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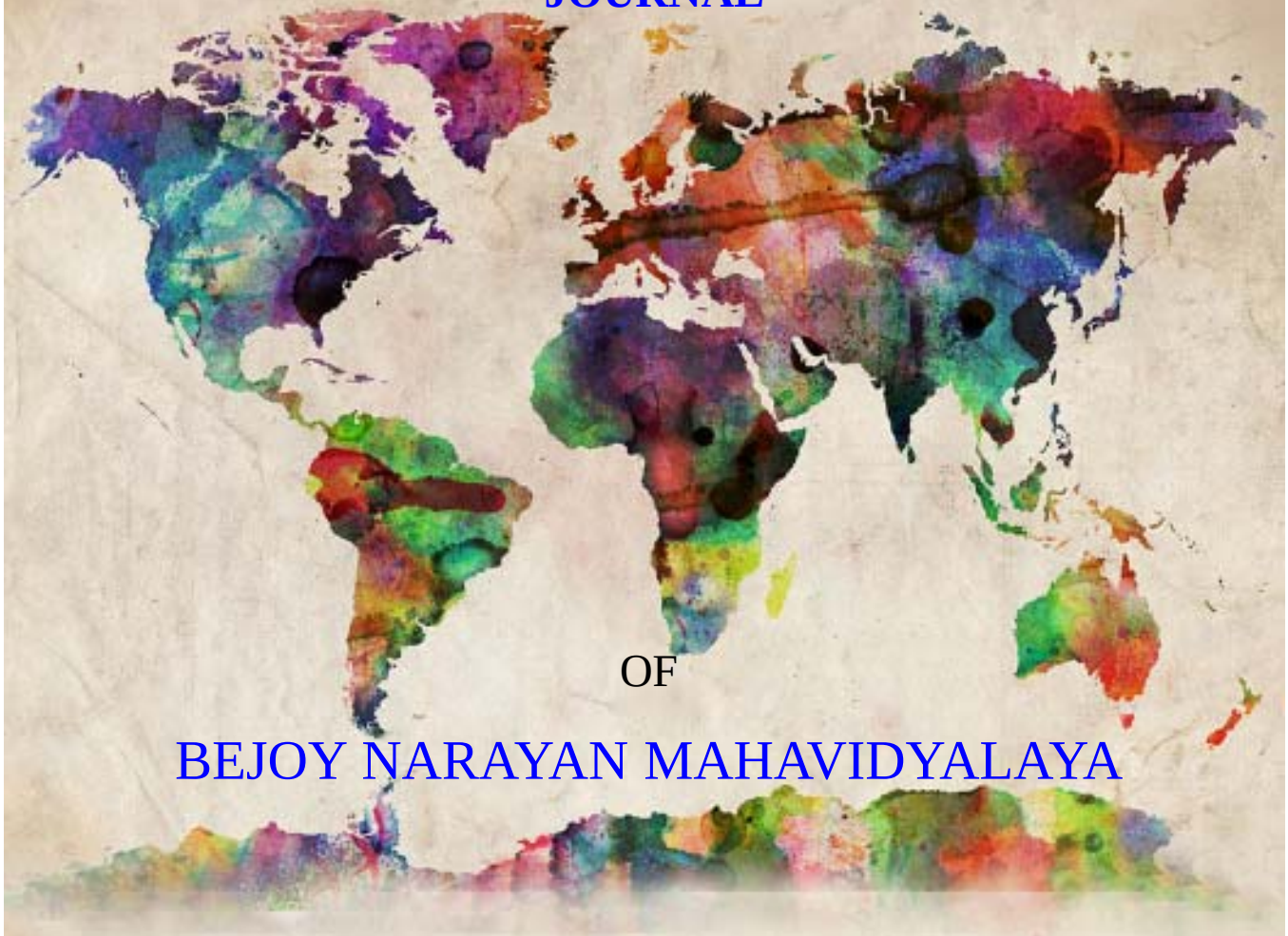

OF

BEJOY NARAYAN MAHAVIDYALAYA

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CONTENTS

From the desk of Editor

Everything changes in this ever changing world. The natural world of flora and fauna undergoes changes with the changing time.Societal fabric household life,food habit, dressing style-everything changes in the same process. established conventions,belief patterns, general attitude to life and value-system also keep on changing with these changing order of things. But one thing that remains constant in the midst of these changing world, is the eternal quest for truth. far beyond the orbit of ordinary human pursuit for pleasure and prosperity, this quest has led to the unfolding of new domains of knowledge and new facets of truth. The successor of Promethean-the fire giver continue with their journey with a view to revealing the vision of truth by driving away all shades of doubts and gloom of ignorance.

With this Promethean pursuit of uncovering the locked up knowledge the members o0f teachers council of Bejoy Narayan Mahavidyalay have resolved to publish an e-journal that would make an honest attempt to capture some of the more significant issues pertaining to human experience., with academic contributions from the teachers of these institutions this bi-annual journal will focus on a a wide range of topics, cutting across the boundaries of different academic discipline.

Finally, we hope that this endeavor of ours will successfully move on from one generation to another breaking new frontiers of knowledge and reach the global standard as a research oriented academic journal

Indian University on the advent of 21st century

একুশ শতকে ভারতীয় বিশ্ববিদ্যালয়

ড. শেখ আবুল কালাম

(১)

লক্ষ লক্ষ বছর আগেকার কথা। অষ্ট্রেলিয়া এবং বর্তমান ভারতীয় উপমহাদেশ ছিল পাশাপাশি ভূখণ্ড। অষ্ট্রেলিয়া থেকে যারা ভারতে এসেছিল তাদের বলা হয় অষ্ট্রিক। সাঁওতালরা এই নৃতাত্ত্বিক জন গোষ্ঠী। পুরনো দিনের মতো ভারত আবার কত লক্ষ বছর পরে অষ্ট্রেলিয়ার পাশাপাশি হবে তা হয়তো আর ভূতাত্ত্বিকরা বলতে পারবে না। সমাজবিজ্ঞানী বা শিক্ষাবিদ্‌রাও কি বলতে পারবে? কালিদাসের মতো কবিরা হয়তো মেঘকে দূত করে দুটি দেশকে কাছাকাছি এনে দিতে পারবে। রবীন্দ্রনাথের মতে সময়ের সঙ্গে দূরত্বের-যন্ত্রণা কল্পনাতে লাঘব হলেও বাস্তবে সম্ভব নয়। মানব উন্নয়ন সূচকে অষ্ট্রেলিয়ার স্থান '২', ভারতের স্থান '১৩৪'। বিশ্বের প্রথম ২০০টি বিশ্ববিদ্যালয়ের মধ্যে ভারতে একটিও নেই। অষ্ট্রেলিয়া, সিঙ্গাপুর, চিনে আছে। ভারতীয় উপমহাদেশে নেই। ২০০৯ সালে চিনে ৫.৫০ লক্ষ জনসংখ্যায় এবং ভারতে ২৫ লক্ষ জনসংখ্যায় একটি করে বিশ্ববিদ্যালয় ছিল। ২০১৫ সালে চিনে ৫ লক্ষ জনসংখ্যায় ১টি বিশ্ববিদ্যালয় এবং ভারতে ১৩ লক্ষ জনসংখ্যায় একটি বিশ্ববিদ্যালয়। বিশ্ববিদ্যালয়ের সংখ্যাতে চিনের সঙ্গে সমতা আনতে ভারতের অপেক্ষা করতে হতে পারে ২০৫০ সাল পর্যন্ত। গুণমানে চিনের সমান হতে ২১৫০ সাল ছাড়িয়ে যেতে পারে। চিনের মানব উন্নয়ন সূচক (২০১১ সালে) ১০১। ভারত যদি ২১৫০ সালে চিনের সমান হয় তাহলে অষ্ট্রেলিয়ার মানব উন্নয়ন সূচক '২' কে পৌঁছাতে কল্পনা ছাড়া বিকল্প পথ খোলা আছে ?

ভারতে উচ্চশিক্ষার কাঠামো ভেঙ্গে পড়েছে। ন্যাশনাল ইন্সটিটিউট অব্ সায়েন্স এডুকেশান অ্যান্ড রিসার্চে ১০০ টি আসনের জন্য ৪০,০০০ ছাত্রছাত্রী আবেদন করে। আই আই টি-র ১০,০০০ আসনের জন্য ১০,০০,০০০ ছাত্রছাত্রী আবেদন করে। সেন্ট স্টিফেন কলেজ দিল্লীতে ৪০০ আসনে ভর্তির জন্য (৯৭ থেকে ১০০ শতাংশ নিয়ে) ৪০,০০০ আবেদন জমা পড়ে। ২০১৫ সালেও ভারত সরকারের বিশ্ববিদ্যালয়গুলিই গুণ মানে দেশের হাজারটি বিশ্ববিদ্যালয়ের মধ্যে কিছুটা উন্নত। দেশের যে ১৩ টি বিশ্ববিদ্যালয় ১০০ নম্বরের মধ্যে ৫০ নম্বরে পৌঁছতে পেরেছে তার মধ্যে ১২ নম্বরে থাকা যাদবপুর বিশ্ববিদ্যালয় রাজ্য সরকারের। ভারতের বিশ্ববিদ্যালয়গুলির ৪২ শতাংশ রাজ্য সরকারের, ২৬ শতাংশ বেসরকারি, ১৭ শতাংশ ডিমড, ৯ শতাংশ জাতীয় গুরুত্বপূর্ণ প্রতিষ্ঠান (ভারত সরকার) এবং ৬ শতাংশ কেন্দ্রীয় বিশ্ববিদ্যালয় (ভারত সরকারের)। ভারতের অঙ্গরাজ্যগুলির বিশ্ববিদ্যালয়ের প্রয়োজনীয় অধ্যাপকের বেতন দেওয়ার মতো, পরিকাঠামো তৈরির মতো আর্থিক সামর্থ নেই। বিশ্বের উন্নত প্রথম ২০০টি বিশ্ববিদ্যালয়ের মতো পরিকাঠামো দিয়ে ভারতীয় বিশ্ববিদ্যালয়গুলিকে উন্নত করার জন্য অর্থ বরাদ্দ ভারত সরকারের বাজেটে বরাদ্দ নেই। ভারতে রাজ্য সরকারগুলির বিশ্ববিদ্যালয় রাজনীতিকে বহন করার মাধ্যম, বেসরকারি বিশ্ববিদ্যালয়গুলি বাজার অর্থনীতিতে উপার্জনের ক্ষেত্র, কেন্দ্রীয় বিশ্ববিদ্যালয়গুলি গণতন্ত্রকে দেখানোর জন্য দায়িত্ব পালন। রাজ্য সরকারগুলির সমস্ত বিশ্ববিদ্যালয়কে কেন্দ্রীয় বিশ্ববিদ্যালয়ে উন্নীত করতে হবে। তাহলে কেন্দ্রীয় অর্থে বিশ্ববিদ্যালয়গুলির নুন্যতম পরিকাঠামো গড়া সম্ভব হবে। রাজ্য সরকারি বিশ্ববিদ্যালয়গুলির বেশির ভাগের মান সংশ্লিষ্ট জেলার বড় কলেজের নীচে। ইউজিসির কাছেও গুরুত্বহীন। গণতন্ত্রের বাজনা বাজানোর জন্য এই বিশ্ববিদ্যালয়গুলি গড়ে তোলা হয়েছে। ভারতে উচ্চশিক্ষা লাভ করা শতকরা ৮০ শতাংশ ছাত্রছাত্রীর বাজার অর্থনীতিতে কোন প্রাসঙ্গিকতা নেই। বিশেষ করে পশ্চাৎপদ অঞ্চলে গড়া বিশ্ববিদ্যালয়গুলি এবং পশ্চাতে ফেলে রাখা জনগোষ্ঠীর ছাত্রছাত্রীদের জন্য বিশ্ববিদ্যালয়গুলির বেশিরভাগ ইউজিসির আর্থিক অনুদান পাওয়ার মতো করেও গড়ে তোলা হয়নি। পশ্চিমবঙ্গে যাদবপুর বিশ্ববিদ্যালয়ে ৮৯৪ টি অধ্যাপক পদের অনুমোদন আছে। উত্তরবঙ্গে ৬টি বিশ্ববিদ্যালয়ে অধ্যাপক আছে ৩৮২ জন। যাদবপুর বিশ্ববিদ্যালয়ে ১০,০০০ ছাত্রছাত্রীর জন্য যতজন অধ্যাপক আছে উত্তরবঙ্গে ৬টি বিশ্ববিদ্যালয়ের ৩০,০০০ ছাত্রছাত্রীর জন্য যাদবপুরের ৪২ শতাংশ অধ্যাপক। গণতন্ত্র নিয়ে শাসকরা প্রতারণা করে চলেছে। যদি উত্তরবঙ্গের মানুষ উন্নতমানের শিক্ষা নিয়ে উন্নত হওয়ার সুযোগ গ্রহণ করতে পারত তাহলে দক্ষিণবঙ্গের নেতাদের উত্তরবঙ্গে প্রবেশে নিষেধাজ্ঞা দিত এবং উত্তরবঙ্গের বেচারা রাজনীতিবিদ্‌দের জন্য আলাস্কাতে জমি খুঁজত।

উত্তরবঙ্গের একটি বিশ্ববিদ্যালয়ও ভারতের প্রথম ৮০টি বিশ্ববিদ্যালয়ের মধ্যে নেই। উত্তরবঙ্গ বিশ্ববিদ্যালয় ছাড়া উত্তরবঙ্গে ৫টি বিশ্ববিদ্যালয় ইউ জিসির আর্থিক অনুদান পায়নি। এই ৫টি বিশ্ববিদ্যালয়ে প্রয়োজনীয় অধ্যাপক পদের অনুমোদন নেই –

১. উত্তরবঙ্গ বিশ্ববিদ্যালয় (ইউজিসির অনুদান প্রাপ্ত)

২. গৌড়বঙ্গ বিশ্ববিদ্যালয় (প্রয়োজনীয় অধ্যাপক নেই)

৩. রায়গঞ্জ বিশ্ববিদ্যালয় (প্রয়োজনীয় অধ্যাপক নেই)

৪. পঞ্চানন বর্মণ বিশ্ববিদ্যালয় (প্রয়োজনীয় অধ্যাপক নেই)

৫. পুন্ডিবাড়ি কৃষি বিশ্ববিদ্যালয় (প্রয়োজনীয় অধ্যাপক নেই)

৬. রবীন্দ্রভারতী বিশ্ববিদ্যালয় ক্যাম্পাস, জলপাইগুড়ি, (প্রয়োজনীয় পরিকাঠামো নেই)

ভারতীয় উপমহাদেশে গণতন্ত্র গ্রামের মানুষকে বঞ্চনা করার ছাড়পত্র। এখানে কোনও উন্নত মানের বিশ্ববিদ্যালয় গড়ে তোলা হয় নি। অতীতে ছিল নালন্দা, তক্ষশিলা, ওদন্তপুরী, সোমপুরি, বিক্রমশীলা, নেগাপত্তনম প্রভৃতি। বর্তমানে উন্নতশিক্ষা, উন্নত চিকিৎসার সঙ্গে খ্রিষ্টানদের সম্পর্ক। আফ্রিকা এবং ভারতীয় উপমহাদেশের সঙ্গে দুর্নীতি, তোলা আদায় এবং নিম্নমানের সম্পর্ক ঘনিষ্ঠ। তারমধ্যে একই দেশে, একই রাজ্যে বিভাজন করার মানসিকতা তীব্র। দিল্লিতে ২৭টি বিশ্ববিদ্যালয়। সাংসদ এলাকা প্রতি গড়ে ৪টি। জয়পুরে ২৭টি, চেন্নাইয়ে ২৪টি, আহমেদাবাদে ২৩ টি, ব্যাঙ্গালোরে ২২টি, কলকাতাতে ১৮টি, হায়দ্রাবাদে ১৬টি, দেরাদুনে ১৫টি, মুম্বাইয়ে ১৪টি এবং ভূপালে ১৩ টি। শাসকদের এই রাজধানী কেন্দ্রিক ঔপনিবেশিক মানসিকতা রূপায়নের জন্য নতুন ২৮ টি রাজ্যের দাবি মেনে নিলে বেশিরভাগ অঞ্চলের মানুষের লাভ হবে। পশ্চিমবঙ্গের ৩০ টি বিশ্ববিদ্যালয়ের মধ্যে কলকাতাতে ৬০ শতাংশ। রাজ্যের ৮৫ শতাংশ মানুষের জন্য ১২ টি। সমতার সংবিধানিক অধিকার নেতারা মানে না। তারা সংবিধানের উর্ধ্বে কি করে হয়? স্বাধীন দেশে নেতারা সংবিধানের সমতার অধিকার লঙ্ঘন করে চলেছে। অসম দৃষ্টিভঙ্গীর অধিকারীরা নীতি নির্ধারিক হচ্ছে।

জাতীয় গুরুত্বপূর্ণ প্রতিষ্ঠান এবং কেন্দ্রীয় বিশ্ববিদ্যালয় মিলিতভাবে রাজস্থানে ৪০ টি, উত্তর প্রদেশে ২৮ টি এবং পশ্চিমবঙ্গে ৩ টি। ভারত সরকারের শিক্ষা বাজেট বরাদ্দ প্রাগৈতিহাসিক যুগের যুক্তিতে পরিচালিত। উচ্চশিক্ষিতদের পদ দিয়ে লাভ কি? তাই ভারত সরকার উচ্চ মাধ্যমিক উত্তীর্ণকে মানব সম্পদ উন্নয়ন মন্ত্রী করেছেন, বিশ্বের প্রথম ২০০ টি বিশ্ববিদ্যালয়ের সঙ্গে ভারতের শত শত বিশ্ববিদ্যালয়কে প্রতিযোগিতায় আনার জন্য। প্রাথমিক স্কুলের শিক্ষক হওয়ার স্বপ্ন দেখা ব্যক্তি উত্তরবঙ্গে উপাচার্য হয়েছে। খুব ছোট স্বপ্ন দেখা ব্যক্তি খুব বড় পদে যাওয়ার সুযোগ আছে উপমহাদেশের গণতন্ত্রে। তাহলে বড় স্বপ্ন দেখে গণতন্ত্রে কি লাভ? একুশ শতকের পরিবর্তন কি নির্দেশ করছে মহাপুরুষরা বাজে কথা বলে সভ্যতায় ভার চাপিয়ে দিয়েছেন? 'ছাত্রানাং অধ্যয়নং তপঃ' এখন ছাত্রদের দ্বারা অধ্যক্ষ, অধ্যাপক, উপাচার্য, প্রশাসক হেনস্তা অধ্যয়নের সহযোগী অংশ। ভারত, বাংলাদেশ, পাকিস্তান ও আফগানিস্তানে অধ্যাপক এবং শিক্ষা প্রশাসকরা ছাত্রছাত্রীদের ভয় করে। নিরুপায় সীতা ধরিত্রীর উপরে নয় মধ্যে জায়গা নিয়েছিল স্বামীর অন্যায় আবদার পূরণ করার জন্য। অধ্যাপক সমাজ এই পরিস্থিতিতে শিক্ষাকে আন্তর্জাতিক মানে উন্নীত করতে পারবে?

ভারতে উচ্চশিক্ষায় প্রথম দশটি রাজ্যে সাংসদ এলাকা প্রতি গড়ে সবচেয়ে বেশি বিশ্ববিদ্যালয় আছে—উত্তরাখন্ডে ৫.৬ টি এবং সবচেয়ে কম পশ্চিমবঙ্গে ০.৭ টি। ভারতে সবচেয়ে বেশি বিশ্ববিদ্যালয় থাকা ১০ টি রাজ্যের স্থান—

ক্রমনিম্ন রাজ্যের স্থান	রাজ্যের নাম	বিশ্ববিদ্যালয়ের সংখ্যা	সাংসদ প্রতি বিশ্ববিদ্যালয় সংখ্যা
১	উত্তরাখন্ড	২৮	৫.৬
২	হরিয়ানা	৩৮	৩.৮
৩	রাজস্থান	৭০	২.৮
৪	কর্নাটক	৫২	১.৮
৫	গুজরাট	৪৮	১.৮
৬	তামিলনাড়ু	৫৭	১.৪
৭	মধ্যপ্রদেশ	৪০	১.৩
৮	মহারাষ্ট্র	৪৬	০.৯
৯	উত্তরপ্রদেশ	৬৯	০.৮
১০	পশ্চিমবঙ্গ	৩০	০.৭

তথ্যসূত্র: কেরিয়ারস ৩৬০, মার্চ ২০১৫ এবং অসম্পূর্ণ গণতন্ত্র।

বিশ্বে বিশ্ববিদ্যালয়ের সংখ্যা ২৪০০০। তার মধ্যে এশিয়া এবং আফ্রিকায় থাকা বিশ্বজনসংখ্যার ৭৫ শতাংশের জন্য আছে ১২, ০০০। বিশ্ব-জনসংখ্যার ২৫ শতাংশ মুসলমান। বিশ্বের বিশ্ববিদ্যালয়ের ১০ শতাংশ মুসলমানরা করেছে। বিশ্বে মুসলিম, হিন্দু এবং ইহুদিদের নিয়ন্ত্রিত দেশে কোনো উন্নত বিশ্ববিদ্যালয় নেই, উন্নত স্বাস্থ্য-পরিষেবার কাঠামো নেই। তার মধ্যে ইহুদিরা উন্নত দেশের নাগরিকত্ব লাভ করে উন্নত পৃথিবীর অংশীদার। মুসলিম এবং হিন্দুরাও যদি আমেরিকা, ওসেনিয়া এবং ইউরোপ মহাদেশে ২৫ শতাংশ নাগরিকত্ব লাভ করে তাহলে উন্নত হয়ে যাবে। এই দুটি সম্প্রদায়ের উন্নত তিনটি মহাদেশে উন্নতমানের বিশ্ববিদ্যালয় গড়ার যোগ্যতা, সামর্থ এবং সুযোগ আছে। ভারতে এবং মুসলিম দেশগুলিতে আর্থ-সামাজিক এবং রাজনৈতিক পরিবেশে তা সম্ভব নয়। অন্দরমহলের ঘৃণা, চরিত্রের বাস্তবরূপ, মানুষকে দূরে সরিয়ে রাখার পরম্পরা এখানে প্রতিবন্ধক। অতীতের গৌরবময় ইতিহাসের অধিকারী হলেও বর্তমানের সংকীর্ণ স্ব-অবরোধে একদিন মাঠটাই ছোট হয়ে গেছে। খেলোয়াড় গড়বে কোথায়? ভারতের বিশ্ববিদ্যালয়ে বিশ্বের বিভিন্ন দেশ

থেকে ছাত্ররা শিক্ষার জন্য আসত। এখন ভারত থেকে যায় উন্নত দেশে। ইউ এস এ, ইউ কে, অস্ট্রেলিয়া এবং কানাডাতে। ইসলামি দুনিয়ার গৌরবময় ইতিহাস একদিন বিশ্বকে রোমাঞ্চিত করে রেখেছিল। নবম শতাব্দীতে ফতিমা আল ফিহরি পৃথিবীতে আধুনিক বিশ্ববিদ্যালয় প্রতিষ্ঠার প্রতিকৃত-রূপে স্বীকৃতি পেয়েছিলেন। একুশ শতকের সেই মুসলমান কোথায়? হজরত মুহম্মদের পথে চলে না, তাঁর মত মানে এমন আত্মপ্রতারণাতে ভালো কাজ করা যায়? বিশ্বের সিংহভাগ মুসলমান হজরত মুহম্মদ এবং চার খলিফার অনুসৃত পথ পরিত্যাগ করে মর্জি মতো চলছে।

২০২৫ সালে ভারতে বিশ্ববিদ্যালয়ের সংখ্যা ২০০০ অতিক্রম করতে পারে। মোট বিশ্ববিদ্যালয়ের ৩ ভাগ হবে বেসরকারি বিশ্ববিদ্যালয়। এখন প্রতি বছর গড়ে ৪০ টি করে বেসরকারি বিশ্ববিদ্যালয় হচ্ছে। পশ্চিমবঙ্গেও হয়েছে ৭ টি। ভারতে ভিআইপিদের সুরক্ষা খরচে বার্ষিক ৪০টি বিশ্ববিদ্যালয় গড়া যায়। দক্ষিণবঙ্গে রাজ্য সরকারি বিশ্ববিদ্যালয়-কাজী নজরুল বিশ্ববিদ্যালয়, বাঁকুড়া বিশ্ববিদ্যালয়, সিধু-কানু বিশ্ববিদ্যালয়, বারাসত রাষ্ট্রীয় বিশ্ববিদ্যালয়, প্রেসিডেন্সি বিশ্ববিদ্যালয়, পশ্চিমবঙ্গ স্বাস্থ্য বিশ্ববিদ্যালয়, পশ্চিমবঙ্গ কারিগরি বিশ্ববিদ্যালয়,৭টি বেসরকারি বিশ্ববিদ্যালয়, আলিয়া বিশ্ববিদ্যালয়, ওয়েস্ট বেঙ্গল টিচার্স ট্রেনিং ইউনিভারসিটি এবং ডায়মন্ড হারবার মহিলা বিশ্ববিদ্যালয়ের পারকাঠামো গড়ে ওঠেনি। মহিলা বিশ্ববিদ্যালয় ভারতের অন্যত্রও আছে। পূর্ব ভারতে এবং উত্তর পূর্ব ভারতে স্পোর্টস বিশ্ববিদ্যালয় গড়ে ওঠেনি। উন্নত রাজ্যে আছে --(১) লক্ষীবাঈ ন্যাশনাল ইন্সিটিটিউট অব্ ফিজিক্যাল এডুকেশান, গোয়ালিয়র, (২) নেতাজি সুভাষ ন্যাশন্যাল ইনস্টিটিউশান অব্ স্পোর্টস, পাতিয়ালা (৩) সন্ত গাদগে বাবা অমরাবতী ইউনিভারসিটি, (৪) তামিলনাড়ু ফিজিক্যাল এডুকেশান অ্যান্ড স্পোর্টস ইউনিভারসিটি (৫) ইন্দিরা গান্ধী ইন্সিটিটিউট অব্ ফিজিক্যাল এডুকেশান অ্যান্ড স্পোর্টস সায়েন্স, ইউনিভারসিটি অব্ দিল্লী, (৬) লক্ষীবাঈ ন্যাশনাল কলেজ অব ফিজিক্যাল এডুকেশান, কারিয়াভাত্তম। রাজ্যের কৃষি দক্ষতা বৃদ্ধির প্রয়োজনে এবং দেশের খেলাধূলা, পর্যটন প্রভৃতির প্রয়োজনে উন্নতমানের বিশ্ববিদ্যালয় গড়ার তাগিদ নীতি নির্ধারকরা অনুভব করেনি। চাহিদাহীন প্রথাগত উদ্বৃত্ত বিশ্ববিদ্যালয় কাদের উন্নতির জন্য গড়ছে? পরাধীন দেশে রাজস্ব, স্বরাষ্ট্র প্রভৃতি গুরুত্বপূর্ণ দপ্তরগুলি ছিল ব্রিটিশদের হাতে। দেশীয় ব্যবস্থাপক সভার হাতে দিত গুরুত্বহীন শিক্ষাদপ্তর। ভারতে শিক্ষা কখনোই গুরুত্বপূর্ণ দপ্তরের মর্যাদা পায়নি। একুশ শতকেও শিক্ষা সেই ট্রডিশন সমানে বহন করছে। তাই বাজার নিয়ে বাড়াবাড়ি, শিক্ষা নিয়ে মারামারি। অন্ধস্নেহের পুনর্বাসন ক্ষেত্র শিক্ষা। অযোগ্য প্রশাসকদের পুরস্কৃত করার খোলা মাঠ গণতন্ত্র।

ভারতে শিক্ষার বিরাট উন্নতি করা সম্ভব নয়। দেশের ৮৪ শতাংশ মানুষ চিকিৎসা ব্যয় বহন করতে পারে না। দেশের ৭৭ শতাংশ মানুষ প্রয়োজনীয় ক্যালরি থেকে বঞ্চিত। দেশের ৬৮ শতাংশ মানুষ গ্রামে বসবাস করলেও সেখানে বিজ্ঞান শিক্ষা, গবেষণা, বিশ্ববিদ্যালয় নেই বললেই হয়। দেশের ৬০ শতাংশ মানুষ কৃষক এবং মজদুর। স্বাধীন দেশে তারা ব্রাত্য। প্রতি তিন ঘন্টায় একজন কৃষক আত্মহত্যা করে। পশ্চিমবঙ্গে প্রতি বছর ১৫০ জন। প্রশাসন এবং সরকার যথারীতি অস্বীকার করে। গণতান্ত্রিক এবং নৈতিক প্রতারণা চলমান প্রক্রিয়া। দেশের ৫২ শতাংশ পরিবার একঘর যুক্ত বাসস্থানে থাকে, দেশের ৩৫ শতাংশ মানুষ টিবি আক্রান্ত। দেশের ৩৪ শতাংশ আইন সভার সদস্য দাগী আসামি। দেশের ধর্মীয় সংখ্যালঘু এবং আদিবাসী মিলিত ভাবে জনসংখ্যার ২৮ শতাংশ হওয়া সত্ত্বেও তাদেরকে অপর করে রেখে দেওয়া হয়েছে। এই ৩৬ কোটি ৪০ লক্ষ (২০১৫) মানুষ আমেরিকা যুক্ত রাষ্ট্রের সমগ্র জনসংখ্যার থেকেও বেশি। উন্নতি ভাষণে সম্ভব হতে পারে , বাস্তবে কি সম্ভব? অর্থনৈতিক গণতন্ত্র ছাড়া বর্তমান রাজনৈতিক গণতান্ত্রিক ব্যবস্থা ভারতীয় উপমহাদেশকে শিক্ষায় উন্নত করতে পারবে না, প্রতারণা বৃদ্ধি করবে।

শিক্ষা সমাজের সহযোগী উপাদান। সমাজের ভাষা, মানুষের প্রকৃতি, নেতৃত্বের চরিত্র, বাজার অর্থনীতি, রাষ্ট্র ব্যবস্থার (গণতন্ত্রের) স্বরূপ, প্রশাসনের মান, বিচার করার প্রকৃতি, সাধারণ মানুষের প্রতি দৃষ্টিভঙ্গী, সমাজের মনস্তত্ত্ব প্রভৃতি শিক্ষায় প্রতিফলিত হয়। উপমহাদেশে এইগুলি নেতিবাচক দিকে দ্রুত অগ্রগতি লাভ করেছে। কোন ক্ষেত্রে উন্নতমানের সঙ্গে প্রতিযোগিতা করার মতো পরিস্থিতি নেই। বাংলাদেশে ৬০ টি মেডিক্যাল কলেজ আছে। একটিও উন্নত মানের করে গড়ে তুলতে পারেনি। প্রতি বছর বিদেশে চিকিৎসার জন্য নুন্যতম ১০ হাজার কোটি টাকা ব্যয় করতে হয়। এই অর্থে নিজ দেশে উন্নত চিকিৎসার কাঠামো গড়ে তোলা সম্ভব। পরিবার ও দেশ সঠিক ভাবে মানুষ না গড়ার জন্য চিকিৎসা-শিক্ষা উন্নত হয়নি। ভারতে মেডিক্যাল কলেজগুলির মধ্যে দিল্লির এইমস্ ১ নম্বরে হলেও বিশ্ববিদ্যালয়গুলির মধ্যে ১১ নম্বরে। গবেষণার ক্ষেত্রটি রোগীর ভিড়ে এখানেও উপেক্ষিত। ভারতের শ্রেষ্ঠ মেডিক্যাল কলেজ নির্ভয়া চিকিৎসার পরিকাঠামো পায়নি। প্রধানমন্ত্রী মনমোহন সিংহের অপারেশনের জন্য বোম্বাই এবং দিল্লিকে যুক্ত করে প্রয়োজনীয় অপারেশন কাঠামো তৈরি হয়েছিল। সাধারণ নাগরিকদের চিকিৎসা ভারতে হয়? গড় আয়ু সিঙ্গাপুরের ৮০.৬ বছর, ভারতের ৬৪.৭ বছর। মানুষের আয়ু বৃদ্ধির সঙ্গে চিকিৎসা ব্যবস্থার উন্নতি, পুষ্টি এবং নিরাপত্তার সম্পর্ক ঘনিষ্ঠ। উন্নত মানের শিক্ষার অধিকারী দেশ হলে দেশের মানুষের আয়ু বৃদ্ধি পায়, নারী নির্যাতন কমে, অসহায় মানুষের স্বক্ষমতা বৃদ্ধি পায়, বিচারের পর্যাপ্ত কাঠামো নির্মাণ হয়, শহরের সঙ্গে গ্রামের নাগরিক পরিষেবা উন্নত করা হয়, প্রশাসন সহজলভ্য হয়, কৃষকদের আত্মঘাতী হতে হয় না। সভ্যতার মেরুদন্ড কৃষকদের ভারতীয় উপমহাদেশ ছাড়া কোন সভ্যদেশে আত্মঘাতী হওয়ার কাঠামো তৈরি নেই। শিক্ষা এবং গণতন্ত্রে বিশৃঙ্খল পথ অনুসরণ করার জন্য কৃষক সমস্যা দেখার নেতৃত্ব তৈরি হয়নি। কর্পোরেটদের স্বার্থ দেখার জন্য অনেক নেতা আছে। তাই স্বাধীনোত্তর কালে শিল্পপতিরা পার্টি ফান্ডে হাজার হাজার কোটি টাকা দিয়েছে।

হাজার হাজার চাষা প্রতি বছর আত্মহত্যা করে চলেছে। মুসলমান শাসকদের সময়ে এবং পরাধীন দেশে চাষীদের প্রতিবছর স্বাধীন দেশের মতো নিয়ম করে আত্মহত্যা করতে হয়েছে? ডিগ্রি দান শিক্ষা নয়, বানিজ্য। কর্পোরেট সংস্কৃতিকে উৎসাহ দেওয়ার বাধ্যবাধকতায় শিক্ষাপণ্যের মোড়কের গুরুত্ব বেড়েছে, শিক্ষার চরিত্র সভ্যতা গড়ার বিপরীতে ধাবিত হয়েছে। পৃথিবীর এই কঠিন অসুখ বর্তমান শিক্ষার কাঠামো সারাতে পারবে না। সমাজকে ইতিবাচক দিকে পরিবর্তন করে পৃথিবীকে উত্তরাধিকারীদের বাসযোগ্য করতে পরিবর্তন করার বিশেষ প্রকৃতির নেতৃত্বের প্রয়োজন। নির্বাচনের পর নির্বাচন হলেও যারা নাগরিক সমস্যা কমানো দূরে থাক বাড়িয়ে দেয় তারা কেন এই নাগরিকদের ভিন দেশে অভিবাসনে, ভিন রাজ্যে স্থানান্তরে নীতি নির্ধারণ করে না?

(২)

'একটি শিশু, একজন শিক্ষক, একটি বই, একটি পেন, পৃথিবীর পরিবর্তন করতে পারে'। রাষ্ট্রসংঘে ১৬ বছরের মালালা ইউসুফজাই এই কথা বলেছিলেন। পরিবর্তনের পর্যাপ্ত উপাদানগুলিকে ব্যবহার করতে না পারার জন্য বিশ্বের পরিবর্তন হলেও মানুষের বিশেষ কিছু পরিবর্তন হয়নি। মানুষের অধিকার উন্নত শিক্ষা, উপার্জনের শিক্ষা, মানবাধিকারের শিক্ষা, সমতার শিক্ষা। এই অধিকার লঙ্ঘন করার নাম অতি আধুনিকতা গরিব মানুষদের উদবাস্তু করা একুশ শতকের সভ্যতা। বিশ্বে ৬ কোটি উদবাস্তুর (২০১৫) মধ্যে ৩ কোটি শিশুর শিক্ষা কি ভাবে হবে? ছয় হাজার বছরের সভ্যতাতে এখনও ৫.৭০ কোটি শিশুকে প্রাথমিক স্কুলের বাইরে রেখে দেওয়া হচ্ছে। এখনও নিরক্ষরদের দুই-তৃতীয়াংশই মহিলা। সভ্যতার অভিভাবকরা বিশ্বকে ১৫ বার ধ্বংস করার মতো অস্ত্র মজুত রেখেছে, কিন্তু সমাজ পরিবর্তনে শিক্ষার কাঠামো নির্মাণ করতে দেয়নি। তারা কি অপরাধী? অপরাধীরা রাষ্ট্রীয় নিরাপত্তা নিচ্ছে অসহায়দের দেয় কর থেকে। কুৎসিত ভাষা ব্যবহারকারী, পাশব শক্তি প্রয়োগকারী মানুষদের জন্য সভ্যতা ক্রমশ বসবাসের অনুপযোগী হয়ে উঠেছে। রাষ্ট্র তার অপরাধকে ঢেকে রাখার জন্য মানুষের মধ্যে বিকৃত ধর্মীয় আবেগকে প্রণোদিত করেছে। কোন না কোন ধর্মে দীক্ষিত মানুষের মনুষ্যত্বের আচরণে বিশ্ব ভ্রাতৃঘাতী, আত্মঘাতী হয়ে উঠেছে। সভ্যতা ধর্মের বীভৎস রূপে সন্ত্রস্ত। ধর্মীয় শিক্ষা, রাষ্ট্রীয় শিক্ষা, ধর্ম নিরপেক্ষ শিক্ষার প্রকৃতি কেমন হলে মানুষ মানুষকে ভালোবাসতে পারবে এই প্রশ্ন সভ্যতাকে ভাবিয়ে তুলেছে। অসৎ মানুষের বিকৃত ধর্মীয় উন্মাদনা অনেক জাতিকে ধ্বংস করেছে। আবার সেই উন্মাদনা দেখা দিচ্ছে। মানুষ ভ্রাতৃঘাতী হয়ে উঠেছে। পাশবিক প্রবৃত্তি তাদের নিয়ন্ত্রণ করছে। ভারতে মজুত ২০,০০০ টন সোনার পরও প্রতি বছর ১০০০ টন করে সোনা আমদানী হচ্ছে। এই সোনা দেশ গঠনে বিনিয়োগ করা হলে সামাজিক অস্থিরতা থাকবে না।

শিক্ষার আঙিনার বাইরে কাউকে রেখে দেওয়া, কর্মসংস্থানের বাইরে রেখে দেওয়া, উৎপাদনী শক্তির বিকাশ না ঘটানো রাষ্ট্রীয় অপরাধ। রাষ্ট্রের কাজ সুবিচার দেওয়া, নাগরিকের ভ্রাতৃত্ববোধের জাগরণ ঘটানো, বৈচিত্র সম্পাদন করা। তার বাহন রূপে আসে শিক্ষা। সুবিচার দিতে গেলে বিচারের কাঠামো নির্মাণ করতে হয়। এই পরিকাঠামো তৈরি না করার জন্য ভারতে ৩.৫ কোটি মামলা অমীমাংসিত। হাইকোর্টে আছে ৪৪ লক্ষ। নতুন হাইকোর্ট প্রয়োজন ২৪ টি। নারীর উপর নির্যাতন, অসহায়ের উপর অত্যাচার বেশি। প্রতি দশ লক্ষ জনসংখ্যায় বিচারপতি আছে আমেরিকা যুক্তরাষ্ট্রে ১০৭ জন, ভারতে ১১ জন, কানাডাতে ৭৫ জন, যুক্তরাষ্ট্রে (ইউ.কে) ৫১ জন, অষ্ট্রেলিয়াতে ৪২ জন। আমেরিকার সমান (বিচারক) হতে গেলে ভারতে বিচারপতি প্রয়োজন ১,৩৩,০৩৫ জন। ভারতে একজন সংসদ অঞ্চলে ২৪৫ জন এবং পশ্চিমবঙ্গে একটি বিধানসভা কেন্দ্রে ৩৫ জন বিচারপতি থাকতে হয়। দেশে প্রয়োজনীয় বিচারপতি থাকলে ৩০ লক্ষ মানুষের কর্মসংস্থান হবে। রেলেও ৩০ লক্ষ কর্মসংস্থানের সুযোগ আছে।

ভারত সম্পদশালী দেশ। এই সম্পদ শিল্পপতিদের অর্থ বাড়াতে, দুর্নীতিগ্রস্তদের সুরক্ষা দিতে ব্যয় হয়ে যাচ্ছে। জাতীয় সম্পদ কালো টাকা থেকেই প্রত্যেক নাগরিককে ১৫ লক্ষ টাকা করে দেওয়া যায়। যার থেকে বিচার, বাসস্থান, শিক্ষা, স্বাস্থ্য, কর্মসংস্থানের মতো কাজ সম্পূর্ণ করা যায়। ভারতের ৪ কোটি ছাত্রছাত্রী এমন বাসস্থানে থাকে যেখান থেকে শিক্ষাগ্রহণের মানসিকতা বিপর্যস্ত হয়ে উঠছে। দেশে ১.৯০ কোটি বাসস্থানের প্রয়োজন। খালি বাড়ি পড়ে আছে ১.০২ কোটি। পরস্পর বিরোধী চরিত্র নিয়ে উপমহাদেশের সভ্যতা অগ্রসরমান। হাজার হাজার বছর ধরে এর ইতিবাচক পরিবর্তন হয়নি। শিক্ষা, স্বাস্থ্য এবং বিচারে তার প্রতিফলন পড়েনি। ভারত বিশ্ব থেকে স্বতন্ত্র। দেশের স্বাস্থ্য-বাজার এবং শিক্ষা-বাজার বার্ষিক ৮ লক্ষ কোটি টাকা করে। দেশের প্রথম ৮টি বড় রাজ্যের বার্ষিক বাজেট বরাদ্দের দ্বিগুণ। শিক্ষা এবং স্বাস্থ্য এই দুটি ক্ষেত্রের প্রয়োজনীয় বিকাশ সাধন করলে দেশের মাধ্যমিক উর্ধ্ব ৬ কোটি শিক্ষিত বেকারের কর্মসংস্থান হয়ে যাবে। ২০২২ সালের মধ্যে ৫০ কোটি কমবয়সীকে কর্মসংস্থানের উপযোগী প্রশিক্ষণ দিয়ে দক্ষ করতে না পারলে সামাজিক অরাজকতা নিয়ন্ত্রণ করা যাবে না। কর্মসংস্থানমুখী শিক্ষার প্রবর্তন পঞ্চায়েত থেকে পৌরসভাতে করতে হবে। বাজার অর্থনীতিতে কর্মসংস্থানের দায়িত্ব নিতে হবে শিল্পপতিদের। তাদের জন্য বাজার খুলে দেওয়া হয়েছে, সরকারি ক্ষেত্রের গুরুত্ব কমিয়ে দেওয়া হয়েছে। সরকারি ক্ষেত্রের কর্মসংস্থান সংকুচিত করা হয়েছে। কিন্তু শিল্পপতিরা কর্মসংস্থানের দায়িত্ব ভাগ করে নেয়নি। তার জন্য সমাজের সর্বত্র অস্থিরতা বেড়ে চলেছে। গণতান্ত্রিক রাষ্ট্রব্যবস্থা দেশের কাছে অতিরিক্ত ব্যবস্থা রূপে প্রতিভাত হচ্ছে। তাই শিক্ষা এবং কর্মসংস্থান, বিনিয়োগ এবং কর্মসংস্থানকে একসূত্রে যুক্ত করতে পারলে কল্যাণকামী অর্থনীতির বিকাশ হবে।

২০১১ সালে ভারতে স্নাতক হয়েছে ১, ৪৬,১৭,০০০ ছাত্রছাত্রী। এর ১২ শতাংশ স্নাতকোত্তর এবং ১ শতাংশ গবেষণা করে।

স্নাতকের ন্যূনতম ১০ শতাংশ গবেষণা করলে দেশ অনেক উন্নত হত। কোন কোন রাজ্যে এম.ফিল. পি.এইচ.ডি গবেষণার কোন গুরুত্ব নেই। গবেষণায় আর্থিক উৎসাহ নেই যে সমস্ত রাজ্যে সেখানে শিক্ষার মান নিম্নমুখী। মুড়ি-মুড়কির একই দর হলে কেউ কষ্ট করে মুড়কি তৈরি করে না, গবেষণা করে না। তাই বর্তমান রাষ্ট্রপতি প্রণব মুখোপাধ্যায় এক দশক ধরে বারবার বলে চলেছেন ভারতের উচ্চশিক্ষা উন্নত দেশের সমপর্যায় থেকে অনেক নীচে চলে গেছে। বিশ্বের প্রথম ২০০টি বিশ্ববিদ্যলয়ের সমমানের পরিকাঠামো এবং বেতনক্রম ভারতে অনুসরণ করা হলে এখানকার উচ্চশিক্ষাও অনেক উন্নত হয়ে যাবে। হার্ভার্ড বিশ্ববিদ্যালয়ে প্রদত্ত মেধাবৃত্তি ভাতার অর্থের পরিমাণ ৩২ বিলিয়ন ডলার। ভারতের সকল বিশ্ববিদ্যালয়ের নিয়মিত শিক্ষাক্রম বহির্ভূত সম্মিলিত আর্থিক অনুদান ১২ বিলিয়ন ডলার। আমেরিকার সকল বিশ্ববিদ্যালয়ের ১৩ শতাংশ ছাত্রছাত্রী বিদেশি। তার মধ্যে ১,০০,০০০ ছাত্র ছাত্রী ভারতীয় (২০১২)। ভারতের বিশ্ববিদ্যালয়ে ১৩ শতাংশ বিদেশি ছাত্রছাত্রী যখন শিক্ষাগ্রহণ করবে, তখন ভারত উচ্চশিক্ষায় উন্নত দেশ হবে, শিক্ষিত বেকার হ্রাস পাবে। এরজন্য প্রয়োজন আমেরিকার মতো উচ্চশিক্ষায় জিডিপি-র ৩.১ শতাংশ ব্যয় করা। ভারত করে উচ্চশিক্ষায় ব্যয় জিডিপি-র ১.২৫ শতাংশ। আমেরিকার এক তৃতীয়াংশ। উন্নতি যদি ভাষণে হয় তাহলে ভারতে উচ্চশিক্ষায় হবে।

ভারতে কেন্দ্রীয় সরকারের আর্থিক সহায়তায় চলা বিশ্ববিদ্যালয়গুলি দেশের বিভিন্ন প্রকৃতির ১০০০ টি বিশ্ববিদ্যালয়ের মধ্যে সামান্য উন্নত।২০১৫ সালে কেন্দ্রীয় বিশ্ববিদ্যালয় গড়ে ২ জন সাংসদ প্রতি ১টি।প্রতিটি সাংসদ অঞ্চলে ৩টি করে কেন্দ্রীয় বিশ্ববিদ্যালয়,একটি এইমস, ২টি করে কারিগরি বিশ্ববিদ্যালয় প্রয়োজন। ভারতের বেশিরভাগ সাংসদ অঞ্চলে কোনো কেন্দ্রীয় বিশ্ববিদ্যালয় নেই। ২০১০ সালে ১৭৭টি কেন্দ্রীয় বিশ্ববিদ্যালয় ছিল। তিনজন সাংসদ প্রতি ১টি। এই হিসেবে উত্তরবঙ্গে ৩টি এবং দক্ষিণবঙ্গে ১১টি থাকার কথা। পরিবর্তে ছিল দক্ষিণবঙ্গে ৩টি। রাজ্যের প্রাপ্য সংখ্যার এক-চতুর্থাংশ। ফলে প্রাপ্য অর্থের তিন-চতুর্থাংশ টাকা থেকে প্রতিবছর কেন্দ্র পশ্চিমবঙ্গকে বঞ্চনা করেছে শুধুমাত্র উচ্চশিক্ষাতে। ২০১৫-১৬ আর্থিক বর্ষে পশ্চিমবঙ্গের উচ্চশিক্ষায় বাজেট বরাদ্দ ৩৯১ কোটি টাকা। এই আর্থিক বর্ষে ভারত সরকার উচ্চশিক্ষায় বাজেট বরাদ্দ বিগত বছরের থেকে কমিয়েছে ৭৯৯ কোটি ৪৪ লক্ষ টাকা। এই অর্থ পশ্চিমবঙ্গ সরকারর উচ্চ শিক্ষাখাতে বরাদ্দের দ্বিগুণেরও বেশি। আগামী দিনে উচ্চশিক্ষার মান আরও নিম্নমুখী হবে। কর্পোরেট দুনিয়া উচ্চশিক্ষার বাজার নিয়ে নেবে। কর্পরেটদের কাছে ২০১৪-১৫ আর্থিক বর্ষে বকেয়া কর ৪.৮৫ লক্ষ কোটি টাকা আদায় করা হলে সাংসদ অঞ্চল প্রতি ৪টি করে কেন্দ্রীয় বিশ্ববিদ্যালয় গড়া যেত। টাকার অভাবে কেন্দ্রীয় বিশ্ববিদ্যালয়ে ৩৮ শতাংশ অধ্যাপক পদ খালি। রাজ্য সরকারের ৪০০টি বিশ্ববিদ্যালয়কে কেন্দ্রীয় বিশ্ববিদ্যালয় করা হচ্ছে না টাকার অভাবে। তারপরেও কেন কর্পোরেট তোষণ? কেন্দ্রীয় সরকার রাজ্যের আদায়কৃত কর-এর দুই-তৃতীয়াংশ রাজ্যগুলিকে ফিরিয়ে দিলে রাজ্যের উচ্চশিক্ষার কাঠামো উন্নত হত এবং ঋণের দায়ে ডুবে থাকতে হত না। পরিবর্তে ৪২ শতাংশ থেকে ৫২ শতাংশে পৌঁছেছে। এখানেই রাজ্যের উচ্চশিক্ষার দুর্বলতা লুকিয়ে আছে। বেশি অর্থ বিনিয়োগের সঙ্গে উচ্চশিক্ষার উন্নত মান সরাসরি যুক্ত।

ভারতে ২০১০ সালে মহিলা কলেজ ছিল ৩,৪৩২টি। সাংসদ এলাকা প্রতি গড়ে ৭টি। ২০১৫ সালে এই সংখ্যা হতে পারে ১০ থেকে ১২টি । দেশের অনেক সাংসদ অঞ্চলে দেশের একজন সংসদ অঞ্চলের মহিলা কলেজের সমান কলেজ নেই। ঔপনিবেশিক নগরকেন্দ্রিক এই উন্নয়ন নীতি স্বাধীন দেশের আত্মঘাতী অগ্রগতির চলমান নীতি। ভারতের বিভিন্ন প্রকৃতির৪৮,০০০ হাজার কলেজের মধ্যে সাংসদ প্রতি গড়ে ৮৮টি করে কলেজ আছে। প্রয়োজন গড়ে ১০০টি করে। যে সমস্ত সাংসদ অঞ্চলে জাতীয় গড়ে ৮৮টি করে কলেজ নেই, সেগুলি উচ্চ শিক্ষায় পশ্চাদপদ। পশ্চিমবঙ্গে সাংসদ প্রতি কলেজ ২৯টি। বেশিরভাগ সাংসদ অঞ্চলে ১৫টির মধ্যে কলেজ, মহিলা কলেজ ১টি থেকে ২টি। পশ্চিমবঙ্গে বিভিন্ন প্রকৃতির কলেজ ১২০৮টি। যে বিধানসভা কেন্দ্রগুলিতে ৪টি করে কলেজ নেই, রাজ্যের গড়ে সেগুলি পশ্চাদপদ। সর্বভারতীয় গড়ে পূর্ব ভারত এবং উত্তর-পূর্ব ভারতের ১২টি রাজ্যে সংখ্যায় বিজ্ঞান স্কুল কম, মহিলা কলেজ কম, মেডিক্যাল কলেজ কম, নার্সিং কলেজ কম, এবং উচ্চশিক্ষায় বিষয়ের সংখ্যা কম। সবচেয়ে করুণ অবস্থা গ্রামীণ ক্ষেত্রে। এই ১২টি রাজ্যের গ্রামীণ ক্ষেত্রে বিজ্ঞান দিয়ে, উচ্চশিক্ষায় কলেজ, বিশ্ববিদ্যালয়দিয়ে, মহিলা কলেজ দিয়ে মূলস্রোতের উন্নয়নের সঙ্গে সকল নাগরিককে যুক্ত করা একুশ শতকের অন্যতম দায়িত্ব। তা নাহলে এই ১২টি রাজ্যে দেশের মধ্যে সর্বাধিক বেকার নিয়ে দক্ষিণ ভারত, পশ্চিম ভারতে ট্রেন-উপচানো যাত্রী নিয়ে যেতেই থাকবে। দেশের মধ্যে এবং দেশের বাইরে বেকার যুবশক্তির কর্মসংস্থানে ভারত সরকারকে এবং প্রতিটি রাজ্যকে বিশেষ ব্যবস্থা নিতে হবে। উদ্যোগ নিতে দেরি হওয়ার জন্য অর্থনৈতিক, রাজনৈতিক, প্রশাসনিক এবং সামাজিক অরাজকতা নিয়ন্ত্রণ করা যাচ্ছে না। শিক্ষার কাঠামো কর্মসংস্থানের কাঠামো নির্মাণ করেনি। শিল্পপতিরা কর্মসংস্থান বৃদ্ধিকে বিনিয়োগের শর্ত হিসেবে নেয়নি। বিপুল উৎপাদনী শক্তির অপচয়ে শিক্ষা অর্থপূর্ণ হয়নি। পুঁজির কেন্দ্রীকরণ শিক্ষিত বেকারদের সমস্যাকে পরাধীন দেশের শতগুণ বেশি সমস্যায় আটকে দিয়েছে। মুক্ত বাজার অর্থনীতিতে শিল্পপতিদের শিক্ষিত যুবশক্তির কর্মসংস্থানের দায়িত্ব গ্রহণ করতে হবে অথবা বাজার অর্থনীতির জন্য সমাজতান্ত্রিক রাষ্ট্রব্যবস্থার প্রবর্তন করতে হবে। তাহলে কর্মহীন শিক্ষিত বেকারদের অবসাদ অভিভাবদের দেখতে হবে না। বাজারের প্রয়োজনে শিক্ষার কাঠামো নির্মাণ হবে। ঔপনিবেশিক শিক্ষার কাঠামো মুক্ত-অর্থনীতির সঙ্গে সঙ্গতিপূর্ণ নয়।

স্কুলের বাইরে থাকা ৬০ লক্ষ শিশুকে শিক্ষার আঙিনার মধ্যে নিয়ে আসা সভ্যতার প্রথম ও প্রধান শর্ত। গণতান্ত্রিক ব্যবস্থায় দেশে সাংসদ অঞ্চল এবং রাজ্যে বিধানসভা কেন্দ্রিক বা মহকুমাকেন্দ্রিক সমতা আনার শিক্ষানীতি গ্রহণ করা সাংবিধানিক কর্তব্য। পশ্চিমবঙ্গে শিক্ষার সার্বিক পরিসরকে উন্নত করার প্রয়োজনীয় পদক্ষেপ—

১. বহুমুখী উন্নয়ন প্রকল্প দিয়ে শিক্ষার বাইরে থাকা পরিবারকে শিক্ষার মূলস্রোতে যুক্ত করা।

২. 'শিক্ষার মানোন্নয়ন কমিশন' তৈরি করা।

৩. কর্মসংস্থানকে উচ্চশিক্ষার প্রাথমিক লক্ষ্য রূপে গ্রহণ করতে বাজার-অর্থনীতির সহযোগী উপাদান করে শিক্ষাকে ঢেলে সাজানো।

৪. অষ্টম শ্রেণি থেকে দ্বাদশ শ্রেণি পর্যন্ত ৬০ শতাংশের নীচের নম্বর পাওয়া ছাত্রছাত্রীদের দক্ষতা বৃদ্ধির শিক্ষার কাঠামো নির্মাণ করা।

৫. প্রতিটি বিধানসভা কেন্দ্রে কমিউনিটি কলেজ, স্নাতকোত্তর কলেজ, নার্সিং কলেজ, প্যারা মেডিক্যাল কলেজ, স্পোর্টস একাডেমি, বিজ্ঞান কলেজ তৈরি করা।

৬. সর্বস্তরে প্রতিটি শিক্ষাপ্রতিষ্ঠানে ছাত্র শিক্ষক অনুপাত সমান করা।

৭. প্রতিটি মহকুমা অঞ্চলে মেডিক্যাল কলেজ এবং বিশ্ববিদ্যালয় গড়া। নতুন বিশ্ববিদ্যালয়গুলির আর্থিক অনুদান পুরানোদের থেকে বেশি করা এবং অধ্যাপক ছাত্র অনুপাতে সকল বিশ্ববিদ্যালয়ে সমতা আনা।

৮. গণতন্ত্রকে জাতীয় সংহতির উপাদানরূপে প্রতিষ্ঠা দিতে সমাজবিজ্ঞান এবং সাহিত্যের পাঠক্রমকে বিভিন্ন জনগোষ্ঠীর আত্মপরিচয়ের বাহক রূপে গড়ে তোলা।

৯. প্রশিক্ষণ-কর্মসংস্থান-গতিধারা প্রকল্পকে সংযুক্ত করা।

১০. কৃষি ও কর্মসংস্থান বৃদ্ধির জন্য ব্লক স্তরে প্রকল্প গ্রহণ করা।

Research Rank in Indian universities, CAREERS 360, March2015

Rank	Degree **Awarding Institute**	Publication Count **Score(40)**	Productivity **Score(20)**	Ciation Impact **Score(20)**	H-indexk **Score (20)**	Total Score **(100)**
	First Category University					
1.	Indian Institute of Science, Bangalore	40.00	9.78	8,80	17.78	76.36
2 .	Indian Institute of Technology, Kharagpur	33.02	6,78	7,23	14.44	61.47
3.	University of Delhi Delhi	25.08	3.87	12.69	18.33	59.96
4.	Indian Institute of Technology, Bombay	28.61	6.28	7.58	16.67	59.14
5.	Indian Institute of Technology, Delhi	31.29	7.39	6.28	12.78	57.74
6.	Tata Institute of Fundamental Research Mumbai	14.82	6.9	16.65	18.33	56.73
7.	Anna University, Chennai	34.68	5.06	3.66	11.11	54.51
8.	Punjab University Chandigarh	15.35	2.40	16.69	20.00	54.44
9.	Indian Institute of Technology, Madras	26.95	5.92	6.54	14.44	53.85
10.	Jawaharlal Nehru Centre for Advanced Scientific Reserch	6.70	16.37	15.89	14.44	53.41
11.	All India Institute of Medical science New Delhi	27.62	4.45	7.74	13.33	53.14
12.	Jadavpur University	27.98	5.84	5.86	11.11	50.79
13.	Indian Institute of Technology Roorkee	22.35	7.69	7.13	13.33	50.50
	Second Category University					
14.	Indian Instititute of Tecnology, Kanpore	21.55	7.54	7.77	12.78	49.64

Rank	Degree **Awarding Institute**	Publication Count **Score(40)**	Productivity **Score(20)**	Ciation Impact **Score(20)**	H-indexk **Score (20)**	Total Score **(100)**
15.	National Institute of pharmacutical Education and Research, Mohali	5.24	20.00	10.40	10.00	45.64
16.	VIT University, Vellore	27.82	2.50	3.73	10.00	44.05
17.	Indian Institute of Tecnology, Guwahati	15.99	5.29	8.41	13.89	43.58
18.	Banaras Hindu University,	21.30	2.16	7.69	12.22	43.38
19.	Institute of Chemical Tecnology, Mumbai	7.30	5.64	9.67	10.56	43.17
20.	Postgraduate Institute of Medical Educatation And Research, Chandigrh	21.33	7.46	4.52	9.44	42.80
21.	Aligarh Muslim University,	15.73	1.78	9.06	16.11	42.68
Third Category University						
22.	University of Calcutta	17.48	3.33	6.93	11.11	38.84
23.	University of Hyderabad	13.26	4.03	8.73	12.78	38.79
24.	SASTRA University, Thanjavur	16.09	4.08	4.53	10.56	35.26
25.	Bharathiar University Coimbatore	9.48	7.32	7.31	11.11	35.22
26.	Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow	8.14	5.64	11.68	8.89	34.35
27.	Indian institute of Science Educatation and Research Pune	3.47	5.05	15.26	10.56	34.33
28.	Indian Institute of Tecnology, Indore	3.34	5.24	13.36	12.22	34.16
29.	Jawaharlal Nehru University New Delhi	11.08	2.93	7.36	10.56	31.93
30.	National Institute of Technology, Tiruchirappali	10.47	5.45	6.19	9.44	31.55

Rank	Degree **Awarding Institute**	Publication Count **Score(40)**	Productivity **Score(20)**	Ciation Impact **Score(20)**	H-indexk **Score (20)**	Total Score **(100)**
31.	Indian Institute of Science Educatation and research, Kolkata	4.05	6.04	11.94	9.44	31.48
32.	Annamalai University Annamalai Nagar	5.55	0.75	5.54	9.44	31.28
33.	Visva Bharati Shantiniketan	5.52	1.07	11.21	13.33	31.14
34.	Indian Institute of Science Educatation and Research, Thiruvannanthapuram	1.10	3.31	20.00	6.67	31.08
35.	National Institute of Technology, Rourkela	9.61	7.01	6.07	8.33	31.03
36.	Guru Nanak Dev University, Amritsar	7.15	2.58	9.43	11.67	30.82
37.	University of Madras	10.17	5.60	5.77	8.89	30.43
Fourth Category University						
38.	University of Rajasthan, Jaipur	8.28	12.78	29.52		
39.	University of Jammu,	3.98	1.23	12.01	12.22	29.44
40.	Bharathidasan university Tiruchirapply	7.50	4.13	7.32	9.44	28.38
41.	Shivaji University Kolahpur	6.03	2.69	9.01	10.00	27.73
42.	Indian Institute of Science Education and Research, Mohali	2.07	3.13	13.51	8.89	27.59
43.	Indian Statistical Institute, Kolkata	10.14	3.61	4.92	8.33	27.00
44.	University of Pune	9.41	3.43	5.74	8.33	26.91
45.	Indian Agricultural Research Institute, New Delhi	10.38	2.16	5.40	8.89	26.84
46.	Tezpur University	6.70	3.66	8.02	8.33	26.71

Rank	Degree **Awarding Institute**	Publication Count **Score(40)**	Productivity **Score(20)**	Ciation Impact **Score(20)**	H-indexk **Score (20)**	Total Score **(100)**
47.	National Brain Research Centre, Gurgon	0.81	5.58	14.06	6.11	26.56
48	Madurai Kamaraj University,	6.66	2.29	7.84	9.44	26.23
49.	Indian Institute of Technology, Ropar	2.43	4.38	11.07	8.33	26.23
50.	Sri Venkateswara University, Tirupati	9.57	2.91	5.76	7.78	26.01
51.	University of Allahabad	6.78	2.62	7.09	9.44	25.93
52.	University of Burdwan	5.55	3.01	7.81	9.44	25.82
53.	Pondicherry University	7.99	2.60	5.72	9.44	25.76
54.	Thapar University, Patiala	8.84	3.61	5.34	7.78	25.57
55.	National Institute of Mental Health and Neuro Science, Bangalore	6.90	6.01	5.36	6.67	24.94
56.	Indian Institute of Engineering Science and Techonology, Shibpur	7.71	3.08	5.81	8.33	24.93
57.	Jawaharlal Nehru Technological University, Hyderabad	8.89	3.96	4.15	7.78	24.78
58.	National Institute of Technology, Durgapur	6.28	4.32	6.01	7.78	24.39
59.	Sree Chitra Tirnual Institute for Medical Science and Technology Thiruvanthapuram	3.71	3.65	7.12	9.44	23.92
60.	Birla Institute of Technology and Science, Pilani	8.75	1.86	4.93	9.44	23.88
61.	SRM University, Chennai	10.50	0.47	4.55	8.33	23.85
62.	University of Lucknow,	7.88	0.94	6.53	8.33	23.68
63.	King George's Medical University, Lucknow	10.33	3.49	3.02	6.67	23.51
64.	Indian School of Mines, Dhanbad	7.18	3.99	4.71	7.22	23.09

Rank	Degree **Awarding Institute**	Publication Count **Score(40)**	Productivity **Score(20)**	Ciation Impact **Score(20)**	H-indexk **Score (20)**	Total Score **(100)**
65.	Jamia Hamdard, New Delhi	3.78	2.37	8.76	7.78	22.69
66.	Sardar Vallabbhai National Institute of Tecnology, Surat	5.34	2.03	6.35	8.89	22.60
67.	Dr Harisingh Gour Vishwavidyalaya, Sagar	3.93	1.66	8.60	8.33	22.52
68.	Indian Veterinary Reserch Institute, Itanagar	7.45	4.22	4.16	6.67	22.50
69.	Birla Institute of technology, Mesra	6.74	2.51	4.77	8.33	22.35
70.	ABV-Indian Institute of Technology and Management, Gwalior	2.49	10.93	3.25	5.56	22.23
71.	Sri Ramchandra University, Chennai	2,05	0.31	14.63	5.00	21.98
72.	Indian Institute of Science Educatation and Research Bhopal	1.66	3.58	9.18	7.22	21.64
73.	Forest Research Institute, Dehradun	0.66	0.95	0.00	20.00	21.61
74.	Motilal Nehru National Institute of Technology, Allahabad	6.12	3.04	4.49	7.78	21.43
75	Amrita Vishwa Vidyapeetham University, Coimbatore	5.72	0,40	5.85	9.44	21.41
76.	Indian Institute of Tecnology, Hyderabad	4.06	3.62	6.30	7.22	21.20
77.	University of Kalyani	5.49	2.46	6.02	7.22	21.19
78.	Maharshi Dayanand University, Rohtak	4.45	1.72	6.83	7.78	20.78
79.	Maharaja Sayajirao University of Baroda, Vadodara	6.50	0.68	6.06	7.22	20.54
80	Kuvempu university, Shankaraghatta	4.06	1.72	7.40	7.22	20.40

CAREERS 360, March 2015 এবং ড. শেখ আবুল কালামের ১) অসম্পূর্ণ গণতন্ত্র, ২) পশ্চিমবঙ্গ:উন্নয়নে বঞ্চনা গ্রন্থ সহযোগে লেখা। লেখক বিজয়নারায়ণ মহাবিদ্যালয়ে অ্যাসোসিয়েট অধ্যাপক।

Postmodern Cry: Sibylization or Civilization

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Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world…
The best lack all convictions, while the worst
Are full of passionate intensity. —— ***The Second Coming***; W.B. Yeats

Once Sibyl of Greek mythology asked Apollo "for as many years of life as there are grains in a handful of sand", at this Sibyl being a devout devotee of Apollo, was soon blessed with an eternal life to live, but , to her unknowingness, not with a youth to enrich the very life itself. Consequently, as existence without essence becomes meaningless, Sibyl's life without youth made her exasperated for death; on being asked later, what she want, Sibyl promptly exonerates: *Death*. Indeed, the likewise experience of death-in-life or life-in-death as marks the life of Sibyl, becomes the *sui generis* of the civilians like us, who have left the dark corridor of the dark ages long, long ago, simply by the name of 'civilization'. Identically almost the same, both 'Sibylization' and civilization endow us with the enlightenment of knowledge in one hand and the unwholesome spirit of ignorance on the other, the bliss of life as for gift and the blemish of an inevitably cursed death simultaneously. However much civilized we may be with the ethical and material prosperity, the crisis of civilization lurks within it; according to Albert Schweitzer's The Philosophy of Civilization (1923), at the bottom of each civilization, there lies an outcry of multi-foliate crisis at every step that starts with the dawn of the very civilization itself.

With the genesis of earth in this universe, which can acknowledgeably be traced back to the Latin idea – ex nihilo (meaning ***out of nothing***), or to the popular conviction of cataclysmic flood that amassed geological fossils for the creation of earth, the human beings dominate it by the mechanisms of their sheer intelligence, patience and labour, for which our Shakespeare the Bard of Avon in a certain context of his well-known play Hamlet exults, saying, 'What a piece of work is man!'. Contextually, the human beings that evolve from ***homosapiens*** to the latest form or from a creature to creator felt an urge of standardization of life and society, which consequently gave birth to our much coveted ***civilization***. The abstract noun 'civilization' that comes from the Latin 'Civilis' related to *citizenship*, is broadly multidimensional. Historically, the root of civilization delves deep into the flux of time; it is as old as that of human race. It is said that history till now encompasses 18 world civilizations, starting from the earliest **Sumer** and **Mesopotemia** civilizations to the latest **Global Civilization** that starts from 16the century onwards. The historians like Rakhaldas Bandopadhya view that each civilization is transitory; acute crisis in each begets an uneschewable end of it, as happens remarkably in the cases of Harappa civilization in 2000 BCE and the Roman civilization in 1453 ADE. It is undoubtedly true that motto of civilization is to permit the enlightenment of knowledge and betterment of psychosomatic instinctive. But in actuality, the puzzle of civilization ensues there when we fail to mark the imposition of all-round well-being is solely on the civilization itself or on the collective individuals. In this context, the voice of Austrian critic Sigmund Freud from his **Civilization and Its Discontents** (page-14) can be harkened:

It seems to be certain that our present-day civilization does not inspire in us a feeling of well-being, but it is very difficult to form an opinion whether in earlier times people felt any happier and what part their cultural conditions played in the question. We always tend to regard trouble objectively, i. e., to place ourselves with our own wants and our own sensibilities in the same conditions, so as to discover what opportunities for happiness or unhappiness we should find in them. This method of considering the problem, which appears to be objective because it ignores the varieties of subjective sensitivity, is of course the most subjective possible, for by applying it one substitutes one.'s own mental attitude for the unknown attitude of other men. Happiness, on the contrary, is something essentially subjective.

As discussed here, it means to emphasise that the individual development is a further development of civilization; the individual content is the global content, one is supportive to the other.

The continuum-evolution of civilization has made it reach to the pinnacle of wonder and achievement, success and glorification. The evolution from civilization to civilization is so distinct that some discernible features can easily be marked out. Hence the civilization of the Stone Age or of Iron Age remains far behind the present civilization of global-

ization. Undeniably acknowledged, the civilization is now free from the primitive brutality or incivility; it means now both moral and material progression of mankind. Science and technology have catapulted it to the zenith of such a life, the *de la mode* of which is marked by intellect, beauty and ease. In spite of being the denizens of earth, we are now in a metaphysical world, rather in the world of Utopia with a huge plethora of advantages and ideals. While scrutinizing the amenities of civilization in our Post-modern era, the American dramatist Tennessee Williams in his "Forward to Sweet Bird of Youth"(1959) cuts a relevant comment:

We are all civilized people,… observing a few amenities of civilized behavior.

Yet, the civilization, specifically of our Post-modern context, runs with some prominent shortcomings. As a night lamp burns with light having a darkness beneath it, our esteemed civilization suffers from the cancer of crisis, the curability of which is hardly possible, the recovery of which is merely for time to follow.

As Postmodern civilization is the other name of Sibylization, here life is couched in death, here humanism goes by the name of mechanism, here '*We are the hollow men/ We are the stuffed men/ Leaning together/ Headpiece filled with straw.Alas*!'Albeit the revolutionary Bengali poet Sukanta Bhattacharya calls for "Chharpatra"(License of freedom) for the new born child, one is '*born in such a stormy and tempestuous season'* and cries in vain. As soon as a child is born, its childhood is lost, as he or she is made academically ready and competent to cope with all the propensities from the classes — KG to PG. A child grows up not with fairy tales but with academic bells in nursery; parental love and care is a far cry, values are untaught and unpracticed, consequently labeling the child a hard-hearted selfish or sensualist or criminal to turn into hell or 'wade into blood'. This is the way of life the Post-modern civilization sings its song.

On another level, *civilization* is synonymous with *culture*, the concept of which Cicero the Roman orator first applied for the *cultivation of soul*. Every civilization contains one or more than one culture, as we find the Egyptian civilization had only Egyptian culture, while the European civilization was goaded with Greek and Roman cultures. Our present Global Civilization is an amalgamation of the eastern and western cultures, or oriental and occidental cultures. For its vastness of cultural amplification, the Post-modern civilization is largely subject to lethal crisis. The crisis runs to such an extent that both the culture of mind and the culture of work are on death bed; therefore the scientist like Acharya Jagadish Chandra Bose, the poet like Rabindranath Tagore, and the man-maker sage like Swami Vivekananda run in crisis. Here the youth-culture goes astray; in accordance with a report framed by GCFI(Global City Indicators' Fact), there are 25-64 percentage adult youth, out of which only 40 percentage lead a sound life. The civilization's youth culture is beautifully sung by Jamie Cullum, a cocky, energetic young pop-jazz artist from Britain, who sums the sentiments of our generation up best in his song, "Twenty Something" on Octoberof 2003:

After years of expensive education A car full of books and anticipation I'm an expert on Shakespeare and that's a hell of a lot But the world don't need scholars as much as I thought Maybe I'll go traveling for a year Finding myself, or start a careerI could work for the poor, though I'm hungry for fame We all seem so different but we're just the same Maybe I'll go to the gym, so I don't get fat Aren't things more easy, with a tight six packWho knows the answers, who do you trust I can't even separate love from lust… .(Song)

Our Civilization is undoubtedly a wonderful gift of some hypnotizing science. It has made us speedy and vehement, but we are robbed of our intrinsic emotions and propensities; material progress causes our moral regress in the true sense. Often the thought that haunts us is that the progress as we perceive today is an illusion or something else. We may rather confide in Rousseau's dictum regarding the preference of 'noble savage' to sophisticated courtiers.

The Postmodern civilization is now even in the periphery of literary theory. The foremost theorist of Postmodernism is Jean Francois Lyotard, best known for his book The Postmodern Condition, where he takes up this *avant-garde* movement of Postmodernism for the validity of the Enlightenment of Knowledge and Science in day to day life. Equally is the voice of another French writer Jean Baudrillard, whose book Simulations interrogates the 'loss of the real' in the context of Post-modernism. He is of the view that in contemporary life, the pervasive influence from film, T.V. and advertising has led to a loss of the distinction between real and imagined, reality and illusion, surface and depth.

While speaking about the crisis of civilization in the context of Postmodernism, the most noted English poet that comes to the minds of many is Thomas Sterns Eliot, regarded as the only 'classicist and royalist' in the realm of English literature. In his epoch-making book The Waste Land, published in 1922, he poetizes the tone of an already all-round decline in social, political, religious and moral frames, regarding the modern

world in general and London in particular as the emblems of Waste Land, rather as the 'cactus land'. Same is the visionary acumen of V.S. Naipaul, who visited India during the second half of the twentieth century, noticed the violent racial movements here and there in India, felt bound to regard particularly the city Calcutta as a 'dead city' and expressed his grave despondency in the work India: a Million Mutinies Now:

In 1946 there were the Hindu-Muslim massacres. They marked the beginning of the end for the city. The next year India became independent, but partitioned. Bengal was divided. A large Hindu refugee population came and camped in Calcutta; and Calcutta, without a hundredth part of the resilience of Europe, never really recovered. (*Mutinies*/349-50)

In the conclusion, the foreboding thought and anxiety of our Global Civilization is not a concern to us merely, but even a haunting aspect to the poet Rabindranath Tagore when he was octogenarian, and his treatise The Crisis of Civilization, deemed as the Swan Song of his life, is really a touchstone to us with the following lines:

Today I complete eighty years of my life. As I look back... I am struck by the change that has taken place ...a change that carries within it a cause of profound tragedy.

Being optimistic by nature, we the human beings should be hopeful for the cathartic effect of tragic fate of our civilization, its regeneration like the Phoenix.

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The Environmental Crisis of Civilization: And How it can be resolved using Superconducting technologies

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Abstract:
Sustainable energy, clean water, low-emission transportation, coping with climate change and natural disasters, and reclaiming use of land are some unprecedented global crisis of civilization. Such environmental crisis is no longer whether climate change is happening; it is no longer whether the fisheries, forests and farmland can sustain current levels of exploitation; and it is no longer whether our air and water are polluted. The substantive question asks to what extent the Earth will remain capable of sustaining the modern world. The superconducting technologies could address some major challenges confronting humanity. It covers water purification, power distribution and storage, low-environmental impact transport, environmental sensing (particularly for the removal of unexploded munitions), monitoring the Earth's magnetic fields for earthquakes and major solar activity, and, finally, developing a petaflop supercomputer.

Keywords: superconducting technologies, environmental crisis, superconducting wire and cable, ultra-sensitive magnetometry, SQUID.

Introduction :
Plants and animals are becoming extinct in unprecedented numbers, the oceans' fisheries are in decline, water is increasingly polluted, and even the air we breathe - so called 'fresh air' - is frequently smog (air contaminated by industrial and agricultural pollutants). Further, industrial processes have released toxins upon Earth which have altered the environment so severely that the reproductive capabilities of animals (including the human) are affected. These events are informing us in quite clear terms that the generativity of Earth and the social structures dependent upon it are in peril. This is the environmental crisis which is reacting to human behaviour and is warning us - perhaps beseeching us - to respond. The essential question raised by the environmental crisis is no longer whether climate change is happening; it is no longer whether the fisheries, forests and farmland can sustain current levels of exploitation; and it is no longer whether our air and water are polluted. The substantive question asks to what extent the Earth will remain capable of sustaining the modern world as we have come to know it. The environmental crisis challenges the profession of social work and our society to critique their core assumptions, values and beliefs, and to develop a new consciousness based on an alternative set of assumptions, values and beliefs that can lead humanity to envision and work toward a society more capable of fostering ecological integrity and social justice. Sustainable energy, clean water, low-emission transportation, coping with climate change and natural disasters, and reclaiming use of land are some unprecedented global crisis of civilization. Superconducting technologies could address these major challenges confronting humanity. Following a brief review of the environmental crisis, this topic will discuss how such crisis of civilization can be resolved using superconducting technology.

Environmental Crisis :
The environmental crisis is a long-term threat to Earth's well-being. Human technology has done so well in exploiting the Earth's 'resources' that we are rapidly using up both renewable and non-renewable resources. As well, the toxic by-products of our production processes and consumer lifestyles are being produced much more rapidly than Earth can absorb. The impact is so pervasive that there is not an ecosystem on the planet that is free from the consequences of human activity; for example, the toxic by-products of industrial production have been found in ice samples taken from deep in the Arctic. Human activity has changed the "chemistry of the planet", for example, climate change, ozone depletion, desertification of soil, growth of deserts, and the proliferation of toxins. In extreme scenarios, if climate change continues and permafrost leaves the northern tundras, the release of CO_2 and methane will compound, quite dramatically, the process of global warming.

A major factor contributing to environmental devastation is the extractive economy i.e., a terminal economy". It is terminal because we are turning non-renewable minerals into waste, cutting down Earth's forests and over fishing its oceans far beyond sustainable levels, and polluting the atmosphere, lakes and rivers to such an extent that the 'clean, fresh air' and 'clear, clean, water' are

becoming exceptions. The scale of destruction and the volume of industrial, agricultural and domestic effluent being released are beyond the self-healing and self-regenerating capacities of Earth. Our economy is destructive and self-defeating because we are eliminating the resources and ecosystems upon which our social structures depend. Environmental concerns such as pollution, erosion and deforestation affect everyone, but the poorest countries have the most to lose. They are impacted the most by environmental destruction, and have the fewest resources available to adapt.

Overview and status of Superconductivity:

The definition of a superconductor has been effectively summarized by Poole, C.P [1] as: "a conductor that has undergone a phase transition to a lower energy state below a transition temperature, T_c, in which conduction electrons form Cooper pairs, which carry electrical current without resistance, and which are responsible for perfect diamagnetism". Over the century since its discovery by Kamerlingh Onnes in 1911, Superconductivity has promised to provide solutions to many challenges. So far, most superconducting technologies are esoteric systems that are used in laboratories and hospitals. Large science projects have long appreciated the ability of superconductivity to efficiently create high magnetic fields that are otherwise very costly to achieve with ordinary materials. The most successful applications outside of large science are high-field magnets for magnetic resonance imaging, laboratory magnetometers for mineral and materials characterization, filters for mobile communications, and magneto-encephalography for understanding the human brain. The stage is now set for superconductivity to make more general contributions.

The primary challenges are related to the choice and cost of the materials (mainly the superconductor) and the design, cost and reliability of the cryogenic cooling systems. HTS superconductors are still too expensive to make long-distance dc transmission a commercial reality, although new manufacturing processes currently being explored and steady improvement in yield and performance in existing processes promise a continued reduction in cost. As well, current worldwide HTS production capacity is not able to provide the needed quantity for a very long transmission cable. MgB_2 wire offers an attractive low-cost alternative to HTS wire, with current costs one-tenth (or less) the cost of HTS [2]. However, an MgB_2 cable must be cooled with either gaseous helium or liquid hydrogen at a temperature of about 20 K. As mentioned earlier, refrigeration capital and operating costs are a strong non-linear inverse function of temperature, and the cost of cryogenics for MgB_2 could potentially outweigh its lower material costs when compared to an HTS cable.

In 1967 Garwin and Mattisoo evaluated the possibility of transferring 100 GW over 1000 miles in a single superconducting dc power cable [3]. Then they used the concept of recently discovered superconducting compound Nb_3Sn, and operated at about 4 K using liquid helium as a Coolant. significant material discoveries and technology advances that would open additional avenues for realizing practical systems. One such advance was the 1986 discovery by Bednorz and M¨uller of high-temperature superconductivity (HTS) in ceramic materials [4]. These new materials operate at liquid nitrogen temperatures (65–77 K), so that instead of a factor of 500 for the refrigerator's power requirement, the factor is only about 20–25 [5]. Liquid nitrogen is plentiful, easy to obtain, and inexpensive. A second, more recent materials development was the 2001 discovery of superconductivity in magnesium diboride (MgB_2) [6]. These superconductors operate at temperatures lower than liquid nitrogen, but in a range that may be reached with liquid In parallel with the development of superconductors, ac–dc power technology has evolved with higher-current and higher-power silicon-based devices.

This topic provide a Roadmap [7] of how superconducting technologies could address some major challenges confronting humanity. It covers water purification, power distribution and storage, low-environmental impact transport, environmental sensing (particularly for the removal of unexploded munitions), monitoring the Earth's magnetic fields for earthquakes and major solar activity, and, finally, developing a petaflop supercomputer that only requires 3% of the current supercomputer power provision while being 50 times faster.

Water purification by superconducting high gradient magnetic separation:

The majority of the water on the Earth is sea water—the proportion of fresh water is about 2.5% and only 0.008% of it in rivers or wetlands are relatively easy to use. Pollutants discharged without being processed appropriately, such as industrial waste water or domestic waste water, pesticides, oils and organic compounds can induce pollution of water sources such as rivers and groundwater and become the cause of water shortage. One of the methods to solve this problem is the use of small-scale distributed water treatment systems. a superconducting magnetic separation system as a promising small-scale distributed wastewater treatment system. The magnetic separation system can separate a specified contaminant, which is required to be removed, by attaching ferromagnetic particles to the pollutant. That is, the system can selectively separate a toxic contaminant or environmental pollutant. Even when the required purification level varies with the loca-

tion, the magnetic separation can answer the request flexibly. The potential of superconducting magnetic separation to enable water recycling and reuse.

A high-gradient magnetic separation (HGMS) device is the core of a superconducting magnetic separation water treatment system. It is used to separate suspended solids from their medium by using a magnetic force. This method has been used as a technique to separate iron oxide from kaolin raw material. In recent years, even for a suspended solid that does not show ferromagnetism (or high susceptibility), the method to separate it magnetically has been developed by adding a ferromagnetic adsorbent. The technique named 'magnetic seeding' has been used for purification of waste water. By a suitable choice of adsorbent, the recovery of a heavy metal ion or pharmaceutical products from waste water has been shown to be possible. To make effective use of magnetic force in the magnetic
separation process, it is important to enlarge the volume of the suspended solid, to increase the magnetic susceptibility of the suspension or to strengthen the magnetic field together with the gradient of magnetic fields. The magnetic seeding which adheres the ferromagnetic particles to the object makes it possible to separate not only weakly magnetic materials (paramagnetic, diamagnetic material) but also dissolved materials.

Concerning the practical application of HGMS using superconducting magnets, the Huber Corporation, Georgia introduced superconducting magnets to a kaolin clay refining plant in 1986. The cryocooler-cooled superconducting magnet was developed around 1995, and the operation of the magnet was realized without liquid helium. Because of this a high magnetic field can be generated easily at room temperature and the magnetic separation technology came to be applied in various fields. Thereafter, R&D efforts have been concentrated primarily on the water processing system. HGMS has been used in practical applications such as the waste water treatment of a paper factory [8], the drum wash water treatment [9], river water purification [10] and so forth.

Superconducting magnetic energy storage : The Equinox Summit held in Waterloo Canada 2011 identified electricity use as humanity's largest contributor to greenhouse gas emissions. Our appetite for electricity is growing faster than for any other form of energy. Global warming by greenhouse gases is accelerating the growth of the renewable energy market. The paradigm of energy consumption is changing from fossil fuel and nuclear energy to renewable energy. High gas prices and the Fukushima nuclear disaster are driving the change faster. Solar and wind power have the brightest future among renewable energy sources. There are still some obstacles to the growth of the wind and solar power sectors. As we know, the unsteady output power of wind and solar energy causes frequency variation and instability for the electrical network. Conventional power
plants operate at a constant output power, but the outputs of wind and solar power plants are not constant, and moreover are not predictable.

Superconducting technologies can provide the energy efficiencies to achieve, in the European Union alone, 33–65% of the required reduction in greenhouse gas emissions according to the Kyoto Protocol [11]. New technologies would include superconducting energy storage systems to effectively store power generation from renewable sources as well as high-temperature superconducting systems used in generators, transformers and synchronous motors in power stations and heavy-industry facilities. There are several energy storage systems which can be used for the electrical network. R&D of energy storage is attracting a lot of attention globally. Subjects of interest include superconducting magnetic energy storage (SMES), super-capacitor energy storage (SCES), the compressed air energy storage system (CAES), the flywheel energy storage system (FESS), the pumped hydro energy storage system (PHESS), and the battery energy storage system (BESS). SMES has most of the required functions except for the long backup time, although SMES with a long backup time is available with a high price tag. The first concept of SMES application was based on its high efficiency. It was an alternative to hydro-pumped storage which had an efficiency of only 60–70% [12]. Wind and solar power systems will not survive in the long term without energy storage systems which have fast response time and long backup time. At present, there is no storage which can satisfy these functions by itself, and so at least two storage systems should be combined together to support the renewable energy effort. As far as the fast response time is concerned, SMES is by far the best. It responds faster and generates much higher output power than the super-capacitor. The combination of a high-temperature SMES and hydrogen fuel cell is a promising solution for ideal storage, but both are immature technologies which require future R&D. Standardization and modularization are the route to cost reduction which can lead to a large-scale impact on how we use electricity.

Long-distance dc transmission of green power : Energy generation from renewable sources, for instance solar, wind, geothermal and tidal, is increasingly regarded as an important priority in many regions of the world. Areas with abundant green energy

sources are typically located far (up to several thousand kilometers) from the major consumption centers, posing new challenges for efficient long-distance transmission systems. For this purpose GW-level power over long distances will be required. One way to accomplish this is to use lossless dc cables based on high-temperature superconductors. When compared to standard overhead lines, superconducting cables (i) would have no impact on the landscape due to their underground location, (ii)can be designed to eliminate electromagnetic fields that could affect the surrounding area, (iii)would have a smaller environmental footprint than both overhead lines and standard underground cables, (iv) would minimize the land use and property acquisition, leaving the value of local real estate unaffected, and lastly, (v)they would not be influenced by natural weather phenomena such as wind, fog, snow and ice. Therefore, the potential of magnetic energy storage of superconductivity is harmonized with the conventional electrical network, which requires a storage technology with a fast response and long backup times for successful transition to wind and solar power generation.

New topologies as well as control schemes now allow ac–dc converters to pattern the outgoing power to match variations in the current and voltage of the receiving power grid making them more flexible and smaller in physical size. Besides their principal function of converting dc to ac, converters provide additional services to the grid that are not typically available in ac systems (e.g., voltage control, fault current limiting). Modern converters have less than 1% losses [13]. Thus, it is their cost rather than efficiency that dictates the minimum line length to justify the deployment of dc lines for long-distance transmission instead of conventional ac lines. At current costs the economic crossover to dc from ac for conventional overhead lines is about 400 miles [14,15]. The economic crossover length for superconducting dc lines should be less in view of the economic value of the benefits listed above in comparison to overhead lines. However, advances in materials, cryogenics, and ac–dc conversion are still needed to make the dc superconducting cable both a reliable and cost-effective alternative to environmentally less favorable overhead transmission lines.

Transport : Superconducting Maglev trains and motors for international shipping have the potential to considerably reduce the emissions that contribute to greenhouse gases while improving their economic viability by reducing losses and improving efficiencies. Two sections (a) Development of Superconducting Maglev and promotion of Chuo Shinkansen (b)Development of a megawatt-class superconducting motor for ship propulsion include a major solution to provide fast, low energy, environmentally-friendly transport enabling reduction in automobile and aircraft travel by offering an alternative that is very competitive.

a) *Maglev*: Maglev is a transportation system that uses magnetic interaction to levitate/suspend, guide and propel vehicles rather than using mechanical methods, such as wheels, axles and bearings. Due to the lack of mechanical contact, Maglev trains can easily move faster, more smoothly and more quietly than any conventional wheeled rail transport system. Maglev is the current holder of the world speed record for rail transit, which is 581 km/ h by the Japanese low temperature superconducting (LTS) Maglev experimental vehicle, MLX-01, in 2003 [16]. Thus, high-speed Maglev trains will bring a dramatic improvement to rapid travel. Maglev includes both electromagnetic suspension (EMS) and electrodynamic suspension (EDS), and also divides into superconducting and non-superconducting Maglev trains.

Superconducting Maglev includes the LTS Maglev (using liquid helium, 4.2 K) and the high-temperature superconducting (HTS) Maglev (using liquid nitrogen, 77 K). Inside the Superconducting Maglev, superconducting magnets attached to the vehicle correspond to the rotor of conventional motors, and the ground coils (Propulsion Coils) attached to the guideway sidewall correspond to the stator of conventional motors. Connecting ground coils (linearly laid long stator) to power conversion facilities will form a linear synchronous motor. This makes an efficient and non-contact propulsion system that can propel a longer trainset at ultra-high speed possible. The Levitation and Guidance Coils (other ground coils attached on top of Propulsion Coils) levitate the vehicle using electromagnetic induction between the onboard superconducting magnets and the Levitation and Guidance coils. The air gap between the vehicle and the guideway is 10 cm. Because of this large gap, Superconducting Maglev has a strong tolerability of earthquakes.

With 50 years of research and development, the Superconducting Maglev, as an environment- friendly next-generation high-speed railway, has been established to a practical level and is at the stage of construction of the commercial line. Adopting the high-speed, environmentally superior and energy-saving Superconducting Maglev as an intercity transportation for distances of a few hundred km will replace aviation and the automobile, will ease problems like global warming and air pollution, and will improve passenger convenience and mobility. The Chuo Shinkansen, connecting Tokyo and Osaka in about an hour, has been given the go-ahead for construction, and is at the stage of environmental

assessment. Inauguration of the Chuo Shinkansen will double the main artery of Japan, increase transport capacity and convenience as well as reduce overall CO_2 emission from the transportation sector. For example, the CO_2 emission of the Tokaido Shinkansen, total distance of about 515 km with a journey time of around 2.5 h, is approximately one-tenth of an airplane's emission. Various tests were conducted, including a running performance test achieving a speed of up to 581 km/ h.

b) *Megawatt-class superconducting motor for ship propulsion:* In the field of maritime transport, the International Maritime Organization (IMO), an agency of the United Nations, is making international environmental regulations more severe. This is because maritime transport is one of the largest contributors to air pollution and CO_2 emission. International shipping, alone, contributes 3% of the greenhouse gas emissions. In order for its use to expand, innovative technologies for the reduction of electric power transmission loss are required. Using high-temperature superconducting (HTS) technology has the potential for a drastic reduction of electric power transmission loss. Electric pod propulsion has recently become popular for large cruisers and platform supply vessels because of the increased flexibility of the equipment arrangement and the stern hull design, leading to better manoeuvrability. For this reason, HTS motors for pod ship propulsion are being developed.

Monitoring in manufacturing for waste reduction:

Environmental impact from the waste created by the manufacturing sector and the need to make manufacturing efficient can be addressed by terahertz imaging. The environmental issues being addressed using new THz technology. (A) Chemical sensing and substance identification. (B) Explosives and land mine detection. (C) Non-destructive testing, industrial process monitoring and control. (D) Rust-under-paint detection—waste reduction. This technology has great potential in non-destructive testing, industrial process monitoring and control to greatly improve the industry process efficiency and reliability by reducing waste materials and toxic by-products. The section by Du shows how terahertz imaging can provide process and property information such as rust levels under paint that can assist with the reduction of waste in manufacturing and maintenance.

Terahertz (THz) radiation, in between the millimeter-wave (100 GHz) and far-infrared (10 THz) regions of the electromagnetic spectrum, has many unique properties, such as a strong sensitivity to polar liquids, high transmission through a range of non-conducting materials, and spectroscopic responses to many materials. THz imaging and spectroscopy systems provide new opportunities in addressing environmental issues, such as detection of environmentally dangerous objects (explosives, unexploded ordnance, landmines, hazardous chemicals and biological objects), non-destructive imaging of concealed items or inhomogeneous systems (biological samples or industrial products), process monitoring and waste materials reduction. Numerous breakthroughs in recent years include the development of various THz components: high power sources, sensitive detectors, far-field and near-field imaging systems, and THz time domain spectroscopy (THz-TDS)[17].

Superconducting devices offer a viable option as they are excellent generators and detectors of terahertz radiation. With increasing frequency from mm-wave to sub-mm-wave and THz regions,
the performance of semiconductor devices deteriorates and off-the-shelf products are scarce, and superconducting devices become increasingly attractive. Superconducting devices have distinct advantages of ultra-high sensitivity (or extremely low noise), low power consumption, broadband and high frequency operation (well into the THz band). A viable high-power THz source is an intensely researched topic in the field of THz generation. Josephson junction arrays are tunable high-frequency sources that have been demonstrated in low-Tc superconductor (LTS) voltage–frequency standards and local oscillators in heterodyne receivers. Fabricating large arrays of HTS grain boundary junctions (GBJs) has proven to be challenging. Higher operating temperatures, larger scale arrays and integration of the sensors with (mini) cryo-coolers are important aspects of the development of the superconducting component-based THz imagers to enable the novel THz imaging environmental sensors to move out of the laboratory.

Monitoring for naturally occurring disturbances : Since the beginning of the space age, the constant observation of the Earth's magnetic field has been recognized as a major task for a better understanding of our planet, the Earth environment and natural hazards associated with it. Magnetic storms due to strong bursts of solar particles in the ionosphere or at the surface of Earth can have some major practical consequences in terms of perturbations of satellites, in particular communication satellites, or electronic equipment located on Earth [18]. The observation of magnetic fields is not only of primary importance for a better understanding of space weather and natural hazards, but also to potentially aid early warning of natural hazards, whether they are produced from space within the ionosphere with magnetic storms for instance, or from the Earth's interior with earthquakes or as a result of its dynamics. This drives us to tackle the problem in a global way, due to

the intimate interaction of the Earth with its environment. Two main features related to the measurements of magnetic fields have to be emphasized. First, every magnetic signal of interest coming from a natural source will superpose with unwanted magnetic sources, either anthropic, or due to other unwanted local natural phenomena like oceanic swell, wind, etc. Second, low-frequency fields have a large associated wavelength.

To understand geomagnetic phenomena and Earth–ionosphere couplings through the study of very small variations of the magnetic field can be studied by the use of ultrasensitive magnetometry . Also, it has been recently observed that atmospheric sprites and earthquakes have a clear magnetic signature, hardly detectable by a conventional magnetometer, that result from the interaction of the Earth with its ionosphere through seismic P waves. Other Earth events like Schumann resonant modes or Earth resonances [19, 20] can also be observed with sensitive magnetometers. Recent studies have shown that magnetometers based on superconducting quantum interference devices (SQUIDs), located inside appropriate magnetic shielding, can have a rejection noise of the order of 2 fT $Hz^{-1/2}$ above 40 Hz and are able to detect at lower frequencies P waves emitted during earthquakes, Earth breathing modes even in the absence of major seism or magnetic storms in the upper atmosphere with a sensitivity better than that of conventional polar magnetometers [20]. The possibility to study the potentialities of a 3-axis SQUID magnetometer for Earth magnetism and space weather has been unexpectedly offered by the conversion of the former underground launching control room of the French nukes system into a civilian laboratory, called LSBB (French acronym for Low-Noise Underground Laboratory). It is located at Rustrel, in Provence in southern France, buried below 518 m of karstic rock and designed to shield its personnel and electronic equipment from the shock wave and the electromagnetic pulse of a nuclear blast, the command control room itself offers an exceptionally quiet environment against electromagnetic noise and seismic background noise . SQUID magnetometers are known to be very sensitive to magnetic flux variations; they have a periodic flux-to-voltage transfer function with a periodicity of one magnetic flux quantum $Ø_0 = ħ/2e$ that corresponds to about 10 pT through a 2 cm^2 loop. They are used with a feedback loop in order to keep the same bias point of operation and provide a sensitivity close to the $μØ_0 Hz^{-½}$.

Restoring environments after military use :

Throughout the world, there are many areas confirmed or suspected of being contaminated by unexploded munitions known as unexploded ordnance (UXO). Its presence is the result of wars and training of military forces. Areas affected by UXO contamination are hazardous to the public and have a major influence on the nature of land use. UXO has impact in developed as well as developing nations. For example, the USA has UXO dating back to the American Civil War and countries such as Cambodia are living with landmines as a daily issue due to more recent wars. Underwater UXO has caused severe impacts such as the explosion in 1969 in the waters of Kent in the UK that caused a reading of 4.5 on the Richter scale for earthquake monitors. Another example was a land-based detonation of a 500 kg World War II bomb in Germany killing three people in 2010. There is countless UXO from recent conflicts worldwide. Not only are they a major environmental concern in current combat areas of the globe but they still can affect the lives of people far after the conflict has ended. Detection and accurate location with 100% reliability is required to return land to safe civilian use.

The traditional method, which is still used today largely in highly inaccessible areas, for locating UXO is called 'mag and flag'. This involves a number of operators with hand-held induction coil metal detectors systemically sweeping an area and placing a flag at the site of an anomalous signal and the flagged area is subsequently excavated. This method although in one sense fast has a lower detection capability than other methods and there is no mapping available. Typically today, either magnetic or electromagnetic (EM) sensor techniques are most commonly deployed to generate a digital survey map for the task of locating UXO. Advances in global positioning technology (GPS) systems have allowed measurement data to be correlated to a high spatial precision improving geophysical mapping and in turn the ease and effectiveness of subsequent UXO remediation. Magnetometry and electromagnetic techniques are both useful and indeed can be used in tandem to improve UXO classification. In brief, EM techniques which include time domain electromagnetic (TDEM) and frequency domain electromagnetic (FDEM) use a primary illuminating magnetic field into the ground, inducing eddy currents in the soil and buried metallic objects generate a secondary magnetic field which allows the relative conductivity to be determined. EM techniques have the advantage of being able to detect non-ferrous materials and are not significantly affected by magnetic geology. However, they are less effective than magnetic techniques in the marine environment due to difficulties of maintaining positional accuracy from a moving platform and due to more rapid fall-off of signal.

Achieving high enough sensitivity to take full advantage of a magnetic tensor measurement is difficult

using conventional sensor technology. Superconducting tensor UXO detection systems. Several superconducting vector magnetometer systems and full-tensor gradiometer systems have been developed to meet the demanding requirements for UXO detection [21]. SQUID based technology (both high and low temperature),configured as a magnetic tensor gradiometer, might be the best solution to these problems. Compared to conventional sensors, SQUIDs have inherently higher sensitivity which allows for greater detection range, and once configured as a tensor gradiometer, they provide far richer survey information, enabling better discrimination and more precision when locating the UXO. Consequently, with enhanced detection the cost and time for surveying and removal of UXO can be reduced significantly. Gamey et al [22] developed a full-tensor gradiometer using an array of high-temperature SQUID vector magnetometers. This high-temperature superconducting tensor gradiometer (HTSTG) system improves the ability to detect, localize and characterize UXO in two main ways; firstly removing the need for dense mapping of underwater sites as currently conducted with total field and fluxgate systems (achieved through high sensitivity and dipole tracking capabilities of a tensor gradiometer) and secondly by increasing the standoff system required to detect a given calibre of UXO.

Reducing power needs for high-end IT:

The explosive growth of the Internet transformed data centers into large industrial-scale computer facilities with extraordinarily high energy demands. Supercomputers are so large that they are close to requiring their own small power plant to support the energy needed to run the computer. For example, in 2011 Facebook data centers and operations used 532 million kW hours of energy. Mukhanov explores the potential of reducing the power dissipation for future supercomputers from more than 500 MW for Exascale systems to 0.2 MW by using superconducting-ferromagnetic Josephson junctions for magnetic memory and programmable logic. The development of the next generations of high-end computers will not be possible unless a significant improvement in energy efficiency is achieved over the technology available today [23].

Superconducting single-flux quantum circuits, by virtue of their inherent low power dissipation, high speed and lossless interconnect, present an excellent opportunity to dramatically increase the energy efficiency of high-end computing applications [24]. This should impact the energy-efficiency of data centers and enable new generations of supercomputers. Energy-efficient superconducting technology. Ever since the late 1960s, superconducting Josephson junction integrated circuits have been considered as possible candidates for high speed computing. Superconducting rapid single-flux quantum (RSFQ) technology invented in the mid-1980s enabled the development of the first digital signal processing circuits of a practical significance by the mid-2000s using a robust 4 Nb layer Josephson junction fabrication process. Today, cryogenic RSFQ Digital-RF receivers operating with more than 30 GHz clock are available for wide bandwidth satellite communications and signal intelligence applications [25]. RSFQ logic is based on exploiting single quanta of magnetic flux to encode clock and data. The gate switching energy is directly related to thermal energy rather than device dimensions as in CMOS. The picoseconds quantized SFQ voltage pulses were proven to ballistically propagate on chip and between chips [26] via low loss and dispersion superconducting microstrip lines without the need for amplification and with speeds of the order of the speed of light. This is the key advantage of superconducting technology over CMOS, in which the data movement energy is proportional to the length of interconnect and currently represents the dominant share of the consumed energy. Very recently, new memory approaches based on magnetic Josephson junctions (MJJs) have been proposed and are now being extensively studied. In MJJs, critical current can change and retain two distinct states corresponding to logical '0' and '1' depending on the ferromagnetic layer(s) magnetization. Memory circuits using MJJs can be made electrically and physically compatible with SFQ circuits. This allows a co-fabrication of memory and digital circuits on the same chip leading to significant processor-memory architecture advantages relevant to high-end computing [27].

Conclusion :

Clearly superconductivity is an ultimate energy-saving technology, and its practical implementation will contribute to the reduction of CO_2 emissions, improved water purification, reduction of waste and timely preparedness for natural disasters or significant events. This Roadmap shows how the application of superconducting technologies will have a significant impact when they are adopted.

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Honesty and Politics

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Nowadays there are so many hot debates regarding the terms Honest Politics, Political Honesty, Honesty in Politics, etc. In this article I have explained honesty and politics from different angles. Personally a man may be honest but when he gets into politics his political activities may or may not be that honest. It is obvious that personally a dishonest person cannot be politically honest. So I don't want to show honesty and politics as complementary ideas. I want to establish my idea or thinking on the basis of the characters drawn from different ages or eras.

First off, I bring in my discussion *Treta Yuga*.. King *Dasharatha* was cured from a difficult disease by his beloved queen *Kaikeyi*.. He pledged before *Kaikeyi* to give a befitting return for that. At the opportune moment, *Kaikeyi* asked King *Dasharatha* to place her own son *Bharata* on the throne of Ayodhya and send *Rama* to exile. King *Dasharatha* was perplexed and horrified to hear this. But *Rama* in order to upkeep his father's promise and dignity, decided to go to exile. It is an exemplary instance that how a person sacrificed his own personal interests in order to uphold his father's dignity and reputation.. He established by this honesty and sacrifice, that if a man wants to carry out proper *Raja Dharma*, his personal character should be right and divine. *Kaikeyi's* own son *Bharata* protested vehemently against this undue demand of his mother and ruled Ayodhya in the name of his elder brother *Rama*. This is also an exemplary incident.

In later years, even if ethically unacceptable the killing of *Bali*, the King of *Kiskindha* by *Rama*, but it can be accepted as a political tactics. Again, in order to avert negative feelings of the people of Ayodhya regarding the Royal family, *Rama* did not hesitate to send *Sita* to exile. Many scholars term this fact as unethical and undue on the part of Rama, but I think *Rama* by this activity performed real *Raja Dharma* as he sacrificed his own personal interests, enjoyments, everything.

Another debatable character of the Ramayana is *Bibhisana*. He protested against the unethical misdeeds of his elder brother *Ravana* and as a result, being driven out from the Royal family he decided to join with *Rama*. Whether his act is justified or not will be discussed later on.

Let us now come to *Dwapar Yuga*, i.e, the Yuga of the Mahabharata. I think the different characters as portrayed in the Mahabharata regarding ethical politics are unparalleled in any other epic of the world. First of all we can talk of *Mahamahima Bhishwa*.. *Bhishwa's* character is similar to that of *Rama*. In order to realise his father's strange physical desires, he sacrificed his own personal interests. But surprisingly he did not quit the *Kauravas* even after protesting against their mischieviousness and dishonesty. In other words he made some 'compromise' in this regard which *Bibhisana* did not do. Even after observing and experiencing the misdeeds and mischieviousness of the *Kauravas, Bhishwa* rather surprisingly sided with them. The same can be said about *Guru Drona*. He observed mischieviousness and dishonesty on the part of his own son *Ashwathhama* and the *Kauravas*. But even then he sided with the *Kauravas* because he considered it profitable to be the defence expert of the more powerful and rich *Kauravas*.

Let us now come to the most debatable character of the Mahabharata – the character of *Krishna*. His political foresight was wonderful. Even not touching arms, simply through political tactics and foresight he inspired the *Pandavas* to defeat the more powerful *Kauravas*. His thinking and outlook were very realistic – in order to establish ethical norms, unethical tactics can of course be adopted. Even though *Krishna's* personal life has been mystified by the religious thinkers, I think up till now in this world this type of realistic, tactical, witty political character is unparalleled in the history of the world. Even if there are bitter criticisms regarding the killings of *Dronacharya*, and *Karna*, from political and tactical point of view *Krishna* did it considering the future of *Bharatbarsa*. Otherwise, *Bharatbarsa* would be plunged into total disaster and chaos by the mischievious, unethical, dishonest *Kauravas*. In this connection there develops a new idea about political honesty. Undue tactics and political murders can also be termed as political honesty!

Let us now come to the period of nearly 2000 years back during the reign of *Maurya Chandragupta* and *Kautilya*. Clever *Brahmin Kautilya* energised Emperor *Chandragupta Maurya* to carry out some unethical activities which from different point of view can be termed as ethical and realistic. Again during the period of Delhi Sultanate, Mohammed Ghori, Sultan Mahmud established such political outlooks that can be termed as sheer barbaric, mischievious, murderous and plunderer – the activities highlighting and reflecting their own personal characters.

Regarding Mughal period the first name that can be taken up is of Emperor Akbar. His politics was realistic – he understood that for ruling India, its own religion and culture could not be ignored. So with so much care and tactics he expressed solidarity to other religions and culture. It is natural that personally an honest and liberal person will involve into honest political activities. But different character was established by Emperor Aurangzeb. Personally he might be an honest religious man, but the most negative side of his character was his sheer animosity towards other religions. This was reflected in his time of ruling India. He did not perform honest Raja Dharma. Instead, expressing his intolerance towards other religions he carried on some immoral activities – he did not hesitate to imprison his father or even kill his own brothers. These activities exposed his true, real character.

Let us now consider the different incidents and characters during India's freedom struggle. Let us first begin with Gandhiji . He started a non-violent movement against the British on the basis of liberal economic and political ideas. For this he and his followers made some 'compromises' – which they could easily avoid. In this connection it should be remembered that the two World Wars and the Great Depression of the 1920s and 1930s made the British economy and the political system highly vulnerable. This opportunity was to be taken by Subhash Chandra Bose. But ignoring his thoughts and ideas completely Gandhiji and his followers succumbed to the policy of 'Divide and Rule' of the British.. Every person of this sub continent has to suffer even now from the peculiar political thoughts and policies taken up by Gandhiji and his followers. 'Compromising' in politics can be so dangerous that every Indian citizen has to suffer for the socio-political activities of Gandhiji and his followers. Possibly honest and liberal minded Gandhiji was somewhat deceived by his so called 'progressive followers'.

So, if an honest and ethical man's 'compromising' activities in politics bring about sufferings among the masses, in that case there is no value or credit to his honesty and ethics. A dishonest and cruel person cannot perform honest political activities; it is obvious. But even then without 'compromising' with injustices Bibhishana became " Ghorer Shotru Bibhishan" (enemy of own family) whereas compromising with injustices, Bhishwa became 'Mahamahima' (Great) and Gandhiji became 'Mahatma Gandhi'.

Let us now come to some terms used in Philosophy. There are two terms – sufficient condition and necessary condition. If the occurrence of 'A' leads to the occurrence of 'B' then for the occurrence of 'B', 'A' is a sufficient condition. If the non-occurrence of 'A' leads to the non-occurrence of 'B', then for the occurrence of 'B', 'A' is a necessary condition. So we can, of course, say that for political honesty, personal honesty is a necessary condition, though not sufficient.

Patterns of Urbanization in China and India

A Comparative Study

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Abstract

If industrialization can be said to have been the first great and continuing revolution in recent times, then certainly the world's second great recent and continuing revolution is urbanization. Urbanization brings about largest scale and fundamental changes in society. Therefore, many of the aspects and problems of the societies of today have become significant when viewed from the perspective of urbanization. Urbanization is product of various kinds of changes taking place in a society. However, it is essentially a process of population redistribution from the rural to the urban communities and from one region to another and of a continual differentiation of the society. These aspects of population redistribution and social differentiation are inherent in the process of urbanization.

In the above backdrop, the present paper is a comparative assessment between India and China in respect of pattern of urbanization in both the countries.

Key Words: Globalization, agglomeration, "Three Great Transformations"

Jel Code: R 11, J 82, O 14, P 25

I. INTRODUCTION

Urban studies have opened up the domain of intellectual interest to study individual cities historically. If industrialization can be said to have been the first great and continuing revolution in recent times, then certainly the world's second great recent and continuing revolution is urbanization. Urbanization brings about largest scale and fundamental changes in society. Therefore, many of the aspects and problems of the societies of today have become significant when viewed from the perspective of urbanization. Urbanization is product of various kinds of changes taking place in a society, especially in its economic sphere. However, it is essentially a process of population redistribution from the rural to the urban communities and from one region to another and of a continual differentiation of the society. These aspects of population redistribution and social differentiation are inherent in the process of urbanization.

In the above backdrop, the present paper is a comparative assessment between India and China in respect of pattern of urbanization in both the countries.

II. PATTERNS OF URBANIZATION

The relationship between industrialization and urbanization in developing countries has been the subject of much research. Before going into the discussion of patterns of urbanization in India and China, we are telling briefly the broader general question of the relationship between industrialization and urbanization in China after her initiation to reform process and in the post-1990s India when new industrialization strategy with the plethora of export promotion is introduced following the economic reforms. There is a direct correlation between the development of urbanization and the development of industrialization, each being cited by different authors as being the "cause" of the other. Although there is often a coincidence of industrialization and urbanization, the casual relationship is not at all clear. It is found that there is a substantial impact of industrialization of many aspects of urbanization. Industrialization is likely to affect, in a very significant way, not only be the rate of growth of particular urban areas but also a type of growth in urbanization, as well as the relative level of economic development involved in urbanization. In fact, much of the future economic growth will probably be centered in the urban areas, simply because the urban areas provide both pools of labour and various public facilities.

Patterns of Urbanization in India

Since the last two decades, industrialization has been playing a pivotal role in India. The decentralized pattern of industrialization and its product — a service output — is growing at a fast pace as a result of liberalization and globalization. India's economic growth since the 1970s has been largely led by urban areas. Correspondingly, while India's industrial and service sectors contributed to 45% of the GDP in 1961, this grew to 70% of GDP in 1991 and by 2010,

these sectors are accounted for almost 80% of India's GDP. It is a fact that the urbanized states in India such as Tamil Nadu, Karnataka have recorded higher economic growth rates. Services sectors dominate India's GDP sector in the 1990s and beyond. Quick developments in communication technologies have brought about these changes. This has made a significant contribution to the economic growth of the country. India has emerged as one of the leaders among developing countries in providing cross-border IT services. Out of the India's total exports, the share of IT products (mainly software) has increased from 1% in the early 1990s to more than 24% in 2010. The cities of Bangalore, Hyderabad, Chennai and Pune have emerged as competitive IT hubs. The software industry is going to provide direct employment to more than 2.2 million people and nearly thrice that number of way of indirect employment, according to a finding. A study shows that within 2015, 80% of the largest city will be agglomerated in developing country. And, by 2021, 73% of the Indian GDP will come from urban India. The study projects that the mega cities of India will continue to grow and by 2015, six major cities of India will have a population of close to 84 million; the projections help us to understand the daunting tasks ahead of urban policymakers and urban infrastructure service providers. In fact, national economic growth and poverty reduction efforts will be increasingly determined by the productivity of these cities and towns. For Indian cities to become growth oriented and productive, it is essential to achieve a world-class urban system. This in turn, depends on attaining efficiency and equity in the delivery and the financing of urban infrastructure. Hence efficient urban areas are essential for achieving growth and poverty reduction targets. In both the developed and developing countries, urbanization has come about as a result of industrial development. The history of Industrial revolution witnesses the interaction between urbanization and industrialization and higher urbanization is regarded as one of the indicators of industrial development.

When India entered the 20th Century, it was one-tenth urban: it was around one-sixth urban at the time of independence, while it became the world's tenth largest industrialized nation. This has come about largely in the post-independence period and in particular, since 1956 when Nehruvian-Mahalanabis-Feldman Model was introduced in the Indian soil with much emphasis on industrialization. Among the most notable of industrialization in the post-independence period are the steel cities of Rourkela, Durgapur, Bhilai Nagar and Bokaro. Other new industrial cities are the towns of Barauni, Haldia, etc., the fertilizer towns at Sindhri, Mitrapur and alluminium towns like Korba and Ratnagiri. There are over 100 such townships in India today. In addition, there are over 500 industrial states. Industrial growth in India during past three decades has indeed been impressive and so has its impact on city development. A remarkable feature of urbanization during the post-independence period has been the rapid growth of cities. Result of this growth of these cities is the widening gap between the cities and the smaller towns in terms of opportunities for employment, education and medical facilities.

So far India is concerned, the growth in urban population in India has been modest and fluctuated significantly over the past few decades (Table-1). The rate was reasonably high in 1950s, fell sharply during the 1960s, largely due to the definition anomalies but reached its peak in the 1970s. The rate in India fell again during the 1980s and further in the 1990s.

India is the second most populous country in the world with a population of 1.21 billion in 2011. It has been experiencing one of the fastest urbanizations in the world with the share of the urban population increasing from 17.3 per cent in 1951 to 31.2 in 2011. Table 1 presents the transformation of rural India into semi-urban India. This increasing share of urbanization has resulted in an increasing number of large-sized cities in the country. With more employment opportunities and higher per capita incomes compared to the national average, these cities have been attracting a large number of migrants from the surrounding rural areas. This migration has resulted in urban sprawls and an increasing number of slums. Metropolitan cities such as Mumbai have 50 per cent of its population living in slums.

The share of India's population residing in urban areas in 1991 would be 39%, rather than the official figure of 25.7% **(Table 1)**, if 113 million inhabitants 13,376 villages with populations of 5,000 or more were classified as urban. The share would be even higher if the Swedish Definition of urban (settlement with more than 200 inhabitants) were applied. The urban-rural growth differential for the latest quinquennial period 2000-2007 for India has been estimated by the Population Division of the United States as 1% only. It is less than most of the countries in Asia except China, the countries coming out of erstwhile Soviet Union, and those undergoing some kind of political instability *(United Nations, 2008)*. India's urban growth as also urban-rural growth differential are much below than that of the least developed countries or less developed countries in the World during the past six decades. All these tend to confirm the declining trend of urbanization. Much more important is the fact that there has been a change in the structure of urbanization in India than the general deceleration in

urban growth. During the first four census decades after Independence (1950s to 1980s), the pattern of urbanization in India was an unbalanced and un-integrated economy characterized by the co-existence of traditional sector and modern sector. Urban growth was high in relatively backward states as many among the small and medium towns here experienced rapid urban growth, largely due to government investment in the district and *taluka* headquarters, programmes of urban industrial dispersal and transfer of funds from the states to local bodies through a need-based approach. Developed states have the advantage to attract migrants from rural areas. Few cities experienced modest urban growth due to industrialization and infrastructural investment. On the whole, urban growth varied inversely with economic development.

Following the liberalization episode, when the process of economic reforms began in 1991-92 and continued, we witnessed a paradigm shift. The large cities have registered population growth above the national average. Backward states' small and medium sized towns have experienced growth much below than that of the country. As urbanization process and industrialization mainly concentrated in large cities and developed regions, the disparity between large and small and medium-sized towns in growth rates has expanded accordingly. One of the reasons may be that the country adjusted new system of governance and measures of decentralization. Due to the strong economic base of the developed states, the large municipal bodies there have experienced high economic and demographic growth. With governmental investment in infrastructure and basic amenities becoming less and less in smaller towns, they find it difficult to finance any development project through internal resources or borrowings from capital markets. The fiscal discipline imposed by the Government, credit rating agencies and other financial intermediaries make it impossible for less smaller towns to undertake infrastructural investment.

The Tenth Plan (2002-2007) documents note that the moderate pace of urbanization in the country has been a cause of disappointment, and the Eleventh Plan (2007-2012) admits that the degree in the growth of urbanization in India is one of the lowest in the world. An overview of the contemporary development dynamics suggests that the process of urbanization is unlikely to be stepped up sharply over the next few decades.

Haryana experienced low urban growth. So the urban scenario was characterized by dualism. A part of rural-urban migration into smaller towns can be explained in terms of push factors, owing to the lack of diversification in the agrarian economy. In fact, the process of urbanization after 1991 has become concentrated in developed regions of the country with the exclusion of the backward states. Further, the larger cities in India have recorded relatively higher growth when compared to smaller towns. Also we find that there is declining core-growing periphery, growing core-declining periphery and declining core-declining periphery, if we look at the growth of the cities in India.

Table 1: Number of Towns, Percentage, and Growth Rate of Urban Population in India since 1951

Census Year (in million)	No. of Towns/Urban Agglomerations	Urban population (in million)	Rural population	% of urban to total population	% of rural to total population	Annual exponential growth rate of urban population
1951	2843	62.4	298.7	17.3	82.7	3.47
1961	2365	78.9	360.3	18.0	82.0	2.34
1971	2590	109.1	439.1	19.9	80.1	3.21
1981	3378	159.4	523.9	23.3	76.7	3.83
1991	3768	217.6	628.7	25.7	74.3	3.09
2001	4368	287.6	740.4	28.0	72.0	2.73
2011	5231	377.1	833.0	31.2	68.8	3.11

Source: Census of India,2011

Pattern of level and growth of urbanization across the states in India

The Census data reported that a large percentage of population resides in urban areas in West Bengal, Maharashtra and Tamil Nadu, which had high per capita income. This is due to the concentration of the economic activities in the three metropolises of Kolkata, Mumbai and Chennai and the few of their link towns. Much of this urban growth was prompted by migration from rural areas. On the other hand, Maharashtra, Gujarat,

The growth of the service sector together with the expansion of these economic activities has led to the growth of a new class linked to the world of international finance and producer services. On the other hand, the decline in the manufacturing sector, now supported by the process of globalization, had led to an increase in unemployment — the total number of unemployed increased by more than double and has intensified inequities, escalating economic and social distance between the new upper class and the workers, most of whom now survive in the non-organized sector in the city. Data from the 2011

Census in India suggests that over 50 per cent of migrants have settled in the city during the past twenty years. But they have not become part of the urban industrial culture. Their lives are restricted both culturally and geographically to overcrowded dense areas where there is constant struggle to live and reproduce themselves physically and culturally. Third World global society is synonymous with urban society and cities serve as the locus of that society. Cities are the centers of globalize production as well as globalize consumption. It is through them that international money, finance, and credit flows and money power is manipulated. It is within them that labour is reproduced, made 'civil' and anchored in a 'universal' culture.

As per different states is concerned (Table 2 and 3) Andhra Pradesh (AP), Gujarat, Karnataka and Maharashtra has maintain a fixed percentage share of urban enterprises though Tamil Nadu has increased from 8.7% to 10.47%; Delhi and WB has decreased from 5.2% and 9.4% to 4.49% and 8.79% respectively in 1998 and 2005.

Urban employment has increased from 6.6 % and 8.3% in Andhra Pradesh and Tamil Nadu to 8.93% and 9.73% respectively. And Maharashtra (WB) has decreased urban employment from 15.6 % (10.1%) to 14.1% (9.19%). On the other side, remaining states such as Gujarat, Karnataka and Delhi is maintaining a constant level of urban employment.

Cities and Growth, Land Markets and Urban Development in India: Some Recent phenomenon

Cities may hold the key to our future. India is entering what we term as "Three Great Transformations": (1) growth of cities; (2) jobs to meet rising aspirations of a young adult population; and (3) doubling household incomes. Some 200 million new entrants to the labour force will migrate from rural to urban areas, and lift India's economy-wide (including rural) productivity, growth and average incomes. Urbanisation is pulling people out of rural poverty. But the process is knife-edge: failure will lead to chaotic cities, unfulfilled aspirations, and slower growth.

Patterns: India's urban population is underestimated, partly because of

Table 2: State wise % distribution of Non Agricultural Establishments and employments by locations.

Sl. No	States	Enterprises			Employment		
		Rural	Urban	Combined	Rural	Urban	Combined
1.	Andhra Pradesh	11.3	7.1	9.6	11.6	6.6	9.0
2.	Gujarat	6.1	6.6	6.3	5.9	6.7	6.3
3.	Karnataka	6.5	6.0	6.3	6.9	5.8	6.3
4.	Maharashtra	9.1	12.8	10.7	9.2	15.6	12.5
5.	Tamil Nadu	8.0	8.7	8.3	9.0	8.3	8.6
6.	Delhi	0.2	5.2	2.3	0.2	7.9	4.2
7.	WB	11.5	9.4	10.7	11.0	10.1	10.5
8.	India	100	100	100	100	100	100

Source- Economic Census

Table – 3: State wise % distribution of Non Agricultural Enterprises and employment by location.

Sl. No	States	Enterprises			Employment		
		Rural	Urban	Combined	Rural	Urban	Combined
1.	AP.	11.15	7.05	9.56	13.14	8.93	11.10
2.	Gujarat 5.34	6.53	5.80	5.53	6.59	6.04	
3.	Karnataka	6.23	5.82	6.07	6.51	6.05	6.29
4.	Maharashtra	8.26	12.98	10.10	8.50	14.10	11.21
5.	Tamil Nadu	10.68	10.47	10.60	10.20	9.73	9.97
6.	Delhi	0.10	4.49	1.81	0.13	7.14	3.52
7.	WB	10.86	8.79	10.05	10.65	9.19	9.94
8.	India	100	100	100	100	100	100

Source- Economic Census,

definitional reasons, and will approach some 45% of the population (495 million), compared to 30% (295 million) in 2009. This is equivalent to building 1 additional Greater Mumbai or Greater Delhi every year. Growth is taking place in peripheries of major agglomerations: Greater Mumbai, Delhi, Kolkata, Chennai, Bangalore, Hyderabad, Ahmedabad. The number of 1 million plus cities grew from 9 in 1971 to 35 in 2001, and may rise shortly to 47 such cities. Below them are still smaller but bourgeoning towns. Satellite imagery of night-time lights shows the growing urban "hotspots".

Managing Land Markets: Land prices are climbing across India. Once conversion from agricultural to urban use is permitted — a difficult regulatory process — land prices can jump twenty-fold. The reason: land values reflect the capitalization of future expected income stream in urban settings (than in farming). As land prices rise, they drive cost-push inflation. The answer does not lie in tightening land conversion regulations, but to act counter-intuitively to: (i) improve land conversion processes; (ii) sell publicly acquired lands in auctions; and (iii) lean with markets and improve the supply of accessible land through better transport. Land is abundant (urban land area is only some 2% of total arable land); it is accessible land that is scarce. Besides, the Ministry of Urban Development reveals that 190 out of 423 municipalities in India are on the brink of environmental disaster — many in the poorest states of Uttar Pradesh and Bihar, but also Andhra Pradesh. Another 229 are judged in need of major improvement, many in the richest states. Only 4 make it to safe levels, and none to the highest standard.

Patterns of Urbanizations in China

Considering that China's urbanization rate is relatively low, and even lower in inland provinces, the government should continue to promote urbanization of inland provinces (especially in small/medium cities), considering its target of a 4ppt increase in the urbanization rate over the 12th Five-Year Plan period. More infrastructure investment has gone to inland provinces in recent years, which also helped with the urbanization in these provinces. For example, the construction of a high-speed railway network in China will greatly enhance the attractiveness of inland cities, and expressway construction also makes small/medium-sized cities more closely connected to big cities, helping them to attract more migrant workers.

Table 4: Basic information about China's urbanization (2003)

Urbanized area	Urban population		Number of cities
Urban residents	Migrants*	Total population in urban area	28,308 sq. km.
(0.30% of China's land territory)		524 million	
(40.3% of total population)	150 million	674 million	660

Source: National Bureau of Statistic of China, 2005; and Liu. Y. 2006
Note: * Estimated

The positive outcomes of the reform initiation include economic growth, improving urban life quality, and the increasing importance of cities in China's administrative system. These are also main factors stimulating China's urbanization. Rapid urban population growth and expectation for more urban services from the demand side, and city government's new decision power and financial resources from the supply side alter urban development patterns.

When China started its economic reform in 1978, 17.9% of its population was living in urban areas. In 2003, 40.3% of the population was officially recorded as urban residents, plus about 150 million rural- urban migrants living in cities but not recognized as "urban residents" under China's resident registration system (the "*hukou*" system). The number of Chinese cities also increased from 223 in 1980 to 660 in 2002, an increase of 196% in 22 years. Total urbanized land reached 28,308 square km in 2003, and it was about 30,000 square km in 2004 as estimated by researchers in the State Council **(Table 4)**.

The National Bureau of Statistics recently released the results of its sixth national population census, which reveal some major trends in the country's demographic structure, including: 1) the average annual population growth rate over the past decade was markedly slower than in the 1990s; 2) The percentage of working-age population increased, but a trend of population aging emerged with the elderly population growing and the children population declining as a percentage of total population; 3) population quality improved thanks to a much higher average education level; 4) urbanization advanced faster than expected, with urban population accounting for nearly 50% of total population; and 5) the percentage of the population living in coastal provinces increased while the share of the population living in less developed inland regions declined.

The latest census results show that China's urban population reached 666 million, or 49.68% of total population, 13.46 ppt higher than in 2000 (the percentage of urban population in 2000 had been 9.86 ppt higher than in 1990). This 50% urban-

ization rate is still far below those of developed nations and other emerging market countries, and the urban-rural income gap in China is still widening, suggesting there is still great potential for urbanization in the country. That said, the rise of the urbanization rate going ahead may be slower than in the past 10 years, which would imply a smaller marginal contribution to economic growth, as evidenced by the tightening supply of migrant workers in recent years.

Characteristics of China's urbanization

China remained as an agriculture economy with the predominant majority living in rural area for hundreds of years before the reform. Rapid urban population growth happened in 1980 when the reform started, and it speeded up from 1995 to 2003 when China experienced economic boom. In the period of 1995 to 2003 alone, urban population grew at a speed of 18.2 million per year or 1.41% annually **(Table 5)**.

Table 5 China's urbanization level* (%, in selected years)

Year	1951	1965	1975	1978	1995	2000	2002	2003
Urbanization	11.8	18.0	17.3	17.9	29.0	36.2	39.1	40.3

Source: www.stats.gov.cn, data based on 2004, as shown in 2006

*"Urban population refers to "officially registered urban population" excluding migrants

Like India it is the large scale rural-urban migration in China that pushes rapid urban population growth and contributes to urban economy boom by providing cheap labor. Rural- urban migrant is the main source of urban population growth. Chinese researchers estimated that about 150 million peasants have migrated to cities since the 1980s, and 20% to 25% of the migrants eventually become permanent urban residents while the rest maintain a come-and-go floating pattern. Natural population growth in cities has limited impacts on urban population change, and it even shows negative figures in big cities. For instance, Shanghai's natural growth rates have remained negative since 1993, just like what happened in developed nations. The natural growth rate was -0.8% in 1993, steadily increased to -3.2% in 2003, and the trend is to even bigger negative figures (*Shanghai Statistics Bureau, 2004*).

Both the large scale of migration and the reducing importance of the agriculture sector have impacts on urban development patters. New migrants with limited skills are new urban poor, and their housing need from the demand side is one of the main factors to city's spatial reorganization.

The second characteristic of China's urbanization is the uneven distribution pattern. China could be divided into four zones based on urbanization levels, and the distribution pattern of the zones matches the distribution pattern of economic development level measured by GDP per capita. The East Coast Zone (ECZ) covers China's most developed areas including the "three engines to China's economy": the Pearl River Delta, the Yangtze River Delta, and the Beijing-Tianjin- Tangshan Region, and three main metropolitan areas of Beijing, Shanghai, and Hong Kong/ Guangzhou where the majority of the population are in urbanized areas and the economy is in transition to a mixed of manufacturing and service industries.

The uneven development pattern of urbanization has crucial impacts on urban spatial patterns, especially on cities in the ECZ. Since most rural-urban migrants concentrate in cities in ECZ, the "three growth engines" regions in particular, cities in these regions confront pressure of migrant population growth since the 1990s, which in turn causes growing demand in urban land and urban services, particularly housing. The picture is to some extent similar to India. On the other hand, the ability of absorbing migrants in China's richest regions provides an opportunity in solving the rural poverty problem; it is a poverty decentralization strategy and the strategy has been proved working. The availability of cheap labour also helps China's continuous economy growth. In addition, the relatively lower urbanization level in Mid-China Zone and West-China Zone regions means potential space for more rural-urban migration so further reducing rural population, which may eventually solve the rural poverty problem.

China's urbanization experiences a fluctuating trajectory since 1951

Since 1951, China's urbanization exhibits a fluctuating trajectory, although the main trend is continuous urban population growth (Fig.1 & Fig.2). The steadily increase of urban population since the reform is a result of combined driving forces of the marketplace and government's new urban policy. Urbanization rates increased significantly since 1995 when China was starting to become the world's manufacturing plant with more FDI moved into China. As mentioned above, urban population increased by 18.2 million or 1.41% annually since 1995. To cross-national companies, reducing production cost by hiring cheap labor is one of the motivations to invest in China. The demand of cheap labour has been a main pulling force to migrants. One study finds that 68% of China's manufacturing workers and 80% of construction workers are migrants.

Urbanization was officially recognized and employed as a powerful means to promote economic growth till 2003 when the new central government was formed. There was a national debate in the 1990s about the importance of urbanization to China's economy. Supporters argued that urbanization fell behind to China's industrialization and economic development. The then central government adopted the policy of speeding up urbanization to stimulate economy growth by promoting urbanization at a rate of 1.5% to 2% annually. The practice was to allow the expansion of existing cities and create new urban districts to absorb migrants, while reduce the amount of peasants by merging rural townships and villages.

Source: China Statistical Yearbook, 2004
* Urban population refers to "registered urban population" excluding migrants

In terms of urban expansion, the single main contributor causing extremely rapid urban growth is the creation of Economic Development Zones (EDZs). EDZs increased by 8.1% annually from 2000 to 2003, and the total number of EDZs in cities of all sizes had been 6,741 with an area of 37,500 square km, which was even more than the amount of China's total urbanized land in 2003. However, the loss of farmland seems to have fewer impacts on China's grain production.

Urbanization and Unification of the Rural and Urban Economies in China

Societal forces play a dominant role in China. In the next 20 years, China plans to move a staggering 350 million people from rural to urban areas, a figure larger than the current population of the US. The resulting growth in urban population propels the Chinese government to make large scale investments in urban infrastructure. Consequently, public expenditures on rural medical, educational, and other sectors have lagged behind. However, the share of the urban population is still less than 50 per cent (*People's Daily* 2009), a percentage below most developing countries in Asia. Urbanization is highly associated with rising incomes, as migrants make their journey in search for a better life. This societal force coupled with the political and economic imperative of raising incomes and efficiencies in agriculture and the rural sector presents both challenges and opportunities.

Many aspects of the rural economy remain within the planned system. Farmers still have to meet overall production targets for specific crops, particularly cereals, and rural migrants still need to be mindful of *houkou* restrictions. Removal of some of these impediments is likely to produce a new round of growth opportunities. The basic business model in agriculture, hitherto small farmer and household driven, may need to be expanded to include more modern forms of commercial agriculture, including large-scale operations. There is much domestic policy discussion about land titles and how tradable they should become, as apart from the Indian case.

Prudence requires a careful review of this issue before enacting sweeping changes in land entitlements for farmers — there are, for instance, 300 million or so farmers in China. Given China's specific conditions and its sheer scale, there are likely to be some significant constraints which would have to borne in mind. For instance, if Chinese agriculture becomes fully commercial, in like with the situation pertaining in South Korea and Japan, the shift in agricultural production is likely to be towards high-value crops such as fruits and vegetables. This shift may increase agricultural incomes but the implications for food security and for world price of food commodities may be sizeable. Current Chinese demand for cereals alone is greater than the total world trade in cereals. For this, a step by step approach may be warranted (*Malik, 2012*).

A related challenge refers to Township and Village Enterprises (TVEs) which remain an important source of jobs in the rural areas, though much reduced in employment generation and share of the economy from its highpoint in the 1980s and early 1990s. A revisiting of the TVE model for a new generation may offer new opportunities with stronger links to regional markets and agricultural processing. The New Socialist Countryside (NSC) launched in 2006 highlights some of these challenges and opportunities. For example, in 2004, despite its reduced size, over 22 million TVEs employed 139 million people and generated 4,182 billion Yuan in added value. TVEs created jobs for about 30 per cent of rural labourers in 2006. A vibrant TVEs sector is seen as an essential part of the new socialist countryside. TVEs are expected to provide competitively priced goods and services in many sectors, for example, agricultural products processing, construction, industry, transportation and communications, commerce and catering.

On the other side of the equation, this large population transfer to urban areas is likely to produce a huge growth stimulus. It would necessitate the construction of new towns and cities and the upgrading of existing urban areas and unlike India, provide China with a significant opportunity to consider energy efficient, low-carbon pathways, which in turn can increase overall efficiency and reduce

energy intensity of production and help reinforce China's position globally as well.

III A CLOSING WORD

Ultra urbanization and industrialization with a rapid pace (the creation of SEZs, for example) are now a new phenomenon with the advent of the globalization and liberalization. India has the second largest urban population in the world with about 285 million persons living in urban areas. A comparative picture of growth of urban population in India and China is provided in Fig. 3 which shows that urban population growth in China is surpassing that of India. In case of India, it is expected that the urban population will rise enormously and with it there would be demand for urban services. So improving the urban infrastructure covering the basic civic services assumes a great significance. Considering the wide disparities in living standards of the urban and rural population, government should be very cautious in launching any pilot project as the horrifying picture shown by the Registrar General of India in 2006 that 67% of the population growth in India in the next 25 years is expected to take place in urban areas alone.

Institutional reforms in both China and India are urgent. While a reforms demand-driven the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) launched in 2005-06 in India for encouraging cities to initiate steps to bring about improvement in existing civic service levels in a sustainable manner in Mission mode, is funding infrastructure projects in 65 cities, the projects remain limited. Local capacity is severely limited. Financing management and procurement systems are weak and Public-Private Partnerships to fund investments limited. JNNURM will need redesign expansion and deepening, addressing much larger funding needs — for critical public needs, such as low cost housing, urban transport, slum redevelopment, and water and sanitation.

An analysis of the contemporary urban scenario shows that the growth in urban population in India has been modest and fluctuating over the past few decades. It casts serious doubts on this perspective that India will be the epicenter of future urbanization in the world or Asian continent. The process of urbanization in India has continued to be top-heavy or large city-oriented. This is because of upward movement of towns. Given the new dynamics of urban industrial development associated with the strategy of globalization, the small and medium-sized towns, located away from the "emerging global centres of growth", particularly those in backward regions, have failed in attracting much private investment. The number of small and medium-sized towns, as identified by the Population Census has for the first time decreased during the 1990s which should be a matter of serious policy concern.

Moreover, for financing urban investment, the scale of funding needs is enormous. Public land sells by transparent auctions are essential, in stead of being captured by others. In China, while originally unregulated and non-transparent, a constitutional change in 1988 required all public land transactions (land-use rights) to be auctioned under open, competitive bidding with proceeds flowing to Municipalities. Between 1990-2004, the speed and extent of such transactions is what permitted much of the new urban landscape in China to emerge from Guangdong to Shanghai. Mumbai auction of public lands (Bandra-Kurla) have raised large sums.

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Role of Social Networking Sites in 16th Lok Sabha Election Campaign of a Leading Political Party of India

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Abstract: Social media revolution in the Indian political space is real, tangible and going faster. The specific objective of the field survey based study is to find out the role of Social Networking Sites (SNSs) in campaigning by Bharatiya Janata Party (BJP). The majority of the respondents believed that BJP projected their leader's larger than life image through SNSs. Encouraging the young and first time voters is another positive facet of the election activity lies in inspiring and motivating the youth to vote in the recently held elections. The peer recommendations play a vital role in influencing youngsters and this has ensured that a massive number of first time voters have participated in the 2014 elections.

Keywords: SNSs, India, BJP, Election.

1. Introduction

Social media revolution in the Indian political space is real, tangible and going faster. It is well known that both the huge protests of 2012 regarding Anti corruption movement by Anna Hazare and outrage following Nirbhaya gang rape case were channelized through the social media. It is recollected that government machinery in India had come to a standstill and the events got immense national and global headlines, and got the common man involved. Not just the political parties, even the government is beginning to experience the impact of social media.

Political parties are beginning to realize the influence of the social media; the recent Gujarat elections in 2012 saw the major use of facebook, twitter and You Tube. A recent report published by IRIS and IAMAI highlights the social media trends which are truly unparalleled in political contests. Facebook, Twitter, Google + and you Tube seem to be the front-runners in this battle. The Bharatiya Janata Party (BJP), is of the view that social media play an important role in reaching out to people .

The 2014 elections are particularly expected to have a high social media impact considering the rise of social media into mainstream politics. But, five years back, these platforms were hardly a place to discuss the movements and developments of Lok Sabha agendas. Of the mainly used social networking sites, Facebook and Twitter, millions of users are following and participating in conversations related to politics. A recent report has pegged the total expenditure on campaigns on digital platforms at a huge Rs. 400 to 500 crores, of total A&P spend of political parties of Rs 4,000 to 5,000 crore. The target audience is predictably the youth, many of them first-time voters. The study concentrates on the Bharatiya Janata Party (BJP), present ruling party forming Govt. in Centre under the able leadership of Narendra Modi which earmarked 2 to 5% of their election budgets for social media, according to an October 2013 study by IAMAI and Mumbai based market researcher IMRB International.

2. Is social media going to be a game changer?

This was the first general election in India in 2014 where social media is playing a role. While social media may not directly impact a politician or political party, it will create the peer pressure on the voters to cast their vote.

Recent elections have seen a good turnout, well above 70%.

The "16th Lok Sabha election" had a huge change in Indian politics and made a bigger impact on Indian sociology and even psychology of Indians. According to Facebook data,100 million users are already register on Facebook. "16 th Lok Sabha election" was just a 6 week election campaign but it was nicely articulated by fewer parties and leaders with the help of Social media. Leader and parties were social media users encouraged voting, using images of their ink-stained fingers on Twitter and Instagram, to make a statement.

Before Narendra Damodardas Modi becomes officially the Prime Minister of India, and is gauged by critics on his performance thereafter, it should be underlined that he is the most charismatic, dynamic and shrewd politician India has ever produced in the modern, post-partition era, beating out the likes of the privileged Indira Gandhi and Rajiv Gandhi, among others. His victory in the global political sphere can only be matched by that of President

Barack Obama in the 2008 presidential elections.

Narendra Modi has over **four million followers on Twitter** and over **14 million "Likes" on Facebook** and near 2 million on Google+ – making him most-liked Indian politician on social media.

3. Elections and Internet Users in India:

Various stake holders of elections in India are curious to know how internet, especially social media, will influence our elections.

In a recent article **in Mint,** it was stated the total number of voters is estimated to be 725 million. The population of the country below 35 years of age is 51.8%. Of this 48.2% are women and 51.8% are men, 30.1% or 377 million reside in urban areas and 69.9% or 833 million is based in rural India. The critical demography category of 18-35 years of age is 31.3%.

According to census conducted in 2011, India had 149.36 million first time voters who are expected to have a greater access to internet and newer media.

On October 8, 2013 Google released a very useful report titled "Urban Indian Voters Study". Google surveyed top 86 cities based on internet usage representing 108 constituencies (20% of total 543 constituencies in India). Few highlights from the report:

- 37% of urban Indian voters is online user.
- 85% online urban Indians have voted previously.
- 42% of Urban Indians is undecided.
- For voting decision, local candidate as important as the party.
- 45% voters would like to see more information on Internet to help them make their voting decision.
- Information on the political party and the candidate are most looked for.
- 50% voters will engage with politicians online if made possible.
- 75% of the registered voters don't 'share' their political views online.
- Internet users open to signing up for volunteer programs.
- 35% voters consciously start looking for elections / politics related information
- more than 3 months prior to the elections.
- 36% of urban voters use Internet on the mobile.
- 1 in 4 queries related to elections originates from mobile devices.

4. Social media landscape in India:

India has a population of 1.2 billion and about 125 million internet users.

Social Network of users Worldwide India

Facebook
1.26 billion 62.6 million

Twitter
500 million 33 million

Google+
343 million 23.6 million

About 20 million from India are on LinkedIn, the most popular social network amongst professionals. But the political class has knowingly ignored LinkedIn.

The table above shows the number of unique users in India for each of the social networks who are above 18 years of age (the voting age).

5. Main objectives of the study:

The specific objectives of the study were:

1. To find out the role of Social Networking Sites (SNSs) in campaigning by Bharatiya Janata Party (BJP);

2. To find out how BJP is creating a larger than life image of their leaders through SNSs;

3. To know how BJP is making people concentrating on only one person according to their Marketing strategy on SNSs;

4. What people think about this digital campaigning: -fruitful or wasteful;

6. Research Methodology

For the survey of the primary data, direct **interview** method was adopted. For that, a set of questions was prepared on the basis of the objective of the proposed study and was asked directly to the target population under the study. It is a study conducted just before election in May,2014. 50 people of different age group were surveyed in Urban area of Howrah knowing their awareness about social network sites.

7. Popular social networking sites (SNSs) in India:

A recent study by **Assocham** states that technology giants like Google and social networking websites like Twitter and Facebook will see their India revenue soaring this year (of course due to general elections). The spending has reached such proportions that the Election Commission has made it mandatory for all the political parties to seek its clearance for ad insertions on social media sites. Let's have a look on the popular SNSs.

I. Facebook.com

Facebook has introduced 'I'm a voter' feature on its page. Users over the age of 18 will see a message at the top of their Facebook News Feed on their mobile handsets, reminding them that voting has started for the elections. The Election Day message and 'I'm a Voter' button will be visible

to Facebook users only on the day of polling in their areas. On Facebook, BJP (the main official party account) leads with 3.4 million fans as against Congress 2.5 million and AAP's 1.8 million.

II. Twitter.com

The country's largest software firm, TCS, has tied up with social media giant Twitter to launch an app, iElect, to help users gain social insights into the Lok Sabha polls.

III. Linkedin.com

LinkedIn is a social networking website for people in professional occupations. As we know that this site is more useful for job professionals but I observed that political parties are doing their job very smartly though this online platform. We can see BJP regularly updating on Linkedin.

IV. Google+

Google+, we can say it as a new version of Orkut. As a Party, AAP had largest set of engagement on Google +, while Narendra Modi was a most popular politician on this site.

V. P interest.com

P interest is a pinboard-style photo-sharing website that allows users to create and manage theme based image and videos. BJP is branding on Pinterest.

8. Statistics:

Let's now look at the battle purely through the numbers.

■ More that 814 million voters, including over 23 million in the 18-19 year age group, has exercised their franchise in the world's largest democracy. The nation saw various other vital decision firsts: 150 million between the ages of 18-23 were recently qualified to vote, two out of three individuals in India are less than 35 years old.

■ India has the third-largest internet base globally with more than 238 million users. India's Internet entrance rate, as per Internet Live Stats, additionally developed an exceptional 14 percent from a year ago and is right now assessed to be at 243 million or about 19 percent of India's populace.

■ As per a report by the Associated Chambers of Commerce and Industry of India (**Assocham**), of the approximately Rs 4,000-5,000 crore total advertisement and publicity spend, the digital platforms can expect to garner at least Rs 400-500 crore. According to Assocham, Political parties typically spend around 30% of their poll expenditure, estimated at Rs 15,000 crore, on advertising and publicity. Of this amount, 15- 20% is spent on the emerging digital marketing.

■ On **Twitter** AAP is the surprising leader with 5.17 million followers as against BJP at 417,000 and the Congress lagging at 163,000 lakh. It is a different picture when one compares the top leaders. The direct battle is between Kejriwal and Modi.

■ BJP's Prime ministerial candidate Narendra Modi is the world's second most popular leader on **Facebook** with 12 million fans. The pecking order repeats in the Twitter world with Modi having 3.6 million followers as against Kejriwal's 1.6 million.

Spirulina as the wonder food supplement for future

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Summary

Spirulina is free-floating filamentous cyanobacteria, considered as an excellent food, lacking toxicity and having corrective properties against viral attacks, anemia, tumor growth and malnutrition. The use of *Spirulina* as animal food supplement implies enhancement of the yellow coloration of skin and eggs yolk in poultry birds, growth acceleration in fishes, sexual maturation and increase of fertility in cattle.

Key words : *Spirulina,* food supplement, complete protein food.

Spirulina is free-floating filamentous cyanobacteria characterized by cylindrical, multicellular trichomes in an open left-hand helix. The two most important species are *Spirulina maxima* and *S. platensis. Spirulina* occurs naturally in tropical and subtropical lakes with high pH and high concentrations of carbonate and bicarbonate.It play a key role in the primary productivity of oceans, therefore constitute the basis of the marine food chain. It is one of the most promising cyanobacteria, which be utilized for the production of cyanocobalamine (vitamin B12), antioxidant pigment like carotene, tocopherols and can be used as raw material for single cell protein (SCP). The deep blue color of phycocyanin and other extractable pigment including myxoxanthophyl and zeaxanthin extracted from *Spirulina* has been widely used as a naturally occurring colorant for food additive purposes. Phycocyanin has anticancer, antioxidant, antiviral and anti-inflammatory activities and also is a powerful tonic agent for the immune system in animals and human, which providing protection from variety of diseases.

Systematic

According to the classification in Bergey's Manual of Determinative Bacteriology, *Spirulina* belongs to the oxygenic photosynthetic bacteria that cover the groups Cyanobacteria . As mentioned, *S. maxima* and *S. platensis* are the most important species in this genus and with taxonomic differences in filaments, vacuoles and external cover or capsule regularity of each filament.

Ultra structure

Transmission Electron Microscope observations show *Spirulina* has prokaryotic organization, capsule, stratified cell wall, photosynthetic lamella system, ribosomes and fibrils of DNA region and numerous inclusions. *Spirulina* cell wall is formed by four layers, from the inner most outward as: LI, LII, LIII and LIV. All these layers are very weak, except layer LII made up of peptidoglycan, substance that gives the wall its rigidity. The LI layer contains B-1,2-glucan, a polysaccharide not digestible by human beings. The protein and lipopolysaccharide nature of the LII layer is favorite reason for the easy human digestion of *Spirulina.* Ribosomes and fibrils of DNA are generally of central localization.

Nutrients in *Spirulina*

Since 1960's, *Spirulina* has been exhaustively and extensively tested by scientists around the world and has proved to be the most powerful and well-balanced source of nutrition on the planet. Upon testing it, NASA found it to be an excellent, compact space food for astronauts (1 kg. of *Spirulina* is equivalent to 1000 kgs. of assorted vegetables. *Spirulina* is the world's richest natural source of beta-carotene (provitamin A), which helps to improve eye sight. *Spirulina* has very high natural protein content (up to 60 to 70%). This protein is called complete since it has 18 of the 22 types of amino acids that the body needs and being organic in form, has very high digestibility. *Spirulina* has essential fatty acids: linoleic acid ($C_{18:2}$)$\triangle^{9,12}$ and g-linolenic acid ($C_{18:3}$)$\triangle^{9,12,15}$. *S. platensis* contains about 13.6% carbohydrates; some of these are glucose, rhamnose, mannose, xylose and galactose.

Therapeutic properties

Protection against cancer and aging has been attributed to the components of *Spirulina* with an antioxidant action . The alga extract was more effective on hamster cancer regression than ß-carotene alone, the possibility exists that there are other unknown constituents in algae with antioxidative activity that might enhance the antioxidant synergism . In vitro studies suggest the unique polysaccharides of *Spirulina* enhance cell nucleus enzyme activity and DNA repair synthesis. Several scientific studies, observing human tobacco

users and experimental cancers in animals, report high levels of suppression of several important types of cancer .A group of medical scientists has published new studies regarding a purified water extract unique to *Spirulina* named *Calcium-Spirulan.* It inhibits replication of HIV-1, Herpes Simplex, Human Cytomegalovirus, Influenza A virus, Mumps virus and Measles virus *in-vitro* . *S. fusiformis* can significantly modify the renal damages against mercuric chloride induced toxicity.

Feeding studies show that even small amounts of *Spirulina* build up both the humoral and cell mediated immune system . *Spirulina* accelerates production of the antibodies and cytokines allowing it to better protect against invading germs. The cellular immune system includes T-cells, Macrophages, B-cells and the anti-cancer Natural Killer cells. These cells circulate in the blood and are especially rich in body organs like the liver, spleen, thymus, lymph nodes, adenoids, tonsils and bone marrow. *Spirulina* regulates these key cells and organs, improving their ability to function in spite of stresses from environmental toxins and infectious agents . *Spirulina* is effective for the clinical improvement of melanosis and keratosis due to chronic arsenic poisoning and improves weight-gain and corrects anemia in both HIV-infected and HIV-negative undernourished children .*Spirulina maxima* has hypolipemic effects, especially on the LDL(low density lipoprotein) but indirectly HDL(high density lipoprotein)values and positive effects on lowering blood pressure. *Spirulina* could be used as a dietary supplement on dyslipidemic and hypertensive patients because of these pharmacological properties.

Antioxidant activity

Spirulina provides some antioxidant protection for both *in vitro* and *in vivo* systems.

The ß-carotene and total tocopherol content of *Spirulina* in the methanolic extract was 27.5 mg/l and 18 mg/l, respectively. The total phenolic compounds were 96.3 mg/l, a value corresponding to 15.4 mg total phenolics in 1 g of alga dry matter from the methanolic extract. The phenolic compounds salicylic, trans-cinnamic, synaptic, chlorogenic, quimic and caffeic acids found in the methanolic alga extract may be responsible for its antioxidant activity, individually or by a synergistic action.

Animal feed

Spirulina is used in Japan and Taiwan as aquarium fish food, in United States to enhance color, speed the growth and sexual maturation of canaries and exotic birds. Cattle and horse breeders affirm that when adding *Spirulina* to silage, the quantity of sperms in males and the fertility in females are increased. *Labeo rohita* (rohu), an Indian carp, showed greater growth after being fed with *Spirulina* . In chickens, *Spirulina* increases the mononuclear phagocyte system function thereby enhancing their disease resistance.

Commercial production

The main commercial large-scale culture of *Spirulina* started in the early 1970s at Lake Texcoco in Mexico. Production process of *Spirulina* requires clonal or unialgal cultures. The method begins with the determination of physical and chemical parameters of the water sample, which constitutes the main ingredient of the growth medium. The *Spirulina* samples should remain under dim light or in darkness and at 20-25°C. Isolation of the microorganism is carried out under an intensely lighted microscope and with a capillary pipette so that one and only one filament is selected by its morphological attributes (color, size of trichomes, length and apical filament characteristics). *Spirulina* production may be carried out in closed and open water bodies. The first one involves laboratory photo bioreactors and not used in industrial production. The open system, denominated raceway due to its low production cost, easy handling and high production of biomass, is frequently chosen for industrial production. This method uses a pond with a central islet, a motor operating a paddle wheel which allows continuous displacement of the liquid culture in the peripheral channel. When this type of reactor is located outdoors the following factors should be considered as modifiers on the cyanobacteria growth: the medium composition evaporation speed, culture contamination, and temperature (35°C–38ºC).

Productive process has six stages: *Filtration and Cleaning*, a nylon filter at the entrance of the water pond is needed; *Pre-concentration,* to obtain algal biomass which is washed to reduce salts content; *Concentration,* to remove the highest possible amount of interstitial water (located among the filaments); *Neutralization,* to neutralize the biomass with the addition of acid solution; *Disintegration,* to break down trichomes by a grinder; *Dehydration* by spray-drying.

Conclusions

spirulina uses less water per kilo of protein than other foods. Water is recycled back to the ponds after harvesting. The ponds are sealed with food grade plastic liners, so very little water seeps through the ground compared to land crops. The only significant water loss is through evaporation. *Spirulina* deliver nutrients and therapeutic agents more efficiently, without destroying valuable resources. As algae production expands using non-fertile land and brackish water, we can stop cutting forests to grow new food. When more people eat lower on the food chain,

we can halt pressures to destroy wilderness, and help regreen our planet.

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THE CRISES OF CIVILIZATIONS AND CONSTRUCTIVISM : A POST COLD WAR ANATOMY

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" **500 British nuclear weapons are less threatening to the U.S than 5 North Korean nuclear weapons** "

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Alexander Wendt in Anarchy is what States Make of It .

Abstract : As the title suggests, this article explores the Constructivist discourse and the validity of its observations in the aftermath of the dissolution of Soviet Union .The objective of this article is to study the international affairs in the post cold war era through the lenses of Constructivism .The discussion mainly encompasses post cold war international ongoings , major paradigm shifts in foreign policies marked by 2 anecdotes : **globalization** and **the attack on World Trade Centre (W.T.C) on 11/09/ 2001 , or as we know 9/11**.So a theoretical analysis of Constructivism is obvious but only to the extent the context affords it and not beyond that. In this article , right from U.S neoconservative legacy of " **benevolent hegemony** " to its " **War Against Terrorism** " and " **Pre-emptive Strike** " have been discussed . It is upto the prudence of the readers whether the principle of all inclusivity has been maintained or not but certainly a plausible and cogent effort to create a mirror image of theory and practice in the post cold war international scenario has been invested .The honest effort is to highlight those untouched dimensions of international relations (IR) that did not receive much attention before the end of cold war .With references like **Fukuyama – Huntington debate , Bush Doctrine, Pax Americana, Pax Sovietica** etc, this article aims at making an analysis of changing patterns of state behavior and post globalization cultural bifurcations through the eyes of Constructivism.

Key Words : Pax Americana, Pax Sovietica, Benevolent Hegemony, War against Terrorism, Pre-emptive Strike,Gloval Village

PROLOGUE :

Right from the beginning the discourse of IR encompasses several arenas of inter-state life. But the theories of IR basically evolves around anarchy , war and over security issues. Undoubtedly Constructivism is a latest offshoot in that direction emerging out of the observation of ongoing inter -state interactions and pay-offs. Constructivism is a post cold war phenomena. Issues like anarchy, patterns of state behavior have been much discussed in earlier decades. Then why did Constructivism gain so much prominence and attention among the scholars and in the academic discourses of IR ? Thanks to the theorist like Alexander Wendt , Nicholas Onuf, Freidrich Krachtowil , Peter Katzenstein , John Ruggie, Richard Ashley et.al., especially Wendt and Onuf. They found the sun during midnight in another side of inter-state relation through the eyes of Constructivism amidst prolonged darkness .The crises of civilizations around the globe geared up to greater heights after the Soviet's disintegration. Some greatest crises (led to subsequent conflicts) in mankind like Rwanda(1994), Darfur (2004), Bosnia (1992-1995), Kosovo(1998), Nagorno karabakh (1989/90-present) et.al supplied the Constructivist researchers a magnifying glass to penetrate into the core of inter-state relations. It was the side not penetrated earlier. What is the side all about ? What exceptions does it carry reflected by several past and ongoing conflicts among civilizations in the world ? What are the basic themes of Constructivism that distinguish it from other theories? The questions seeks to understand in order to make out the character of the

crises prevalent in various parts of the world and on the basis of this to proclaim the prophecy of such crises .The crises among states , be it before or after the cold war , covers diverse arenas including security issues like ethnic rivalries, religion, environmental issues, economic meltdown. But foremost arena will be cultural heterogeneity .The world at the onset of twenty first century got the shockwaves of terrorism whose epicenter was identified in U.S.A. The 9/11 attacks annihilated the economic hub of the world , WTC. It caused loss of 3000 innocent lives and gave a strong jolt to the U.S. led global economy under the debris of WTC. Terrorism existed in different parts of the globe, but the whole world received a prodigious threat from this emerging reality which used to exist at a latent stage , manifested itself globally only after 9/11.Henceforth the proclivity of the western world launching of new tactics to eliminate this new threat became obvious .Quagmire loomed in IR .So the IR discourse has started an extravaganza to research over the prognosis of the ongoing crises among states. Here Constructivism played a crucial role in understanding the prognosis of inter-state crises that often lead to significant bloodshed . Cold war becomes the ironic anecdote in the history of IR for not involving any direct significant bloodshed but for causing various bloodshed in the name of the parties (ideologies) , Vietnam's unification (1945-1975) or Soviet's invasion in Afghanistan (1978-89) are the examples. But the fact that future is rooted in the past , past cold war world politics – politics of conflict , politics for power , politics of globalization ,politics of modernization(non western academics hail globalization as westernization), politics of international coalition , politics of cooperation is rooted in the pre unipolar (Pre Pax Americana) world . Henceforth the study of the crises and their future in the world presupposes a clear understanding of the Constructivist theory and its machinations that contribute a colossal amount of guidance for the said purpose.

But the fact remains future is always rooted in the past.

CONSTRUCTIVISM-REALITY BEYOND THE REALITY :

As myth is always beautiful , so Thomas Hardy's famous line in his poem **The Breaking of Nations " War's annals will cloud into night "** is because present day reality of inter-state relations , especially after 9/11 is the reality of 3Cs i.e. reality of crises that results in the reality of conflicts which established the reality of Constructivism .In so far the theories of IR are concerned Constructivism provides the most scientific explanations by including both empirical analysis (cost and benefit analysis) and normative dimensions (tabling national interest on the basis of religion , language , culture ethnicity parallel with politico-economic and strategic issues.)Strategic issues are attaining more importance for geopolitical purposes. Issues like anarchy , security , conflict , cooperation have been rigorously discussed prior to the advent of Constructivist discourse over the years. Its true that occasionally inductive reasoning might have contributed in the formation of certain IR theories (establishment of European union or other sub-regional organizations complement the theory of regionalism) , but all IR theories are eternally drawn upon the following deductive inferences –

1. International system is all about anarchy ,
2. States are the prime important actors ,
3. They are thrived by constant power drive as absence of world government creates a " Security Dilemma " among states as said by John Herz in his book Political Realism and Political Idealism (security dilemma is just like the Hobbesian state of nature where people lived a " SOLITARY , POOR , NASTY , BRUTISH AND SHORT " life)– all such realist assumptions are the permanent source of theory formation in IR.

The question arises what realist element does Constructivism adopt ? It will be discussed subsequently. Constructivism is a departure from two streams of thought at the root – Materialism and Rationalism. The former stream mainly compliments Neo- realist (also realist as its neo version dosen't negate it ever but only reforms it) and Neo-liberal elements as Materialism basically argues agents (state) respond to the material exigencies that emerge from their innate politico-economic events. Every state, being the principal actors , pursues it's interests where it's native issues dictate largely. The later school of thought is Rationalism where states perform for the sake of individual advantage by calculating costs and benefits.It is true like it's progenitors in the international

discourse Constructivism departs from the 'Neo's legacy but it did nit nauseated that precedence as such. The 'Neo's were the dominating political beliefs in the international academia in the 1980's , but after that till date the whole post cold war epoch yields in front of Constructivism. How can it be seperated from the Neos ? Neo-realist and Neo-liberals , in the words of Michael Barnett , " both assumed that states have innate and fixed interests and are constrained in their ability to further those interests because of material forces such as geography, technology, and the distribution of power ". But Constructivism advocates that interests can't be prefigured or prefixed as the people living inside the state are subject to the constantly changing social currents , hence their character and attitude towards the state changes that correspondingly influences the pattern of state behavior .The advent of globalization have further accelerated and strenghthened the pace of constructivism as globalization involves interdependence , interconnection, interpenetration among all the states. Jamal R. Nassar in his book Globalization and Terrorism argues as globalization brings states closer – so the apprehension of the more we get intimate the more we get vulnerable to each other , and with the advent of ITR (information and technology revolution) non state actors and civil society comes up with renewed energy as we get to know each other more we set our policies accordingly and all this happens within the hutch of the international system .So here the distinction between the Neo legacy and Constructivism is evident.

Coming to the Realism vs. Constructivism. Realism assumes states as principal agents in IR and international system as structure. Driven by Materialist spirit Realism assumes agents form and further their interest according to the character of the structure i.e. it is the international environment that direct agents frame their foreign policies (during cold war when international structure was bipolar led by U.S.A and U.S.S.R , India developed proximity with the latter owing to the growing axis among U.S.A-Pakistan-China in the days of Sino-U.S rapprochement).So not only realism but in all theories a one dimensional structure-agent relation was prevalent prior to Constructivism (structure help construct the identiies and policies of agents) . But the Constructivist research adopted a telescopic view and established the fact that IR structure-agent relation is not one dimensional but two dimensional where structure constructs the identities and foreign policies of agents and simultaneously agents also reconstruct that very structure as well. Thus IR continues to exist through a two way process. This form the crux of Constructivism. So far the roots of Constructivism been discussed, exhibit some astounding realities beyond those prevalent in IR conventionally.

1. Constructivism introduced a new epoch where the 'Neo's passed through nadir of their existence.

2. Coined by Nicholas Onuf in 1989, it may be a post cold war phenomena but borrows some of the ancestral values like acceptance of states as the prime actors in IR (realism), ideas shape how we see our interests (idealism).

3. Despite recognizing realist precedence on states Constructivism redefined anarchy. Wendt said " Anarchy is what states make of it " marks following two implications –

A. Shattering earlier precedences , it showed anarchy is not about the mere absence of world government. It is not any natural entity but a constructed phenomena , which normally may look hollow but one needs a Constructivist insight to penetrate the concept of anarchy. It is constructed and reconstructed by the agents (states) for persuasion of their own interests and foreign policies. So structure constructs policies , identities of the agent and in turn , agents reconstruct that very structure.(After Soviet disintegration , as Fukuyama hypothesized of spreading market capitalism , it came to be true in most part of the world barring few exceptions. This was further proliferated by globalization .But at the same time countries like China which have developed a proximity with Taiwan alongwith Singapore , Philippines and all likeminded states will form a large economic hub of East Asia to counter the unipolar leagacy of Pax Americana. As was professed by Prof. Samuel Huntington China will be appearing a superpower in the coming years which is evident today.)

B. Consequently , as all agents have different views , stances over the international ongoings on the basis of their domestic environment, therefore anarchy may have various shades around the world rather a general universal phenomena .Anarchy of peace (European Union) and Anarchy of crisis (middle East Asia). It is actually anarchic pluralism as evident by Wendt's words , " 500 Brit-

ish nuclear weapons are less threatening to U.S than 5 North Korean nuclear weapons ."

4. As anarchy have different shades signifying multiplicity of ideas , interests and policies , Constructivist argument gears up even further.They are not materially constructed but socially and are subject to change. So, Materialism has a social character as people react to the material forces as they bring meaning to them. (Sovereignty implies non intervention by external forces within state arena .But human right's violation by any government will provide outside intervention a legal justification) .

5. Constructivism emphasizes on historical construction of national interest. (If Australia and Pakistan develops respectively 100 and 60 nuclear warheads more than India , India while showing nonchalance regarding Australia will consider Pakistan as detrimental. This she will do by having a historical analysis of its relation with these two states on their social context. Hence Constructivism is a social theory rather a political one. Wendt said , " States define their interests in the process of defining situations ."

Aforesaid discussions showed the distinction that Constructivism carries with itself because of it's caliber to explore the unexplored dimensions in the discourse of IR.

CRISIS AFTER THE COLD WAR – A CONSTRUCTIVIST AUTOPSY :

" Good and evil rarely manifest themselves as clearly as they did last Tuesday. The people who we don't know massacred people we do. And they did so with contemptuous glee." An American citizen reacted on 9/11. This section deals with the emerging challenges that the unipolar world counters in this global era . If globalization has contributed tremendously towards making a ' global village ' as termed by Marshall Mcluhan , it has parallely accentuated separatism throughout the world . Globalization has set up an oxymoron of distance and proximity , homogeneity and heterogeneity .This discussion supposes special mention of three pioneering works viz. Francis Fukuyama's 'End of History and the Last Man' , Samuel Huntington's The Clash of Civilizations and again Fukuyama's 'America at the crossroads'. Starting with Fukuyama who believed after communist downfall war of ideology was extinct. Traditional conflicts between nation- states will reemerge and also liberal democracy, a bi-product of modernization , will have a monologue over the globe. But Huntington refuted Fukuyama's prosaic prognosis and provided a solemn argument where he said in the post cold war era the conflicts will be cultural. So groups of states sharing a common culture may engage themselves in war with states of other culture. So states remain as bellicose as earlier but their basis of quarrel will be culture. If they feel their culture is at stake, that will eventually create an identity crisis. Huntington said , " the great divisions among humankind and the dominating source of conflict will be cultural. Nation states will remain the most powerful actors in world affairs , but the principal conflicts of global politics will occur between nations and groups of different civilizations. The clash of civilizations will be the battle lines of the future ." As globalization proliferated interconnection , so cultural solidarity will surpass borders and create a consciousness that will separate the world between ' we ' and 'they.' Huntington exemplifies," Americans react far more negatively to Japanese investment than to larger investment s from Canada and European countries." Most of the American believe everything changed after 9/11. So 9/11 manifested Huntington's prophecy .

Coming to Constructivist observations. International structure constructs ideas , policies of agents (states) and in turn , agents reconstruct that very structure to jusstify their international outlook. As the end of cold war marked the end of Pax Sovietica and left Pax Americana as the sole precedence , the foreign policies of many states became pro U.S .At the same time , owing to U.S neoconservative legacy of " benevolent hegemony '" , counterforces emerged more vibrantly like global terrorism (militarily). In the aftermath of 9/11 George Bush administration officially introduced policies like " War against Terrorism ," (case of Afghanistan) and " Pre-emptive Strikes " (case of Iraq)in order to transfix those elements it considers detrimental not only to the U.S but the universe. In Iraq U.S launched "Pre-emptive Strike" having apprehensions of Iraq's WMD (Weapons of Mass Destruction) preparedness. In terms of " war against terrorism " Bush said non-align stance has no place today after9/11.So if you are not with U.S.A that means you are with them. Thus 9/11 proliferated the bifurcation of 'We' and ' They' based on culture. If

acceleration of Pax Americana after cold war exemplifies structural construction of policies of the agents (states) then 9/11 is a reconstruction of the unipolar structure from absolute unipolarity to uni-multipolarity against U.S's " benevolent hegemony " as mentioned earlier. Consequentially the principles of " War against Terrorism " and " Preemptive Strike " exposed the propensity of indigenization amidst the global outcry of homogenization , left us parted between 'We' (pro U.S) and ' They ' (anti U.S).So this is how Constructivism supposes , IR survives by means of a complimentary structure-agent relation.

EPILOGUE

In the final proposal it can be aptly said one deductive inference – power politics is everpresent in IR. At the same time the continuous plausible effort of cooperation to make globalization a grand success has become a propensity of world community – manifested mainly by U.N – be it it's assistance booths in Afghanistan , Sudan, Somalia or recently in West African nations like Sierra Leone for the cause of Ebola. With the extinction of the red silhouette and the arrival of the capital Sun world politics witnessed huge leaps in terms of foreign policies. The 9/11 showed the anathema of the non-west against the U.S soliloquy of market capitalism , cultural homogenization. The post 9/11 U.S policies like " Pre-emptive Strikes " and " War against Terrorism " have been much beleaguered by the non-western states and even some non-state actors that has kept the animosity alive. It would be prudent to research soliticiously the proper way-out of this biggest crisis – the crisis of our future in the days of nuclear and bio-chemical warfare , WMD and MAD (Mutual Assured Destruction) to assure ourselves a serene life, a life secured in cohesion and not in crisis of civilizations.

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CRISIS OF CIVILIZATION

an inevitable future

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The societal nature of man has actually ushered in the human civilization. Man cannot live on his own. The life of a man should always be seen in social context. The individuals exist only as a part of the society that includes family, occupational groups, classes and collectivity as a whole. According to Marxism, man is first a social and then a political creature. Hence, man-made civilization is a living organism, which is in continuous development based on language, culture, blood-relation, literature, customs, etc.

Like all other living organism, human civilization also has developed some inner crises within the coherent bondage of mankind. At the initial stage of civilization, both in the Western world and in the Eastern world, primarily the crisis started among the emperors or monarchs and also even among the princess due to the expansion of their territories. Sometimes, this long-lasting warfare had given birth to several vast empires and several different civilizations. Thus Greek, Roman, French, European, Arabian, Chinese, Russian civilization and also the civilization of Asia at large developed with a very hostile attitude among each other.

Later on, crisis of different civilization intensified with the development of different ideologies chosen by ondifferent civilizations for their own suitability. Thus the conflicts of different nations yielded to the conflicts of ideologies-first among Communism, Fascism- Nazism and Liberal democracy and then between Communism and Liberal democracy. Significantly, after the World War-I, the struggle between the two super powers, i.e. between Liberal democratic USA and Communists Soviet Union defined their identity in terms of their ideology. In this process the whole of European civilization, i.e. Western civilization and a vast part of Asian civilization faced a crisis of their civilization. On the other hand after World War-II, many non- Western civilizations which were the targets of Western colonialism got their own independent identity.

Now, the time has come when we cannot group countries in terms of political or economic system but in terms of their culture and civilization. Villages, regions, ethnic groups, nationalities, religious groups- all have distinct cultures at different levels of cultural heterogeneity. Common culture and religion is facilitating the rapid expansion of economic co-operation. Thus, strong economic bondage has developed between China and Hong Kong, Taiwan, Singapore, and the overseas Chinese community in Asian countries. Similarly economic co-operation is extremely strong between ten non- Arab Muslim countries like- Iran, Pakistan, Turkey, Azerbaijan, Kazakhstan, Turkmenistan, Uzbekistan and Afghanistan. Furthermore, ideological division of Europe has disappeared of late. Now Europe has been divided into Western Christianity on one hand and Orthodox Christianity & Islam on the other hand. Recently, crisis of civilization also has developed, based on cultural differences between the Catholic Western Ukraine and pro-Russian Eastern Ukraine.

Thus we easily arrive at a conclusion that the crisis of civilization may be classified into four specific areas –

1. The attempt of Western civilization to dominate the non-Western civilization.
2. Crisis among the non-Western countries themselves.
3. Ideological crisis
4. Cultural crisis.

Apart from these four specific areas, the principal focal point of crisis of civilization is the widespread development of "Political Terrorism" throughout the different parts of the world.

Political Terrorism:

Terrorism has become a major threat to the civilization of the 21st century. Terrorists have been exploiting the media to spread their ideology and terrorize the people for the fulfilment of their selfish motives. With terrorists gaining easy access to the weapons of mass destruction—including nuclear devices, germ dispensers, poison gas weapons and even computer viruses the crisis of civilization has intensified by leaps and bounds. The concept of terrorism does not involve achieving goals through persuasion and consent. The means of terrorism are totally inhuman but their ends may be humanitarian, i.e., ends may be the liberation of a section of masses. Political terrorism occurs in most cases, for the elimination of immediate rivals.

State - sponsored terrorism:

The greatest danger to the civilization is the state-sponsored international terrorism. Whenever the governments use terrorists' tactics against a foreign nation, it is state-sponsored terrorism. This is an extreme heinous activity on part of the terrorist states employing huge resources of money, sophisticated weapons and destructive technical expertise. It is a cheap method of attaining goals without resorting to a full scale conventional war. It is also very alarming when the governments itself get involved in terrorists activities. 'Governmental terror' tries to show its legality.

Techniques of terrorism:

Primarily terrorists require both 'men and money' for proper execution of their heinous activities. They resort to several methods for acquiring 'men and money' in order to carry out their plans.

- o For example, terrorist groups tempt young and able poor people of their sects to devote themselves towards their activities in lieu of huge amounts of money, should they die fighting for them.
- o News was published in 'The Statesman', dated 09.08.1999 – that posters have appeared on mosques and other buildings in the Dir district in the North West Frontier of Pakistan asking youths to join ranks with Osama bin Laden. A correspondent in the BBC's Urdu service revealed that the posters bore the Saudi-born terrorists' signature.

■ Also the 'human bombs' were used to assassinate Indian PM Rajiv Gandhi by the Lankan terrorist organization-LTTE.

■ Sponsored and Private terrorism are two basic methods of activities. Osama bin Laden had no official sponsor. He announced-'overthrow the Saudi royal family, drive out the west from the Muslim world and destroy Israel.

■ Guerrilla warfare is also common technique regarding terrorism. In other words it is also termed as 'hit and run policy'.

■ Terrorists acquire a steady flow of funds and arms from secret/foreign sources.

■ Terrorists also induce extreme fear psychosis among their targets by carrying out devastating activities.

Stake of civilization:

In the international scenario human civilization and social harmony is being breached by the following issues :

■ Palestine vs. Israel conflict over Gaza strip.
■ Shia vs. Sunni fights in Afghanistan, Pakistan, Egypt, Syria, Iran and Iraq.
■ Hamas and Kurds issue in the Arab countries.
■ Issues in Ukraine
■ Boko Haram terror in Africa and a host of other issues.

Indian unity amongst her states is crippled by several issues:

■ Pakistani infiltration in Kashmir
■ Naxalite (Maoist) activities in Telangana, Andhra Pradesh, Bihar, West Bengal.
■ Bodo movement in Assam
■ Gorkhaland unrest in Darjeeling, West Bengal.

Some recent crises of civilization are discussed below:-

Kashmir :

The world's most daunting challenge is to resolve the ongoing conflicts in South-Asia and to establish peace and harmony in the region. Pakistan and India are locked in a serious con-

flict for more than 60 years regarding the control of the valley of Jammu and Kashmir and thus it has flared up the tension in the region. India's self image as the post colonial inheritor of the British and Her belief in the strategic unity of the subcontinent fuelled the impulse to regional domination. Both countries are involved in the struggle along the LOC. Pakistan is continuously giving assistance to 'guest militants' from Arab, Afghanistan and other countries. They behave ruthlessly towards the local people. The incidents of gang rape have increased over the years. Thousands of 'Hindu- pundits' were slaughtered. Thousand of casualties, road-blasts, random bombing has totally destroyed the tourism of Kashmir.

The Govt. Of India has made serious efforts in constructing effective roadways and hundreds of kilometres of railway tracks throughout the valley. Huge number of tunnels has been curved out in the mountainous terrain to facilitate the railway and roadway link in the region. A large chunk of the budget is allotted by the Govt. for patrolling the LOC by the Army. Sophisticated weapons are bought every day. The expense of posting a large section of the Army always in Kashmir is going through the roof although the common people of the valley remain poor.

Brave Indian jawans die in protecting the civilians from the terror attacks

Actually, Pakistan is very much interested in exploiting the religious sentiment of the valley since the time of independence without evaluating the mindset of people residing in the valley. But religious sentiment is not the sole factor for the smooth running of everyday life. Local people of the valley do not like this terrorist excitement, they strongly desire for perpetual peace in the valley. Govt. of India is very much conscious about the overall development of the valley. For fulfilling this motivation, Govt of India has spent already huge amount of money.

It is reported by journalists of both countries that terrorists from the age 16 are trained in the militant camps in POK under the stewardship of the ISI

But all these attempts of the Indian Govt. Has become futile because of the militant role the 'guest militants'. The ISI is playing an active role in the militantcy in the valley. Frequent terrorist attacks and blasts are crippling the region.

Crimean crisis:

Crimea is a part of Ukraine but as an autonomous Republic. It has its own constitution. But due to the sizeable ethnic Russian population in Crimea, Russia is inclined to include Crimea within its territories by annexing it from Ukraine. Even the people of Crimea have reportedly voted in favour Russian control over Crimea.

Crisis developed in this region on the issue of language. Russian people residing within Crimea became infuriated when Crimean Parliament adopted a bill to repeal the law on minority language. The Russian language which was a minority language was no longer given a status. Thereby, Ukrainian language became the soul language in Crimea. This angered the Russian population.

In the aftermath of the Ukrainian revolution in February, 2014 and the deposition of the Ukrainian president Yanukovych, Russian Special Forces and other paramilitaries took over the Crimean peninsula. Russian president Vladimir Putin admitted that Russian troops are active in Crimea for facilitating self-determination of the region. The supreme council of Crimea held a referendum and voted to secede from Ukraine. It has been reported that 95% voted to join the Russian Federation. But the general assembly of U.N.O approved by 100 members took a resolution that the Crimean referendum is invalid for on account of violation of international law. Internationally USA, France, Germany, Poland, Canada, Japan, Australia, European Union and other countries condemned Russia for violating Ukrainian sovereignty. However China and India remained uninvolved.

At least 30,000 people at March 15 protests, named March of Peace,

which took place in Moscow a day before the Crimean referendum.

The attempt of pro-Russian people to replace the Ukrainian flag by the Russian flag fuelled the violence. The Crimean Tartars (minority in Crimea and pro-Ukrainian) opposed this and accused Crimeans of treason and violent clashes and crisis ensued.

Russian President Vladimir Putin (seated, middle) speaks to the press on March 4, 2014, denouncing the events in Kiev as an "unconstitutional coup", and insisting that Moscow has a right to protect Russians in Ukraine

The international community has overlooked the Crimean interests and projected the crisis to be fuelled by Russia. They accused the Russian of flexing their military muscle in the region. Crimea and Sevastopol has switched to Moscow Standard Time on March 29th, 2014. But still the crisis and the stand-off between the two countries continues.

Gaza-strip crisis:

Palestinians, who reside in the Gaza strip, are very much involved in a gruelling conflict with Israel. This strip of land is inhabited mainly by the Arab Muslims and has Jews as minority. Palestinians comprising of the Arabs and Jews of the Gaza strip aim to attain sovereignty in the middle-East. The problem in this area started from the late 19th century. Fatah, political organisation of PLO controlling west bank area is continuously in conflict with Hamas, the military wing of Palestinian Sunni Islamic organisation of the Gaza Strip. In the election of Palestinian Parliament in the year 2006, Hamas occupied the majority of the seats and continued to govern over Gaza strip. Israel opposed this activity and started economic blockade in this area. However prior to the election of Palestinian parliament, 2016, both Hamas and Fatah agreed to govern Palestine jointly. Israel opposing this joint agreement, tried to establish her authority over this area. Israel started military aggression over Gaza Strip .The ongoing Gaza –Israel conflict in this region affects the life of the innocent people continuously.

Image: Smoke rises after an attack of Israeli aircraft in the South of Gaza City

The secretary general Ban Ki Moon is deeply concerned by mounting number of civilian casualties from Israeli military operations in Gaza. It is being alleged that chemical weapons are also being used in the warfare. Humanitarian situations in the Gaza Strip have reached its worst point. Unfortunately, several Muslim states and several major powers of western countries are aiding to both of the countries and the practical outcome is the huge number of casualties of children and civilians.

Europeans protest against Gaza conflict in a French rally against the deadly Israeli offensive in Gaza

Boko-Haram terror-

Boko-Haram is an African Sunni-Islamic militant organisation that aimed to establish a separate Islamic state in Nigeria. It was founded by Mohammed Yusuf in Maiduguri, the capital of North-eastern state of Borno in Nigeria. They vehemently oppose the westernising lifestyle of the Nigerian society and target to convert the poor non-Muslim people of the society into Muslims for fulfilling their goal of carving out an Islamic state out of Nigeria and the neighbouring countries.

Although they started out operating on a peaceful note, gradually the militant nature of their activities became unveiled. Nigeria is economically very strong in Africa and much of the wealth is concentrated among the political elite of their society and this section comprised of both Muslims and Christians. Boko-Haram opposed the accumulation of wealth of such a section of the society and their eventual westernised lifestyle. They started their militant aggression against such a section and even killed people who were engaged in un-Islamic practices such as drinking alcohol and recitation o0f Quoran. They resorted to bomb attacks in transport systems aimed mainly at police and also civilians.

Since 2011, they are continuing their attacks on politicians, civilians, religious leaders involving the tactics of suicide-bombing. They maintain close links with want-away sections of the neighbouring countries and in association with splinter group 'Ansaru', they remain involved with several kidnappings. From 2013, Boko-Haram, crossing the national boundary started its aggression in several areas of Cameroon. They kidnapped 7 French priests in Cameroon and they also kidnapped 8 French citizens in separate occasions and obtained ransom payments for their release.

Kidnapped schoolgirls are seen at an unknown location in this still image taken from an undated video released by Nigerian Islamist rebel group Boko Haram

In April 2014, Boko-Haram kidnapped 276 female students from Chibok, Nigeria. Some of them escaped but the remaining girls were been released and they threatened to convert them into Muslims by releasing a video message. This event brought them extensive media attention globally. In July 2014, Boko-Haram kidnapped the wife of vice president of Cameroon along with the Sultan of Kolofata and his family in a deadly attack killing 15 soldiers and police personnel.

Book-Haram is considered to be the 2nd deadliest terrorist group in the world after the Talibans.

Iran and Iraq crisis

The border dispute involving the two countries of Iran and Iraq is popularly known as the Persian- Gulf War. This Gulf War has been the longest conventional war of the 20th century and is still continuing into the 21st century. This war also has been considered as the 'World-War' because of the tactics used by both countries in the war.

Mountainous border between both the countries made land-based warfare impossible. Air-strike is the main tactic of this war. As a result loss of human lives and economic damages is severe in such warfare- almost half a million Iranian and Iraqi soldiers and equivalent number of civilians are believed to have been died. Still the border conflict has not yet been solved.

The whole of the area of Iran and Iraq was under the Ottoman Empire. Prior to 1935, Iran was known as Persia and Iraq was known as Mesopotamia. Both states signed a treaty in the year 1937 for solving their border problem. It was decided that the border of Iran and Iraq will be along the low-water line on the Shatt's eastern side, except at Abadan and Khorramshahr, where the frontier ran along the deep-water line (Thalweg). This gave Iraq control of most of the water ways and required Iran to pay tolls whenever her ships used it. Later on, after the establishment of Nationalist Govt. in 1958, Iraq's new leader, General Abdul Karim Qassim promptly abandoned the pact of 1937 as the Iraqi Govt. was totally dissatisfied with Iran because of her possession of oil rich province of 'Khuzestan'. Iraqis called this province as 'Arabistan' as this province has large Arabic speaking population. Naturally, Iraq supported the secessionist movement of Khuzestan.

In 1969, Saddam Hussein, Iraq's Deputy Prime Minister stated- Iraq's dispute with Iran is in connection with Khuzestan, which is part of Iraq's soil and was deliberately annexed to Iran during foreign rule. Other countries surrounding Persian Gulf like Saudi Arabia and Kuwait encouraged Iraq to invade Iran and thereby Saddam Hussein tried to establish Baathist Iraq's hegemony over Arabic world and the Persian Gulf. This escalated the tension between Iraq and Iran the warfare is still continuing.

Saddam Hussein inspects an Iraqi position during Iran-Iraq war. BBC Worldwide is marking the 30th anniversary of the war's outbreak. Photograph: AFP

The large scale 'trench-warfare' with barbed wire stretched across trenches, manned 'machine-gun

Trench warfare during the bloody Iran-Iraq War.

posts', 'human-wave' attacks across no-man's land, extensive use of chemical weapons by the Iraqi Govt. against Iranian troops, and huge number of civilian deaths has intensified the crisis of civilization.

CONCLUSION-

We can easily conclude that the crisis of civilisation actually lies in the interaction between Islam and the west. M.J Akbar an Indian Muslim author observes that the 'next confrontation' of the west is definitely going to be with the Muslim world. The struggle for a new world order will begin. This crisis is deeply rooted elsewhere in Asia. The historic clashes between Muslims and Hindus in this subcontinent have intensified. We can cite the example of the 'World-Trade –Centre' incident of 9.11.2003 in which nearly 3000 innocent U.S citizens were killed in a ghastly terrorist attack. Later, the al-Qaida terrorists claimed the responsibility of the attack which caused a damage of nearly 10 billion dollars. Religious intolerance has been vitiating peace and harmony not just in India but all over the world. In Ireland, intolerance between Protestants and Catholics, in the Afghanistan- the Shias and Sunnis are locked in daily battle, in Pakistan, sects like the 'Ahmedis' have been declared as non-Muslims, in Iran, Shia priests have for long repressed 'Bahais', in Lebanon, the Muslims and Christians and Arabs have been slaughtering each other for years. The role of intelligentsia- C.I.A, F.B.I. etc in preventing the catastrophic terrorism has become futile. The crisis has become further complicated by several non-state actors, concealed weapons, developments of unconventional deployments of weapons—all of which are hard to monitor and pre-empt. However, we can still raise our eyebrows with the eternal concept of 'civil society' for the safeguard of our civilization. Liberal theorist DE Tocqueville has conceptualised civil society as buffer which protects the individual against the state. It is the civil society which can legitimately gratifies the self-interest of individual and this civil society definitely has the capacity to safeguard the civilisation from its multiple crises.