,
- 6. Replacement of worn out books with new ones,
- 7. Improving photocopying services.

**Other facilities**

There are a few important facilities provided by our college library compared to other libraries which includes open access system to all, connectivity to good internet, computerized entry and exit system which is usually done manually in other libraries, awareness of latest books according to the requirements and the organizing of book talks and book exhibition at regular intervals which is not needed frequently in other libraries.

A comparative study of student usage with regard to services and books availed, approachability of staff and frequency of visit, with an earlier survey conducted in 2014-15

A survey on library usage by students was conducted earlier in the session 2014-15. A few comparisons were made with the results of the present survey.

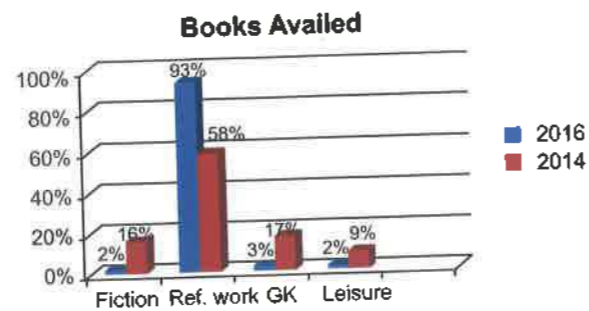
Sample size : 2016-17 : 100  
2014-15 : 117



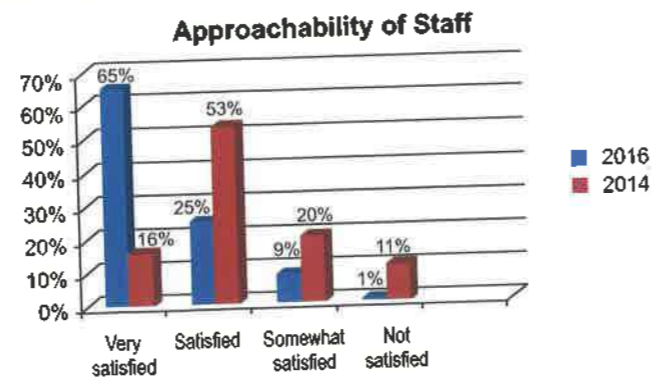
The frequency of visit to the library everyday has seen a steep increase, from 2% in 2014 to 9% in 2016. Visits to the library once a month have also increased, from 3% in 2014 to 22% in 2016. In general, the trend is that students visit the library once in 2-5 days to once in 2 weeks.



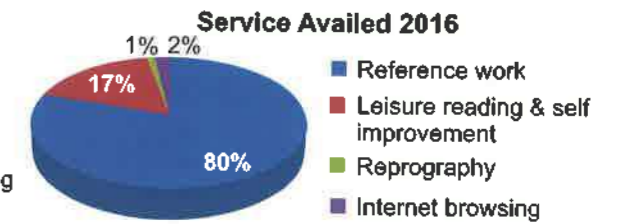
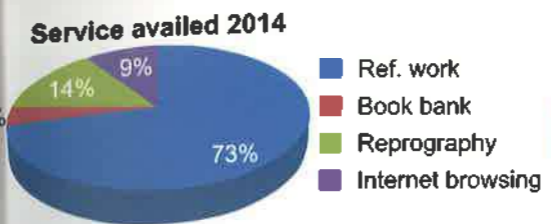
As for the books availed, the trend is that the demand for reference books has increased whereas that for other categories such as fiction, General Knowledge and other leisure reading have fallen significantly.



Most students in 2016 reported that they are very satisfied with the approachability of the library staff while in 2014 most students reported that they were satisfied.



Services availed in the library has changed somewhat, as the Book Bank is no longer operational. The general trend is that students use the library mostly for reference work – 73% in 2014 and 80% in 2016. However, reprography service has seen a decline, as has internet browsing.



### Conclusion

To sum up, certain trends have been found with regard to library usage among the students of Shri Shikshayatan College such as using the college library mostly for reference work rather than for leisure reading or internet browsing and that the students are in general satisfied with the availability of books and library services. As per our study, students of BA stream have been found to be more responsible in terms of maintenance of library resources and discipline as compared to BSc and BCom students. But frequency of visit to the library needs to be augmented for all students, particularly for BCom students. Another significant trend revealed by this study is that the public library as an agency for dissemination of knowledge has lost its popularity among the students as the majority of the sample has reported that they do not visit any library other than the college library.

When we compared the data collected for our present study in 2016-17 with those of the previous study conducted in 2014-15 we noted some positive trends. There has been a steep increase in the frequency of visits to the college library, students are now more satisfied with the approachability of the library staff than before. Using the library for reference work still dominates as it used to be in 2014-15. Availing the facility of internet browsing was not popular among the earlier batch, even now it is not. Reprography service provided by the college library needs improvement – a feature reported in both the studies.

In conclusion we would like to make a remark to our fellow mates that a library is a space ship that will take you to the farthest reaches of the universe. It is a time machine which will take you to the far past and to the far future. It is a friend who will amuse and console you and most importantly it is a gateway to a much happier, better and useful life. Earlier, people were more inclined towards reading books. Reading would refresh them incredibly and they would always look forward to it. But with the emergence of new trends of audio-visual media catching the eyes of the population there is a complete change or a make over in the reading attitude of elders as well as the youths who prefer now to watch the various online and offline audio-visual aids than carry an actual book to read. The declining rates of reading books and the preferences of audio-visual aids is drastic and unimaginable. It is both fortunate and unfortunate for the future of the individual as well as the society.

### References

- Bandana, R.N : A First Course in School Administration and Organisation; 1960, Punjab Kitab Ghar.
- Chatterjee, S.K : School Administration and Management. 2011, Sterling Publishers Pvt. Ltd.
- Report on "A Survey on the Use of the College General Library by Students of IIIrd Year, (2014-2015)" conducted by Department of Education, Shri Shikshayatan College.

Report Presented at the Inter College Students' Seminar on 'Educational Planning and Management' held on 20.2.17 (PPT by Pratyusha, 2<sup>nd</sup> Year student) ■

## LGBTQ IN MYTHOLOGY: DOES IT CONDEMN IT OR COMMEND IT?

By

Ankhi Chakraborty, Aradhita Biswas, Baishali Dutta, Monalisa Mukherjee, Shrestha Bhattacharya, Sohini Sarkar, Srijoyee Banerjee, Subhalaxmi Chakraborty, Sushrita Acharjee

### Aim

This adage, however, fails to be relevant as the ever-growing literary tradition of the world proclaims to be an infertile field for the LGBTQ (Lesbian, Gay, Bisexual, Transgender, Queer) community. LGBTQ representation in the hetero-normative literary space is mostly made into a caricature, and is almost never a full-fledged complex character. Preclusion seems to stem from a deeply rooted homophobia that works intricately in the society.

This paper yearns to acknowledge the variant shades of sexuality, sociality and gender performance that have always been present in human race from time immemorial. It traces the history of written and verbal traditions of Love (mostly of the non-Platonic kind) between the figures of the same sex located in mythology. It also seeks to understand how society viewed such deviant gender and sexual orientation during the early periods of the recorded history of human experience, whether it was glorified as admirable and imitable, or vilified as abnormal and disgusting.

Mythologist Devdutt Pattanaik writes that myths capture the collective unconsciousness of people, and that this means they reflect deep-rooted beliefs about different sexualities that may clash with repressive social mores.

"...Queer manifestations of sexuality, though repressed socially, squeeze their way into the myths, legends and lore of the land," he writes in *The Man who Was A Woman and Other Queer Tales from Hindu Lore*.

In most representations of attachment between figures of the same sex, whether historical, literary, or mythical, it is difficult to discern the true nature of the subject's sexuality or whether the relationship shared by them was at all sexual or not, for such ideas change with place and time. We are rather more interested in trying to understand how the society viewed homosexuality and gender fluidity during the early periods of the recorded history of human experience, whether it was glorified as admirable and imitable, or vilified as abnormal and disgusting.

◆ 46 ◆

The concept of 'New Homophobia' which emerged in the early modern period and affected the so-called scholarly readership, is particularly evident in the twentieth century heterosexualisation of the Urdu ghazal; its effects are visible both in modern India and the west, where any homosexual subtext whatsoever, is either interpreted as heterosexual or dismissed altogether, the transgender community belittled, impoverished, and practically outcast.

This paper aims to provide an assurance to the LGBTQ community of the possibility of finding representation in the grandeur of mythological characters and events; it also asks readers, who are not necessarily homosexually inclined, that they must consider the LGBTQ community to be their own community as some of their ancestors might be so inclined. We can only hope that such acknowledgement will turn out to be the sine qua non of weaving a less ignorant and conflict-ridden, more tolerant, and well-informed society that champions an all-inclusive world view.

### **Gender Fluidity, Queer-Gender and Transgender Identity in Mythology**

Mythical stories encompassing different nations across the globe incorporate the theme of gender fluidity and transgender identity as symbols of sacred or divine experiences. Stories share instances of Gods or Goddesses changing their gender temporarily or permanently for their sexual conquests; they even work as the deus ex machina for the mortals in granting them their true gender identities. ergo, legitimize the desired sexual relationships which had hitherto been repressed by societal restrictions as in the story of Sumedha and Somavan in *Skanda Purana*. Two friends in order to obey the king attend the invitation of a low caste woman devotee, Simantini, but one of the male friends must assume the disguise of a woman. She, however, sees through the disguise, but instead of denouncing him (Somavan) chooses the Goddess Parvati in him; by perceiving the 'womanhood' in him, she makes it manifest. Furthermore, she brings out into reality the latent possibilities of the union of Sumedha and Somavan (now, Samavati, as granted by Shiva and Parvati) by choosing to worship a male couple as a sexual and conjugal unit. There are myths that relate Gods or any powerful being, for that matter, to be genderless or hermaphrodite. The Norse God Loki for example, is capable of changing sex at will. He is known to be a shape shifter and frequently disguises himself as a woman.

In this context, people inclined to alternative sexual behaviour are also expressions of "divine play" or leela. The Gods are often identified with ultimate reality where all opposites meet, thereby asserting the universality of God.

Shiva, for instance, is vastly identified with a series of opposites: 'Thou art male, thou art female, thou art neuter.' (*Mahabharata*, Shanti Parva I, Apadharmanusasana Parva CCLXXXV)

In *Mahabharata*, Shikhandini, who became Sikhandi is what modern queer vocabulary would

Scholars like Andalib Shadani and Mufii Muhammad Zafiruddin condemned Urdu poetry pertaining to male homosexual love as an 'ugly blot on Urdu's reputation' which must be purged from the canon.

◆ 47 ◆



call a female-to-male trans-sexual, as her body goes through a very specific change genitally. Sikhandi plays a key role in the *Mahabharata* because his arrival marks the turning point of the war as Bhishma refuses to fight him for he considered Sikhandi a woman, and Arjun, using Sikhandi as his shield, kills Bhishma on the 10<sup>th</sup> day of the 18-day war. The queerness depicted here is therefore, not accidental but quite deliberate.

However, whenever a man changes into a woman, the change is much more ambiguous. The story of Vishnu as Mohini is still called 'Hari' even though he transformed into a beautiful enchantress as Shiva's 'delight', and subsequently Hari and Hara reproduce a son called Ayyappa, 'Hariharaputra'. (See: Page 5) When the sex change takes place in order to enable the man to bear a child, it is temporary, as in the case of Aruna<sup>1</sup> in Ramayana, where the man is both the mother and the father of the child.

Interestingly, playing with ideas of undoing gender, sex change, same sex love and miracles, the birth frequently occurs in the context of such rapprochement between Vishnu and Shiva. Shiva represents the union of male and female principles (The Ardhanarishwara image where the deity has a half male, half female body, or Shiv and Parvati in fusion).

In the *Matsya Purana*, King Ila, while wondering in the forest, enters a grove where Shiva and Parvati are sporting. To please Parvati, Shiva has willed that any male who enters the grove will be turned into a female. In the *Ramayana* version of the story, Shiva himself turns into a female in order to engage in love play with Parvati, and everything in the forest turns female too. King Ila, the fourth ancestor of the lunar kshatriyas (Chandravanshi) however insists Shiva to transform him into a "Kimpurusha", a type of being who is a man one month and a woman the next month. In this alternate state, Ila, now known as Sudyumna, produces children both as man and as woman.

Another story about Mohini is unique to the Tamil versions of the *Mahabharata* by Perumal where as the story goes, Arjuna's son Aravan is granted three boons before he dies, of which the first is that he should be married before his death. Since no parent would give a daughter to one who is about to be killed, Krishna appears as Mohini and marries Aravan for a night. This festival is celebrated annually by modern hijras in Tamilnadu, who identify with the transgendered Krishna.

Arjuna's transformation into a woman in order to fulfill his desire to know the secret of Krishna also constitutes a medieval reading of the *Mahabharata*, where he is called Arjuni.

In Greek mythology though, gender fluidity (or rather the complete change of gender) among the Gods was mostly to facilitate themselves in pursuing sexual favours. The patron God of intersex and transgender people, as regarded in the pantheon, is Dionysus.

<sup>2</sup> In one account of the birth of Sugriva and Bali, their parent is a male monkey who plunges into a pond in search of his own reflection which he takes to be another monkey. He emerges as a beautiful woman and has two sons by Indra and Surya, and changes back to a male monkey next month.

Zeus, the promiscuous king of Mount Olympus Callisto, the daughter of Lycaon, King of Arcadia took a vow to remain chaste. At that moment, Zeus, maddened by love, disguised himself as Artemis (Diana) in order to lure her into his embrace.

The notion of gender complexity is deeply rooted in ancient Egyptian culture. In the Egyptian story of the creation of the gods, the first god is male and female, and its name is Atum.<sup>3</sup>

Some of the Norse gods were capable of changing sex at will, for example Loki, the trickster god who is a shape shifter and in separate incidents he appears in the form of a salmon, a mare, a seal, a fly, and possibly an elderly woman. He is known to frequently disguise himself as a woman.

In Buddhist and Hindu traditions, gender itself is questioned. The philosophical basis of this questioning closely resembles the deconstruction of gender in our own times by such thinkers as Monique Wittig and Judith Butler.<sup>4</sup> What these philosophers would call the social construction of gender that only appears to be 'natural,' ancient Indian philosophers call illusion that only appears to be 'real.'

In the *Vimalakirtinirdesa*, a Goddess when asked by monk Sariputra as to why she does not change her gender in spite of having the power to do so, she explains by turning him into a female and stating:

"Just as you are not really a woman, but appear to be a female in form, all women also appear to be female in form but are not really women, therefore the Buddha said all are not really men or women ..."

This repudiates the fixed notion of gender identity and affirms the idea that the self is not gendered, and there is no preconceived reality of gender.

## BISEXUALITY LOCATED IN MYTHOLOGY

There is a direct connection between the non reality of gender that Hinduism and Buddhism promoted in ancient times, and the non absoluteness of heterosexuality. If the two categories 'man' and 'woman' are not ultimate categories but rather fostered only by societal institutions (marriage, parenthood, etc.) then heterosexuality ceases to be the most important one.

Through asexual reproduction Atum creates two other Gods, Shu and Tefnut. These two in turn produce another pair, Geb and Nut. Finally, Geb and Nut, the earth and the sky, combine and produce the two pairs of Isis and Osiris, and Seth and Nephthys. In stories of these archetypal beings, Isis exemplifies the reproductive female, Osiris the reproductive male, Seth the non-reproductive eunuch and Nephthys the unmarried virgin.

In her book 'Undoing Gender' Judith Butler writes, "...when we speak about my sexuality or my gender, as we do (and as we must), we mean something complicated by it. Neither of these is precisely a possession, but both are to be understood as modes of being dispossessed, ways of being for another, or, indeed, by virtue of another."



For instance, Ayyappa, also known as Hariharaputra, is the son of Shiva and Vishnu as Mo (both did not identify with any fixed gender as documented in ancient scripts.) Ashamed, Vish drops the baby to earth, where it is found and adopted by the Pandayan King, Rajasekhar Pantalam. The child grows up to become a renowned warrior who gathers army and fights the ba chieftans who are ravaging their countryside. One of them is the Muslim pirate Vavar. Overcom the battle, Vavar becomes a close friend of Ayyappa and joins force with him. This traditional incorporates Vavar as the inseperable companion of God, thus symbolizing also a Hindu-Mu rapprochement. The name Hariharaputra literally means 'the son (putra) of Vishnu (hari) and S (hara),' thus the embodiment represents the reconciliation of Vaishnavities and Shaivites who often come into conflict in the South. Endowed with the immense powers of both the preserver the destroyer Gods, he embodies the power to protect.

Homosexuality was often labeled by the later readers as an intellectual fellowship, share members of the same gender for better work coordination like that of Krishna and Arjuna in the of the Mahabharata although the myths clearly state the physicality of their relationship. The mys oneness of Krishna and Arjuna in a previous or eternal form is thus used to explain their inordi love for one another. Krishna makes more than one declaration of this love, telling Arjuna: 'Tho mine and I am thine, while all that is mine is thine also!'<sup>5</sup> (Vana Prava XII) Krishna clearly states Arjuna is very important to him so much so that he commits several unrighteous acts. He stersion 'Know that Arjuna is half of my body.'

Arjuna himself is an example of gender variance. When Arjuna refused her amorous advan the nymph Urvashi cursed Arjuna; he would become a "kliba,"<sup>6</sup>. Krishna assured Arjuna tha curse would serve as the perfect disguise for Arjuna during his last year of exile. Arjuna tod name Brihannala and dressed in women's clothes, causing the curse to take effect. Thus A sbos, who in her 'Ode to Aphrodite' invoked Aphrodite, the goddess of lesbianism to win the love a unnamed woman for whose attention Sappho was longing for Pallas was the lover of Athena and even fused with her, the pair becoming known as Pallas-Athena.

Such depiction are also found in various paintings like that of Mitra and Varuna, gods of intimacy and often mentioned together in Vedic literature. These Adityas preside over the univ waters; Mitra controls the ocean depths and lower portals while Varuna rules over the ocean's regions, rivers and shorelines.

In Vedic literature, Mitra and Varuna are portrayed as icons of affection and intimate frien between males (the Sanskrit word mitra means "friend" or "companion").

They are depicted riding a shark or crocodile together while bearing tridents, ropes, conch and water pots. Sometimes they are portrayed seated side-by-side on a golden chariot dra

5 He hath hateth thee hateth me as well, and he that followeth thee followeth me! O thou irrepressible thou art Nara and I am Narayani or Hari! ...O Partha, thou art from me and I am from thee!

6 a member of the third gender

even swans. Ancient Brahmana texts furthermore associate Mitra and Varuna with the two lunar phases and same-sex relations:<sup>7</sup>

Varuna is similarly said to implant his seed in Mitra on the full-moon night for the purpose of securing its future waxing. In Hinduism, the new- and full-moon nights are discouraged as the appropriate time for procreation and consequently often associated with "citrarata" or the unusual types of intercourse.

Similar depictions can be found in Egyptian myth of Nyankh-Khnum and Khnum-hotep. These two men shared a tomb wherein various art works depict them in close, intimate postures. They are depicted embracing in the same manner as heterosexual couples, which carry the same connotations of closeness in the context of sexual relations.

Agni, the God of fire is believed to be the son of two mothers, Heaven and Earth and is therefore born out of a lesbian relationship. Agni, in turn shared a physical relationship with Shiva that led to the birth of Kartikeya.

The Legend of Bhagiratha also documents themes of miraculous child birth. King Dilipa died leaving behind his two wives and an heirless throne in the kingdom of Ayodhya. The wives, then, engaged into a physical relationship as permitted by Brahma resulting in the birth of Bhagiratha. In a version Bhagiratha is believed to have been born as a lump of mass proving a preconceived notion of lesbian reproduction<sup>8</sup>. He was so named because he was born out of two bhagas, or valvus.

Similarly in the European mythology, the Greek goddess Artemis or Diana have relationships with many women including Britomartis, Cyrene, Atalanta and Anticleia. She loved the moon goddess Actyanna and the nymphs Daphne, Amethyst, Taygete and Callisto.

Another account of lesbian relationship can be found in Sappho, a Greek lyric poet from the Lesbos, who in her 'Ode to Aphrodite' invoked Aphrodite, the goddess of lesbianism to win the love of a unnamed woman for whose attention Sappho was longing for Pallas was the lover of Athena and even fused with her, the pair becoming known as Pallas-Athena.

A more than likely fictional tale from the Egyptian mythology, either from the 18th, the 19th or the 20th dynasty, was of Neferkare, a pharaoh and Saset, one of his generals. The story goes that a pharaoh named Tjeti saw Neferkare walking somewhere during the night and decided to follow him. The pharaoh went to Saset's house, where he stayed for quite some time in the embrace of his lover before returning to his home. This process would then repeat itself. This tale alludes to the relationship

[ "Mitra and Varuna, on the other hand, are the two half-moons: the waxing one is Varuna and the waning one is Mitra. During the new-moon night these two meet and when they are thus together they are pleased with a cake offering. Verily, all are pleased and all is obtained by any person knowing this. On that same night, Mitra implants his seed in Varuna and when the moon later wanes, that waning are produced from his seed." (Shatapatha Brahmana 2.4.4.19) ] - ft

The offspring of a lesbian relationship will result in a boneless child.



between Osiris and Ra, the later rising to fulfill his duties as a sun deity at the end of their embrace. It is a parody piece of that myth, and is useful in determining that, given the tone, homosexual relations at this point in time were scandalous, but was not so taboo as to be unmentionable.

In the 15<sup>th</sup> century the poet mystic Jagannath Das's relationship with Vaishnava guru Chaitanya as a mystical love based on Krishna Radha love and on the repudiation of the conventional marriage and worldly life has been noted in *Chaitanyacharitamritam*.

Aravan in the southern parts of India is worshipped as the God of homosexuality to which he is his Norse counterpart. Apollo, the Greek Sun God was also popular for having same sex relationships. In Chinese folklore there is a mention of a deity called Tu Er Shen, who is regarded as the God and safeguard of homosexual affections. In China, the phrase 'passion of the cut sleeve' referred to homosexual love after Emperor Ai cut the sleeve of his royal robe so as not to wake the man he loved.

Apollo had a tremendous passion for a youth named Hyacinthus. According to Greek mythology, Cyparissus was a beautiful boy who was intensely loved by Apollo. The myth of Cyparissus, like that of Hyacinthus has often analyzed in the context of the social custom of pederasty in ancient Greece in which the boy is regarded as beloved or eromenos of Apollo. Apollo gave Cyparissus a stag which reflects the custom in Archaic Greek society - giving the beloved an animal.

Throughout his lifetime Achilles had had many romantic relationships-both with male and female.

His love-interest in Troilus, the nineteen year old son of Priam, the king of Troy is noteworthy. Achilles was overtaken with desire for him as they were fighting. Troilus refused him and ran away inside a temple of Apollo, but Achilles barged in offending the God, and since the young man resisted, Achilles beheaded him upon the altar.

Briseis, a royal princess, was taken war captive and fell to Achilles as the war spoil. Achilles became attached to Briseis both emotionally and physically and so much that when she was forced to be taken away by Agamemnon he withdrew himself from the war.

The relationship of Achilles and Patroclus has always been in the focus of homosexual relationships. Patroclus' death was the only reason for Achilles' return to the battlefield. When he saw his comrade's dead body, he threw himself upon it and lamented:

"Why so ungrateful, after all our kisses? Why so uncaring for the holy union of our thighs?"

His reactions, mourning and wishing not to live after the death of Patroclus brings out the fact that definitely this was the deepest relationship of Achilles. After the death of Achilles in battle, the hands of Paris, the ashes of Achilles and Patroclus were mixed together in a golden urn, and they were buried in a common tomb and it was believed that they rejoined with each other in the Elysian Fields.

In *Illiad*, although, Homer presents a deep and strong friendship between the two, he does not suggest the presence of any romantic affections. In the works of Aeschylus, Plato and Aeschylus the relationship of Achilles and Patroclus was portrayed as same-sex love. William Shakespeare

have the account of Achilles and Patroclus in his play *Troilus and Cressida* as lovers. In the novels of Henry Renault the two males stand as a representation of non-effeminate comradesly homosexual relationship.

*The Song of Achilles* by Madeline Miller shows development of a loving homosexual relationship between the two:

"I could recognize him by touch alone, by smell; I would know him blind, by the way his breaths came and his feet struck the earth. I would know him in death, at the end of the world." Patroclus

## SEXUALITY PERFORMED BY THE MYTHICAL CHARACTERS

Attempts at categorization in ancient texts often vary and thus, suggest that no one form of sexual characterization was dominant. The confusion is perhaps endemic to all attempts at categorizing sexuality that is fluid and unrecognizable; between what is homosexuality and bisexuality and what heterosexuality means, there falls a shadow.

In the ancient days of Gods and Goddesses, or equally powerful beings, for the matter, bisexuality was less complicated although it often bridged the dichotomy between marriage favouring the societal condition and same sex relationship of free will.

In Hindu mythology, Agni had prominent relationships with both male and female counterparts. He was the father of Karna with Kunti and also of Kartikkeya with Shiva. Parvati on the other hand had relationships with several women in spite of having a satisfactory conjugal life with Shiva, thus subverting the theory of Lacan<sup>9</sup>. In European mythology, Achilles and Zeus are examples of varied sexual preferences. The first woman in Achilles's life was Deidameida, the daughter of King Lycomedes. Goddess Thetis, the mother of Achilles sent him to live with the king's daughters in disguise of a girl to save him from going to Trojan war. Here, he fell in love with Deidameida and left her with a child.

In the *Arthashastra*, it is mentioned that in ancient time in India, while homosexual intercourse is sanctioned, it is treated as a minor offence.<sup>10</sup> Hindu mythology constantly makes numerous references to queerness that are very much ingrained in the culture, yet with the advent of the 'New Homophobia', it is common to either deny the existence of such fluidity and variance in the stories, or simply heterosexualize it or to redirect to law books, which, even thousand years later, frown upon queer behaviour, besides endorsing patriarchy and casteism.<sup>11</sup>

Lacan's theory states that female homosexuality issues from a 'disappointed heterosexuality.'

Many types of heterosexual vagina sex are punishable much more severely; for example, the seduction or rape of a minor girl of equal caste is punishable with cutting off the man's hand or a heavy fine; if she dies, the man is to be killed.

The Hindu mythology establishes a fact that most of the male Gods in Hindu mythology have the urge to transform into a female form like Indra into Indrani, Shiva into Shivani, Vishnu into Vaishnavi, but there is no male form of Parvati, Lakshmi or Saraswati. This observation rather shows a tendency of 'womb envy' quite contradictory to the Freudian theory of penis envy establishing the urge of males to experience the pleasures of feminine beauty and the blessing of birth giving process.



*Kaushitaki Upanishad* even refers to one ritualistic ceremony of acceptance of one's beloved (which implicitly associates to the modern marriage ceremony); noteworthy here is the neutrality of the ritual as far as gender is concerned. It also seemed to allow for a person of either gender to perform it in order to be beloved by a person of either gender.

Going beyond the Indian mythology, the Inuit of the Arctic regions tell the story that the first couple on earth was two men but when they made love, the child conceived could not come out, so one of them turned into a woman.<sup>12</sup> (foot note) All of these kinds of miraculous births and relationships appear in ancient and medieval Indian texts, showing openness to different possibilities.

### CONCLUSION

We hope that this paper will help assure the LGBTQ community that large numbers of people in Indian mythology were honoured and valued members of the society. They were neither regarded with contempt nor were they always ashamed of their gender, sexuality or desire. Labels like 'abnormal', 'unnatural', and 'unhealthy' are of relatively very recent origin in India, especially in the modern era. In many cases, the mythological figures lived a happy and fulfilling life in their own selves, with the persons they desired, and that is perhaps a fantastically hopeful idea.

### WORKS CITED

- Pattanaik, Devdutt. *Sikhandi and Other Tales They Don't Tell You*. New Delhi, India: Zubaan Books, 2014
- Vanita, Ruth & Kidwai, Saleem. *Same-Sex Love in India*. Penguin Books, 2000
- Miller, Madeline. *The Song Of Achilles*. Bloomsbury Publishing, 2011
- Calimach, Andrew. *Lovers' Legends: The Gay Greek Myths*. Haiduk Press, 2002

### GLOSSARY

**HERMAPHRODITE:** A person, animal or flower that has both male and female sexual characteristics.

**GENDER QUEER:** An all-inclusive category for gender identities that do not coincide with conventional notions of male and female.

**GENDER FLUID:** Gender fluid is a gender identity described as a dynamic mix of male and female. A person who is gender fluid may always feel like a mix of the two traditional genders. They may feel more masculine some days, more feminine some days, or even neutral on others. It is not related to a person's genitalia, or their sexual orientation.

<sup>12</sup> The rightwing Hindu organization Shiv Sena.

**HOMOSEXUAL:** One who romantically and/or sexually inclined to members of the same sex.

**BISEXUAL:** One who is romantically and/or sexually inclined to members of both male and female sex.

**TRANSGENDER:** A person whose sense of identity does not correspond with the gender assigned to them at birth.

**QUEER THEORY:** A term coined by the Italian feminist and film theorist Teresa de Lauretis, it is a field of post structuralist critical theory which focuses on any kind of sexual activity or identity that falls outside of normative and deviant categories.

**GENDER STUDY:** Gender study is a field for interdisciplinary study devoted to gender identity and gendered representation as central categories of analysis.

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# PUBLIC USE OF URBAN OPEN SPACE - A CASE STUDY OF PARKS AND WATERBODIES IN THE KOLKATA METROPOLITAN AREA

By

Students of Third Year Geography Honours (2014-16)

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## INTRODUCTION

### Definition

Open space is any open piece of land that is undeveloped (has no buildings or other built structures) and is accessible to the public (ERA, US).

Open space can include:

- Green space, (land that is partly or completely covered with grass, trees, shrubs, or other vegetation). Green space includes parks, community gardens, and cemeteries.
- Schoolyards
- Playgrounds
- Public seating areas
- Public plazas
- Vacant lots
- Water covered area



## BENEFITS OF PUBLIC OPEN SPACE

Public open space within an urban area is readily available to the community regardless of its size, design or physical features and is intended for, primarily, amenity or physical recreation, whether active or passive (Kellet and Rofe, 2009). Public open space has the following benefits.

- It provides opportunity for physical activities
- It provides opportunity for passive recreation
- It is important for social and cultural interaction fostering community development
- It is ecologically important and plays an educational role
- It supports economic objectives and activities

## AIM OF THE STUDY

Open space is an important component of urban areas and its varied public uses may be the key factors in promoting active urban living.

The purpose of the current study is to explore

The nature of public use.

The problems faced by users

Their suggestions for upkeep and improvement of the open spaces

### PLAN OF WORK

- 1) A group of 15 students conducted the survey in different localities within the Kolkata Metropolitan Area.
- 2) The open spaces like parks and waterbody areas were randomly selected in different municipalities and municipalities according to convenience of the surveyors.
- 3) The survey was carried out with the help of structured questionnaires. Respondents were randomly selected in the study area. (294 for parks and 186 for waterbodies)
- 4) On the basis of the collected primary data different cartograms have been prepared, analysis and inferences have been drawn.

### THE STUDY AREA

#### Location of public open spaces

Nine parks and five waterbodies have been selected in the Kolkata Metropolitan Area studying public use in them. Among nine parks four are in the Kolkata Municipal Corporation (KMC) area, two in Chandannagore Municipal Corporation and one each in Kamarhati, Maheshtala Barrackpore Municipality areas. Among five waterbodies two each are located in the KMC and each in Kamarhati, Maheshtala and North Barrackpore Municipalities.

#### Open Space - Parks

Sl. No.	Name	Name Municipal Corporation / Municipality
1.	Park Circus Maidan	Kolkata Municipal Corporation (KMC)
2.	Milani Math	Kamarhati Municipality
3.	Benubono Chaya	KMC
4.	Tala Park	KMC
5.	KMDA Park	Chandannagore Municipal Corporation
6.	New Digha Amusement Park	Chandannagore Municipal Corporation
7.	Anandapuri Play Ground	Barrackpore Municipality
8.	Kalinagar	Maheshtala Municipality
9.	Econest	KMC

### LOCATION MAP SHOWING THE SELECTED OPEN SPACE IN KOLKATA METROPOLITAN AREA

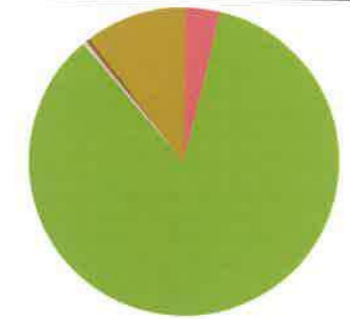


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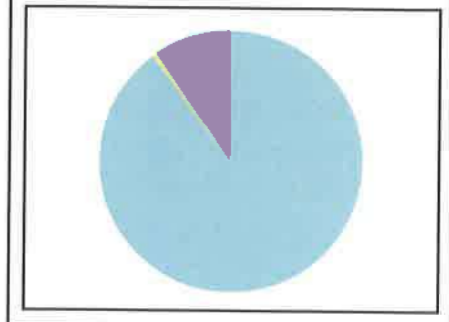


### PIE GRAPH SHOWING

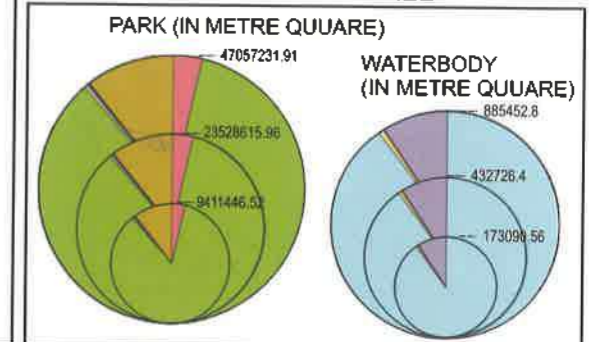
AREA OF PARKS



AREA OF WATERBODIES



### GRAPHICAL SCALE



### LEGEND





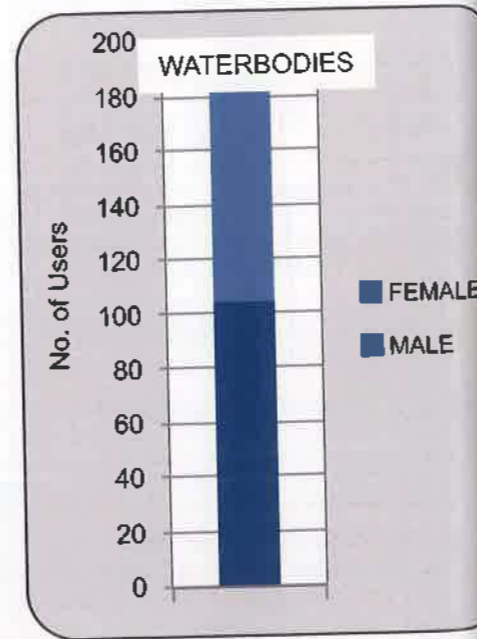
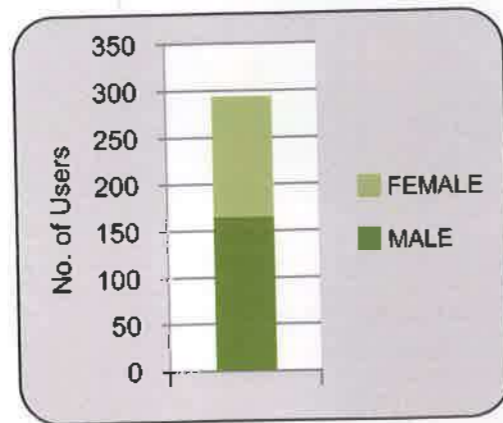
### Open Space - Waterbodies

Sl. No.	Name	Name Municipal Corporation / Municipality
1.	Dhakuria Lake	Kolkata Municipal Corporation (KMC)
2.	Hedua	KMC
3.	Nawadapara Waterbody	Kamarhati Municipality
4.	Govt. Colony Water Body	North Barrackpore Municipality
5.	Kalinagar Labanyomoyee Vidyapith Waterbody	Maheshtala Municipality

### DISCUSSION

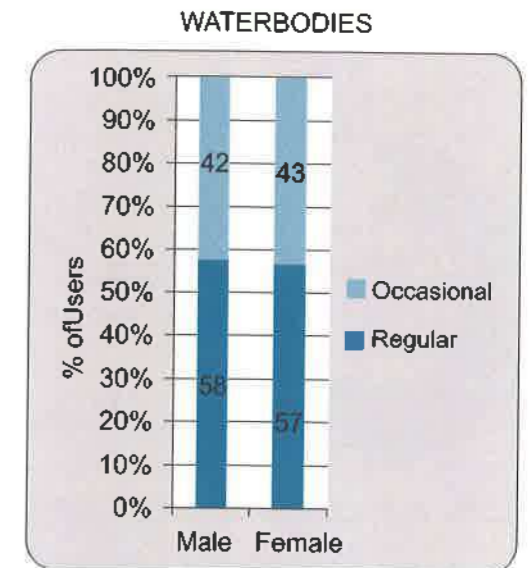
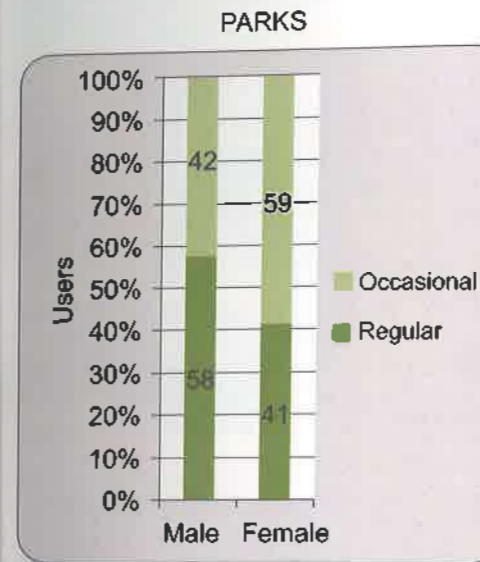
#### A. Users of Parks and Waterbodies

The respondents in the parks have been found to be more in number compared to those in the water areas. The survey shows that both for parks and waterbodies the number of male users is more than the female users. The average footfall/day during the survey period in parks and waterbodies have been found to be 30 and 20 respectively.



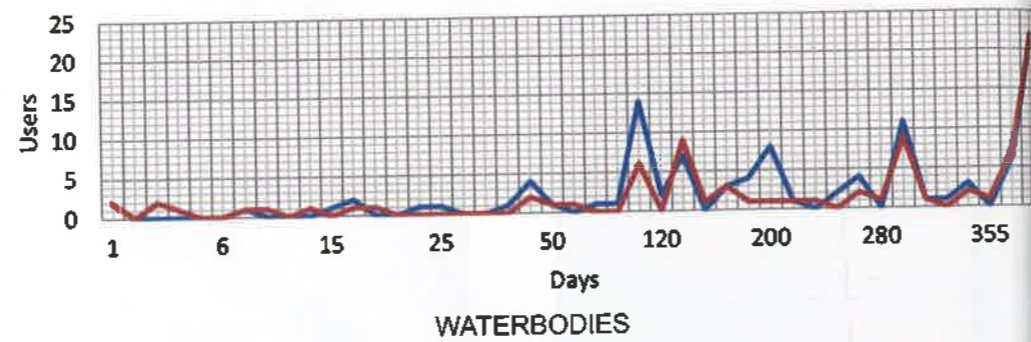
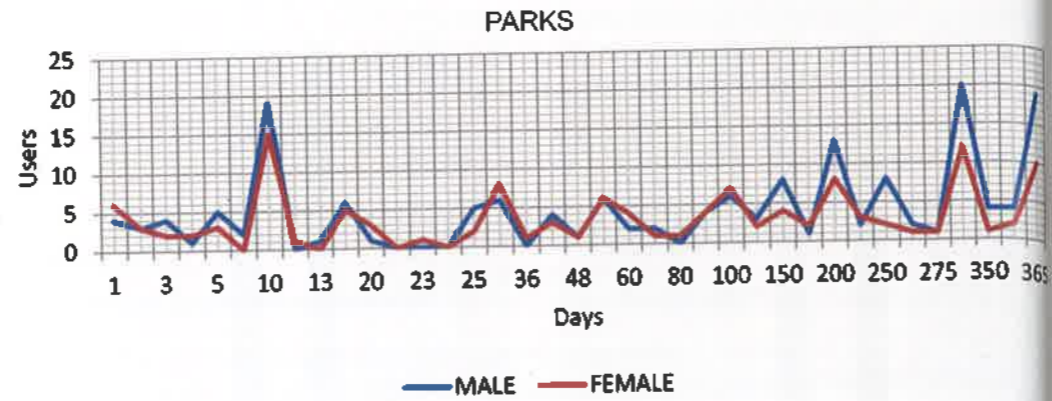
### Types of User on the Basis of Frequency of Use

On the basis of frequency of use the respondents are classified into regular and occasional. In parks the male users are more regular while more females visit the parks only occasionally. But it is found that almost similar proportions of regular and occasional users visit the water areas. It is observed that women have a variety of household functions to perform in the waterbodies.



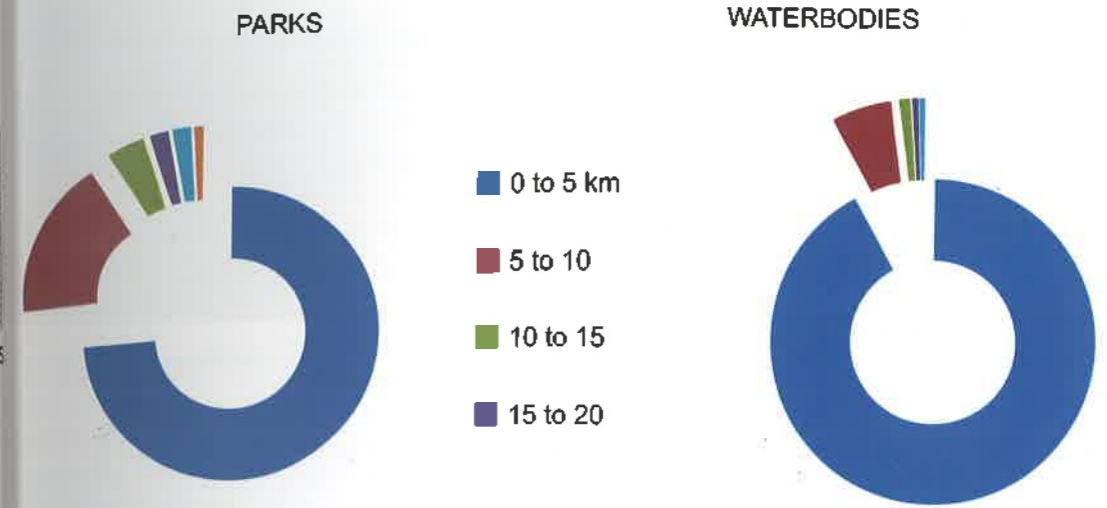
**C. Number of Users and Days of Use**

The graphs showing the number of users and days of use indicate that the waterbodies are used regularly by both male and female users as shown by higher number of days of use. Among the number of womenfolk use the waterbodies for greater number of days for different purposes. On the contrary, the number of regular male users is more in the parks.



**D. Percentage of users and Distance Commuted**

The diagrams below show that both for parks and waterbodies the users come from the immediate neighborhood. The number dwindles with the increasing distance.

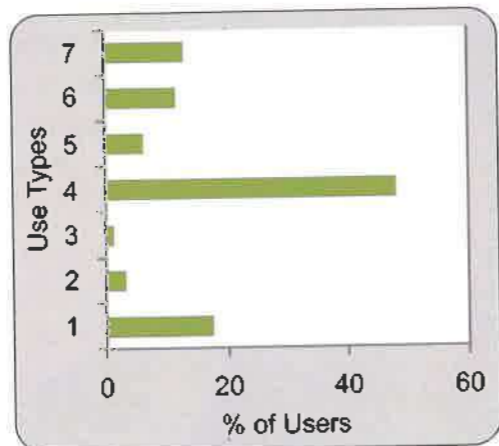


**Number of Users and Types of Use in the Parks and Waterbodies**

A variety of uses are found in both the parks and waterbody areas by the regular and occasional visitors. In the parks, passive recreation is a common activity followed by walking. In the waterbody areas, swimming, washing, bathing and fishing are important activities.

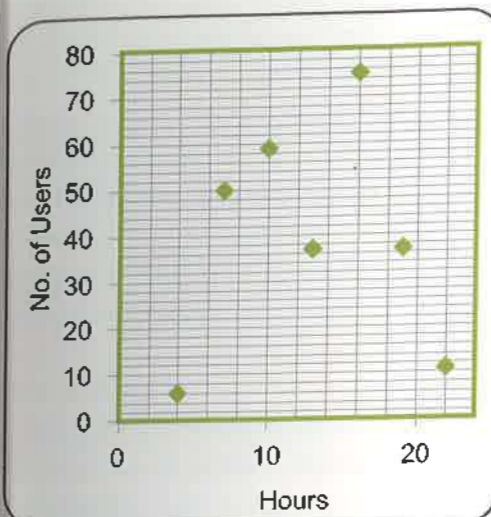


**PARKS**

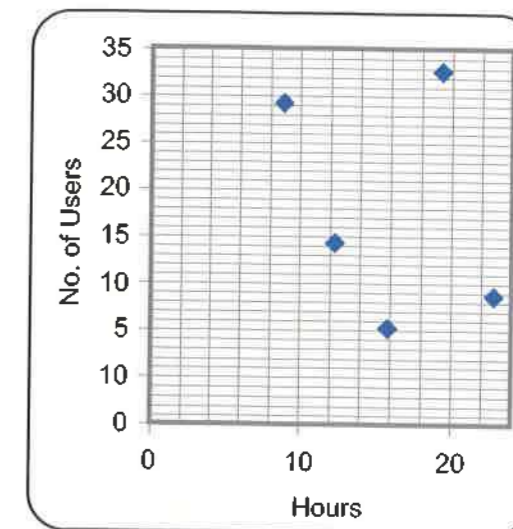


1. Walking 2. Jogging 3. Dog walking 4. Passive recreation 5. Activities in the Waterbody with park 6. Sporting activities 7. Health related activities.

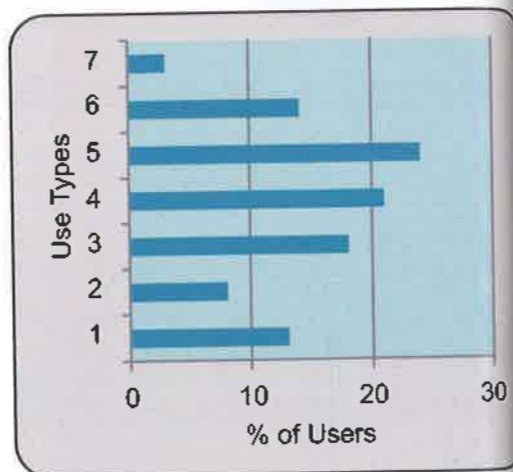
**PARKS**



**WATERBODIES**



**WATERBODIES**



1. Passive recreation 2. Jogging / walking around the waterbody 3. Bathing 4. Washing 5. Swimming 6. Fishing 7. Sater sports

**F. Time-wise Use of Open Space**

It is found from the survey that the waterbodies areas are not preferred by the users in the evening after 8 p.m. However people use the parks even in the night particularly for walking and jogging. The time span of using the parks is therefore more than that for the waterbody areas.



**Reported Barriers**

Both the regular and occasional users face some problems in using the public open spaces. The respondents have identified these problems as follows:

**PARKS**

- Parks are water-logged during the rainy season
- Visitors sometimes litter the place with garbage
- No electricity in some parks

4. Smoking, drinking and use of drugs
5. In the evening some parks are unsafe for women

#### WATERBODIES

1. lack of maintenance
2. Pollution of waterbodies due to throwing garbage in water
3. Lack of dustbins makes the space dirty
4. No place to rest for aged people - lack of benches
5. Indecent activities
6. Predominance of hawkers and beggars in some places
7. Fishing becomes difficult during rainy season
8. Flooding during rainy season

#### H. Users' Suggestions for Improvement of Public Open Spaces

The users suggested the following measures for improvement of the public open spaces :

1. Fencing of open space
2. Eliminating unsafe and illegal and indecent activities
3. Guards for security and protection
4. More trash receptacles and frequent cleaning
5. Maintenance and beautification
6. More tree planting
7. Stopping encroachment
8. Creating bikers lane
9. More seating arrangements
10. Facilities for yoga other exercises and sports for daily users
11. More playing space and facilities like slides and swings for children
12. Free wifi facilities
13. Conservation of waterbodies for fishing activities
14. More food stalls with proper disposal arrangement
15. Arrangement for drinking water

#### CONCLUSION

Open spaces are important to public for various activities related to health, social interaction, recreation, formal and informal sports, economy and also for daily routine functions. These activities are carried out from the morning till night. These areas create an ecologically friendly environment

within an urban area. As the cities and towns are expanding the value of green spaces are also becoming vital. However, our urban areas not designed for mandatory inclusion of open spaces and many of the existing spaces are not maintained properly. It is found that the users often have a comprehensive knowledge about the open space in their neighbourhood. Their participation in maintaining a park and a waterbody can enhance the multiple benefits of these spaces. Although many NGOs actively participate in conservation of open spaces there is a lack of participation of the civil society in these activities. It is therefore necessary for the local authorities to encourage public participation by promoting users' right to participate in such decision making. It is also important for the users to collaborate purposefully and voluntarily for well being of these urban green spaces.

#### REFERENCES

- 1. <https://www3.epa.gov/region1/eco/uep/openspace.html>
- 2. Kellett, Jon and Rofe, Matthew W. (2009). Creating Active Communities: How Can Open and Public Spaces in Urban and Suburban Environments Support Active Living? A Literature Review. School of Natural and Built Environments University of South Australia. Report by the Institute for Sustainable Systems and Technologies, University of South Australia to SA Active Living Coalition. August 2009. <https://www.researchgate.net/publication/283505498>





# REAL VALUED CONTINUOUS FUNCTION ON [0,1]

By B.Sc 1st Year Hons. Department of Mathematics

## INTRODUCTION

Real Valued Continuous Function on [0,1]

### Definition:-

- **Continuity:** Let  $D$  be a proper subset of  $\mathbb{R}$  and  $f: D \rightarrow \mathbb{R}$  be a function. Let  $c \in D$ .  $f$  is said to be continuous at  $c$  if for every pre-assigned  $\epsilon > 0$ , there exists  $\delta > 0$  such that  $f(c) - \epsilon < f(x) < f(c) + \epsilon$ , for all  $x \in N(c, \delta) \cap D$ .
- **Fixed Point:** A fixed point of a function is an element of the function's domain that is mapped to itself by the function. That is to say,  $c$  is a fixed point of the function  $f(x)$  if and only if  $f(c) = c$ . This means  $f(f(\dots f(c)\dots)) = f^n(c) = c$ , an important terminating consideration when recursively computing  $f$ .
- **Bolzano Theorem:** Let  $[a, b]$  be a closed and bounded interval and  $f: [a, b] \rightarrow \mathbb{R}$  be continuous on  $[a, b]$ . If  $f(a)$  and  $f(b)$  are of opposite signs then there exists at least a point  $c$  in the open interval  $(a, b)$  such that  $f(c) = 0$ .
- **Neighbourhood property:** Let  $I$  be an interval and a function  $f: I \rightarrow \mathbb{R}$  be continuous on  $I$ . Let  $c \in I$ . If  $f(c) \neq 0$  then there exists a suitable  $\epsilon > 0$  such that for all  $x \in N(c, \delta) \cap I$ ,  $f(x)$  keeps the same sign as  $f(c)$ .
- **Intermediate value theorem:** Let  $[a, b]$  be a closed bounded interval and a function  $f: [a, b] \rightarrow \mathbb{R}$  be continuous on  $[a, b]$ . If  $f(a) \neq f(b)$  then  $f$  attains every value between  $f(a)$  and  $f(b)$  at least once in the open interval  $(a, b)$ .

## OBJECTIVE

To discuss related problems on real valued continuous function on  $[0, 1]$ .

## DISCUSSION

- **PROBLEM 1:**  $f: [0, 1] \rightarrow [0, 1]$  be continuous. Prove that that there exists at least one fixed point and if  $S$  is the set of all fixed points, then  $S$  is closed.

**Solution:-** If  $f(0) = 0$  or if  $f(1) = 1$ , then the result holds.

If not, let  $g(x) = x - f(x)$ , such that  $x \in [0, 1]$

Then,  $g(0) < 0$ .....{since,  $f(0) > 0$ } and;

$g(1) > 0$ .....{since,  $f(1) < 1$ }

.....(1)

By Bolzano theorem, since  $g(0)$  and  $g(1)$  have opposite signs, thus there exists  $c \in (0, 1)$  such that  $g(c) = 0$ ; implying  $c = f(c)$  [from (1)].

Therefore,  $c$  is a fixed point.

If  $S$  is the collection of all fixed points, then  $S$  is non-empty {since,  $c \in S$ }. Now, we prove that  $S$  is a closed set.

Let  $a \in S \cap [0, 1]$ .

Therefore, either  $a > f(a)$  or  $a < f(a)$ .....{since,  $a$  is not equal to  $f(a)$ }.

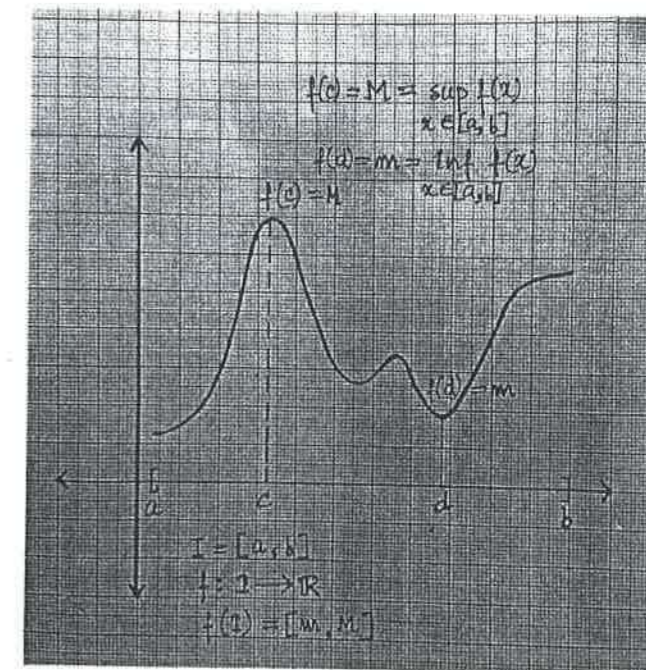
So,  $g(a) > 0$  or  $g(a) < 0$ , then by neighbourhood property, there exists  $N(a)$  such that for all  $x \in N(a)$ ,  $g(x)$  keeps the same sign as  $g(a)$ .

Thus,  $a$  is an interior point of  $S \cap [0, 1]$ .

Since,  $a$  is arbitrary, thus, each point of  $S \cap [0, 1]$  is an interior point of  $S \cap [0, 1]$ , implying that  $S \cap [0, 1]$  is an open set. Therefore,  $S$  is a closed set. Hence, the result is proved.

- **Disconnected Set:**  $V$  is said to be disconnected set if  $V = A \cup Y$ ,  $A$  and  $Y$  are either open or closed sets and  $\bar{A} \cap \bar{Y} = \emptyset$ .

- **Illustration:** Let  $I$  be an interval and  $f: I \rightarrow \mathbb{R}$  be a continuous mapping. Then,  $f(I)$  is an interval. If  $I$  is a closed and bounded interval, then  $f(I)$  is also closed and bounded.



● **PROBLEM 2:** *There does not exist any continuous onto mapping  $f: [0, 1] \rightarrow \{a, b\}$ .*

● **Solution:-**

If possible, let there exists a continuous onto mapping  $f: [0, 1] \rightarrow \{a, b\}$ .

Therefore,  $f^{-1}(a) \cup f^{-1}(b) = [0, 1]$ .

We know, by definition, that R.H.S. is connected.

But,  $f^{-1}(a)$  and  $f^{-1}(b)$  are closed. [since  $f$  is continuous and  $\{a\}, \{b\}$  are closed.]

Also,  $f^{-1}(a) \cap f^{-1}(b) = \emptyset$ . Hence, L.H.S. is disconnected, which is a contradiction.

So, our assumption is wrong. Thus, there does not exist any continuous onto mapping  $f: [0, 1] \rightarrow \{a, b\}$ .

Hence, the result is proved.

#### Conclusion

1) If  $f: [0, 1] \rightarrow [0, 1]$  be continuous then there exists at least one fixed point and if  $S$  is the set of fixed points, then  $S$  is closed.

2) There does not exist any continuous onto mapping  $f: [0, 1] \rightarrow \{a, b\}$ .

#### References

- 1) Real Analysis by S.K. Mapa.
- 2) Metric Space by M.N. Mukherjee.

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## THE CONCEPT OF SELF AND LIBERATION IN INDIAN THOUGHT

By Aishwarya Sakshi, B.A. 3rd Year, Philosophy Honours

### Introduction

There has been an undeniable truth in life. There has always been an inequality in the share of sufferings and enjoyment in our life. All the Indian Philosophical systems, other than the Cārvāka, agree that the root cause of this inequality lies in the chain of Karma. According to the law of Karma, the action of an individual leaves some power or potency; and this power enables one to suffer or enjoy the fruits of his actions. If the fruits of actions are not realized in the present life, he has to take another birth in order to realize it. This is how a cycle of birth and rebirth keeps going. However, most Indian systems also believe that this cycle has an end. This process of birth and rebirth is called bondage; and the cessation of this process is called liberation. Thus the urge for attaining liberation has remained the driving force for most of the Indian philosophical enterprise.

It is further interesting to note that this liberation could be achieved not by going somewhere or acquiring anything from outside; the jewel is lying within us. Thus, to attain liberation we must realize our self in its true nature. We must discover our true self that is untouched by the impurities of our day to day life.

### Objectives

The different schools in Indian Philosophy were not merely a result of the love for abstract thinking. There has been an intense need for realizing the purpose of life. As a result, despite the fact that these schools have differences of opinions in many issues, as far as their general views regarding the realization of the highest goal, the *summum bonum* of life is concerned most of the schools are in agreement.

The objective of this project is to develop an understanding of the exact nature of state of liberation upheld by the different systems of Indian Philosophy. As liberation means the liberation of the self, the soul, it is not possible to develop a proper understanding of liberation without revisiting the concept of self discussed in different systems. By analyzing these concepts this project finally aims at developing an insight into this transcendent state, the final achievement of human life.

### Methodology

In order to meet the objective, a thorough literature survey method has been observed. The discussion centers round the views held by six orthodox schools, known as *ṣaḍadarsana*, and two heterodox schools prevalent in Indian thought. As a discussion on the concept of self is necessary



for developing an understanding regarding the nature of liberation, the project will proceed accordingly.

- 1) Self, bondage and liberation in Jainism
- 2) In Buddhism
- 3) In Sāṅkhya-Yoga
- 4) In Nyāya-Vaiśeṣika
- 5) In Mīmāṃsā
- 6) In Śaṅkara Vedānta
- 7) In Rāmānuja Vedānta

Finally, a conclusion regarding the understanding of the state of liberation is to be drawn on the basis of the above discussions.

### Discussion

#### Self, Bondage and Liberation in Jainism

Jaina holds that the whole universe consists of the two eternal categories. These are called Jīva and Ajīva. Jīva is the conscious spirit and Ajīva is the unconscious non-spirit. Jīvas are qualitatively alike, but quantitatively different. Primarily, Jīvas can be of two types: those who are liberated (mukta) and those who are bound (baddha). Again the bound souls can be of two types: mobile (trasa) and immobile (sthāvara).

In Jainism consciousness is regarded to be the essence of the soul. Every soul must possess consciousness. Consciousness is present even in the lowest souls, though in a dormant manner. Purest consciousness can be found in the emancipated souls that are free from karma. The Pure soul is endowed with ananta-chatuṣṭaya, i.e., Infinite Faith, Infinite Knowledge, Infinite Bliss and Infinite Power.

Jaina holds that souls have extension. It is co-extensive with the body. However, its nature of extension is different from that of a matter. It extends like a light. The soul fills a space just like a burning light does, and as different lights may fill the same space, different souls may fill the same space without any conflict.

Jivas or embodied souls possess senses and the manas that apparently help the soul to acquire knowledge. However, these are the hindrance in the path of direct knowledge for the soul. Knowledge is not a mere property of the soul; it constitutes the very essence of the soul. Every soul, if it is not obstructed by matter, is capable of knowing the object directly and immediately. So, emancipation lies in the freedom from matter.

According to Jaina, then, the soul is inherently perfect. However, its true perfection is obstructed

due to the matter-particles. A particular arrangement of matter-particles gives rise to a particular kind of body. The past deed of a soul generates a desire. This desire attracts a particular type of matter-particles towards the soul; and organizes them into a particular type of body. Jaina therefore considers the soul and its karma-force to be the organizer of the body. As the matter-particles are attracted by the soul because of its karma, these are called karma-matter (karma-pudgala). The flow of such karma-matter into the soul is called āsrava or influx of karma. Bondage, then, refers to the fact that jīva, infected with passions, takes up matter in accordance with its karma.

Jaina has talked about the four types of passions: anger, pride, infatuation and greed. These are also called kasaya, since the presence of these in the soul makes matter-particles stick to it. It is evident that passion of the soul (bhava) is the primary cause of bondage; and influx of matter into the soul (āsrava) is only a consequence of it. This is the reason why Jaina occasionally speaks of two types of bondage:

- 1) Bhava-Bandha- It is the internal or ideal bondage. It is the soul's bondage to bad disposition.
- 2) Dravya-Bandha- It is the effect of bhava-bandha. It is the soul's actual association with matter.

Association of the soul with matter is bondage. Hence, dissociation of the soul from matter is liberation. This can be attained by the following two processes:

- i) Samvara or the stoppage of influx of new matter into the soul
- ii) Nirjara or exhaustion or wearing out of karma-matter in the soul

It has been seen that passion attracts the karma-matter into the soul. Passion arises out of ignorance. Ignorance is the real cause of bondage. Ignorance regarding the real nature of our souls and other things leads to anger, pride, infatuation and greed. Knowledge alone can remove ignorance. Thus right knowledge leads to liberation. Right knowledge is obtained only when one has faith in the teachings of the omniscient Tirthāṅkaras. But, mere knowledge is of no use if it is not practiced. Hence, in order to obtain liberation, right conduct is indispensable. In observing right conduct one has to control his passions, his senses, his thought, speech and action. This is how the influx of new karma-matter is stopped and the old karma-matter is exhausted. Therefore, right faith, right knowledge and right conduct together lead to liberation and they are called the three Jewels (tri-ratna) of Jainism.

#### Self, Bondage and Liberation in Buddhism

Buddhists hold that there is no permanent enduring self in the individual. Individual is a saṃghāta or an aggregate of different skandhas. These skandhas are five in number; viz., rūpa or the physical body, vedanā or feeling, sañjñā or perception, saṃskāra or mental disposition, and vijñāna or consciousness or intellect. Here, the first denotes the physical body and rest are psychical in nature. An individual is, therefore, an aggregate of mind and body. What appears to be the self is only a bundle of ideas, emotions and active tendencies. These elements have no substratum to uphold

them. They exist by themselves. Buddha does not deny the existence of soul as a collection, where each member in this collection is ever-changing; what he denies is an unchanging substantial entity in man.

Although Buddha denies an enduring self, he has admitted the law of Karma or rebirth. These phenomena can be explained with the example of a chain. A chain is made up of different links. The chain has continuity; although there is no single strand running through one end of the chain to the other. The chain is continuous because each link is connected to the next. Similarly, all our experiences are causally connected. One experience causes another; and that, in turn, causes another one. Same is true of karmic impression. One karmic impression causes the other. So, rebirth does not mean the migration of the same soul from one body to another. Rebirth means where the present life is caused by the past and future life by the present. So, self is an unbroken stream of consciousness where past, present and future are bound together by causal chains.

According to the Buddhists ignorance is the main cause of misery. Therefore, the annihilation of pain and misery is possible only at the removal of ignorance. Such a state of complete annihilation of pain has been called 'nirvāṇa' in Buddhist system.

There is, however, no agreement regarding the nature of nirvana in Buddhist literature. According to one interpretation the ideal of nirvāṇa is considered to be negative. The word 'nirvāṇa' means 'blowing out'. It is often compared with the extinction of a flame of a lamp. Just as a lamp blown out completely when it is extinguished due to the consumption of its oil, a sage attains nirvāṇa when his desires and passions have been consumed. When one goes through the eight fold path and achieves the perfect wisdom; he no longer remains attached to the worldly affairs. Such a person is called Arhat. However, it has to be understood that nirvāṇa is neither the extinction of life nor the cessation of all activities. At this stage no action is done under the influence of attachment, hatred and infatuation (rāga, dveṣa, moha). The liberated one is full of sympathy and love for the sufferings of his fellow beings. So he works without attachment for their well-being. Thus nirvana cannot be the extinction of life. Nirvāṇa is attainable in this very life. The life and activities of Buddha himself, after his enlightenment proves that nirvana cannot be state of cessation of all activities. Nirvāṇa leads one to a perfected existence. Such a positive interpretation of nirvana can be found in the view given by eminent Buddhist teacher Nagasena. According to him nirvāṇa is the highest and the indestructible state. It generates happiness here and hereafter. It is a state of positive bliss.

### **Self, Bondage and Liberation in Sāṅkhya-Yoga**

In Sāṅkhya-Yoga system self is called Puruṣa. Puruṣa is regarded to be the pure consciousness. He is the spirit, the knower. Like the Jaina, Sāṅkhya also holds that consciousness is the essence of the self. Puruṣa is always the subject and can never become the object of knowledge. The eternal, all-pervading Puruṣa is beyond time and space. He is free from all change and activity. He can never be the agent of an action. Puruṣa is an uncaused eternal reality who is free from all attachment and

unaffected by all objects. All change and activity, all pleasures and pains belong to matter and its products, like the body, mind and intellect. Sāṅkhya believes in the plurality of Puruṣa. There are innumerable Puruṣa. However, all of them are essentially alike. Their essence is consciousness.

Liberation, for Sāṅkhya, is freedom from pain. According to Sāṅkhya life is full of pain. There can be three kinds of pain:

**Ādhyātmika:** All mental and bodily sufferings belong to this kind of pain. It is caused by intra-organic psychophysical factors.

**Ādhibhautika:** All pains caused by extra-organic natural factors like beasts, men, birds, etc. belong to this type of pain.

**Ādhidaivika:** This kind of pain is caused by supernatural factors like planets, ghosts, demons, etc.

The end of life is to get rid of these three kinds of pains. Liberation thus consists in complete annihilation of all sufferings and pains. Pains are caused by gunas. So, if one has to achieve liberation, one has to be free from gunas. Gunas are always present in Prakṛti and its evolutes. This means, for achieving liberation, Puruṣa has to be free from any association with Prakṛti and its evolutes.

As Puruṣa is free from all kinds of action, he is beyond merit and demerit; and consequently, from bondage and liberation. Puruṣa is always free. However, he is reflected in buddhi (one of the evolutes of Prakṛti), and wrongly identifies himself with this reflection. As a result he seems to be bound. Once he realizes his true nature he becomes liberated. Bondage is thus the result of non-discrimination between self and non-self. In other words, bondage is caused by the ignorance regarding the real nature of self and non-self. Now, this ignorance can be removed only by knowledge. Hence liberation can be achieved through knowledge. Puruṣa has to realize that he is different from Prakṛti and its products. Constant meditation upon the knowledge like 'I am not the non-self' or 'nothing is mine' leads to liberation.

Sāṅkhya accepts jivanmukti and videhamukti. Although right knowledge leads to liberation immediately, the individual may have to remain embodied due to prarabdha karma. Just as the wheel goes on revolving even after the withdrawal of the potter's hands from it due to the previous momentum, similarly, on account of the momentum of past deeds, the body continues to survive. This stage is called jivanmukti. However, at this stage no new karma is initiated, and thus all karma loses its potency. The final emancipation is achieved only after death. This stage is called videhamukti.

According to Sāṅkhya liberation is complete annihilation of pain. It is also freedom from all positive feelings like pleasure, happiness, or bliss. Sāṅkhya explains that the liberation means the freedom from all gunas; and pleasure is caused by sattva guna. Therefore liberation cannot be a happy or blissful state.



Sāṅkhya holds that bondage or liberation is all phenomenal. What is really bound or liberated is not the Puruṣa, but the ego, the product of Prakṛti. Puruṣa is neither bound, nor liberated. Puruṣa is in complete isolation from the workings of Prakṛti. Therefore, he is untouched by bondage and liberation.

### **Self, Bondage and Liberation in Nyāya-Vaiśeṣika**

According to Nyāya-Vaiśeṣika there are innumerable souls. Every soul is an independent, eternal and all-pervading spiritual substance. Unlike Sāṅkhya and Jaina this system holds that consciousness is not the essence of the self. Consciousness is not even an inseparable attribute of the self; since during deep sleep the self has no consciousness. So, consciousness is just an adventitious quality of the self. It serves as the substratum for the quality of consciousness. Being a quality, the consciousness must subsist somewhere. It cannot subsist either in the body, or in the senses, or even in the mind. Therefore it subsists in the self. Self also possesses other qualities as well; such as desire, volition, aversion, pleasure, pain, and cognition.

Like most of the orthodox systems Nyāya-Vaiśeṣika also believes that bondage is due to ignorance and liberation is due to knowledge. The embodied souls act under the influence of ignorance. These acts produce merits and demerits. If these actions are in conformity with Vedic injunctions, these actions produce merit; while action that violates Vedic injunction gives rise to demerit. The sum total of the merits and demerits of the soul makes up the unseen moral power, the adṛṣṭa. Motion in atoms and thereby, creation is possible because of this adṛṣṭa. Adṛṣṭa, along with God, create this world; so that the individual soul can enjoy or suffer according to the karma they performed. This state of the soul is called bondage.

Nyāya-Vaiśeṣika believes that liberation is a state of complete and absolute negation from all pain and suffering. This means that a liberated soul has to be free from the body and senses. As long as the soul is attached to a body, it is impossible for the soul to attain the absolute freedom from pain. So, in liberation the soul remains as a pure substance free from all connection with the body, the senses, and even it does not have any consciousness. This state has been described as follows:

It is 'freedom from fear', (abhayam), 'freedom from decay and change (ajaram), 'freedom from death' (amryupadam).

Liberation comes through right knowledge regarding the self and all other objects of experience (tattva-jñāna). One must know the self as distinct from the body, the mind, the senses, etc. Once he realizes the true nature of the self, he would not be moved towards actions driven by passions and impulses. When one becomes thus free from desires and passions, he would stop acting for fruits. Hence his present action would not generate either any merit or demerit. Only he has to suffer or enjoy the effects of his past karma. Once it is exhausted he does not have to be born anymore in this world. The cessation of birth means the end of his connection with the body and, consequently, of all pain and suffering. This is called final liberation. This can be attained only after death.

### **Self, Bondage and Liberation in Mīmāṃsā**

Mīmāṃsā view of self and liberation is very similar to that of Nyāya-Vaiśeṣika, both being the realist and pluralist. According to the Mīmāṃsaka, self is eternal, omnipresent, all-pervading, infinite substance. It is the substratum of consciousness; and the real knower, enjoyer and agent. Souls are many in number. The self is not the body, nor the senses, not even the mind or the understanding. Consciousness is not the essence of self. At this point the views given by Prabhakara and Kumarila differ. Prabhakara holds that consciousness is only an accidental property of soul. Self is essentially unconscious. So, his view is very similar to that of the Nyāya-Vaiśeṣika. Kumarila, on the other hand, says that consciousness is neither an essence nor an accidental property of the self. He holds that consciousness is a modal change in the self. The objects are cognized by the self through consciousness. Like the Jaina, Kumarila holds that self is changeless as well as changing. As a substance it is free from change, as a mode it is changing. The self is not wholly unconscious; but conscious-unconscious. It is unconscious as a substance, and conscious as a mode. The self has the potency to know. So, the self has potential consciousness.

According to some scholar, earlier Mīmāṃsaka used to hold that the highest goal of human life is to be in heaven. One can attain this blissful state by performing Vedic rites. However, the later Mīmāṃsaka holds that liberation is the termination of the bondage of the soul with the body. At this point their view is similar to that of Nyāya-Vaiśeṣika.

Mīmāṃsaka believes that in liberation the self becomes devoid of all qualities. It remains as a pure substance. Kumarila, however, points out that even at the state of liberation the self is characterized by potential consciousness.

It is, however, noteworthy that regarding the nature of liberation two different views can be found. According to some Mīmāṃsaka liberation is not a blissful state. At this state the soul remains in its own intrinsic nature as a substance with the potentiality of consciousness. It is, then, a state in which there is neither pain nor pleasure, nor any specific quality in the soul. There are some other Mīmāṃsaka who believes that liberation means not only the cessation of all pain but also a manifestation of eternal bliss. So, liberation is a state of eternal bliss.

### **Self, Bondage and Liberation in Śāṅkara-Vedānta**

According to Śāṅkara Pure consciousness is the essence of self. Consciousness being self-luminous, the self is essentially self-luminous. Pure consciousness is identical with existence and bliss. Further, the conception of existence involves the ideas of truth, eternity, immutability and completeness. Thus the self is unconditionally true, eternal, unchangeable and self-complete. The self is one. It is due to ignorance that the self is regarded to be many. The self is free from all qualities and actions.

Once the self is conditioned by avidyā it is revealed as jīva or empirical self. It is this empirical



self that performs actions and enjoys the fruits of those actions; and as a result becomes subject to birth and rebirth. Hence it is the *jīva* that becomes bound.

Sankara holds that *ātman* is the inmost Self of man. It is the pure, undifferentiated consciousness. Like Brahman, *ātman* is above name and form. Therefore it is also beyond space, time, perception, thought and expression. *Ātman* is the unchanging, silent witness of the world of change and appearance. Like Brahman, it is above all distinctions. Men, under the influence of ignorance mistakenly identify the *ātman* with some appearances having names and forms; such as the body, the brain, the mind, etc. *Ātman*, however, is none of these. Like Brahman, *ātman* also can never turn out to be an object in the world. On the contrary, *ātman* is the light which illuminates all objects.

For Sankara, *Jīva* or empirical self, is the appearance of *ātman* under superimposition. Sankara explains this with the help of a concept, viz., *upādhi* or limiting adjunct. Despite being infinite and eternal, *ātman* appears to be finite and temporary because of the limiting conditions like body or mind. Here Sankara draws the comparison with space. Space, as such, is indivisible and formless. Nevertheless, it assumes the form of its container such as a pot. Similarly, the nameless, formless, eternal, and infinite *ātman*, appears as finite *jīva* owing to limiting adjuncts like body, sense-organ or mind. When ignorance is removed, one realizes that *ātman* is the only reality; and it is identical with Brahman.

Sankara holds that the bondage is the result of ignorance. Once the ignorance is conquered at the dawn of the right knowledge about reality, one attains *mokṣa* or liberation. The identity of the Brahman and the *ātman* is the highest reality. Liberation means the absolute freedom from ignorance, bondage, and suffering. With the knowledge of the reality, the karmic chain comes to an end and, thereby, the circle of birth and death is ceased. Sankara also admits *jīvanmukti* and *videhamukti*. *Mokṣa* is attainable even when one is in his bodily existence. It is the highest state of consciousness. One who attains such a consciousness is called *jīvanmukta*. *Videhamukti* is the final and absolute freedom from the fetters of *maya*, the illusion-producing ignorance, which can be attained only after death.

It is to be noted that according to Sankara *mokṣa* is not only cessation of suffering and pain; it is also a state of bliss. When one acquires the right knowledge it is realized that *ātman* and Brahman are not two distinct realities; they are two different labels for one and the same reality. So, this is a stage of experiencing reality, of attaining the state of *saccidānanda* (*sat*=Pure Being, *cit*= Pure Consciousness, *ānanda*= Pure Bliss). Hence, *mokṣa* is a state of Pure Bliss. One who attains *mokṣa* is *saccidānanda*, Pure Being, Pure Consciousness, and Pure Bliss.

#### **Self, Bondage and Liberation in Rāmānuja-Vedānta**

Ramanuja believes that the self is an eternal and self-conscious subject. Knowledge is the essence of the self. So far, his view agrees with that of Ramanuja's view. He differs from Sankara in

holding that self is not identical with Pure Consciousness. Ramanuja does not accept anything called Pure Consciousness. He points out that consciousness is always qualified and possesses specific attributes. It is always present in a subject. No one says, 'I am consciousness'; everyone says, 'I am Conscious'. Consciousness belongs to self which is self-luminous. As such, the self is all-pervasive; yet the function of the self is obstructed by karma. Even in deep sleep the self remains self-conscious, together with knowledge. Here, the knowledge remains unmanifested since it has no object to reveal.

According to Ramanuja the *chit* or individual soul is an attribute or mode of God; and constitutes part of his body. Nevertheless, it is spiritual in nature and is absolutely real. Although it is beyond creation and destruction, it becomes embodied to reap the fruits of its karma. The relation between the soul and karma is regarded to be beginningless. The soul is changeless and perfect in essence. However, the soul becomes victim of various imperfections, and miseries as it is subjected to earthly existence. But, these do not affect the true nature of the soul. The soul maintains its essential nature through different births and deaths.

Although the soul is different from the body, mind, vital breaths, or cognition, but it wrongly identifies itself with these due to ignorance and karma. There are innumerable souls. Nevertheless, they are essentially alike. The soul is regarded to be the real knower, the real agent and the real enjoyer.

Ramanuja talks of the following three classes of souls:

- i) *Nitya-mukta*: Souls that are ever free and never bound are called *nitya-mukta*.
- ii) *Mukta*: Souls that were once bound but obtained liberation through action, knowledge and devotion are called *mukta*.
- iii) *Baddha*: Souls that are wandering in *samsara* due to ignorance and bad karma are called *baddha*.

It has already been mentioned that the souls are bound due to their ignorance and karma. So, in order to get rid of this bondage, the soul has to remove its karmic obstacles. For this, a harmonious combination of action and knowledge has to be initiated. Ramanuja also insists that liberation is impossible without God's grace.

For Ramanuja, liberation is not the merging of the *ātman* into Brahman. When the individual soul directly and intuitively realizes that he is essentially a mode of God, liberation is achieved. In order to achieve liberation, two conditions are required to be fulfilled: a) There must be an utter destruction of the karmas. This will help the soul to acquire its innate purity. b) There must be a transformation of the constant meditation into immediate intuition of the God. This is possible only at the dawn of the Divine Grace. Hence there is no *jīvanmukti* in this system. As long as the soul remains associated with the body, karma prevails; and, therefore, the soul cannot obtain its innate purity. The removal of all karmas, and the dawning of the immediate knowledge of God lead to liberation. However, the



liberated soul does not become identical with Brahman. It only becomes similar to Brahman. In liberation the soul enjoys infinite knowledge and everlasting bliss.

### Conclusion

From the above discussion it becomes evident that there cannot be anything in the soul that is intrinsically negative. Soul as such can never be subjected to pain or misery. Soul, in itself, is an eternal and immutable reality that is clearly independent from the body, senses and mind with which it may happen to be associated temporarily. As a result of this association and mistaken identification the soul suffers. Therefore, there is nothing wrong with the soul as such. On the contrary, the soul is essentially pure and divine in nature. Liberation means, therefore, the discovery of this pure divinity in us. It is to be noted that when one attains liberation, no new quality is added to the soul. As the Saṅkara Vedāntins rightly point out, it is like recovering one's own lost jewelry that was worn by one self all along. Divinity lies in man's essential nature. So, we can conclude that liberation is the realization of this essential divinity in man.

### Reference

- Chatterjee, Satischandra, *The Fundamentals of Hinduism*, University of Calcutta, Kolkata, 2013.
- Chatterjee, Satischandra, & Datta, Dhirendramohan, *An Introduction to the Indian Philosophy*, University of Calcutta, Calcutta, 1984.
- Dasgupta, Surendranath, *A History of Indian Philosophy*, Vol. I, Motilal Banarasidass, Delhi, 1975.
- Hiriyanna, M, *Outlines of Indian Philosophy*, Motilal Banarasidass Publishers Pvt. Ltd., Delhi, 2009.
- Sinha, K.P. *The Self in Indian Philosophy*, Punthi Pustak, Calcutta, 1991.
- Sharma, C.D. *A Critical Survey of Indian Philosophy*, Motilal Banarasidass Pvt. Ltd., Delhi, 1997.
- Tiwari, Kedar Nath, *Classical Indian Ethical Thought*, Motilal Banarasidass Pvt. Ltd., Delhi, 1998.
- Puligandla, Ramakrishna, *Fundamentals of Indian Philosophy*, D.K.Printworld (P) Ltd., New Delhi, 2008.

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## AVIFAUNAL DIVERSITY IN TWO DIFFERENT LOCALITIES OF KOLKATA

By : Tuba Naaz, Sneha Shaw, Nisha Sharma, Zoology (G) Third year (2016-17)

### Introduction:

Kolkata, the capital city of West Bengal, is located on the east bank of the Hooghly River. It is the principal commercial, cultural and educational centre of Eastern India. Much of the city was originally a wetland [1] that was reclaimed over the decades to accommodate a burgeoning population and this process is continuously going on as the city is now becoming a megacity. With the advancement of development, megacity has now been expanding up to different sub urban areas and consequently it is facing serious anthropogenic problems related to its rapidly changing urbanization pattern like-reduction of its greenery and overloaded with pollution etc. So the study of biodiversity in a city like Kolkata is now becoming interesting.

### Materials and Methods:

#### Study areas :

The study was conducted from September, 2016 to January, 2017 at two sites of Kolkata viz. Cossipore -at the north sub-urban region and, Chowringee at southern region. The avifauna and their abundance were studied in both study sites and compared.

Kolkata city (22°34' N and 88°24' E)[2] is located in eastern part of India and spread linearly along the banks of Hooghly River. The city is near sea level with an average elevation being 17 feet. The climate here is tropical wet and dry with summer monsoon, high humidity and well distributed rainfall. Annual mean temperature was recorded as 28.4°C while monthly mean temperatures range from 19°C-30°C. The maximum rainfall is more than 300 mm occurs during the month of August and the average annual rainfall is about 1500 mm, along with relative humidity varies between 47% and 83%.

Study area-1 Cossipore is situated near east bank of Hooghly River. It is an age old sub-urban residential/industrial area and now facing serious threats due to expansion of urbanization. Vegetation is classified here into natural and planted trees as well as shrubs. Considerable number of green spaces and water bodies are present. Besides, a number of small scale industries are also marking their presence by promoting pollution in this area.

Study area-2 Chowringhee is a totally urbanized area and it was initially developed for supporting the growing population of city Kolkata. Residential houses and public places are scattered here along with several natural and planted greeneries.

### Method:

The present study is a list of bird species that are usually found in those areas and it was carried out during September, 2016 to January, 2017, twice in each month from 10 am-12 Noon and 3pm-

4pm. Birds were counted by point counting and look and see methods by using field binocular and were identified with the help of taxonomic book[3]. Observations were made by standing and sitting from a hiding place and recorded along with their abundance. On the basis of the frequency of sighting, the bird species were assigned categories of abundance: VC- Very Common (Seen very commonly in most of the visited areas); C Common(Seen commonly in the study areas); NR Not Rare (Seen many times but not common); R Rare(Seen only once or twice)[4].

#### Observation:

**Table 1**  
**Avifauna observed in two areas of Kolkata along with abundance during study**

Sl. No.	Family	Common name	Scientific name	C	Ch
1	Sturnidae	Common Myna	<i>Acridotheres tristis</i>	VC	VC
		Asian Pied Starling	<i>Gracupica contra</i>	NR	C
		Jungle Myna	<i>Acridotheres fuscus</i>	C	R
2	Passeridae	House sparrow	<i>Passer domesticus</i>	VC	VC
		Spotted Dove	<i>Streptopelia chinensis</i>	C	C
3	Columbidae	Rock Pigeon	<i>Colomba livia</i>	NR	C
		Red Whiskered bulbul	<i>Pycnonotus jocosus</i>	C	C
4	Pycnonotidae	Red vented bulbul	<i>Pycnonotus cafer</i>	VC	VC
		White breasted Kingfisher	<i>Halcyon smymensis</i>	R	R
5	Alcedinidae	Black Rumped Flameback	<i>Dinopium benghalense</i>	C	C
6	Picidae	Rose ringed parakeet	<i>Psittacula krameri</i>	C	C
7	Psittacidae	Asian koel	<i>Eudynamis scolopaceus</i>	C	C
		Greater Coucal	<i>Centropus sinensis</i>	R	C
		Black Hooded Oriole	<i>Oriolus xanthomus</i>	C	C
9	Oriolidae	Blue Throated Barbet	<i>Megalaima asiatica</i>	NR	NR
11	Capitonidae	Copper Smith Barbet	<i>Megalaima haemacephala</i>	R	NR
		Common Tailorbird	<i>Orthotomus sutorius</i>	VC	C
13	Cisticolidae	Purple Sunbird	<i>Cinnyris asiaticus</i>	C	R
		Purple Rumped Sunbird	<i>Leptocoma zeylonica</i>	NR	NR
14	Nectariniidae	Little Egret	<i>Egretta garzetta</i>	R	C
15	Ardeidae	Little Cormorant	<i>Phalacrocorax niger</i>	NR	C
16	Phalacrocoracidae	Common Burn owl	<i>Tyto alba</i>	R	R
17	Strigidae	Black Kite	<i>Milvus migrans</i>	C	C
19	Accipitridae	Oriental magpie robin	<i>Copsychus saularis</i>	VC	VC
20	Muscicapidae	House crow	<i>Corvus splendens</i>	VC	VC
		Jungle crow	<i>Corvus macrorhynchos</i>	NR	R
21	Corvidae	Rufous Treepie	<i>Dendrocitta vagabunda</i>	R	NR
		Jungle babbler	<i>Turdoides striata</i>	NR	C
23	Timalidae				

C=Cossipore, Ch=Chowringhee

#### Conclusion

Our study sites are exclusively residential areas and are still urbanizing. A lot of human interferences are there, besides constructional activities, noise, pollution due to vehicles etc. are always making threat to the species of avifauna of this region. It could be the reason why species diversity is variable. Still these sites have supported significant number of avifauna particularly at the southern part of Kolkata (Chowringhee) showing the area may provide some potential habitats to the birds. Present observation provides a preliminary report and further survey with aim to study the landscape pattern in and around these areas with respect to bird fauna is required for better understanding of biodiversity resources here. Therefore, it is the need to monitor these areas systematically with a focused study on status, distribution and conservation of birds.

#### References

- 1 Chatterjee, S. N. (2008). *Water Resources, Conservation and Management*. New Delhi: Atlantic Publishers and Distributors. p. 33. ISBN 81-269-0868-8.
- 2 "PIA01844: space radar image of Calcutta, West Bengal, India". NASA. 15 April 1999. Retrieved 15 January 2012
- 3 Ali, Salim and Ripley, D. 1995. *A pictorial guide to the birds of the Indian Subcontinent*. Bombay Natural Histy Society and Oxford University Press, Mumbai.
- 4 Talmale S.S., Limje M.E and Sambath S. Avian diversity of Singhori Wildlife Sanctuary, Raisen District, Madhya Pradesh. *Biological Forum – An International Journal* 4(2): 52-61(2012)

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# A COLLABORATIVE PROJECT ON CITIZEN SCIENCE PROGRAMME ON CLIMATE CHANGE, BIO-DIVERSITY AWARENESS AND CONSERVATION WITH WILD ROOTS, INDIA.

By

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## Introduction

Citizen Science Programme presented by the "Wildroots Organization" is a step towards creating awareness in the minds of people. It's an organization comprising of highly experienced people from different parts of the world who work for the protection of nature and its surroundings. Likewise we are a team of 17 members representing our college from Kolkata and the first college in Eastern India to be a part of this brilliant programme.



The Wild Roots team from Kolkata representing Shri Shikshayatan College

Our relationship with nature has historically been one of imbalance and overuse. Nearly every step in human history has unfortunately been accompanied with a leap in environmental degradation. At first, nomadic hunter-gatherer tribes used to roam the lands, following the ebb and flow of the seasons. These tribes had a measurable impact on the environment, but their influence was relatively manageable due to their population size. With advancements in technology and agriculture though, humans began to find more efficient ways of sustaining themselves. These advancements allowed for more permanent settlements, which led to rapid population growth and a distancing from nature.

As society evolved, populations grew and more and more resources were required to fuel the expansion. With breakthroughs in agriculture, settlements became more permanent and cities began to take shape. This shift to city life inadvertently led to an alienation from nature. While many people were still in-tune with nature on a subsistent level, the need for more and more resources began to change our regard for nature. This is evident from the recent day researches.

## Objectives

Every survey has an aim and our team's motto was to observe the disturbances faced by nature that has taken place in recent years. Our first survey was at **Chintamani Kar Bird Sanctuary (CKBS), Narendrapur, Kolkata, West Bengal, India, October 13- 2016**. The team as a part of the Citizen Science Collaborative Project was able to spot and photograph 22 species of birds in a 6 Hours Survey that was conducted. Learning the basics of photography, recording of data constituted the main chunk of the programme. With hands on opportunities of using Canon cameras and lenses, almost all of us were handling DSLRs for the first time. We were also introduced to the use of ICT - Information & Communication Technology during the programme, we used mobile applications and e-field guides for the identification of the various species found at CKBS. We have cited a lot of species.

Some of them are : Shikra, Spotted Dove, Spotted Dove, Asian Koel, Chestnutheaded Beeeater, Chestnutheaded Beeeater, Alexandrine Parakeet, Common Iora.



Red vented Bulbul



Barbet *Psilopogon lineate*



Black-rumped Flameback



Greater Flameback



Red-whiskered Bulbul



Jungle Babbler

Along with the birds, we had also spotted a few mushroom species growing there.



Lingzhi Mushroom



Polyporales



Chintamani Kar Bird Sanctuary, Narendrapur, October 13<sup>th</sup> 2016.



We observed the disturbances that were caused by the newly constructed Highway - Bypass right next to the Bird Sanctuary which is the main cause of decline in the number of birds that used to come to CKBS, particularly the migrants. Habitat Loss was also observed, as many surrounding water bodies are in the process of getting filled up for Real Estate development

The next survey was in **November 2016 to the Rajarhat area of New town in Kolkata**. The area was mostly inhabited by crows and sparrows. The vegetation comprised of low shrubs, tall grass and wild yellow and purple flowers. But the most striking and alarming was to come across a huge area of barren and endangered vegetation which indicates acute biodiversity loss. Many fertile land is exploited to construct high rise buildings, apartments, and sky scrapers. Cement stones iron rods were dumped in the open field in such a way that it was nearly impossible for us to walk, moreover it is really difficult for the wild plants to grow.

Butterfly spotting was done at the Rajarhat area.

Name of the butterfly	Time when observed	Weather when observed	Position of the butterfly	GPS reading
Yellow black (Plane tiger)	9.50 AM	Bright sunshine	Sitting	U84L01 42/50/0
White black spots (Mormon)	9.53 AM	Bright sunshine	Flying	U84L01 42/50/0
Greenish black (Tailed jay)	10.00 AM	Bright sunshine	Flying	U22R04 46/50/0
Greyish-wings purplish (Greyish scurpid)	10.30 AM	Bright sunshine	Flying	U26L02 45/50/0
Yellowish (Common grass)	10.48 AM	Bright sunshine	Sitting	U20L04 43/50/0
Greyish (Grey panzy)	11.02 AM	Bright sunshine	Flying	U28000 44/50/0
White greenish	11.02 AM	Bright sunshine	Flying (Flapping wings)	U28000 44/50/0
Yellowish red (Dragon fly)	11.00 AM	Bright sunshine	Sitting	

Next was at **Santragachi Lake, Howrah, on 29th January 2017**. Beautiful view of the lake on a chilled winter morning was a different kind of joy. From taking pictures of some really amazing bird species to knowing about the ecosystem present there, it was an overall wonderful experience. We spotted 16 species of birds in 4 hours of survey. We used binoculars, Canon camera DSLR lenses, and e-field guides for the identification of the various species found at Santragachi Lake.



The team at Santragachi Lake on 29<sup>th</sup> January'17



Map of Satragachhi avian survey.



Indian golden oriole



Purple Sunbird



Purple heron



White breasted kingfisher



Eurasian collared dove



This is a special tree blooming with pink flowers where we spotted the 'Purple Sunbird' →



This was the rare species that we have found. According to latest reports rapid urbanization, increase in settlement around the huge water body which is normally visited by many migratory bird species, has given rise to much lesser number of migrants this year, even the presence of Santragachi Railway Station beside the lake is also a cause of noise pollution. However, the **lesser whistling duck** is the dominant species visible here.



### **Conclusion**

After thousands of years of societal evolution, we find ourselves at the peak of technology and pollution. We are already seeing the effects of our industrial ways through the extinction of species, the melting of glaciers, and the destruction of the landscape. As we continue to disturb the world's natural systems we are recognizing a rippling of consequences. Our recognition of these effects suggests that our role in nature is far more influential than it should be. Therefore it is necessary that we make major changes and we make them soon. Our role within nature should be one of subsistence rather than commercialization.

### **Acknowledgement**

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