Unsustianability occurs, when unmindfully, any country or individual or group of countries or individuals starts to explore the resources without considering the consequences. When natural capital is used up faster than it can be replenished. Sustainability requires that human activity only uses nature's resources at a rate at which can be recovered naturally. Etymologically, the concept of sustainable development is intertwined with the concept of 'carrying capacity'. Theoretically, the long-term result of environmental degradation is the inability to sustain human life. Beyond a certain point, it might lead to eventual extinction for humanity. We are going towards calculating economic benefit at the cost of ecological preservation, which used to give us immense benefits.

Climate Change:

Climate change, also called global warming, refers to the rise in average surface temperatures on Earth. An overwhelming scientific consensus maintains that climate change is due primarily to the human use of fossil fuels, which releases carbon dioxide and other greenhouse gases into the air. The gases trap heat within the atmosphere, which can have a range of effects on ecosystems, including rising sea levels, severe weather events, and droughts that render landscapes more susceptible to wildfires. Even small increases in Earth's temperature caused by climate change can have severe effects. The earth's average temperature has gone up 1.4° F over the past century and is expected to rise as much as 11.5° F over the next. That might not seem like a lot, but the average temperature during the last Ice Age was about 4° F lower than it is today. Rising sea levels due to the melting of the polar ice caps contribute to greater storm damage; warming ocean temperatures are associated with stronger and more frequent storms; additional rainfall, particularly during severe weather events, leads to flooding and other damage; an increase in the incidence and severity of wildfires threatens habitats, homes, and lives; and heat waves contribute to human deaths and other consequences. While consensus among nearly all scientists, scientific organizations, and governments is that climate change is happening and is caused by human activity, a small minority of voices questions the validity of such assertions and prefers to cast doubt on the preponderance of evidence. Climate change deniers often claim that recent changes attributed to human activity can be seen as part of the natural variations in Earth's climate and temperature, and that it is difficult or impossible to establish a direct connection between climate change and any weather event, such as a hurricane. While the latter is true, decades of data and analysis support the reality of climate change and the critical role of human factor in this process. However, economists agree that acting to reduce fossil fuel emissions would be far less expensive than dealing with the consequences of not doing so. This is a common minimum understanding for all of us.

Conclusion

The Sustainable Development Solutions Network (SDSN) and the Bertelsmann Shifting launched a new Sustainable Development Goal Index and Dashboard to provide a report card for tracking Sustainable Development. The countries which are closest to fulfilling the goals are not the biggest economies but comparably small, developed countries. Sweden tops the chart and is followed by Denmark and Norway on the top three performing countries. India ranks 110th on the list. In order to achieve the ambitious goals, immediate and comprehensive action is needed in the crucial years of implementation of the new global agenda, it noted. The report highlights major challenges per region: Organization for Economic Co-operation and Development (OECD) countries struggle to meet the goals on inequality, sustainable consumption, climate change and ecosystems, while many developing countries face major difficulties in providing basic social services and infrastructure. East and South Asia outperform many other developing regions but unmet challenges persist in health and education. For Latin America and the Caribbean, high levels of inequality are among the most pressing issues. In spite of significant progress in recent years the world's poorest region Sub-Saharan Africa, faces major challenges. Issues like extreme poverty, food, hunger, housing and health are major areas where substantial improvement is needed. However in the global form, be at RIO summit or summit at Dakar (Senegal), all the countries are not able to reach common agenda to tackle all these issues collaboratively globally. The developed countries accuses the developing countries are responsible for this and vice a versa also. The fundamental question is, who are the greatest

consumers and producers & who has higher purchasing capacity? Whose natural resources are used? What are the dumping grounds for the globe in terms of environmental pollution? Who is bearing the brunt? Till date we have not arrived at a concluding point, at last common point for reform ourselves by taking responsibility and accountability. To conclude, one can argue the present consumerist culture not only leading towards more and more production by creating more market, but also unmindful use of natural resources without thinking of future generations. At the end one can conclude by saying a famous anecdote of Mahatma Gandhi, "we have enough to fulfill everybody's need but we don't enough resources to fulfill everybody's greed". That can be a simplistic answer to this whole complex problem and processes.

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Human-Environment Relations and the Beginning of Anthropocene: An Anthropological Perspective

Dr. Urfat Anjem Mir

Introduction

The aim of this article is to underscore the global climate change impact and the beginning of anthropocene by looking at the human – environment relationship through the anthropological perspective. By using a cultural approach to the study of human–nature relationship, the aim is not only to understand the circumstances leading to anthropocene but also to touch upon the nuances of environmentalism and sustainable development debate in contemporary times.

As put by Leslie White (2006), a cultural system exists and functions in a natural habitat, amidst a variety of flora, fauna, a topography, altitude, and so on. No doubt, every culture is affected by its surrounding, however, the relationship shared by culture and environment is not that of one-to-one correlation by any means. The simplest example of this is the way abundant natural resources are put to different use and especially the way energy resources are utilized. Making use of water resources, fossil fuels, minerals etc. depends immensely on the degree of development of the culture of that region. From utilizing strategies and ways drawn from traditional/ local knowledge to advanced technology driven methods of producing and making use of resources in daily living, humans employ all available means to ensure their survival in the present. This tendency of humans to exploit natural resources by all available means and at any cost for their advantage has started showing signs of trouble for the surviving as well future generations of humans. There is growing evidence to show that the survival of humans in future is under threat due to this undue human interference with the system of environment.

Indeed, the relationship of humans with the nature has undergone tremendous change especially in the last 60- 70 years or so. It is true that industrial revolution began around some 300 years ago and we have witnessed gradual increase in our impacts on the earth (Turner, et al, 1990). But what we have come to experience now is that even though the cause of climate change is localized, the impacts are too large and mostly experienced at global level. These impacts are felt even in areas which may not be responsible for the cause. Moran (2006) argues that as a species we think and act locally except that for the first time in human evolution, we have begun to have a cumulative impact that is not just local but global. One of such impacts is the global warming due to greenhouse effect. Giddens (2009), reports that the average world temperature has increased by 0.74 degrees since 1901 and that the evidence shows, however, that at no time during the past 650,000 years has the Carbon dioxide content of the air been as high as it is today. It has always been below 290 ppm.

Can we control emission of Greenhouses Gases?

Oil, gas and coal, are all fossil fuels, and importantly responsible for large scale emission of greenhouse gases- the cause of global warming. The only way to reduce greenhouse gases emission is either to make these fossil fuels less polluting, or reduce or dependence over them till we find alternate sources of energy. The technologies required both to reduce our carbon emissions and to some extent meet energy needs through alternate sources include wind, wave and solar energy, hydroelectricity and thermal power. One other way is to think of reducing the energy consumption by changing the habits and lifestyle which would essentially mean curbing habits of energy use and it would mean less industries, fewer or no gadgets that consume high energy, less motor vehicles, or may be no SUV's on roads that run on fossil fuels. And this seems quite unthinkable in contemporary era, simply because with urbanisation increasing manifold and the number of consumer's dependent for goods and services ever increasing, we may very well exhaust the fossil fuels as well very soon. If we go to the annals of history, we find that the industrial revolution in its country of origin, Britain, initially was fuelled by coal – and later on by scientific and tech-

nological discoveries which turned coal into a dynamic energy source. If we go a bit further back to early eras of man on this planet, burning wood was the prime energy source, but over a period of time by the mid seventeenth century this gradual shift from wood, which was running out as a source of fuel to sooty coal entailed a lot of changes in the habits. However, gradually, this changeover of energy source brought a major shift in the habitation pattern of humans in terms of, whole new way of life based on cities and machine production.

Environmentalism

The term 'environmentalism' typically refers to a concern that the environment needs to be protected, especially from the harmful effects of human activities. Environmentalism thereby is expressed in many ways. We may have public organisations, Academia, civil society members creating awareness and advocating the cause of environmental protection, policies of the state to protect the environment, and also the environmental movements involving largely the local people affected by some form of environmental damage. The environmentalism debate seems to be engaged in commercial exploitative use of natural resources verses the sustainable or conserve energy approach. Such kind of a contrast brings to fore an impression, among environmentalists, that non-industrial people live in harmony with nature (Ellen 1986, Rayner 1989) whereas industrial processes work against natural ones. Dobson (1990) also points that there is contention that it is industrialism that is the root cause of environmental problems.

The opposition between industrial and non-industrial relationships with the environment is neatly encapsulated in Dasmann's distinction between ecosystem people and biosphere people (1976:304). Ecosystem people are those who live within a single ecosystem, or at most within two or three adjacent ecosystems (such as people who live at the coast and use the resources of both land and sea). Dasmann included within this category traditional, non-industrial societies, and people who have opted, or been pushed, out of 'technological' society. According to Milton (1996) biosphere people are those whose way of life is tied in with the 'global technological system'. They use the resources of the whole biosphere: they may receive grain from America, beef from Argentina, coffee from Brazil, tea from India, electrical goods from Japan, oil from Saudi Arabia, cars from France, and so on. Therefore, the contrast between ecosystem people and biosphere people refers to certain level of responsibility towards environment. For ecosystem people the immediate environment is a matter of livelihood and survival. They are more concerned about actions and practices of way of living which may threaten their environment so that there is no crisis situation, in terms of resource depletion and above all, no threat to their immediate survival. On the other hand, biosphere people, if able to afford the resources do not have to bother much about the constraints in terms of material required for manufacturing goods and services to be utilized by them, simply because for them, needs can be met, even if resources have been exhausted at one place, another ecosystem may be able to meet fulfil their needs. Thus, the possibility of biosphere people, feeling the need to indulge in environment caring practices is on the lesser side, while the ecosystem people got no other choice, but to maintain a healthier relationship with the local environment.

Beginning of anthropocene

The members of international expert group called as Anthropocene working group,(AWG) after having worked for around seven years finally reported to the International geological Congress at Cape town South Africa on 29 August 2016 that Anthropocene-a geologic time interval first reported by chemists Paul Crutzen and Eugene Stoermer in 2000—is in fact real and is thought to have begun around 1950s. This recommendation of the expert group will be considered by the International Commission on Stratigraphy. The rapid industrialization, nuclear bomb testing, industrial agriculture, proliferation of plastic across the globe, domesticated chicken and many other human interventions seem to have altered the planet so much that the 11,700 year old Holocene is thought to be over. It is said that the earth entered into a new geological epoch around 195o's. There is growing evidence to suggest that the biological diversity on earth is being threatened with many species becoming extinct at a rapid speed, forests and vegetation are disappearing, the temperatures are rising and glaciers are melting at a considerable speed. Therefore, it is posing a direct threat to the human survival. Geologists think that the beginning of anthropocene,

at such a fast speed is unprecedented, as in the absence of human impacts on the planet earth from the twentieth century; it would have taken decades and even centuries to result into an epoch. Steffen, Grinevalds, Crutzen and Mcneill (2011) state that the climate change debate highlights the capability of humans to influence the environment and the human imprint on the global environment rivals some of the great forces of natures in terms of its impact on the functioning of earth.

The Anthropocene working group has held human activity responsible for this and listed the following evidence of the anthropocene: The extinction rates of animals and plants are reported to be pushed far above the long-term average and if the current trend continues unabated, 75% of species on earth may become extinct in the next few centuries. the rate of climate warming carbon dioxide in the atmosphere is also reported to be fastest for 66 m years, with emissions levels seeing an increase from 280 parts per million before the industrial revolution to 400ppm and rising today mostly due to use of fossil-fuels. The rampant use of plastic (roughly around 300m metric tonnes of plastic produced annually) is likely to leave fossil records for future generations. The use of fertilizers has resulted into high levels of nitrogen and phosphorus in the soil and this could be taken as evidence for the anthropocene. The scientists are apprehending that anthropocene reflects domination of collective human activities over the planetary functioning and this interference with the planetary system is severely impacting the climate control. And if we continue to interfere with the planetary system, this may cost us heavily.

Conclusion:

Scientists have been raising alarm about the urgent need to take steps to deal with climate change more effectively. However, given the seriousness with which the political leadership across globe responds, it seems climate change impacts are not taken too seriously. Andrew Glikson (2013), a palaeontologist, puts the blame on 'vested interests and fossil fuel lobbies at the same time holding the media barons responsible for hijacking public opinion and the politicians for lacking the will to tackle such issues. Werner Karuss (2015) argues that science and politics have established a dangerous relationship with science setting the political agendas and science based programmes creating own structures of knowledge and de-politicse deeply political problems such as climate change or sustainable development. James Ferguson (1994) refers to such science based programmes as "anti-politics machine".

Hans bear and Stoemer (2015, p: 2) prescribe the following for ensuring survival of humans on earth:

- Continual economic growth must be recognized as environmentally unsustainable
- A definitively clear-cut distinction needs to be made between "development" and "growth"
- Development should aim to provide wellbeing rather than just growth, and its success should be measured in terms of improvements in environmentally sustainable provision of adequate food, clothing, shelter, education and health care to everyone.
- In order to achieve environmental justice, which would appear to be a precondition for global cooperation on sustainability measures, there needs to be a redistribution of global resources to people in developing countries who are least responsible for environmental change, and are often also the least well equipped to adjust to it
- Sustainable human development should take into account variation in cultural values and knowledge around the world, both as an asset and as a potential impediment to sustainability programs
- Sustainable resource management and carbon pollution mitigation projects must integrate (rather than displace or marginalise) local and indigenous people and consider their needs and traditional rights.

Ulrich Beck (1999) argues that the way modernization in some sense, dissolved feudal society and produced the industrial society, it probably is now dissolving the same industrial society into a new form of society; what he terms as risk society. This risk society points towards hazards which are global. Thus, he is trying to make us aware about the role of modernization in making life more risky at global level. While Anthony Giddins in 2000 argues that we are now exposed to manufactured risks, which he thinks are the risks created by the impact of knowledge. To elucidate this point he, gives the example of global warming- a result of emission of chemical gases and fumes by industrial plants and automobiles. But at

the same time, his postulation does not endorse the view point that modernity is more perilous than, some high risk periods in the past. What is common between the risk society and manufactured risks is that generally people do not pass the judgments either in favour or against; rather the scientist community is the one to report, verify, and validate such risks.

Apparently, across globe there seems to be an increase in the number of these biosphere people in comparison to ecosystem people. Surely, the anthropological perspective offers a holistic view of, how the cultural development determines, the way Human – nature interaction takes place. One thing which seems to emerge from this analysis is that biosphere people, being dependent on the goods and services produced mostly far from their habitations may be going away from their local environments. There is a widening of the gap between them and their surrounding environment. The way ecosystem people interact with the environment for their sources of livelihood and sustenance (as primarily dependent on the local environments) may be different from the way biosphere people interact. For biosphere people, it is the price that matters and determines what people have or have not. This economic factor may create a difference in the way people think about natural resources and may be, have very little regard for the environment. This may be, because, for them, till they are able to get the supply of essential goods and services, it does not matter whether the farmers and produces get the return or not and whether the resources are in abundance or about to exhaust. No doubt, there has been a growing realisation globally that the extreme climatic conditions and impacts of global warming are not just acts of God rather these are results of human interference and exploitation of resources. But still the international summits on Global climate change have not made any headway, the carbon emissions have not come down, and infact, no concrete measures are being taken to seriously reduce the carbon emissions and take effective measures to protect the environment. Surely, there are fierce debates about the problem of climate change and now even on the evidence of anthropocene in the media, and various other forums, where the politicians, civil society activists, environmental activists, policy planners and scientific community members, and the other stakeholders engage with the scientifically produced evidence but very little seems to have happened beyond making some arguments. And as rightly put by Krauss (2015), in order to face the challenges of global climate change, there is a need to bridge the inequalities between the developing and the developed, the north and the south and the rich and the poor on the way to sustainable development. In brief, the need of the hour is a synergy in the global discourse on concern for environment and the global practice of equality and welfare of mankind through sustainable means.

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SAARC and Energy Security in South Asia

Dr. Bharti Chhibber

The main objective of energy security is to assure adequate and reliable supplies of energy at reasonable prices and in ways that do not jeopardise higher national values and objective. The 1970's oil crisis brought the issue of energy security to the forefront aggravated by the fast depletion of fuel wood as a source of energy. Today we are straining the Earth's carrying capacity i.e. the largest number of any given species that a habitat can support indefinitely. Part of this could be attributed to the process of modernisation. What is needed is environmentally sustainable economic growth. The need for energy security is an important dimension of SAARC that has environmental implications. In the South Asian region, significant infrastructural constraints, including inadequate provision of energy are major impediments for sustainable development. Ironically, there is abundance of energy resources within the region. However, the regional states have not been able to tap their full potential. Thus natural resources in the region can be shared to enhance energy security. Need is for political will to take steps in the direction.

Conceptualising Energy Security

The International Energy Agency (IEA) defines energy security as 'the uninterrupted availability of energy sources at an affordable price'. There are both long term and short term dimensions of energy security. 'Long-term energy security mainly deals with timely investments to supply energy in line with economic developments and sustainable environmental needs. Short-term energy security focuses on the ability of the energy system to react promptly to sudden changes within the supply-demand balance. Lack of energy security is thus linked to the negative economic and social impacts of either physical unavailability of energy, or prices that are not competitive or are overly volatile... Supply security concerns are primarily related to the economic damage caused by extreme price spikes. The concern for physical unavailability of supply is more prevalent in energy markets where transmission systems must be kept in constant balance, such as electricity and, to some extent, natural gas. This is particularly the case in instances where there are capacity constraints or where prices are not able to work as an adjustment mechanism to balance supply and demand in the short term.'[1]

However energy security incorporates divergent views for developed and developing countries. Developed states mainly interpret energy security in terms of managing the risks of a shortage of energy supplies or a partial or complete disruption of energy supplies.[2]

Developing states on the other hand see energy security as a holistic concept comprising issues of energy availability, access, affordability and efficiency. Availability, reliability, affordability and sustainability are major components o energy security. Availability constitute measures aimed at increasing the endowment of primary energy resources through domestic exploration and production; imports of primary energy resources from energy supplying countries. The reliability include measures targeted at increasing the resilience of the energy sector to the uncertainties of international energy markets owing to geo-politics, political instability in the energy exporting countries and threats to the energy supply chain from terrorist groups, natural calamities etc. The affordability is concerned with the issues related to energy pricing and equity demands. The sustainability deals with the negative environmental externalities arising from the energy system and highlights the need for its transformation and adaptation for addressing vulnerability on account of expected climate changes and increase in the frequency of extreme weather events.[3]

Energy Security in South Asia

Energy is one of the prime factors in socio-economic

progress in developing societies. South Asian are far behind developed states in terms of access to clean, reliable, and affordable energy, especially electricity. The power shortages and growing import of fossil fuels create energy insecurity in the region. The energy endowments of South Asia are limited and dispersed across the region, with large unexploited hydro-electric potential in some parts and growing dependence on fossil fuels in other parts.[4]

The need for energy security is an important dimension of South Asian security that has environmental implications. Energy is crucial for economic development and poverty reduction. Although Millennium Development Goals (MDG) does not explicitly talk of energy security but it is self evident that access to reliable and affordable energy is vital for the achievement of the MDGs. The SAARC Development Goals consisting of 22 goals & 67 indicators representing the status of social development in the country are regionalised adaptation of MDGs. Individual states especially in South Asia cannot protect themselves from these energy security threats alone. So, to deal with these problems, they should regionally cooperate.

SAARC and Energy Security

There are many issues plaguing energy sector in South Asia. 'Firstly, South Asian countries are confronted with the huge challenge of securing energy to sustain rapid economic growth and meeting the rising aspirations of the people. Secondly, the region is home to a huge population that lacks access to clean forms of energy. A large section of the population, particularly in rural areas lacks access to electricity and relies on the traditional use of biomass for cooking. With limited domestic energy sources, most South Asian countries are also highly dependent on energy imports, particularly crude oil, from other regions. The mismatch between energy demand and resource endowments in individual countries builds a strong case for energy cooperation.' [5]

Energy was one of the important areas identified by the Second Meeting of Planners for possible cooperation among the SAARC states. A workshop on 'Renewable Energy Resources' was held in Pakistan in 1986. In 1989, as a follow up to the decision of the ninth session of the Standing Committee, a meeting of experts in the field of Energy Modeling Techniques took place in New Delhi. One of the important recommendations of the Expert Group Meeting is that each member state drew up a list of institutions and agencies working in this area for circulation through the SAARC Secretariat so that an effective networking arrangement could be eventually set up for ensuring regular exchange of information and expertise.

The fourth SAARC Summit held in Islamabad in 1988 decided to commission a study on the 'Greenhouse Effect and its Impact on the Region'. The study shows that for SAARC countries the energy sector is the primary contributor of carbon emissions. The fuel source, however, varies between countries depending on the energy base of their economy. For example, in India coal is the major contributor to emissions; in Sri Lanka and Nepal it is biomass particularly fuel wood; in Bangladesh it is natural gas; while in Pakistan it is oil and gas. The study concludes that the largest impact will be on Bangladesh where there will be a 1.5 metre rise in the sea by the middle of this century. The rise is expected to inundate about 15.8 per cent of the total area of Bangladesh. As a result 13.74 per cent of the net cropped area and 28.29 per cent of forest area of the country will be lost. Similarly, in Sri Lanka, if the present trends in rainfall and temperature variations continue, there is likely to be change in the present boundaries of the agro-ecological zones with definite effects on agriculture.

The 12th SAARC Summit, Islamabad 2004 mandated SAARC Energy Working Group (SEWG) to conduct a study on South Asian Energy Cooperation including the concept of an Energy Ring. This would basically consist of transnational energy lines for trade in electricity, gas and oil. At its first meeting in June 2004, SEWG identified areas of cooperation and formulated an Action Plan comprising proposals largely on: a South Asia Energy Forum at Ministerial level for exchange of views on policy issues and cooperation; setting up of a SAARC Energy Centre; a regional study on options, benefits and constraints of energy trade; transnational energy lines (electricity, gas and oil); sharing expertise, know-how and training; feasibility of establishing a Regional Fund; promoting energy efficiency /conservation at

least cost; promoting cooperation on CNG use in transport; learning lessons from innovative projects in member states; and circulating an internet-based quarterly SAARC Energy Newsletter. During its second meeting at Islamabad, SEWG recommended the establishment at Islamabad of a SAARC Energy Centre (SEC) to work as a catalyst for economic growth and development by coordinating and facilitating integration of regional strategies and activities in the energy sectors of member countries through exchange of information, technology and expertise.

As envisaged by the 13th SAARC Summit, India hosted the South Asia Energy Dialogue on 5th March 2007 in New Delhi. Apart from the officials from the SAARC countries, experts from the field, academics, organizations dealing in the energy sector also participated in the dialogue process. This has ushered in a new era of involving experts and non-officials in an institutionalized manner in energy cooperation. The Energy Ministers of the SAARC countries met on 7 March 2007 in New Delhi under the Chairmanship of the then Union Power Minister, Shri Sushilkumar Shinde. He suggested the approach of developing country-to-country grid interconnections as building blocks for making feasible flow of electricity across the region. India has operational grid interconnections with Nepal and Bhutan. To expand this further, technical studies are underway on feasibility of grid interconnections with Sri Lanka and Bangladesh. Pointing out the dependency of the region on import of oil and gas to meet the energy needs, the Minister called for accelerated efforts for development of gas pipelines within the region and also from outside the region. It would enhance energy security and also facilitate energy trade in the region. India further expressed willingness to share the state of the art technologies in the energy sector with its neighbours.

The Energy Ministers in the third meeting held in Colombo, Sri Lanka, in January 2009, approved the concept of a South Asia Energy Ring. In the Sixteenth SAARC Summit held in Thimphu (2010), it was further decided to enhance cooperation in the energy sector to facilitate energy trade, development of efficient conventional and renewable energy sources including hydropower. The SAARC Regional Energy Trade Study(SRETS) was carried out with the assistance of Asian Development Bank.[6]

Recognising the potential benefits, SAARC, member countries' Energy Ministers in principle agreed on inter-grid exchanges. A Task Force has finalised a common template on technical and commercial aspects of electricity grid interconnection amongst the SAARC Member States. Expert Group on Electricity in its meeting held in January 2011 considered the Concept Paper on the Road Map for developing SAARC Market for Electricity (SAME) and concept paper on SAARC Inter-Governmental Framework Agreement for Regional Energy Cooperation. The SAARC, in its 17th summit, declared the formation of an Inter-governmental Framework Agreement for Energy Cooperation, and a Study on the Regional Power Exchange Concept and SAARC Market for Electricity.

During the 5th SAARC Energy Ministers meeting in New Delhi in 2014 which was held after a gap of three years, Shri Piyush Goyal, Indian Union Minister of State for Power, Coal , New and Renewable Energy has called for building SAARC power grid so that excess production of power in one region can easily be used to meet deficit elsewhere. In his inaugural address, Shri Goyal said "Rivers can flow only in one direction, but power can flow in the direction of our choice. I dream of a seamless SAARC power grid within the next few years. For example : Hydroelectric power generated in North East India could be transported via Bangladesh, India and Pakistan, on to Afghanistan or offshore wind projects could be set up in Sri Lanka's coastal borders to power Pakistan or Nepal. The possibilities are limitless". The minister further stated that the economic sustainability of SAARC region is pillared on energy security as 30% of the region's energy demands are met through imports. In order to resolve this, Shri Goyal advocated (a) Harnessing conventional and renewable sources of energy (b) building inter-connected transmissions grids and forging efficacious power trading agreements. SAARC is a robust market but constraints are primarily on the supply side as there are pockets where deficits persist, Shri Goyal said. He also offered the India's help to enhance production capacity so that member countries become exporters in the

region.[7] A plan to construct an ultra high voltage underwater HVDC line all the way to Sri Lanka is also in the pipeline. India also offered to set up a training programme for power professionals in the region. [8]

Ultimately, domestic energy crisis of individual member countries pushed them to sign a regional agreement. For example, although Nepal has abundance of hydropower potential it was facing power crisis. Similarly, Pakistan is also dealing with rising energy demands. In 2014 SAARC Summit, SAARC Framework Agreement for Energy Cooperation was signed. Article 12 highlighted that Member States shall, for the purpose of electricity trade, enable non-discriminatory access to the respective transmission grids as per the applicable laws, rules, regulations and applicable inter-governmental bilateral trade agreements.[9]

Energy Cooperation at Sub-regional/bilateral level

Currently, energy cooperation among SAARC members is occurring more at the bilateral level. India imports about 1416 MW of electricity from Bhutan and exports electricity to Bangladesh. India's cooperation with Nepal is in the form of construction of mega projects through private investments like the Upper Karnali power project.

Vast water resource of Bhutan remains untapped as it does not have a major domestic market for electricity. Till 1987, only about 3.5 MW electricity was generated in seven micro-hydel stations and another 10.5 MW in some diesel stations. First major hydro scheme is that of Chukha hydro power project on Wangchu river. India built and financed the 336 MW Chukha I project with an estimated cost of Rs 245crores. Sixty per cent out of this was given on grant basis and the rest as loan. Bhutan earns Rs360mn from power exports through this project. The success of the project has opened further avenues for cooperation in this field. India has agreed to purchase all the energy available for export. Transmission lines connect Chukha to the East Region Electricity Board in Kolkata. The Indian States of West Bengal, Sikkim, Assam, Orissa and Bihar share this power.

'Indeed, partly as a result of selling electric power generated by India, Bhutan now has the highest GNP per capita in South Asia. This contrasts with Nepal, where sharing water with lower riparian India is a contentious topic. The 1996 bilateral agreements between India and Bangladesh on sharing Ganga waters and between Indian and Sri Lanka on preferential trade and tariff reductions have already generated some prosperity and positive feelings.'[10]

In this way India provides technical and financial assistance to Bhutan in the development of hydro power. Bhutan exports about 1500 megawatts surplus power to India. The first ever Clean Development Mechanism benefits were realized by India-Bhutan hydro trade in 2010. India and Bangladesh have also signed a memorandum of understanding for export of power to Bangladesh. Likewise, four hydroelectric projects with an aggregated installed capacity of about 50 MW have been implemented in Nepal with assistance from India. The two countries have also signed an agreement worth US$ 1.04 billion under which a 900 MW plant will be built on the Arun River. India and Nepal can further enhance their cooperation as Nepal has hydropower potential of about 40,000 MW.

Hydro projects not only have the potential of meeting the energy needs of the region in a cost effective and sustainable manner but they also generate significant national income for the countries where hydro projects are developed.

Impediments to Cooperation

In the South Asian region, significant infrastructural constraints, including inadequate energy supply are major impediments for sustainable development. It is ironic that the region is facing energy crises when there is abundance of energy resources within the region itself including hydropower and natural gas which are cleanest forms of energy. Improved energy supply is critical to sustain economic development and improve social sector services. There is enough scope in the region to cooperate in the sphere of energy but the regional states have not been able to tap their full potential, being still prisoners of historical legacy, domestic political concerns and inward-oriented energy security policies.

However, in spite of the avenues not all projects are successful. With domestic politics taking its toll on the regional cooperation effort even environmental issues get embroiled in controversy. In 1997, Bangladesh's desire to import surplus power from Meghalaya was opposed by Begum Khaleda Zia, who, in her own time, had showcased import of certain vital commodities from India as one of the biggest achievement of her government. Similarly, Bangladesh export of natural gas to India got mixed up in domestic politics. Also recent tensions between Nepal and India may hamper further cooperation between the two neighbours.

Way Forward

It is significant that SAARC states cooperate to augment regional trans-border energy supply and facilitate integration of their energy markets. Electricity and gas inter-state connections, better infrastructure and proper legal, regulatory, and economic rules are essential requirements. SAARC Regional Energy Trade and Cooperation Agreement is a step in this direction. But it is still a long way to go. Participation of private sector will be highly beneficial for SAARC member states.

In South Asia, Nepal and Bhutan have major hydropower potential which can be tapped by proper financial arrangements, technical know-how and mutual cooperation. 'The electricity demand in South Asia is expected to grow rapidly. As the region as a whole has relatively small oil and gas reserves, the economic growth and stability of this region now totally depend on oil and gas import. Since, the environmental impacts of fossil fuel become apparent the future energy security totally depends on regional grid connected renewable energy resource...Grid connections between the SAARC countries could improve the political security situation in the region. Arrangements for the pricing of internationally-traded electricity, for example, could catalyze the improvement of political security, since pricing is generally based on information provided by both parties and on considerable negotiation. Trust and the extensive exchange of detailed information about generation, transmission, and distribution costs would be required for the fair trade of electricity. Through the pricing negotiation process, the political security between the trading countries may be improved. Other collaborative efforts for developing and modeling the power grid infrastructure and implementing power exchange procedures and protocols could potentially also serve to render the regional political situation more secure.' [11]

The SAARC region is home to about 23% of the total world population with large number of poor households. The energy demand in the region is expected to grow at an annual rate of 5%, both for household and industry sectors. In the field of energy major problems include energy deficits, import dependence, and lack of requisite energy infrastructure. Augmenting the energy supply and diversifying the fuel basket requires inter-and intra-regional energy trade. Under the circumstances it is imperative to augment energy availability.

'Regional cooperation provides an ideal opportunity to enhance sustainable growth by means of developing and sharing resources as a region, minimizing suboptimal development of these resources confined to national boundaries. In the context of the energy sector this is particularly applicable to the South Asia region where there is vast potential in underexploited renewable energy sources such as hydropower, wind power, and solar power. Such cooperation in the energy sector will help countries to strengthen national energy security, reduce the costs of energy supplies, and minimize adverse impacts from energy price volatility.' [12]

As highlighted earlier, in the energy sector, presently India and Bhutan, and India and Nepal are engaged in electricity trade. Further India import and refines crude oil and export petroleum products to Bhutan, Nepal, and Sri Lanka. India is also exporting diesel to Bangladesh. India and Nepal have also agreed to construct a 40-kilometer pipeline to transport petroleum products from India to Nepal. With the assistance of ADB an electricity transmission interconnection of 500 megawatt capacity between Bangladesh and India is also under implementation.

The SRETS has recommended some measures to facilitate intra-regional energy trade in the SAARC region. It suggested a Regional Power Market. The present bilateral trade arrangements can result in multilateral trade arrangements which will

promote electricity trade in surpluses reducing shortages. South Asian states may further cooperate to set up a state-of-the-art regional refinery to accommodate a range of crude oils, to meet the petroleum products demand of the region. It also recommended joint ventures on Regional Liquefied Natural Gas Terminal and Regional Power Plant which can provide benefits of economies of scale from terminal size and bulk LNG procurement and imported coal. Non-conventional Renewable Energy is another area where institutional arrangements and technological innovations should be strengthened. SRETS also called for private sector participation especially in the development of hydropower resources and associated power transmission.

SRETS highlighted some feasible energy infrastructure projects that can be considered for implementation within a 5-year period include (i) an India–Nepal oil product pipeline, (ii) an India–Nepal power interconnection from Dhalkebar to Muzaffarpur (preparation for implementation is already at an advanced stage), and (iii) an India–Pakistan power interconnection from Patti to Dinanath. It also recommended projects which can be implemented in a 5–15 year period: (i) India–Sri Lanka power interconnection (feasibility study is being carried out jointly by the governments of India and Sri Lanka), (ii) India–Nepal power interconnection from Gorakhpur to Butwal, (iii) Central Asia–Afghanistan–Pakistan power transmission interconnection, (iv) Iran–Pakistan–India gas pipeline, (v) Myanmar–Bangladesh–India gas pipeline, (vi) Turkmenistan–Afghanistan–Pakistan–India gas pipeline, (vii) Expansion of the regional power market, (viii) Establishment of a regional crude oil refining facility and creation of an SAARC strategic petroleum reserve, (ix) Establishment of an LNG terminal for the region and associated natural gas distribution facilities, and (x) Establishment of bulk power generation for regional consumption. [13]

Sustainable development and energy are innately linked. Continues energy supply is important for economic development, livelihood opportunities, reducing poverty and facilitating basic health and education services. Renewable energy and efficient use of conventional for the mitigation of the negative environmental impacts.

As India has taken a lead in crude oil refining in the region, trade in petroleum products from India to other South Asian countries can be further enhanced. Already Indian Oil Corporation Limited (IOCL) has an overseas venture, Lanka IOC Plc, in Sri Lanka. Lanka IOC holds one-third share in Ceylon Petroleum Storage Terminals Ltd. Similarly, Bhutan's petroleum requirements are taken care of by Indian exports. Likewise, under a five-year contract signed in March 2007 between Nepal Oil Corporation Ltd. and Indian Oil Corporation Ltd., Nepal's complete petroleum products requirement which is about 11% of total energy consumed, is sourced from India. Also an MoU has been signed by the two companies for the construction of a cross-border pipeline for petroleum products trade from IOC's Raxaul depot to NOC's depot, Amlekhgunj. Moreover as Mahendra Lama points out, seasonal complementarities in power production can boost the energy trade in the region. High demand season in one country coincides with a season of energy surplus in another. Hydropower from Nepal and Bhutan can potentially meet the high demand for power in India and Pakistan during the summer monsoons, while Nepal can import base load capacity during winters when the flow in the rivers is low.[14] Indian thermal power generation has been mostly designed to match and balance the lean dry months created by the hydel plants in winter and the pre-monsoon season; the same can be designed to account for fluctuations in Nepal and Bhutan as well.[15]

Conclusion

Coal is India's most abundant indigenous energy resource, supplying over half of India's total energy demand. India imports coal to meet only 20 per cent of its total energy demand, but it must import approximately 60 per cent of its oil. With the increase in South Asian region's dependence on imports of petroleum products, pressure will further increase on their foreign exchange reserve.

Full and proper exploitation of unharnessed and untracked natural resources like in Bangladesh which has large deposits of natural gas, exploitation of hydel resources in Bhutan and Nepal offers a way out through regional cooperation. As an earlier report highlighted, 'Amongst the best sources of hydropower are multi-purpose hydel projects. These yield irrigation,

region. It is very important that the agreements are implemented more so in the case of SAARC. Side by side bilateral dialogues should be encouraged and so is the role of NGOs. Enhanced people to people contact play a vital role in today's environment.

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The Cognitive Dimension of Climate Change and Sustainable Development

Dr. Prashant Khattri

Introduction

The dominant discourse linking environment and development is that of 'antagonism'. It is believed and established on the basis of evidences that environmental degradation is a result of un-limited developmental activities in the form of increased energy consumption. The model of economic development that is based upon the formal approach to economy is based on the premise that resources are limited and the needs of people should be met in such a way as to make sure the optimum utilization of resources. This model is also based upon profit maximization and the law of increasing return. It has been argued that such a model is an anti-thesis to the idea of sustainable development. The interlinking of environment and development can be visualized as environment providing the necessary base and a backdrop for developmental activities. Development is for the population but is acted upon the environment. In this sense environmental impact of various developmental activities needs to be seen as environment provides the buffer for the developmental activities.

This confrontational view linking environment and development is however challenged by Jean Dreze and Amartya Sen (2002). The perspective on development put forward by Dreze and Sen (2002) visualizes development as freedom. It is a capability approach to development where development is measured in terms of the quality of life and enhanced capacities and freedom of choices available to the people. In this sense development and environment are complementary to each other. When development is seen as better health and educational facilities for the people then the idea of a sustainable environment is engrained in the concept. In this perspective development is seen as being sensitive to the quality of the environment. The 'quality of life' approach to development forms the basis of the idea of sustainable development as defined in the Brundtland Report published in 1987. Here sustainable development is defined as 'development that meets the need of the present without compromising the ability of future generations to meet their own needs.' Robert Solow has refined this definition and defined sustainable development in terms of standard of living. Solow suggests that a development is sustainable when the present generation is able to maintain a standard of living and leaves resources for the next generation that they can maintain their standard as good as the present generation. Dreze and Sen (2002) have argued that Solow's conception of sustainable development can be broadened by emphasizing on not what we 'enjoy' in terms of standard of living but by emphasizing on what we 'value'. In this context 'value' becomes an integral part of development. What we value, to a very large extent is determined by development itself. Valuation in this sense is a developmental process. In this sense environment and developmental process look complementary to each other. Development itself defines our values and aspirations. Why we value one thing over the other, then becomes a developmental issue.

The developmental discourse in the international arena in relation to the environment took a turn for good in the 1990s when the United Nations Development Program started publishing the Human Development Reports. Within this context development was visualized as not merely the economic development but an overall growth of people in terms of their opportunities to health and education and gender equality. Such a view of development aims at increasing the capabilities of people and making them resilient to different stressors in the society and environment. It is within this context that Dreze and Sen (2002) are visualizing the complementarities between development and environment. However, it is also a fact that the capitalist model of economic development fails to translate economic development into human development as its main goal is profit maximization of few at the cost of others and the immediate

environment. Capitalism, as projected to be the ideology linking production with improved quality of life, failed to bear the desired result. The contemporary form of capitalism denies people access to resources and therefore makes them vulnerable. It is true that people involved in the production of goods and services are themselves unable to consume it. Production happens at one place and its consumption at the other. This redistributes access to resources and hence contributes towards regional vulnerabilities. Secondly, capitalism and its associated developmental processes are dependent upon the 'biosphere' and manufacture 'biosphere people' with global desires. This leads to a desire to have control and access to various natural resources in the world. This requires military with sophisticated and expensive technology. A lot of revenue generated out of production in the capitalist systems goes for the maintenance of the military. This is a hindrance in translating production into improved quality of life and reduced vulnerabilities (Wiser, 2003).

Another aspect of complementarities between environment and development that are highlighted by Dreze and Sen (2002) pertains to the fact that environmental protection is engrained in the process of development. This means that it is within the scope of human capabilities to develop technologies suited for environmental protection. Human interventions in the form of development can be used to conserve environment. This understanding is however based upon the dichotomy between human and the environment. This dichotomous understanding is a product of the western discourse on human-environment relationship. Western philosophers in order to understand the nature of human society and humanity visualized humanity in opposition to nature. Nature was seen within the backdrop of culture. Humanity and human society was equated to culture as opposed to the raw and violent nature. Nature was visualized as something on which culture must act for bringing order in the society. The underlying assumptions regarding the human-environment system is essentially dualistic in nature. The duality and dichotomy between human and the environment is inherent in the western ecological paradigms. This largely shapes the human actions towards its environment. With the realization of environmental degradation and the resulting hazards of uncontrolled human development, a counter narrative of sustainable development emerged that talked about how we can use the environment by not compromising the resource base of the future generations. This has led to a situation where we have become more cautious about the environmental impacts of human actions. Safeguarding nature from the ill-effects of human action on environment has become the key response strategy. The solution to environmental degradation is thought to be in synchronizing the human actions vis-à-vis environment. However, scholars have argued that such a strategy, although cannot be questioned owing to the spirit of environmental protection envisioned in it, is fundamentally flawed in that it visualizes the human-environment system as dichotomous in nature. This is a dualistic view in which environment is thought to be something which is 'out there' on which human beings need to act (Oliver-Smith, 2004).

Development and Climate Change

It is now a part of the collective consciousness that climate change will be detrimental to the process of development. The scientific evidences point to the fact that the idea of unlimited economic growth will lead to degradation of the climate in the form of increasing temperatures, erratic monsoon, extreme heat and melting glaciers resulting into mass flooding of the earth surface. Development itself is a very relative term. Although we talk about development in a very generalized sense but in reality the goals of development and its benefits are unevenly distributed across the globe. There are countries that are developed and countries that are underdeveloped or still in the development phase. This renders people in the developing countries more vulnerable to the shifts in the climate. One the one hand un-interrupted development has led to visible shifts in global climate, on the other hand climate change or the global climate shifts threaten to reverse the development gains. "Changing temperature and precipitation averages and a more variable, unpredictable, or extreme climate can alter today's yields, earnings, health, and physi-cal safety and ultimately the paths and lev-els of future development. Climate change will affect numerous sec-tors and productive environments, includ-ing agriculture, forestry, energy, and coastal zones, in developed and developing coun-tries. Developing economies will be more affected by climate change,

in part because of their greater exposure to climate shocks and in part because of their low adaptive capacity. (World Development Report, 2010; 40)." It has been estimated that variations in the climate leading to unpredictable and erratic rainfall will affect the agricultural sector in a big way. This estimation calls for concerns by those countries including India which are dependent to a great extent on agriculture as it is in this sector that most of the workforce is employed. According to the World Bank estimates in 2010, due to climate variability, yields of major crops in India will decline by 4.5 to 9 percent in the next three decades. Such an estimate is important in the backdrop of food security and poverty in a country like India. Ensuring food security and reducing poverty levels is something that is projected as the main goal of developmental initiatives and interventions.

The health of the people is also adversely affected by climate change. "As temperatures rise, the number of people exposed to malaria and dengue will increase, with the burden most pronounced in developing countries. The incidence of drought, projected to increase in the Sahel and elsewhere, is strongly cor-related with past meningitis epidemics in Sub-Saharan Africa. Declining agricultural yields in some regions will increase malnu-trition, reducing people's resistance to ill-ness. The burden of diarrheal diseases from climate change alone is projected to increase up to 5 percent by 2020 in countries with per capita incomes below $6,000. Higher temperatures are likely to increase cardio-vascular illness, especially in the tropics but also in higher-latitude (and higher-income) countries—more than offsetting the relief from fewer cold-related deaths (World Development Report, 2010; 41)."

In his foreword to the World Bank's (2012) Report titled "4°: Turn Down the Heat: Why a 4°C World Must be Avoided", Jim Yong Kim, a physician-anthropologist has mentioned that "The lack of action on climate change not only risks putting prosperity out of reach of millions of people in the developing world, it threatens to roll back decades of sustainable development (as quoted in Baer and Singer, 2014: 83)." The critical environmental anthropologists have observed that a lot of literature has been produced linking development and climate change by agencies that are involved in climate change negotiations and have mandate towards mitigating the impacts of climate change, but there lies a contradiction between what is mandated and the action taken on such mandates. James Trostle (2010), a critical anthropologist of climate change has argued that, there is a basic contradiction between what World Bank preaches in the context of climate change and what it exactly do to reduce and mitigate its effects. According to the World Bank's World Development Report 2010 which was titled "Development and Climate Change", the World Bank stated the following:

1. Poverty should be reduced and development should be sustained as climate change will have negative impact on both.
2. Climate change should be addressed most urgently because it threatens all the countries and especially the underdeveloped.
3. Issue of climate change cannot be resolved only through economic growth.
4. A global climate deal is the need of the hour.
5. There has to occur a change in the behavior and public opinion in order to implement new policy initiatives at local, regional, national and international levels.

Trostle observes that "while many World Bank-sponsored development projects in developing countries, such as large-scale fossil fuel power plants, are contributing to greenhouse gas emission, the Bank's report fails to acknowledge its role in increased emissions (as quoted in Baer and Singer, 2014: 82)."

Climate Change and the Attribution and Behavioral Issues

It is evident that agencies that preach and aim at mitigating climate change impacts themselves do not subscribe to their own remedies. It is in this context that it becomes imperative to visualize that what stops various stakeholders to take action. One answer to this question lies in the 'cultural discourse on climate change' or the interpretive discourse where policy and its implementation logjams are explained on the basis of differing worldviews regarding the cause of climate change. Once differing causes are established, different solutions are presented to mitigate its effects. It has been argued mostly by the developing countries that climate change has been accelerated as a result of un-mitigated greenhouse emissions by the developed world. "Climate change

according to this viewpoint is a result of indiscriminate use and consumption of resources by developed countries of the northern hemisphere. Such a consumption and production pattern has led to overutilization of resources and hence climate change (Joshi and Khattri, 2015: 21)." Attributing climate change to the northern hemisphere calls for a solution primarily from the developed countries in terms of reducing greenhouse gas emissions and changing the consumption and production patterns.

A counter-narrative originates in the northern hemisphere mostly in the developed countries that visualizes climate change as a result of unchecked increase in population in the developing countries that is in-turn putting more pressure on the natural resources and calls for bigger volumes of production and consumption patterns. Attributing climate change to the developing countries calls for efforts from these countries to undertake measures to reduce population pressures and also better management of the natural resources.

It is due to these issues that a lot of conflict is generated at the climate negotiation tables and countries and continents take their own time in implementing the demands of the international policy making process. Thompson (2003) states that "..conflict in policy making process is endemic, inevitable and desirable, rather than pathological, curable or deviant. Any policy process that does not take this into account does so at the risk of losing political legitimacy.....We have seen that each story tells a plausible but selective story. Any policy response modeled solely in terms of just one or two of these tales will be, at best, partial and at worst, irrelevant (pp- 5111)".

Scholars have visualized climate change as a cultural issue that is linked to the way we think and act. The non-material dimension of culture is the ideological dimension that envisages the cognitive maps and information processing models that are culture specific. Viliui Sakha has argued that "global climate change-its causes, effects, and amelioration-is intimately and ultimately about culture. It is caused by the multiple drivers of Western consumer culture, it transforms symbolic and subsistence cultures and it will only be forestalled via a cultural transformation from degenerative to regenerative consumer behavior (as quoted in Baer and Singer, 2014: 68)." The cognitive dimension in the context of environment is also visible in the Dreze and Sen's assertions that what we value is a developmental issue. The dominant paradigm of capitalist development has made us value certain things over the others. This has important consequences for environment and climate change. The cultural interpretive perspective of climate change in anthropology is guided by the cognitive turn in the discipline. Within this paradigm, the logico-mathematical models of the community are understood in order to reach an objective understanding of the culture itself. The emic or the insider's perspective holds much importance in understanding cultures. This paradigm when applied to the issue of climate change tries to locate people's perception and their understanding about their climate and the issue of shifting global climates. Under the rubrics of such a perspective, Strauss (2009) has tried to understand that what it means to people that climate is changing. She worked in the Leukerbad in the Swiss Alps and asked people that what it means to them when they hear that due to climate change their glaciers are melting and stored water getting disappeared. She found that most of the people were quite complacent regarding the entire issue of climate change as they thought that they are capable of dealing with the situation and whatever will happen in the form of catastrophe as a consequence of climate change is nothing but God's will. Strauss observed that "inherent in these attitudes is a fatalistic sense people have that nothing preventive can be done (as quoted in Baer and Singer, 2014: 67)."

Challenges in Responding to Climate Change: The Cognitive Dimension

This brings us to understand the attitudinal and behavioral challenges that are present in the context of responding to climate change. The World Development Report 2010 talked about three kinds of inertias as challenges in responding to climate change. They are-

1.The environment itself. It is estimated that even if we are able to contain the temperature rise in the next 100 years the global climate is expected to rise because it will still respond to the earlier climate change.

2.The physical capital. It is a challenge to invest in clean and green technology by replacing the existing polluting technology.
3.The behavior of individuals and organizations. People are engaged in high-carbon behavior. The developmental model has made them accustomed to a particular lifestyle which is energy intensive and in-turn detrimental to the climate. Political parties tend to garner votes by promising fuel subsidies which in turn leads to high carbon infusion in the air.

It is with the third challenge that this section is concerned. Processing complex information related to climate is a key factor in responding to the needs of climate change. It has been argued that making sense of the immediate climate and weather events is dependent upon the memory of people about climatic events. However, it is a fact that climate change cannot be understood in this manner. To get hold of the issue of climate change requires analytical thinking and mere automatic and associative thinking is not helpful in realizing the effects and impacts of climate change. Climate variations over a 30 year period can be analyzed using computer models and data sets. This is not possible with personal memories and conversations. "Because analytic thinking is hard and attention is costly, people tend to use mental shortcuts to evaluate the evidence on climate change and its risks (World Development Report, 2015: 161)." Extreme weather conditions are visualized at a very discrete level although they are a part of the larger phenomenon of climate change. Scholars however have warned against such understandings as is evident in James Hanses's (2012) statement- "Our analysis shows that it is no longer enough to say that global warming will increase the likelihood of extreme weather and to repeat the caveat that no individual weather event can be directly linked to climate change. To the contrary, our analysis shows that, for the extreme hot weather of the recent past, there is virtually no explanation other than climate change (as quoted in Baer and Singer, 2014: 13)."

"A key obstacle to action on climate change is the fact that human beings focus intensely on the present and discount concerns perceived to be in the far-off future, such as climate change risks (World Development Report, 2015: 165)." Coupled with this the self-serving bias also plays an important role at the international climate change negotiations where the concept of 'fairness' regarding climate deal is the biggest obstacle in reaching a consensus or implementing the negotiated frames. It is very difficult to reach at the standard of 'fairness' acceptable to all the stakeholders. "Efforts to identify an international standard of fairness are complicated by the widespread human tendency to select principles of fairness that happen to coincide with one's interests (World Development Report, 2015: 166)."

Ostrom (2014) has argued that the information and communication regarding climate change has shaped the way people perceive the issue and in-turn this affects their attitude and action. The issue of climate change for most of its part is projected as a global issue with multiple stakeholders negotiating at the international level. The media thus projects the issue as something which will only be resolved if all the stakeholders will come together at an international platform at the highest level of their governments. This makes people reluctant to act at the individual level. They could not realize that their efforts can make difference in this regard. People and politicians at the local level sometimes cannot see that efforts at the local level can be helpful in mitigating climate change effects.

It has also been argued that attaching too much negative thinking with the issue of climate change and making it a problem requiring very serious scientific efforts lower the motivations of people to act. People tend to become less motivated if they feel that the problem at hand cannot be resolved with their meager efforts and resources. "It has been argued that when people face risks of unknown magnitude (ambiguous risks), they tend to avoid making decisions (World Development Report, 2015: 165)."

Conclusion

This brings us to conclude that the issue of climate change is intricately linked with the issue of sustainable development and cognitive dimensions play an important role in responding towards the issue of climate change and sustainable development. The need of the hour is not just going to international forums and bringing out detailed scientific documents regarding climate change but the time has come to

act decisively at the local and community level to resolve and mitigate effects of climate change. Understanding climate change in the cognitive backdrop takes our attention to the issue of cultural norms and their roles in information processing. It has been argued that political and cultural worldviews also affect the responses towards issues of climate change and sustainable development. People who are more individualistic that is who are for least governmental controls and more individual freedoms tend to respond less to mitigate climate change effects even if they have necessary scientific information regarding the issue.

The issue of climate change needs to be addressed more at the local level. There has to be balance between the local and the global efforts. The cognitive dimension points to the fact that there are local/cultural/specific issues that tend to shape our attitude and behavior towards climate change and development. The need of the hour is therefore to realize and address such issues and bring about a change in the behavior of people in order to reach desired global goals.

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Climate Change and Sustainable Development: Questioning the Culture of Consumption

Dr. Khirod Chandra Moharana

Introduction: Climate change as symptom of unsustainability

Earth's climate has been changing throughout various geological eras and the process is ongoing even today. The uniqueness of present climate change is the speed with which it is changing. It has been estimated that earth's average surface air temperature has increased by about 0.8°C since 1900, with much of this increase taking place since the mid-1970s[1]. Other evidences like dramatic decrease in the extent of Arctic sea ice, decrease in spring snow cover in Northern hemisphere, and increase in sea-level in a comparatively small time period testify the pace of climate change. What happened to this planet in this period of about hundred years? Is this change natural or manmade? According to the Intergovernmental Panel for Climate Change most of the evidences point towards an anthropogenic cause for increase in the global temperature in the last one hundred years.

What did human society do in the last hundred years which created such massive impact on our climate? Reports show that since the mid-1800s till 2012 the Carbon Dioxide (CO_2) concentration in earth's atmosphere and in air trapped in ice has increased by about 40%. Carbon dioxide is the greenhouse gas which maintains the earth's surface air temperature. According to a joint report by Royal Society of London and US National Academy of Sciences, this increase in the concentration of Carbon dioxide is due to human activities[2]. This is evident from the measurement of different forms of carbon (isotopes) on earth's surface. Evidences like this attempt to show that the recent change in the global climate is a result of increase in the carbon dioxide concentration in the earth atmosphere. This, in turn, is caused by increasing industrial activities based on burning of fossil fuel. The question, now, may be asked, why do we burn fossil fuel in such massive scale? Is it related to the way we produce and consume in today's world? The only reason that can explain the burning of fossil fuel in large quantity is a drastic change in the nature of our system of production and consumption. This is where consumption can play a crucial component in the study of climate change.

Climate Change and Sustainable Development

Climate change indicates that human society is moving on a path which is unsustainable. The type of consumption and production system that we are following is converting the earth unlivable. If the present rate of greenhouse gas emissions continues to exist then it won't be too far in future when our planet will be life-less. Sustainable development is urgently required for our planet to address the problems associated with climate change.

Sustainable development is defined by the World Commission on Environment and Development as "Development that can meet the needs of the present generation without compromising the ability of future generations to meet their own needs" (WCED, 1987). The idea of sustainable development recognizes the limitations of economic development and proposes a model which can ensure economic growth, social equity and environmental protection simultaneously.

Various world summits have recognized the link between climate change and the need for sustainable development. The international political response to climate change began at the Rio Earth Summit in 1992 which set out a framework for action aimed at stabilizing atmospheric concentration of greenhouse gases (GHGs) to avoid "dangerous anthropogenic interference with the climate system". The 21st session of the Conference of the Parties (COP21), held at Paris in December 2015, adopted Paris Agreement which aims at keeping global temperature rise for this century well below 2 degrees Celsius. Other international platform such as the 2030 Agenda for Sustainable Development identifies climate change as "one of the greatest challenges of

our time" and recognizes that "its adverse impacts undermine the ability of all countries to achieve sustainable development" (UNDP, 2016).

The 2030 Agenda has emphasized on the need of sustainable production and consumption practices. Paragraph 28 of the Agenda says "We (Countries) commit to making fundamental changes in the way that our societies produce and consume goods and services. Governments, international organizations, the business sector and other non-state actors and individuals must contribute to changing unsustainable consumption and production patterns, including through the mobilization, from all sources, of financial and technical assistance to strengthen developing countries' scientific, technological and innovative capacities to move towards more sustainable patterns of consumption and production" (ibid)

Apart from various innovative practices for creating sustainable consumption and production pattern, we also need to understand the nature of modern "needs". For achieving sustainable consumption we need to understand why we consume what we consume today. There is a need to examine the history of human consumption to understand why there is a surge in the amount of energy and resources that we consume today.

Questioning Consumption

What happened to human consumption in the last one hundred years which eventually triggered climate change? What has happened in this period which is responsible for the emission of greenhouse gases in such massive scale? What is the new feature in human consumption in the last 100 years which was non-existent before? The most plausible answer is the increase in the amount of energy and resources that we consume today.

Consumption of resources and energy is basic to our survival. We have been consuming natural resources for our survival since the time we first appeared on this planet. Archaeological evidences show that consumption of material items is not a new feature in human culture. But what differentiates the contemporary consumption pattern is the amount and varieties of material items that humanity has started using. In fact the scale of consumption is what distinguishes modernity from earlier cultures. Rousseau (1950) argued that people in earlier times got their satisfaction from sociability, and had few needs which were easily satisfied. But in modernity there were plenty of needs and each day the number is increasing. The system of production has accordingly become modern and highly sophisticated.

A socially embedded economy determined the pre-modern consumption pattern. Anthropologists have argued that people in pre-modern societies had organized their economic lives based on circulation of goods through gift-giving and reciprocity. There was no market economy before modern capitalism (Polanyi, 1957) and the socially embedded ways of goods circulation restrained individual desire to accumulate. Pre-modern people consumed material items without being "consumers" in the sense the word is used today. This is due to the fact that the goods used in earlier societies had religious, magical and ritual meanings and rarely had "utility". Consumption of material items always has been socially determined. Only the elites of the society used most of the manufactured items in the past. There are scholars who recognized global trade of precious stones, spices, jewelry and other exotic material items among distant societies even in pre-modern times (Wolf, 1982). But neither the consumption nor the production of these material items was mass-based. The powerful and wealthy sections of the society in pre-modern era consumed these exotic material items. The pattern of consumption has witnessed drastic changes through various periods of the development of culture. Rather than being static and determined by biological needs, consumption expanded, changed and multiplied for thousands of years.

It is the emergence of capitalism when people started to invent entire categories of material culture, and eventually settled down in permanent homes where they could accumulate possessions and pass them along to their descendants (Wilk, 2004). Capitalism emphasizes private ownership, competition, profit and marketing. This has changed the meaning and relevance of consumption in society. The two events in the recent world history which have contributed substantially in shaping human consumption are Industrial revolution and Fordism. It is industrial revolution which paved a new way of

producing and consuming material items which is different from traditional consumption. Industrial revolution created the possibility for manufacturing goods with the help of machines and hence more goods were produced in comparatively less time. The process of producing material items witnessed another crucial development when goods were started to be produced in assembly lines popularly known as Fordism. Fordism enabled producing manufactured items in plenty which was an economic wonder at that time. It eventually led to a need for inducing more consumption so that the produced goods can be sold. This is termed as consumerism where more consumption is desired and designed by various sectors of economy. It is supposed that consumerism is required for the economy to run efficiently. Thus the era of mass production and mass consumption of material items began in the human history.

The transition from consumption to consumerism was realized with known and unknown environmental cost. Industrial production and mass consumption is linked to the substantial increase in the amount of greenhouse gases in earth's atmosphere. This is the one thing which happened in global scale in the last century. Various researches have shown that the industrial activities linked to mass production and mass consumption of material items is directly linked to the emission of greenhouse gases to the atmosphere. Thus, rising consumerism propelled by global capitalism is connected causally to climate change.

Now that we can see a causal relation between rising consumerism and climate change, it leads us to our next question about how consumerism works. In fact to achieve the goals of sustainable development we need to understand the functioning of consumerism. How the sudden surge in consumption was made possible? Are we consuming according to our genuine needs? There is a need to look into the new "necessities" that are created today. There is also a need to examine the ways our consumption is mediated by new notions of life, health and necessities.

Now let us look into a very obvious reality today about the increasing number of material goods that we use. Do we need such numbers and varieties of material items for our consumption? Why there is an upsurge in human need and choices today? Is there any real increase in the human needs in true sense of the term in the last hundred years? The subsequent section examines such questions and argues that the contemporary human consumption is linked to the satisfaction of human needs or choices manufactured by the global forces of capitalism.

Consuming constructed needs

To understand why there is an exponential increase in the types and numbers of material items we use today, we need to examine certain events in the recent world history. The transition from human consumption to consumerism in the last hundred years has been accompanied with a continuous effort to redefine human needs. In this section an attempt will be made to argue that the rising consumerism is based on constructed notions of human needs, comfort, necessities, hygiene, health etc. Rising consumerism witnessed a rising need to create new notions of realities before the consumers. The consumers needed to be (re)educated about their needs. The responsibility to re-educate the consumers was vested on the manufactures of innumerable products. The imparting of this education was possible through images of new lifestyles and trends created with the help of media, television, films, digital gadgets, celebrity endorsement and other similar ways. The entire process was dominated by commercial and economic interest.

The world economy today is performing two interrelated crucial functions which can be argued to be responsible for rising consumerism. The first is mass production and the second is the process of creating a stable base for mass consumption. The economy functions on such principles that it produces more and wants people to consume more. Based on mass production and mass consumption the modern economy is supposed to successfully continue. With the help of media and advertisement the dominant economy of today's world has been able to redefine human needs and comforts. This involves a complex interplay between consumption practices, identity and constructed reality.

As human beings we have some needs which are required to be fulfilled to live on this planet.

Through the process of consumption we satisfy these needs. However, consumption has witnessed far-reaching changes along the history of human culture. Earlier in this paper it has been shown that consumption has witnessed a gradual transformation to consumerism along the history of human culture. This section examines how consumerism works. To understand the mechanism of consumerism we need to delve into the recent history of world economy.

The modern consumption can be traced back to the origin of capitalism with its epistemological premises such as individualism and utilitarianism. Earlier it is discussed that industrial revolution and Fordism accelerated mass production. These two processes made it possible to produce goods in plenty. Now there was a need felt among the manufacturers to induce people to buy their products. This could be possible by two ways: by increasing the buying capacity of the people and / or by convincing the people that these goods are genuinely needed. The first way was possible by providing people with jobs and / or making available easy credits for common people. The second way was to create images of good life based on new goods, services, comforts, necessities and life styles. It was possible with the help of advertisement, films, television, celebrity endorsement, etc. With the help of these two processes the manufactures ensure a stable base of consumers. When people get jobs in manufacturing sector it adds to the work force eventually contributing to more production. Similarly images of good life induce people to consume more which ultimately ends up with an increased demand for goods. Consumption leads to demand for production which in turn creates more jobs for people. More jobs mean increase in the buying capacity of people which ultimately leads to more consumption. These in turn contributes to more production in a cyclic way.

Modern economy is based on a model whose basic features are continuous profit and growth. The whole system is oriented towards increasing consumption or creating "consumers". This is called "consumerism". Capitalism is now able to reconstruct health, hygiene, necessity, comfort, and happiness. Technology, advertising, and images in the media help in creating new notions of reality around us as well as redefining our needs. This is how we consume more resources and energy.

In earlier days advertisements were meant to generate awareness about certain products and make companies known to the people. The methods used for this purpose were basically newspaper article and radio. But now the situation has changed drastically. Today companies use numerous ways to advertise such as (but not limited to) magazine ads, television commercials, fully dedicated channels for marketing, movies ads, billboards, newspapers, radio etc. The aim is not only to create awareness about certain products but also to "lure" people into a specific way of thinking and identifying. For example, recently Ferrero Company introduced a separate candy called *kinder joy for girls*. The company used to manufacture gender neutral kinder joy that contained toys which any child could play with. But now the company finds it more appropriate to manufacture toys "suitable" for girls and boys as two distinct products. This way the company wanted to create new classes of consumers by exploiting gender divide. The type of toys for girls manufactured by the company includes among others, dolls resembling Barbie, accessories and ornaments featuring Barbie and other similar female characters. Products like these explain the link between consumption and identity. It exemplifies how new needs are created by the forces of consumerism. The contemporary advertisers use subliminal techniques to tell people that it is a "need" to buy the products in question. In the process, various aspects of our life such as health, necessities, comfort etc. are redefined for us.

Media images create new notions of smartness and beauty. The advertisement of fairness cream is a classic example. Why should one be fair to be smart or beautiful? Traditionally fairness cream was advertised and promoted by various manufacturers mostly for female consumers (though this is a valid question to ponder whether being fair is a necessity at the first place). Now there are television commercials which promote fairness cream for men endorsed by celebrities. This is how we have now added a new category of products for a need constructed by the dominant economic system of our time. In India there was hardly any need which was felt before this wave of consumerism on the fairness

as an indicator of masculinity. This is being constructed now. Many examples can be cited where such manipulations with consumers' identity is done.

According to the State of the World Report, 2010, today 1.6 billion people are either overweight or obese, and 18 percent of greenhouse gases are produced by livestock that are raised to feed humanity's growing demand for meat (Bates and Hemenway, 2010). No study has claimed that fast-food has very good health benefits. A study of several of the longest-lived peoples in the world found that they ate just 1,800–1,900 calories a day, no processed foods, and minimal amounts of animal products. This shows that a constructed image of "food" is deliberately being created by the rising culture of consumerism.

Need is also created at collective level where the state and multi-national organisations play crucial role. Between the user and the producer there are many intermediaries at various levels which interact with each other in a very complicated way. This is within the greater framework of capitalism where new "needs" are explored and created in order to produce more products and services. Let's consider the case of extraction industries which flourished in the last three-four decades in developing countries. If we see the structure of the corporate world we can see a strong link between created needs and an ultimate objective for profit. Analyzing the flourishing metal extraction industries in India Felix Padel has examined the links among mining companies, financial institutions and state's interests. The above nexus or links induce the state to support metal industries and rationalizing it by linking the extraction industries with weapon industries which is considered as the state's most crucial "need". Though metal or extraction industries do not imply consumption at individual level but the need is created at collective or state level to rationalize huge consumption of metal. Das and Padel has examined how huge amount of metal, especially aluminum is extracted for arms manufacturing industries. Given the large amount of greenhouse gases emitted by extraction industries the constructed nature of the need of aluminum for humanity requires serious study (Padel and Das, 2008).

The above needs are a result of a particular type of economy which is dominant today. There is no essential relation between these goods and our survival / existence. A particular economy has produced a specific social reality which may not be essentially related to human life and existence. Given the threat of climate change the present social reality can be and need to be deconstructed. It can be argued that capitalism has undermined non-capitalist consumption practices and replaced them by goods and services defined by market. There is no essential "goodness" with capitalist goods and services and there is no essential "badness" with non-capitalist goods and services. The distinction is merely a construction. For example we have many small-scale societies living in the world today with a consumption style which is mostly in harmony with the environment or nature. There are ways of living existing in the present world which are dignified, rich and without compromising the survival of the future generations. There are many worldviews and systems of knowledge which exist in this world which prove that there can be a life without necessarily compromising the ability of our planet to sustain our future generations. It is high time we should examine these non-capitalist consumption patterns to deconstruct the dominant capitalistic consumption today. Creating new needs and striving to fulfill them is nothing but consuming constructed needs.

Conclusion

Climate change is the most crucial challenge to realizing the goals of sustainable development. Out of the many dimensions of climate change, the contemporary culture of consumption is very significant. Unless we examine the drivers of this culture, sustainability will be a distant dream. If we see the global consumption pattern we find that the developed countries have the greatest share in consuming the world resources and energy. As a result the developed nations have taken the lead in accelerating the shift towards sustainable production and consumption. However the rest of the world needs to follow strict measures to discourage consumerism for global climate protection.

A 2013 Boston Globe Report[3] described the American use of air conditioners as "addiction" to cool. In this self-analytical report the dependence on

air conditioning is seen as an "illogical" cultural practice. The report says, "We are probably overcooling our office buildings by 4° to 6° F just so that office workers, particularly the males, can wear their business suits." This is a straight forward submission of how "the current clothing behavior is costing us a fortune in energy and greenhouse emissions". Similar cultural practices are rampant which are illogical and have huge environmental cost.

Today most nations are brainstorming on mitigating climate change. Given the sensitive and political nature of consumption no one wants to tackle climate change head-on through moderating consumption. The paper discussed how consumption is related to socio-cultural factors and identity. It also discussed how alternative models of consumption are possible. The alternate views can inform the mitigation policies for climate change. Climate change mitigation can very well include the non-capitalist consumption styles for policy interventions. Policy decisions can make or mar our effort to reduce/prevent emission of greenhouse gases. One of the crucial components of mitigation practice is examining policy decisions related to individual and industrial consumption of natural resources.

Today more people are becoming "consumers" by switching over to diets of highly processed food, desire for bigger houses, accumulating modern gadgets and non-essential items, more and bigger cars etc. The amount and type of material goods and services we are consuming today is determined by factors external to the individual. More than the individual it is other players like state, political interest, corporate houses and citizens' bodies which can work together in determining and deciding what and how much to consume.

Modern economy has been creating new needs by constructing new notions of food, health, entertainment, comfort, necessity etc. With the help of business strategy and technology/images the contemporary economy is creating both need and the purchasing power to satisfy it. The marketing agencies create images and packaging to lure the consumers to desire a whole range of goods and services which are probably not normally required. The financial institutions extend various loans, credits and installment schemes to create a sense of purchasing power for immediate consumption. Thus the contemporary consumer is in the midst of a vicious circle of consumer products as well as a constructed sense of purchasing ability both of which lead to strengthening consumerism.

Questioning our consumption practices is essential in solving climate change issues. As consumption is related to personal choice and freedom it becomes a very sensitive and political issue to talk about it. However the urgency of climate change requires us to resolve on the level of individual as well as industrial consumption. As consumption is intricately related to our identity in the society and other cultural factors, the mitigation strategies need to be informed by these intricacies. It's not that we should do away with consumption altogether. It's just that a little discomfort here and there may be good for us and the earth as well.

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Endnotes

[1] The study titled "The physical science basis"
by the Fifth Assessment Report (AR-5); Working Group 1 of the IPCC has investigated the evidences of world climate change in 2013.

[2] A joint report by US National Academy of Sciences and UK Royal Society compiled various available evidences for causes of climate change. This was titled "Climate Change: Evidence and Causes" and was published in 2014. Available at http://nas-sites.org/americasclimatechoices/events/a-discussion-on-climate-change-evidence-and-causes/

[3] Leon Neyfakh wrote an article "How to live without air conditioning" in Boston Globe on July 21, 2013 where it is urged that there is now a need to think about environmental cost of air conditioning.

Impact of Climate Change and Lessons Learnt: An Analysis of Six Years after Leh (Ladakh) Flash Flood

Sonam Joldan

Introduction:

The flash flood, which hit Ladakh region of North India on the intervening night of 4th & 5th August 2010 followed by another one on the 6th August, 2010) resulted in large-scale devastation and loss of life and property. The climate change was attributed as the cause of flash flood. It was a classic case of one of the highest altitude area known as the cold dessert coming under the grip of climate change impact. As per the Leh Hill Development Council official count more than 200 persons lost their lives, more than 400 persons suffered injuries, 1401 hectares of cropped agriculture land was damaged, around 638 kucha houses were fully damaged, besides the number of partially damaged houses (both kucha and pucca) is around 597. As a whole, around 52 villages were affected in the Leh district and similarly, 29 villages were affected in the Kargil district by this devastating disaster. Besides, the flash flood caused serious damages to the roads, many bridges were washed away and affected to the only government hospital in Leh.

This article will focus on what has been done for the last six years in terms of permanent restorations of bridges, roads, agriculture fields, houses that had been washed away by the Flash Flood in 2010 and what lessons have been learned by the civil administration and the public health system to have disaster preparedness plans in readiness with material and designated rescue officers and workers in place.

Leh district is one of the India and it is the biggest district in J&K covering an area of 45,110 sq. km. It has been experienced disaster in the form of cloud burst and flash flood and swelling of river due to snow melt during summers. But the clouds bursts and flash flood that have taken placed in the intervening night of 4th & 5th August 2010 followed by another one on the 6th August, 2010 were the most devastating in the living memory. The flash flood caused a large-scale devastation and loss of life and property. As per the Leh Hill Development Council official count more than 200 persons lost their lives, more than 400 persons suffered injuries, 1401 hectares of cropped agriculture land was damaged, around 638 kucha houses were fully damaged, besides, the number of partially damaged houses (both kucha and pucca) were around 597. As a whole, around 52 villages were affected in the Leh district and similarly, 29 villages were affected in the Kargil district by this devastating disaster. Besides, the flash flood caused serious damages to roads both roads that connects within different regions of Ladakh and the roads that connects with Kashmir and Manali in Himachal Pradesh, many bridges were washed away. The only government hospital (SNM) Leh was also flooded. Thus the post disaster management was extremely difficult.

Permanent Restoration: roads, bridges, agriculture lands, houses

As per the Leh Hill Development Council 1401 hectares of cropped agriculture land was damaged, around 638 kucha houses were fully damaged, besides the number of partially damaged houses (both kucha and pucca) is around 597. As a whole, around 52 villages were affected in the Leh district and similarly, 29 villages were affected in the Kargil district by this devastating disaster by the flash flood in 2010. Besides, the flash flood caused serious damages to the roads; many bridges were washed away.

After six years, according to the local government sources, all the roads on the National Highway and roads that links with different villages which have been affected the flash food have been permanently restored. Rs. 2 Lakh each to the fully damaged houses and Rs. 1 Lakh to the partially damaged houses. These payments of ex-gratia and relief amounts were paid directly into the beneficiary's bank account. Almost, all the agriculture land which was damaged by floods has been reclaimed.

The Public Health System

As far as the public health system is concerned, there is only one government hospital; Sonam Norbu Memorial (SNM) hospital which had been severely affected by the flash foods in 2010. Several new building blocks have been constructed in the SNM hospital with new equipment and machines since 2010. These buildings are having several floors unlike previous one which was a single story structure and was had been flooded in 2010. For several years after the tragedy, regular disaster management training sessions were conducted in the hospital premises.

Communication

Another important link in disaster management is communications. Effective communication system is of paramount importance in coordination of rescue and relief operations. Most of the communications links like telephone and mobile, road and air networks were affected by the flood in 2010. The Bharat Sanchar Nigam Limited (BSNL) office which provides the main wide spread network services in Ladakh region was flooded. The other mobile network (Airtel) worked with limited connectivity. Right now, besides, he BSNL and Airtel mobile networks, Aircel mobile services have also started in Leh-Ladakh.

State Disaster Response Force, Leh

A state disaster response force has been set up in Leh after the Leh 2010 flash flood. The members of the team mostly come from the Jammu and Kashmir Police. They are not only trained as disaster response force but also tasked to organize awareness program regularly in different institutions like schools and in different villages in Leh-Ladakh. Some of the members of the force are also stationed at several vulnerable areas in Leh-Ladakh. These areas are Kardong-la (pass), the world highest motorarable pass (more than 18000 feet) and Chang-la (pass). These areas often receive heavy snow fall and are vulnerable to snow avalanches due to which people get struck there. These two passes get many people both local and tourists as Kargong-la is gateway to Nubra valley and Chang-la is the way to Durbuk block and to the Pangong Lake. In the event of any disaster, response time is a crucial attribute in effective disaster management. Thus, stationing disaster response force close to the avalanche vulnerable area is crucial.

Flood Protection

After the 2010 flash flood, the central government, under the flood management program has sanctioned funds to protect five venerable nallahs and also by creating channels divert the rivers that had strayed into habitations back to original channels. Due to flooding few of these rivers had changed their course and strayed into agriculture land or inhabited areas. These Nallahs are follows:

S.No	Name of the Nallah	Amount Sanctioned (Rs.)
1	Ney-Basgo	59.41 Cr.
2.	Nimoo	26.25 Cr.
3.	Phaying	58.57 Cr.
4.	Saboo	47.04 Cr.
5.	Igoo	35.83 Cr.

Sources: Irrigation and Flood Control department, Leh.

In 2010 Leh flood, these nallahs had been among the most flooded ones. Constructing protection walls and training of the nallahs is going on and as per the official sources so far only 1/4th of the sanctioned amounts of each nalla have been released.

Lessons learnt

The National Disaster Management Authority of India, set up under National Disaster Management Act 2005, has developed disaster preparedness and emergency protocols. It would be imperative for the civil administration at the state and district levels in India to develop their disaster management plans using these protocols and guidelines. Thus, after 2010 flash food, the district level disaster preparedness and emergency protocols have been initiated and implemented. Disaster management plan with proper command and coordination structure has been set up. Besides, the state response force, the civil administration and the health systems with focus on Quick Response Teams have been constituted. The focus has also been to build confidence of the public. Community involvement and awareness generation, particularly that of the vulnerable segments of population and women, has been undertaken, In this regard, the state disaster response force is regularly organizing awareness program in different institutions in Leh and also in villages in different regions of Ladakh.

Climate Change and Energy Security in Central Asia: Measuring Sustainable development

Dr. Krishnasri Das

Introduction

Climate change in Central Asia is a rising threat because of the impact of water scarcity. Lack of water flow will cause lush, coastal environments to turn into deserts. The landscape of Central Asia is characterized by dramatic peaks, high mountain plateaus, deep valleys, massive glaciers, steppes and vast desert plains. Climate change poses an extremely severe risk to Central Asia because of the arid environment of the region. Most people in Central Asia live in the rural countryside. Rural areas, especially the poorest communities, will be the most effected by climate change. Sustainable development ties together concern for the carrying capacity of natural systems with the social challenges facing humanity. Sustainable development focuses upon a relationship between humans and their environment and indicates a warning that humans cannot push development, which is against nature as in the end it is always the nature, which is going to win. Climate change poses serious threats to the region's environment, ecological and socio-economic systems.

The accomplishment of sustainable livelihoods is related to the sustainable economy of nations. As early as the 1970s "sustainability" was employed to describe an economy in equilibrium with basic ecological support systems. Ecologists have pointed to The Limits to Growth, and presented the alternative of a "steady state economy" in order to address environmental concerns. Central Asian countries Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan has played a significant role in sustainable development movement in 1992.Central Asia is vulnerable to climate change due to its dependence on renewable natural resources for economic development and agriculture. The most important affect of the climate change on security are the strain and conflicts taking place due to environmental degradation, inequitable access to crucial resources e.g. water, food, which serve as a main source for satisfaction of human needs.

Climate Change and Water Availability

Climate change issues are strongly interwoven in the issues of water availability and energy security severely affecting the livelihood in the Central Asia region. Climate change particularly affects water availability and food security, but also energy security and economic development. An increasing shortage of water, which is both a key resource for agriculture and a strategic resource for electricity generation. Energy supply from hydropower will most likely be affected by decreasing water availability. This will particularly impact upstream countries like Tajikistan and Kyrgyzstan that rely heavily on their water resources for energy supply. Turkmenistan has experienced tensions with Uzbekistan over water allocations from one of the most important water sources in the region, the Amu Darya, flowing through the eastern part of the country. Hydropower stations would run with low efficiency and output, while electricity demand rises due to increased need for cooling. Water shortages are considered to represent the main impediment to the development of Central Asian countries both under present-day conditions and for the future.

Climate change will have wide-ranging effects on the environment, and on socio-economic and related sectors, including water resources, agriculture and food security. The impacts of climate change unfolded rapidly, leading to continued water scarcity, land degradation and escalating numbers of natural disasters. One of the most imposing problems in Central Asia is the increasing shortage of water caused by desertification and the rapid melting of glaciers in the mountains. Central Asian states are seeking ways to prevent or mitigate economic damage as a result of contamination and depletion of water resources.

The largest sources of rivers are formed in Tajikistan and Kyrgyzstan, the flow is significantly weakened by hydroelectric plants as they make their

way to the downstream countries of Turkmenistan, Uzbekistan, and Kazakhstan. Turkmenistan has abundant fossil fuel reserves which also provide the largest share of its exports. Being a down-stream country, Turkmenistan is highly dependent on water flowing through its neighbors. Kyrgyzstan consumes 20 to 25% of its river water supplies while the remaining volume flows into other countries further downstream. Studies on the conditions of runoff peaks of Kyrgyzstan's rivers demonstrate that they can exceed average volumes to the following extents:

The states of the Aral Sea basin all face the task of enhancing more effective and economical use of water, management or water demand, and finding a compromise between the interests of upstream and downstream states. Moreover, there is the need to serve the requirements of both water users and eco systems. The Amu Darya has most of its sources in Tajikistan. Glaciers in Tajikistan play a key role in the water runoff of the Amu Darya and the Syr Darya, the largest rivers of Central Asia and the Aral Sea basin. In this arid region, any future consequences of climate change will tend to directly affect the volume of glaciers, the supplies of water to the rivers, and eventually the availability of water in countries and regions downstream. Practically, all rivers that flow into the Aral Sea and supply it with water cross international borders.

Energy Security in Central Asia

Energy plays a momentous role in the development of the nation building. Central Asia is an extremely important region for hydrocarbon resources. The hydrocarbon reserves of Central Asia are concentrated in Caspian region. The bulk of Central Asian-Caspian hydrocarbons are located in Kazakhstan, Azerbaijan, Uzbekistan and Turkmenistan. The huge potential of hydropower in the Central Asian countries provides the opportunity to combine progress on the goals of energy security, climate resiliency and economic development. Tajikistan possesses a huge hydro-energy potential which needs to be tapped so as ensure universal access to modern and cost efficient energy services as well as enlarging its share of renewable energy and increase investments in this sector. Turkmenistan's abundant hydrocarbon resources are fuelling the country's rapid economic growth and the modernization of its economy, particularly in the textile, food and construction industries. The state controls strategic farming sectors such as cotton and wheat production, but private farmers grow most of the fruits and vegetables, and manage the livestock. Nuclear power as a low-carbon alternative to energy production from fossil fuels is barely discussed in Central Asia. The energy rich and industrialized countries basically Kazakhstan, Uzbekistan and Turkmenistan enjoyed large capital inflows into energy and industrial projects and invested new profits in the housing sector and infrastructure development, especially the expansion and re- building of the capital cities of Astana, Tashkent and Ashgabat. Both Kyrgyzstan and Tajikistan have large hydropower potential.

'The Central Asian region possesses a massive uranium deposit and is an imperative supplier for the global nuclear industry. Only Kazakhstan is pursuing the use of nuclear power as a source of energy. Central Asia sits atop a gigantic supply of natural gas. Turkmenistan's abundant hydrocarbon resources are fuelling the country's rapid economic growth and the modernization of its economy, particularly in the textile, food and construction industries. Uzbekistan is the most populous country in Central Asia and has a well-developed industry sector, which makes it the largest energy consumer in the region. The country is self- sufficient in energy terms; however, its economy remains one of the most energy-intensive in the region. Small-scale water management solutions should be promoted in Central Asia. The prospective of hydropower in the mountain countries provides the chance to merge progress on the goals of energy security, climate resiliency and economic development. In the energy, mining and tourism sectors, the challenges regarding the equitable sharing of benefits are substantial, but so too are the opportunities, and numerous efforts are underway to unlock the economic potential for the benefit of all the affected parties. Access to energy, i.e. electricity, according to the standard indicator measuring electrification rate, is very high in the Caspian and Black Sea region. The Baku-Supsa, Baku-Ceyhan and South Caucasus pipelines have paved the way for Caspian resources to the world energy markets.

Kazakhstan will definitely increase its influence in shaping the energy geo-economics of Central Asia, mainly Kyrgyzstan and Tajikistan removes themselves from their dependence upon natural gas imports from Uzbekistan. Key factors determining high energy and consequently carbon intensity in Kazakhstan are the following:

High concentration of energy-producing facilities, Location of large energy plants mostly near fuel-extraction sites, a well developed network of electricity transmission lines of high voltage lines (500 and 1150 kilowatts), a system of relay-type safeguards and anti-damage automated mechanisms, assuring stability of the power grid in emergency and post-emergency situations, an integrated vertical system of operational control management consisted of the central dispatcher's unit, regional dispatcher centers, dispatcher centers of electrical energy consumers. In 2013, Uzbekistan celebrated the sixtieth anniversary of its gas industry, and its current natural gas reserves are estimated to be 1.1 trillion cubic meters (m3), placing it third in Central Asia after Kazakhstan (1.5 trillion m3) and Turkmenistan (17.5 trillion m3).

Tajikistan and Uzbekistan have been engaged in a dispute over the building of a reservoir type Rogun hydroelectric power plant in Tajikistan, which Uzbekistan has contended would disrupt flow to downstream countries, including itself. Central Asian countries' energy sectors were initially designed to operate within a unified energy system. Kyrgyzstan and Tajikistan contributed hydro power; Kazakhstan brought oil and coal; Turkmenistan, gas; and Uzbekistan, oil and gas. Currently, the main energy policy priority for the government is to significantly increase gas production, export capacity and to get access to diversified external markets. Turkmenistan's energy sector is almost completely dependent on gas supplies for both internal and external markets.

Fundamental Parameters of Sustainable Development

The basic human needs are air, water, food, clothing and shelter that are supported by the earth. Sustainable development is generally based on patterns of production and consumption that can be pursued into the future without degrading the human or natural environment. This concept is a very popular and important concept. Parameters of sustainable development related with understanding the concept of sustainable development, basic problems connected with it and assist in policy measures based on them. The parameters include carrying capacity, inter and intra-generational equity, gender disparity and diversity. Achievement of sustainable development is dependent upon the capacity development of the countries and environmental management. The Interstate Commission on Sustainable Development in Central Asia was established in 1994 and coordinates and manages regional cooperation in environmental protection and sustainable development in Central Asia. The main purpose of this programme would be to establish better management practices for both the human and the natural resources through innovations in technology, social policies, political and cultural paradigms.

Sustainable development encourages the conservation and preservation of natural resources and of the environment and the management of energy, waste and transportation. Problems of sustainable development are rooted in the issues of resource use and their pattern of distribution and ownership. Sustainable development is a policy approach that has gained quite a lot of popularity in recent years, especially in international circles. Issues of sustainable development have become centre stage to economic debates and are now setting the pattern of economic growth and world trade. Kazakhstan and Uzbekistan have national environmental programmes, and Kazakhstan's programme lists climate change prevention as one of its most important goals. The external aid has contributed to the development of policies and institutions through sustainable development and sectoral strategies for agriculture, water and energy. The Sustainable Development Commission was instrumental in developing the Regional Environmental Action Plan (2001), which targets air pollution, water resources, land degradation, mountain ecosystems and waste management.

Climate change is a serious and urgent issue. The Earth's climate is changing, and the scientiûc accord is not only that human activities have contributed to it signiûcantly. Climate change primarily

affects the Amu Darya and Syr Darya Rivers originated in Kyrgyzstan and Tajikistan and once flowed into the Aral Sea. Climate change poses a serious threat to the environment. Its most immediate impact is the so-called greenhouse effect. The main consequence of climate change is an increase in global surface temperature, triggering changes in precipitation levels and the hydrological composure of water bodies and thereby in the quantity and quality of water resources. Climate change is a fact; rising temperatures have already been reported throughout Central Asia, affecting resources such as water, soil and vegetation in various ways. In its 2007 report, the Intergovernmental Panel on Climate Change stated that by end of the 21st century, global average temperature may rise by 1.8°C to 4.0°C .Central Asia is vulnerable to climate change due to its dependence on renewable natural resources for economic development and agriculture. However, its vulnerability is exacerbated by inefficient resource use and aging infrastructure, limited implementation of regulations and the already severely degraded environment and pollution as a legacy of the Soviet era.

Regional and International Collaboration

The government provides free electricity, natural gas, water and subsidies for many services and consumer products, but political and media freedoms and civil society participation in decision-making in Turkmenistan are tightly regulated. Kazakhstan, Turkmenistan and Uzbekistan have huge and mostly unexplored oil and gas deposits. After the collapse of the Soviet Union, Kyrgyzstan had to import natural gas and oil products at much higher prices than before and which were previously subsidized. In 2010, Tajikistan with support of the Asian Development Bank (ADB) launched a project to strengthen the ability of its hydro meteorological and water sector institutions to better anticipate climate impacts and develop suitable adaptation measures. In early 2011, a renewable energy consortium announced plans for a potential $1 billion investment to construct two wind farms in southern Kazakhstan.

In Kazakhstan, several Community-Based Adaptation Programmes facilitated by UNDP and financed by the Global Environmental Trust Fund were launched in recent years targeting rural communities in order to better integrate climate change issues into irrigation schemes and encourage climate-resilient and sustainable agriculture.A number of local NGOs in Kazakhstan are also focusing on the topic of climate change. As early as 1992, the five central Asian states signed the Agreement on Cooperation in the Field of Joint Water Resources Management and Conservation of Interstate Sources. Climate change issues are strongly interwoven in the issues of water availability and energy security severely affecting the livelihood in the Central Asian region. Climate change impact on ecosystems brings along changes in genetic, species, and ecosystem biodiversity. Kyoto compromise: Separate climate and development. The actual compromise, reached under the Kyoto Protocol, was to separate climate and development as two independent goals, to be pursued independently of each other. Developing countries were exempted from such obligations. While this compromise might well reûect genuine disagreements in the North, whether development is a global responsibility, and in the South, whether climate is a global responsibility it was also the result of confusion between responsibility and the action. It is quite possible for the nations of the world to be agnostic over responsibility while agreeing where action is most needed and may be most eûective. The framework of the Kyoto Protocol opens up the opportunity for making use of the international community to reduce GHG emissions, introduce cleaner technologies, climate change mitigation and adaptation policies. Kyoto Protocol has opened up new opportunities for participating of CA countries.

EU Strategy for Central Asia that was established in 2007, Brussels has been stepping up engagement with Central Asia on many policy areas: security, energy, economic development, trade, transport routes, human rights, the rule of law and education. As a climate change response policy, all the five countries have already established an environmental legal and regulatory framework for meeting their commitments under the United Nations Framework Convention on Climate Change (UNFCCC).The European Union, the United States, Japan, Turkey, Iran and other individual countries have provided bilateral aid in the form of targeted interventions, and the Global Environment Facility, the Asian Development Bank ,the World Bank ,the

Organization for Security and Cooperation in Europe and the United Nations have provided multilateral assistance for economic and social reforms at all levels in Central Asia.

Conclusion

Climate change impact on ecosystems brings along changes in genetic, species, and ecosystem biodiversity The effect of climate change on water resources is particularly manifest in Central Asia. In this region, water resources are crucial for a wide range of issues related to national and regional security. Providentially Climate change could magnify the risk of floods, mudflows and landslides in the mountains, including glacier-related hazards. The Central Asian countries are still failing to develop and implement strategies on how to deal with climate change, which could have very serious consequences for the region. Finding the balance between energy generation, such as large-scale hydropower, and water provision for large-scale agriculture is difficult and politically sensitive. As the demand for energy and food continues to grow, tensions surrounding water and energy may escalate. Thus, vulnerability assessment in Central Asian countries of natural resources, national economy and public health to climate change confirm that influence of climate factors sometimes is very high.

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Protected Areas, Humanity and Climate Change

Rupal Sood

"Certain places need greater protection because of their immense importance for the global ecosystem, or because they represent important water reserves and thus safeguard other forms of life."

-Pope Francis

The relationship amongst forests and climate change is complex. From one viewpoint forests can moderate environmental change by retaining carbon while, on the other hand, they can add to climate change in case if they are degraded or demolished. Thus, climatic changes may prompt forest degradation which further fuels climate change. Forest Protected Areas save ecosystems that give food, fodder, fuelwood, habitat, shelter, raw materials, a protective barrier against disasters, a steady wellspring of resources and numerous other environment products and administrations – and in this way can have an essential part in helping species, individuals and nations adapt to climate change. Collectively, these may be termed as part of ecosystem services. Due to the advantage of their defensive status, these forests ought to stay free from damaging human intervention. They can in this way keep on serving as a characteristic storage facility of goods and services into the future. By and large, the negative impacts of climate change on Protected Areas will be exacerbated by different stresses, remarkably those brought about by people, for instance through overconsumption, contamination or infringing urbanization. Biodiversity in Protected Areas that may already susceptible to extinction due to these human dangers might be all the more rapidly or all the more seriously influenced by climate change. With these and other likely changes, the administration of existing Protected Areas will need to be modified because they need to satisfy their role of biodiversity conservation and also bolster adaptation to climate change.

Climate Change

The Earth's climate has constantly changed and developed. Some of these progressions have been because of regular causes however others can be ascribed to human interventions, for example, deforestation, climatic emanations from industry and transport, which have prompted gases and mist concentrates being put away in the environment. These gases are known as greenhouse gases (GHGs) in light of the fact that they trap warmth and raise air temperatures close to the ground, acting like a greenhouse on the surface of the planet. The Third Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), 2001 showed an aggregate picture of a warming world and different changes in the atmosphere framework. Late report distributed by IPCC in 2013 showed that the human impact on the atmosphere framework is unambiguous and since 1950 numerous progressions have been seen in most regions of the globe.

Climate change is one of the principal threats to biodiversity in Protected Areas. Its terrestrial impacts include shifting ranges of species and habitats, altered migration patterns and timing, increased habitat fragmentation and increased frequency and intensity of storms, fires and flooding. Marine impacts include rising sea levels and coastal erosion, increasing sea temperatures, increasing acidification, decreasing salinity and altered habitats and migration patterns.(Intergovernmental Panel on Climate Change, 2007).

Climate Change is one of the major challenges of our time and adds substantial stress to the earth and our societies. From changing weather patterns that undermine food production to generation, to rising ocean levels that expansion the danger of cataclysmic flooding, the effects of environmental change are worldwide in degree and remarkable in scale. Without drastic activity today, adjusting to these effects, later on, will be more troublesome and expensive. Today climate change is one of the main emerging threats facing biodiversity. Up to a quarter of mammal species (about 1125) (IPCC, 2002) and

about 20 percent of bird species (about 1 800) (IPCC, 2007) are at risk of global extinction because of climate change.

The First World Climate Conference (1979) identified climate change as a dire world problem and issued a declaration calling on governments to envision and make preparations for potential climate hazards. The United Nations General Assembly addressed climate change for the first time by adopting Resolution 43/53 and recognized that climate change is a common concern of humankind and suggested for necessary and timely action within a Global Framework.

At the Global level, many countries joined an international treaty titled 'United Nations Framework Convention on Climate Change (UNFCCC)' in 1992 with an objective to limit the average global temperature by taking various measures to combat the challenges of climate change. Further, Kyoto Protocol was adopted in 1997, with legal bindings for developed countries to emission reduction targets. The first commitment period started in 2008 and ended in 2012. The second commitment period began on January 1, 2013, and will end on December 31, 2020.

Prevention is, of course, better than cure in the case of climate change; urgent steps to reduce climate change are generally recognized as essential but continue to prove difficult to achieve. Climate change is already occurring, and as global average temperatures continue to rise, it will be important to develop strategies to conserve the species and habitats that are unable to adapt to change. There is an urgent need of a response to wildlife challenges due to climate change which falls into four main categories:

1. Maintaining current ecosystems wherever possible.
2. Adapting management to address climate change.
3. Restoring damaged or changing ecosystems.
4. Adopting landscape/seascape approaches.

Protected Areas and Climate Change

Protected Areas or natural parks are locations which receive protection because of their recognized natural, ecological and/or cultural values. There are several kinds of Protected Areas, which vary by level of protection depending on the enabling laws of each country or the regulations of the international organizations involved (Soutullo, 2010).

Although there are two global protected area definitions, from IUCN and the CBD, it is recognised that they convey essentially the same message. CBD definition: A geographically defined area which is designated or regulated and managed to achieve specific conservation objectives. Generally, Protected Areas are understood to be those in which human occupation or at least the exploitation of resources is limited. The definition that has been widely accepted across regional and global frameworks has been provided by the International Union for Conservation of Nature (IUCN) in its categorization guidelines for Protected Areas.For the most part, Protected Areas are comprehended to be those in which human occupation or possibly the exploitation of resources is constrained. The definition that has been generally acknowledged across over regional and worldwide systems has been given by the International Union to Conservation of Nature (IUCN) in its classification guidelines for Protected Areas.

IUCN definition: A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values (Dudley, 2008)

IUCN divides protected areas into six types, depending on their objectives:

Category I:- Protected Area managed mainly for science or wilderness protection (Strict Nature Reserve/Wilderness Area)

Category II:- Protected Area managed mainly for ecosystem protection and recreation (National Park)

Category III:- Protected Area managed mainly for conservation of specific natural features (Natural Monument)

Category IV:- Protected Area managed mainly for conservation through management intervention (Habitat/Species Management Area)

Category V:- Protected Area managed mainly for landscape/seascape conservation and recreation (Protected Landscape/Seascape)

Category VI:- Protected Area managed mainly for the sustainable use of natural ecosystems (Managed Resource Protected Area).

The world now has over 100,000 protected areas, of which the terrestrial ones cover 12.2 percent of the earth's surface (UNEP-WCMC, 2008)
In India, the main categories of protected are the following kinds of protected areas, in the sense of the word designated by IUCN:

- National Parks
- Wildlife sanctuaries
- Biosphere reserves
- Reserved and protected forests
- Conservation reserves and community reserves
- Private Protected Areas
- Conservation areas

The focus of this article is how the maintenance of ecosystem is possible by the use of Protected Areas which in turn helps to mitigate climate change. Research suggests that Protected Areas are effective tools for maintaining ecosystems, as compared with other approaches, and can play a critical role in safeguarding wildlife in the face of climate change. Importantly, such areas also help sequester carbon by retaining natural vegetation and provide many of the ecosystem services that human communities need to withstand a rapidly changing climate, such as mitigation of natural disasters, provision of freshwater and maintenance of soils (Dudley, *et al.*, 2010).

Many authors have recommended increasing the number and size of reserves as a means of providing greater habitat diversity and a higher likelihood of species persistence in a changing climate (Lawler, *et al.*, 2009; Noss, 2001). It is important to integrate climate change models with the design and location of protected areas to ensure that they will be able to safeguard species over the long term (Lawler, *et al.*, 2009). More and larger reserves would facilitate other proposed adaptation strategies such as the protection of "climate refugia", the increase in connectivity and the reduction of non-climatic stressors on forests. Additionally, reserves and Protected Areas provide many important benefits, including recreational and economic values (Stolton and Dudley, 2010). Proven forest and biodiversity protection strategies such as reserves are particularly important in ecosystems where a high sensitivity to climate change, combined with extensive land conversion, represents a particularly acute threat.

Protected Areas as Buffers of Change

Protected Areas are fundamental for keeping up natural ecosystems in perpetuity and right now provide the basic essential environment capacities. They utilize various administration methodologies and governance types, encouraging the advancement of a strong, worldwide network. Also, there are several supporting and regulating services which are provided by protected areas are important tools for mitigating climate change. An estimated 15 percent of the terrestrial carbon stock is currently held in protected areas (Campbell, *et al.*, 2008(a)).

Protected Areas offer several advantages some of the important ones are a recognition (often legal), long-term commitment to protection, agreed management and governance approaches and management planning and capacity. Protected Areas are often the most cost-effective option. In many situations, they contain the only natural or semi-natural habitats remaining in large areas. The fundamental support system for humankind is at risk. Protected Area networks provide essential ecosystem services that can be divided into four categories (Hassan, *et al.*, 2005):
(a) Supporting services, including primary and secondary production and biodiversity, which sustain goods and services;
(b) Provisioning services, such as food, material, fuel and medicine;
(c) Regulating services, such as carbon sequestration, climate and water regulation, protection from floods, avalanches or rockfall, water and air purification and disease and pest regulation;
(d) Cultural services, i.e., the protection of spiritually or historically important sites or as forms of recreation.

Most importantly along with playing an ecological role, Protected Areas play a major social role. Protected Areas may give ecosystem services, for example, drinking water, food security, carbon

stockpiling and soil stabilization; harbour sacred sites for various faith groups; and hold imperative quality repositories of worth in pharmaceutical, agriculture and forest. In facing climate change, these roles turn out to be more basic to upgrade the versatile limit of nearby individuals to adapt to climate change (Simms, 2006).

Viable, functional and well-managed protected area networks can also help in protection against the various natural disasters like floods, glacier melting, earthquakes etc., which are predicted to rise with the changes in climate change and resulting global warming. Not only forest Protected Areas but also marine and coastal areas including islands, reefs and mangroves can act as buffers against the devastating effects of the storm surges and coastal erosion that are likely to increase with climate change (Scheuren, *et al.*, 2007). Protected Areas offer opportunities for climate change solutions that can simultaneously address the need for mitigation, adaptation and resilience building.
Some Protected Areas likewise give a chance to the dynamic or aloof reclamation of customary land use practices, for example, agroforestry and crop terracing, which may moderate the effects of extreme climate occasions in dry arid lands, for instance by decreasing the danger of soil erosion and by keeping up soil structure (Stolton, Dudley and Randall, 2008).

Now, if we consider the economic role of the Protected Areas then we can predict that if any country is facing severe climate change issues then its economy will suffer. According to the study, the gross domestic product (GDP) of a number of countries, could be negatively affected by sea-level rise, saltwater intrusion and natural disasters attributed to climate change (Dasgupta, *et al.*, 2007). In helping to protect natural habitat, Protected Areas indirectly help to protect the national economy. In addition, Protected Areas can provide a direct means of enhancing revenue, notably through tourism, but also through the valuable products they harbour and the services they provide. The loss of Protected Areas may lead to significant costs, for example, infrastructure damage and human tragedy caused by desertification or tsunamis, or to loss of revenue, from tourism for instance.

Role of Protected Area Networks for Climate Change Mitigation and Adaptation

Protected Areas have been recognized for several decades as an essential tool for conserving biodiversity. The impacts of climate change now give them a renewed role as adaptation tools for a changing climate. According to Mansourain, *et al.* (2009), their importance in this respect is threefold.

- In supporting species to adapt to changing climate patterns and sudden climate events by providing refuges and migration corridors;
- In protecting people from sudden climatic events and reducing vulnerability to floods, droughts and other weather-induced problems;
- Indirectly, in supporting economies to adapt to climate change by reducing the costs of climate-related negative impacts.

Protected Areas offer some unique benefits in helping nations to address environmental change, through carbon storage and capture (mitigation) and keeping up the arrangement of ecosystem services that help individuals adjust to the effects of environmental change (adaptation) while maintaining biological diversity. These advantages might be completely acknowledged, be that as it may, in the event that they are joined into national climate change strategies and implemented other reaction measures simultaneously. The services that ecosystems provide to communities are threatened by climate change. Enhanced national implementation of key elements of the programme of work on Protected Areas will become increasingly important to secure these services in a cost-effective manner. There are several benefits provided by Protected Areas can facilitate adaptation of nature and humans to climate risks by safeguarding ecosystem processes and ecosystem services as shown in the figure below.

Figure showing Benefits of Protected Areas for Adaptation

Protected Areas sequester and store carbon from the atmosphere into natural ecosystems and can keep the arrival of carbon from vegetation and soils. As of now, Protected Areas store around 312 Gt, which is equal to no less than 15% of worldwide earthly carbon (Campbell, *et al.*, 2008(b)). Protected Areas give a chance to enhance carbon stocks, including new sinks not beforehand secured by establishing new Protected Areas, enhancing management of existing ones and growing or modifying them.

The provision, as well as advantages for adaptation and mitigation, often occur simultaneously when climate change strategies incorporate protected areas in their design. In addition, these areas offer the opportunity for mitigation and adaptation strategies to generate co-benefits for the well-being of surrounding communities, such as poverty alleviation.Moreover, there are several advantages of Protected Areas over the other ecosystem-based approaches in facing climate change. Protected Areas have proven conservation effectiveness of as they are "among the oldest and most widespread" strategies to "conserve ecosystems" There is evidence of these areas' conservation effectiveness from globally aggregated studies. Not only in conserving biodiversity, but also there is evidence that Protected Areas provide co-benefits due to the role played in poverty alleviation and in the sustainable development of surrounding communities (Watson, *et al.*, 2014).

Not just this, Protected Areas are cost-efficient too. Investment in Protected Areas is economically efficient as well as socially and environmentally desirable. Enhancing the role of Protected Areas in climate change strategies involves low start-up costs because of the existing Protected Areas' governing institutions, budgets, information systems, capacities and infrastructure (Scharlemann, *et al.*, 2010).Robustness is another feature of Protected Areas' regime as they provide adaptation solutions that can function under a wide range of future climate change scenarios, given that Ecosystem-based Adaptation – and Ecosystem-based Mitigation – actions work "with, rather than against, ecosystems and biodiversity" (Munroe, *et al.*, 2011). Also, Protected Areas are legally established which offer clarified tenure and rights to resources as well as a long-term commitment to conservation and management (Dudley, et al 2010).A well planned Protected Area network is important for the adaptation strategies towards the climate change issues. In this regard, the Convention on Biological Diversity's Programme of Work on Protected Areas (CBD, 2004) urged great expansion of the Protected Area network across the globe to secure long-term representativeness of ecosystems and help species adapt to climate change. In subsequent years the world's Protected Areas have expanded exponentially, but the expansion needs to continue. Not just expansion, but management should be effective to achieve the need of mitigation to climate change. Effective management is essential to climate adaptation. Protected Area management to ensure adaptation to climate change may include restoration, focusing and pests, and addressing other threats which can be exacerbated by climate change.

Traditional Protected Areas are stationary places with fixed impassable boundaries. So there is a need to prepare Protected Areas to face climate change challenges. Ecosystem distribution depends on various factors like temperature, precipitation, etc. which are changing rapidly due to the influence of climate change directly. As a result, the concept of Protected Area will need to become much more flexible, and climate change considerations will have to be incorporated in management and design, in order for these areas to continue to fulfil their conservation objectives in a changing climate and to continue to provide benefits to society through ecosystem services. According to Dudley and Stolton (2010)," Well-designed Protected Area networks may be able to withstand climate change reasonably well". There is a need for connectivity as species distributions have shifted and will continue to shift under the effects of climate change, which is why connectivity between protected areas and with the wider landscape is critical for the conservation of biodiversity in the long term.

Along with the establishment of Protected Areas and the number of hectares of threatened habitat under protection as indicators for measuring progress in achieving conservation goals, Protected Area management will need to address some additional dimensions to take account of climate

change. As we have discussed earlier designing of Protected Areas is an important tool along with the expanding the area, there should be consideration of socio-economic conditions of people living in the vicinity of the Protected Areas. In a future in which more communities will be vying for fewer resources, and where climate change is likely to cause a greater strain on both people's livelihoods and the availability of resources, Protected Area will only be viable if they are directly relevant to human communities that live in or depend on them (Borrini-Feyerabend, Kothari and Oviedo, 2004).

Conclusions

While future climate change situations and nearby effects stay dubious, Protected Areas will without a doubt be influenced. Nonetheless, they can likewise have a critical influence on adjustment to climate change. Enhancing atmosphere strength and adjustment will require changes in the way to deal with Protected Areas' planning, foundation and administration. Besides, it is basic to lessen worldwide greenhouse gas outflows and to keep the temperature rise within a 2°C limit and if these things are not accomplished, adaptation will never be adequate.

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Global Climate Change and the Emerging Trends of Natural Disaster Risk in India

Sapam Ranabir Singh

Prophecies of doom have marked the dominant discourse on environment and disasters. The debate is particularly divided over the scientific understanding of Climate Change and its probable impact on the future sustainability of ecological balance. Whatever statistical considerations or predictions may suggest, there is no denying the fact that natural disasters have always been part of human civilization histories. The intensity and extent of damages caused by it may vary significantly from decade to decade or year to year. In the recent past, climate change activities have furthered risks of disasters all over the globe. According to the report of the Annual Disaster Statistical Review 2011 prepared by Guha-Sapir, *et al.* (2012), 332 natural disasters were registered in 2011. The reported catastrophic events for 2011 were lower than the average annual disaster frequency of 384 observed from 2001 to 2010. It is important to note that though the actual number of disasters declined, damage caused by these natural events in terms of human and economic impacts in the year 2011 were massive. Reportedly, 245 million people were victims of it (Death and total affected people). Between the year 2000 to 2015, around 3.2 billion people were affected and 1.2 million deaths with an estimated US$ 2.06 trillion economic damages (CRED CRUNCH; 2016).

Economic damages from natural disasters were the highest ever registered, with an estimated US$ 366.1 billion. In another database for world disaster 2012, 310 natural disasters were recorded in EM-DAT database, affecting 115 countries with 9930 lives killed and also affecting 106 million people and causing economic damages worth US $ 138 billion (CRED CRUNCH; 2013). Asia was the continent most often hit by natural disasters in 2011 (44.0%) and India was the 4thhardest hit country having experienced 13 disasters.

Trends of Major Disasters in India

Due to its geo-climatic and socio-economic condition, India is highly vulnerable to a large number of disasters like floods, droughts, cyclones, earthquakes, landslides, avalanches and forest fires. More than 58.6% landmass of Indian sub-continent is prone to earthquakes of moderate to very high intensity; over 40 million hectares (12%) of its land is prone to floods and river erosion, and out of 7516 kilometers of long coastline around 5700 kilometers is prone to cyclones and Tsunamis. India has lost millions of human lives in more than 400 major disasters that have hit its land and shores in the last thirty years (Government of India; 2011). Studies show that major disasters occurred in India during the year of 1980 to 2010. The recent trend of climate change has accelerated the rate of occurrence of natural disasters. Besides,

[1]Mass Movement (dry): These are geophysical events originating from solid earth comprising of rockfall, avalanche, landslide and subsidence.

[2]Mass Movement (wet): These are hydrological events caused by deviations in the normal water cycle and/or overflow of bodies of water caused by wind set-up comprising of subsidence, rockfall, avalanche and landslide. (cf.http://ndma.gov.in/images/pdf/Working%20Group%20Report%20on%20Disaster%20Management%20for%2012th%20FYP.pdf)

It is evident from Studies that maximum occurrence of natural disasters in India is related to hydrological problems such as flood and storms. It also caused major damage to property and life. The recent floods in Kashmir, Assam, Chennai, Bihar and Gujarat caused huge cost to the economy and human lives lost.

Impact Of Disasters On India

Natural disasters directly impact economies, agriculture, food security, water, sanitation, the environment and health each year (Ashutosh; 2012).

It also results in major changes in the socio-economic profile of not only the devastated communities but also the states in which these occurrences take place. In a developing country like India, it is a major threat to the economy and poses a big challenge. It is also responsible for creating social chaos like crime, unrest, evils and starvation and its impact is worse among the poor or marginalized sections. Thorough and in-depth studies are required to evolve a comprehensive understanding of mitigation measures in the near future to reduce the impact of these natural disasters Given the magnitude of this onerous task it was pertinent to demarcate a narrow zone for conducting a time-bound in-depth study on one section of this huge problem zone. Our country has thirteen Coastal states/Union Territories. Four States, i.e., Andhra Pradesh, Odisha, Tamil Nadu and West Bengal and one Union Territory, Pondicherry on the East Coast, and the State of Gujarat on the West Coast that is most vulnerable to cyclones. According to the report of NCRMP, 40% of the total populations of these states lives within 100 km coastline and in the last three decades, on an average, annually 370 million people have been exposed to cyclones. A large segment of those exposed to vagaries of cyclone is traditional fishing communities that live close to the coastal lines (Source: http://ncrmp.gov.in/ncrmp/Cyclone_Impact.html).

According to the CMFRI Census 2010, in India, there are 3,288 marine fishing villages and 1,511 marine fish landing centres in 9 maritime states and 2 union territories. The total marine fisherfolk population was about 4 million comprising in 864,550 families. Nearly 61% of the fishermen families were under BPL category. The average family size was 4.63 and the overall sex ratio was 928 females per 1000 males. Almost 58% of the fisher folk were educated with different levels of education. About 38% marine fisher folk were engaged in active fishing with 85% of them having full-time engagement. About 63.6% of the fisher folk were engaged in fishing and allied activities. Nearly 43% of the fisherwomen were involved in fish seed collection out of a total of 57% fishermen were doing fish seed collection. Among the marine fishermen households nearly 76% were Hindus, 15% were Christians and 9% were Muslims. The overall percentage of SC/ST among the marine fishermen households was 17% (http://indianfisheries.icsf.net). Given this demographic profile, it was amply clear that these fisher-folk constituted one of the most vulnerable populations living in disaster prone areas.

The worst affected during disasters are undoubtedly the poor and the marginalized sections of the society. They are not only most vulnerable to losses from disasters; their ability to recover from the shock brought by a disaster is also the lowest. In the aftermath of a disaster, the deprived sections of society face an immediate and acute shortage of resources and lose their access to livelihood-particularly those populations that are exclusively dependent on these resources for their sustainability (Adgar; 1996, Chambers; 1997). In this context, specific reference is made to fishing and agricultural communities living in the proximity of these disaster-prone areas. Vulnerability manifests itself not only in terms of loss of infrastructure or disturbed ecosystems but the citadel of survival itself.

Also, disasters, though specific to one region, do not merely affect the people of that particular region but also impact and in several cases impede the socio-economic development of an entire State/province and, in some cases, the whole country (Das, *et al.*; 2005). Humankind cannot divert or halt nature's fury but we can locate and minimize the impact of disasters by finding out the inherent causes of the extent of people's vulnerability. Disasters and socio-economic vulnerabilities are so intertwined that it is sometimes difficult to pinpoint as to what precedes the vulnerability or disaster.

We know that these is the interaction of climate change and the socio-economic system as well as the environmental system. There is an interlinked between population growth and globalization with the loss of habitat and biodiversity, degradation of natural resources, etc.

Conclusion

Academic discourse on disaster management has persistently brought to the fore that the damages caused by the natural disasters are invariably proportionate to the social vulnerability of the population concerned. However, various governments have regarded calamity as essentially "accidental," an "unplanned side-effect," to see disasters as "an

archipelago of isolated misfortune" (Hewitt; 1983). This has resulted in a kind of indifference to the prevalent ground realities. Disasters may be because of climatic disturbances but its impact on human lives is a consequence of socio-economic vulnerabilities of the population that become its victims. The attitude of political wisdom is also evident in the kind of research that is being pursued in most of the developing countries. The focus is primarily on studying scientific aspects of the natural phenomena, statistical and geographic records of its occurrence. The focus of all the mitigation efforts promoted by disaster management strategists is to install sophisticated instruments for receiving cyclone warnings. Dissemination of warnings and people's abilities to discern these signals remains a major challenge.

Disaster management agencies in India and in several other developing economies have not acknowledged the inbuilt factors of social vulnerability. There is a growing concurrence among researchers that detailed in-depth studies are required to assess social vulnerability. Several studies have shown that it is imperative to have a social cartography of vulnerable populations in the pre-event planning of disaster analysis (Mendes; 2009). Blaikie, *et al.* (1994) and Wisner, *et al.* (2004), through their research, have shown that disasters are largely socially constructed. The holistic approach has to examine vulnerability in the context of local knowledge. Assessing disasters within their cultural, socio-economic, political and environmental context is a must for disaster mitigation and planning. It will be very useful to utilize the social capital, i.e., social integration, social cohesion, solidarity, networking, multiple-way communication between among members of the community to fight against different disasters. A strong participation and integration of local level actors at the community level is needed in negotiating recovery and development strategies (Mallick, *et al.*; 2011).

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Revisiting the Concept of Sustainable Development: Gandhian Perspective

Muzammil Ahad Dar and Shahnawaz Qadri

Sustainable development concept represents a shift- a paradigm shift- to bring social and structural-economic transformation or concept of development which optimizes the social and other benefits without jeopardizing likely potential for similar benefits in/for the future generations to come. According to Gandhian philosophy problem of environmental degradation is in the mind of individual. He should change himself from inside out for which individual must be spiritual and religious. Gandhian approach to sustainable development is '*to take care*'-an attempt to preserve the traditional socio-economic structure to fight poverty and idleness of masses, to ensure independence and self-respect among people, ban, for economic gains, exploitation of human being and of nature, to rescue labor-intensive means of production from the onslaughts of capital intensive based industry, preserves local culture and wisdom accumulated over generations of living within a region. Gandhi never equated economic prosperity and physical pleasure with human development. His concept of development would conform to '*Sarvodaya*' a welfare society concept- that would determine the human happiness which is a real development.

'Sustainable development is understood as part of a larger set of 'sustainability principles' that also affect matters other than development'[1]. Sustainability implies a transition from economic growth based on exploitation of natural resources, unequal distribution (of economy) resulting in poverty, and violence, towards progress based more on socio-economic justice, equity, and a care for natural resources[2]. The sustainable development debate is based on the assumption that societies need to manage three types of capital (economic, social, and natural), which may be non-substitutable and whose consumption might be irreversible[3]. Gandhi did not conclusively try to formulate a theory of sustainable development nor did he intend to do so. He arrived at certain concepts and conclusions mainly in search of a good and sustainable life and often then proceeds to qualify them into action. Whatever he preached, and practiced, to mankind for interpreting the real meaning of good, happy, and harmonious life became mantra for sustainable development. In this context Gandhian views on sustainable development is a matter that attracts attention. Gandhian approach to development took care of all the ingredients of sustainable development. He made an attempt to preserve the traditional socio-economic structure to fight poverty and idleness of masses, to ensure independence and self-respect among people, ban, for economic gains, exploitation of human being and of nature, to rescue labor-intensive means of production from the onslaughts of capital intensive based industry, preserves local culture and wisdom accumulated over generations of living within a region[4].

His views about development are simple enough to attain sustainable development in which people took cognizance of self-responsibility through self-restraint, live simple village life and remain contended with meager resource, sacrifice comfort. This will empower them in realizing the spirit of self-independence. This self-independent spirit was to be further strengthened by initiating local economics or village economics as an independent phenomenon in the form of village self-sufficient economy called village economy. Gandhi as spiritual person tried spiritual panacea to the ills that engulf the modern society and men. Therefore his spirituality presented answers to the world society which otherwise is leading to un-sustainability.

Gandhian Concept of Sustainable Development: Concept of development has become a relative term defined in term of the association of the word with different kind of concepts. Development, For the advocate of sustainable [*concept of*] development

means the optimization of the social and other benefits without jeopardizing likely potential for similar benefits for the future generations to come. It also means transformation to them[5]. To the advocates of Liberal democracy, it means maximization of material wants with ever rising GNP[6].

Gandhi never equated economic prosperity and physical pleasure with human development. His concept of development would conform to the welfare of society; 'a Sarvodaya' would determine the human happiness which is a real development. To him human happiness is the ultimate aim and is equated with real development of human civilization, viz. the greatest good of the greatest number-a Sarvodaya. Gandhian concept of development is therefore Sarvodaya, the real happiness of human being which is based not on the maximization of material wants but through performing ones duty of service to others including nature, and working for human emancipation[7]. Sarvodaya' the greatest good of all became the ultimate goal of Gandhi in social welfare. Development only with a sustaining political economy which would satisfy the ever-growing and ever-ending demand for more and more material wants, and development so understood in terms of rising GNP would not only destroy man morally but also make for unsustainable future. While people or nations called it development Gandhi found in it a process of human dehumanization, suffering from a pervasive feeling of loneliness and helplessness in this world and attributed this to the prevailing social, political and economic structures. Worse he considered the present civilization based on the desire to have ever rising standards of living, destructive of the well-being of the future generations[8].

The makers of Liberal Democracy, which is based the premise of free enterprise and free markets, also equated efficiency and productivity with ever rising GNP and has for this reason, permitted over-exploitation of finite resources to such an extent that today we are faced with the grim prospect of an unsustainable future. Moreover, the World Bank Publications also has the habit to rank countries of the world in development scale according to their per capita GNP. States do also suffer from this type of trauma and adopt policies to increase their GNP without considering socio-economic and political and sustainable well being of the people. It is untenable to measure economic development as overall development in terms of higher productivity calculated in terms of higher GNP[9]. Such development can't be sustained once the natural resource stock is exhausted. In contrast, a society that followed the Gandhian dictum of simple living and consuming wholesome natural foods would have a lower GNP, but be better off in terms of well-being.Gandhi was totally against of taking one-sided or lopsided meaning of development. Sustainable development as a normative concept which Gandhi emphasized consist distinctive categories of values. Economic efficiency, measured in terms of productivity, equitable distribution of economic resources and income, and non-economic values such as spiritual concerns, human dignitary, care for civil liberties, or moral-spiritual guide to limitations for self. In this categorization it is the last one i.e. non-economic spiritual concern over which Gandhiji lays much more emphasis.

Sustainable development concept represents a shift- a paradigm shift- to bring social and structural-economic transformation or concept of development which optimizes the social and other benefits without jeopardizing likely potential for similar benefits for the future generations to come.

Gandhi's Spiritual Philosophy of Sustainable Development

Efforts are being made world over to formulate ways and means to make life sustainable, save planet Earth, due to dangers arising out of environmental threats, inequality, climate change etc. Planners and policy-makers had suggested several measures, and policy-implements, like Agenda21, Brundtland commission, Earth summits etc. to tackle the issues that dangers our planet Earth sustaining life. Some socio-economic initiatives have been evolved to reduce inequity, besides special emphasis on policies to tackle poverty, economic concentration, and lopsided growth. However with the program information available, in various forums and conference on this issue there will be hardly any discussion on spirituality and its effect on sustainability. Spirituality and sustainability go hand in hand and it is, according to Gandhi, spirituality that can play a better role in sustainable

development. Similarly living in a sustainable manner helps in spiritual growth[10]. To attain spirituality one must experience a sense of detachment from worldly desires. *Vairagya* for that matter is a (spiritual) stage wherein a sense of detachment comes and hence a person becomes less interested in materialistic life. This is the beginning of sustainable development through spiritual experience since one's needs are reduced. Recent examples of Mahatma Gandhi has shown that with very few needs and living very simply he was able to produce the highest quality of thought. This has also been the tradition of our great saints[11].

Gandhi was a spiritual being first. Other things were by-products of his spirituality. A spiritual person becomes less interested in material things. This was the basis of Gandhi's sustainability. Spirituality helps in keeping our greed for materials and resources in check and sustainable development can only take place when we use the resources for our needs and not for our greed as Mahatma Gandhi once said. Spirituality also helps us have a compassionate view of nature. This prevents us from over exploiting it[12]. As we evolve spiritually we become more tuned to things around us and that includes nature. We start enjoying the beauty of nature, appreciating it and this helps us in preserving it as much as possible and hence is a step towards sustainable living. In all religions of the world the respect for nature is preached and the maxim of simple living and high thinking is ingrained. Spirituality also helps us live in harmony with each other and this enables everybody to work together for common good. This can also put a check on people's greed and can help in sustainable living[13].

Gandhi was more concerned with the moral regeneration of the people and reasoned that the internal factors are more important and powerful than the external circumstances in the proper development of a society. He believed in simple living and high thinking. Gandhiji's maxim of Simple living and high thinking is a possible driving force to achieve a possible sustainability for all. His experiments on food, brahmacharya and fasting came from this belief. His spirituality guided all his work in politics, rural development and non-violence. All the development efforts should also be accompanied by change in mindset[14].

Human mindset is such that with advancement of science and technology resulting in a sophisticated life pattern and material achievements are considered development without taking care of inner self or development of soul which is the basis for development of human being. Gandhi realized that material things are only relative and means to development and the real development is the development of soul and spirit. He said soul force is the mightiest weapon to fight evil. Curbing greed is the biggest challenge and spirituality might help in creating a contended mindset.

Gandhian Concept of Sustainable Society

Sustainable development as defined and most frequently used (the Brundtland Report) involves two characteristics:

- *The concept of **needs**, in particular the essential needs of the world's poor, to which overriding priority should be given. And*
- *The idea of **limitations** imposed by the state of technology and social organization on the environment's ability to meet present and future needs*[15].

In his ideal society, as in the classical anarchist model, there would be complete decentralization of political and economic system and self-sufficient, barter type of village economy would be the desired model. Gandhi's society in which poorest feel happy was essentially structured on/as:

- Needs based society in the sense of self-sufficient for its population and self-contended with limited needs through self-restraint;
- The society is built on local-self-sufficient economy based on grass-root democracy with direct people's participation in the community affairs.

Gandhi once said;

"Independence begins at the bottom... A society must be built in which every village has to be self sustained and capable of managing its own affairs... It will be trained and prepared to perish in the attempt to defend itself against any onslaught from without... This does not exclude dependence on and willing help from neighbours or from the world. It will be a free and voluntary

play of mutual forces... In this structure composed of innumerable villages, there will be ever widening, never ascending circles. Growth will not be a pyramid with the apex sustained by the bottom. But it will be an oceanic circle whose center will be the individual. Therefore the outermost circumference will not wield power to crush the inner circle but will give strength to all within and derive its own strength from it.[16]"

Need based Society his Dream Village:
Gandhi dreamt of a society which would satisfy every soul and stomach not by providing and producing everything that man desires but by other way of which the prospects seemed visible only in village. He had an experiment of India as a local-village where everything was in abundant but utilization was restricted to few. He initiated the task to redistribution and limitation for attaining a truly development for all section of people especially needed and poor that will result in a society based on equity[17]. Gandhi focused on rural development intuitively feeling that future of India is in decentralized rural development. This is Nature's way. He believed in local rural production and consumption. His was a concept of a dream village that would be modeled in such way where every soul would be satisfied by limiting worldly desires and would constitute a structure where freedom begins with the individual of the lowest order. This dream village would be ruled by not the elite class bound by any constitution or superimposed but by the people themselves through self- rule of Swaraj with socio-political and economic freedom with all possible employment, equality, and control over the resources. This dream village would not take care of individual self only but of nature and environment as well to concern for the future generation to live happily. Ahimsa would the order of living, where no violence would be tolerated against any creature in the least sense. Violence against eco-system would mean destruction of social life and living. Therefore Gandhi's sustainable society is his dream village erected on these following pillars[18].

a) Self-restraint and limitation or *(Limitations based on Self-restraint):* Gandhi had clearly advocated the restriction of wants voluntarily. In fact he said that 'the world has enough to meet the needs of everybody, but not enough to meet even a single man's greed'. Economists define 'need' should override the principle of maximizing of profits as market economy do. Therefore the concept of '*need*' in Brundtland's definition has to be followed as an approach to development strategies.

b) Law of return[19]: The community or society can provide for future generations only if it follows to return the soil back what was taken from it. A community must, to ensure welfare of future generations, restrict consumption as far as possible to renewable resources and use as little as possible of the sources it cannot give back to the nature. Gandhi lamented that the present mode of economy glued only in productivity measured in terms of output and profit was indulging in an indiscriminate use of non-renewable resources. This over production, profit has led to degeneration of human soul/sprit. Man's insatiable greed for more and more in the name of riding standards of living dehumanizes him and causes immense destruction not only to his self but the world[20]

c) Society based on Grass-Root Democracy and Village or Local-Economy: Gandhi rejected the modern industrial-urban concept of development for its anti-democratic, anti-humanitarian, and exploitative features. In its place Gandhi offers the ideal of the economically self-sufficient, politically self-governing and culturally non-violent village republic as the guarantee of genuine democracy, true humanism, civilizing non-violence and lasting peace. Thus Gandhi was in favour of technology and development of cottage and small scale industries at village level because these industries are localized, energy saver, and job intensive and less polluting. The basic unit of Gandhi's grass-root democracy is village. He declared, 'India lives in her villages'. He further believed that India will have to live in villages, not in towns, in huts not in palaces. He held firm conviction that "If village perishes, India too will perish' and therefore, understood that if India has to progress the development of majority of its rural villages, development of rural economy, industry and rural skills has to be achieved. Gandhi found the only way of bringing hope of good living to the rural people is by making the village the central place in every respect. This was Gandhi's programme of rural development. Rural development as outlined by Gandhi contained self-sufficiency, inter-dependence for other wants and

development of Village Industries. He wanted to bring about rural reconstruction with sound scientific and spiritual values.

Gandhi aimed at the attainment of Village Swaraj and said in 1942,

My idea of Village Swaraj is that it is a complete republic, independent of its neighbours for its own vital wants and get inter-dependent for many others in which dependence is a necessity. Thus every village's first concern will be to grow its own food crop and cotton for its cloth. It could have a reserve for its cattle, recreation and playground for adults and children. Then if there is more land available, it will grow useful money crops, thus excluding ganja, tobacco, opium and the like. The village will maintain a village theatre, school and public hall. It will have its own water works ensuring clean water supply.

The Gandhian model advocated the idea of decentralization, which ensures the people's participation. For him Centralism is the source of social contradiction. Gandhian decentralized approach strengthens the feedback system which ensures self-correction and self-direction. It emphasizes *gram swaraj* (village autonomy) and human values. It emphasizes production by the masses, but not mass production. It emphasizes labour intensive technology, small scale village and cottage industries, handicrafts, charkha and the use of renewable energy, and ecological balance. The decentralized model removes all kinds of constraints.

Industrialization vs. decentralized rural industries: Gandhi regarded industrialization urbanization detrimental to growth of a non-violent and eco-friendly society. It has not reduced social inequalities, but has rather resulted in further differentiations. His arguments against machinery were logical as he believed that it is the biggest cause of human suffering and demoralization. Industrialization or machine invention led to factory system that made men slaves, technology advancement led to growth of monetary exchange system which is characterized by inequality, exploitation, and economic competition harbored into more production led to environmental degradation. Hence machines are repugnant to good human life and therefore against sustainable human living.[21]

He was conscious of the fact that far industrialization would destroy the Indian society by eliminating our decentralized rural industries. He wanted to bring about a rural reconstruction based on sound scientific and spiritual values. In rural area generation of energy is at most important to run rural industries and other activities.[22]

These industries are energy severer, less wasteful and less damaging to environment and are essential to supplement agricultural growth. He said;

my dream village will contain intelligent human beings. They will
not live in dirt and darkness as animals. Men and women will be
free and able to hold their own against anyone in the world.
There will be neither plague nor cholera nor small pox, none will
be idle, no one will wallow in luxury. Everyone will have to
contribute his quota of manual labour... . . . It is possible to
envisage railways, post and telegraphs and the like.

Large scale industries will eliminate the spinning wheel and the handloom, and through the large-scale industries, the wealth will be concentrated in the hands of a few. On the contrary, the village industries will lead to distribution of national income among the millions of people in thousands of villages. Under Village Industries Scheme, the individuals are to engage themselves in home industries in their homes and cottages. While the production is to be carried out on individually, the sharing of raw materials and marketing of finished goods are to be carried out collectively on a corporate basis.

Gandhi advocated production by the masses. He preferred the decentralization of small units of production to the concentration of large scale units in a few places. He wanted to carry the production units to the homes of the masses, particularly in villages. One advantage of the village and cottage industries is that they increase employment. Another advantage is related to the consideration of efficiency. There

are many reasons to believe that it is cheaper to produce any commodity in small and cottage industries because:

(i) No separate establishment charges are required
(ii) Integration of cottage industries with agriculture
(iii) Very few tools are needed;
(iv) No problems of storage;
(v) Negligible cost of transporting goods to the consumer
(vi) No waste - duplication - due to competition, and
(vii) No problem of over production.

All these factors make the production by the small units economical. Small is beautiful. This is the logic behind the Gandhian scheme of decentralization of village and cottage industries[23]. ***Swaraj of Gandhi:*** The basic principles of village Swaraj as outlined by Gandhiji are trusteeship, swadeshi, full employment, bread labour, self-sufficiency, decentralization, equality.

Swaraj can mean generally self-governance or self-rule, usually lays stress on governance not by a hierarchical government, but self governance through individuals and community building. However, Gandhi had broad idea of Swaraj that is the content of an integral revolution that encompasses all spheres of life. Moral and social aspects, however, form the basis of the concept of Swaraj, which if cut off destroys the very purpose of it (Swaraj). "At the individual level Swaraj is vitally connected with the capacity for dispassionate self-assessment, ceaseless self-purification and growing self-reliance". For Gandhi, independence is negative freedom while self-rule is positive freedom. While the latter requires 'self-restraint' or 'disciplined rule from within' for Gandhi swaraj, is a 'sacred' or 'Vedic' word and involves essentially self-rule. Gandhi did not accept Swaraj mere freedom from British Raj rather advocated it in the pure spiritual sense of attaining *moksha*. And in its fullest sense, Swaraj is much more than freedom from all restraints, it is self-rule, self-restraint and could be equated with *moksha* or salvation[24].

In Gandhi's (political) perspective *Swaraj* meant the power of the people to solve the problems of poverty, exploitation and employment. The masses do not conceive freedom in terms of more representative assemblies and constitutions. His Swaraj could reside in a system of Ramarajya or people's raj not a government but a state in the sense of situation in which the ruler would be the protector and friend of his subjects. Between his way of life and that of the poorest of his subjects, there would not be such a gulf as there is today. The poorest may feel prospects of development and happiness.

However, it can mean different to different people. To the worker and the peasants *Swaraj* or independence could only mean the freedom from exploitative system. Independence from the exploitation of natural resources stemmed from the method or large scale production or the systems that sought to centralize the state power on the expenses of masses. Gandhi disliked any system that tried to centralize power. To him centralization of power not only exploits man but also denied him freedom.

Political Freedom through Swaraj:
Gandhi did not viewed political freedom of *swaraj*, for the individual, on the basis of human nature but *rights* however, on a very different way. For Gandhi the true source of political freedom of the individual is *duty*, and not rights, because he believed that if we all discharge our duties, individual political freedom will not be far to seek. Gandhi also reminded that individual is born with a set of indebtedness to the world and he becomes man only by recognizing his duty to others. Therefore, he sees duty as a binding factor of mankind and makes it the basis for understanding political freedom of the individual as well as to develop his conception of good society[25].

According to him individual political freedom can be best achieved through the participation in the process whereby one's community exercises collective control over its own affairs to attain greatest good for all. Participation means 'performing duty' and therefore the individual can attain his/her political freedom only by performing his or her duties towards others. Therefore, for him *swaraj* as political freedom of the individual means participating in the process, by performing his/ her duty, whereby one's community exercises collective control over its own affairs to attain greatest good for all.

Economic Freedom of the Individual through Swaraj [26]:

For Gandhi poverty as understood is 'a product of an unjust social order' and is a great hindrance in the path to achieve freedom. He says that unless poverty and unemployment are wiped out from India, he would not agree that we have attained freedom. But he won't agree elimination of poverty with living lavishly and would not approve of man's dependence on material goods, as his understanding about poverty is based on his belief that poverty is man's natural condition. Though Gandhi attacked the socially constructed poverty, yet he did not understand economic freedom of an individual or a nation merely a freedom from poverty. Indeed Gandhi's all economic reforms simply aim at making individual and community self-sufficient and self contented by adopting voluntarily poverty, living villages, huts, simplicity, and slowness. He was very critical about the modern western understanding of individual's economic freedom in terms of meeting certain economic conditions and their belief that it can be achieved through more production and equal distribution. He strongly believed that the problems cannot be overcome with more goods or even a more equitable distribution of goods.

For Gandhi, therefore economic freedom of an individual means the ability to minimize one's needs in order to be independent and to participate in economic activities of a community to make it self-sufficient and self-contained, the very basis of sustainable society.

Economically, Swaraj means full economic freedom for the toiling millions. Gandhi argued modern economic pattern whether socialism or capitalism, both survive on exploitation inbuilt in them of nature and human labour and intellect to benefit few rich and produce a society featured with inequality, unemployment, poverty and ecologically disturbed environment. Capitalist's principle of large scale economies of production and profit, with Socialism's monopoly over political power with centralization of economic power exploited man, constrained his freedom. People around the world suffer, economic gulf between the rich and poor widens up, moral degradation, unemployment, exploitation-economic and environmental-crime, conflict and terrorism, made society unsustainable.

Thus Gandhi's dream of Swaraj could be personified a coming of an independent society where sovereignty of moral authority and the perfectibility of men in conduct rule the supreme. A society in which the poor witness freedom from inequality (economic and social) and exploitation. And in a sense such a society must represents a fructification of moral spirit, abolition of conflicts, egoistic interests and would be characterized by the values of harmony, cooperation and mutual confidence. Gandhi said that 'we recall a state Ramarajya –an independent society/ state-when both the ruler and his subjects are straightforward, pure in heart and inclined towards self-sacrifice and exercise restraints[27].

Swadeshi Movement and Simple Living:

An appropriate social order must be based on Ahimsa, harmony, service, duty, swadeshi, self-restraint and self-sufficient autonomous local communities that emphasize non-possessiveness, equality, non-exploitation, and decentralization of decision-making. Such a concrete path offers itself in the principle of swadeshi, that is, concern for immediate neighbour (Gandhian concept of man and society).

"If we follow the Swadeshi doctrine, it would be your duty and mine to find out neighbours who can supply our wants and to teach them to supply them where they do not know how to proceed, assuming that there are neighbours who are in want of healthy occupation. Then every village of India will almost be a self-supporting and self-contained unit, exchanging only such necessary commodities with other villages where they are not locally producible[28]".

Gandhi once told;

"Swadeshi is that spirit in us which restricts us to the use and service of our immediate surroundings to the exclusion of the more remote. Thus, as for religion, in order to satisfy the requirements of the definition, I must restrict myself to my ancestral religion. That is the use of my immediate religious surrounding. If I find it defective, I should serve it by purging it of its defects. In the domain of politics, I should make use of the indigenous institutions and serve them by curing them of their

proved defects. In that of economics, I should use only things that are produced by my immediate neighbours and serve those industries by making them efficient and complete where they might be found wanting. It is suggested that such Swadeshi, if reduced to practice, will lead to the millennium, because we do not expect quite to reach it within our times, so may we not abandon Swadeshi even though it may not be fully attained for generations to come"[29].

The global environmental problems like resource depletion and environment pollution are caused due to modern modernization of industry and much more industrial and agricultural production, population and poverty. Karl Marks once wrote that cultivation when progresses, spontaneously and is not consciously controlled leaves deserts behind it (book Gandhi and environment). Transportation verily causes addition to in the degradation of environment which in due threatens our sustainability. Goods transported from one place to another far remote they go produces far more consequences to the severability of environment pollution. The swadeshi of Gandhian type for local production and consumption exemplifies to living in sustainable manner with rendering to future generations for full enjoyment. Gandhi wants to ignite in us the realization that the nature has set limits and we must adhere to those limits. Using natural things like water, wood, without care that is easily available and free is going to pay us in the long run. Caution must be taken off for those things over which life depends. Man and nature have always lived in harmony through centuries. Many renowned ecologists have demonstrated the interplay between man and the nature. Ecologist like Dale Tom Carter and Vernan Gill wrote:

"Man whether civilized or savage is a child of nature, he is not a master of nature. he must confirm his actions to certain natural laws if he is to maintain his dominance over his environment. When he tries to circumvent the laws of nature, he usually destroys the natural environment that sustains him. And, when the environment deteriorates rapidly his civilization declines."

Gandhi warned us before time about the dangers of going against the law of nature. He characterize modern civilization a *'nine days wonder'*.According to Gandhi by following out the Swadeshi spirit, people observe the indigenous institutions and the village Panchayats hold them together with a kind of organization so familiar and concrete. India is really a republican country the vast organization of caste not only holds the Hindu religious traditions of the community, but it works for the political needs. The villagers managed their internal affairs through the caste system, and through it they dealt with any oppression from the ruling power.

However, he blamed that much of the terrible caused due to our negligence and deliberate attempts not to uphold the concept of swadeshi. Much of the deep poverty of the masses is due to the ruinous departure from Swadeshi in the economic and industrial life. *He said "I think of Swadeshi not as a boycott movement undertaken by way of revenge. I conceive it as a religious principle to be followed by all".*

"Had we not abandoned Swadeshi, we need not have been in the present fallen state. If we would get rid of the economic slavery, we must manufacture our own cloth and, at the present moment, onlybyhand-spinningandhand-weaving[30]."Gandhi's Swadeshi movement concept bears true mantra for self-independence and self-sufficient living by means of reducing to simple living high thinking. Self-sufficient does not only imply having enough, it means needs must be restricted to consuming only what is available as a natural food based on simple living. Simple living and using swadeshi goods were the means to sustain/ make human existence less expensive reduce over-consumption of natural resources and therefore reduce waste and less production that will reduce burdens on environment. It may not add to GNP but constructs a self-sufficient society of people with their own local-economy controls, local-consumption and local production system. What they consume what they produce and what they sustain. Neoclassical normative economists admit the criteria for measuring efficiency of state needs to be modified to accommodate not only social and income distribution effects but also environmental concerns. Moreover, those who dismiss Gandhi claimed, Swadeshi from

their minds by arguing the impossible, forget that Swadeshi, after all, is a goal to be reached by steady effort. And we would be making for the goal even if we confined Swadeshi to a given set of articles, allowing ourselves as a temporary measure to use such things as might not be procurable in the country. But I would urge that Swadeshi is the only doctrine consistent with the law of humility and love.

Ahimsa: Social change is to be brought about through non violent methods. Secondly Ahimsa would be his principle to enforce a doctrine of non-possession. According to the doctrine of non-possession would teach everyone should limit his own possession to what is needed for him and spend the rest for the welfare of others. This is non-violent way and desirable method inequality of income distribution and mal-distribution of wealth. He believed that imposition of the socially constructed non-possession principle may lead to dispossession of the weak and either violates either the principle of non-stealing or the principle of non-violence through the coercive state power (Gandhian challenge to acquisitive society). The requirements of the people must be in harmony with the resources of the economy and production technology should match the country's requirements.

Trusteeship and economic equality: Gandhi realized that the poverty is a constructed one and deliberate attempt to keep the elite class/ rich to ride on back of poor and sustain their position. Therefore he gave a concept of trusteeship meeting the requirements to the responsibility the rich class hold towards the society. According to Gandhiji, trusteeship is a way of life rather than just a method to achieve a particular end. According to his holistic approach, "everything on this earth belongs to God and is from God. Therefore, it was for this people as a whole not for a particular individual. Everybody on this earth has a natural right to at least the basic necessities of life, just like the birds and the beasts have. If somehow, an individual had more than his proportionate share, he was a trustee of that portion for God's people[31]. As land belongs to God and thus belongs to the community and therefore should be used for the welfare of the community. By peaceful non-violent persuasion, the hearts of landowners should be changed to accept the trusteeship idea. If this is not accepted by them, the poor should organize non-violent non-cooperation and civil disobedience struggle against them. He believed that the rich cannot accumulate wealth without the co-operation of the poor.

He said;

The moment the cultivators of the soil realise their power,
the Zamindari evil will be sterilized. What can the poor
Zamindar do when they say that they will not simply work
the land unless they are paid enough to feed and clothe
and educate themselves and their children. In reality the
toiler is the owner of what he produces. If the toilers
intelligently combine, they will become an irresistible power

Gandhian Environment Ecological Sustainability: Environmental sustainability can be defined as the sustainability of the ecological services on which humans depend. These services include the provisions of food and other raw materials and the ecological services required to support the agricultural production of soil and the regulation of the climate. Environmental sustainability at a global scale includes maintain the ecological stability of the global ecosystem for instance limiting the green house gas emission to levels that will not contaminate the climate.

Environment refers to the quantity and quality of the natural resources. It includes an ambient environment which includes water, landscape, air and the atmosphere. The state of environment is a critical detriment of the quantity and quality and sustainability of human activities. However, etymologically it means surroundings that constitute our existence. The Stockholm Declaration (1972) on human environment, said to be the Magna Carta', on human environment proclaimed: 'the natural resources of earth, including air, water, land, flora and funa are especially representative samples of natural eco-system, must be safeguarded for the benefit of present and future generations through careful planning and management , as appropriate. The state should take all possible steps to prevent the pollution of seas by substances that are liable to create hazards to human health, to

farm, living resources and marine life to damage amenities or to interfere with other legitimate uses of seas. The man and environment must be spared against the nuclear weapons and all other means of mass destruction.

Agenda 21 is a blueprint on how to make development socially, economically and environmentally sustainable. It has brought forth many environmental issues as the core issues the international community is facing now a day. It is now claimed that Agenda21 contains most formidable issues very important for the protection and conservation of environment, maintain ecology, and thereby help protect and save our planet Earth from degradation and/or extinction. However, how much striking it is to note that most of the issues forming integral part of saving mechanism to save and protect our planet Earth, contained in Agenda21 has already been spoken of by Gandhian philosophy century ago when environmental degradation and pollution were not an international issues or considered threats to our Planet and ecological balance.

All the problems were anticipated long ago and given probable solution to it The United Nations Conference on Environment and Development (UNCED), also known as the Rio Summit, or Rio Conference, Earth Summit produced two international agreements, two statements of principles and a major action agenda on worldwide sustainable development Agenda 21- It is a blueprint on how to make development socially, economically and environmentally sustainable. There is a need for favourable access to and transfer of environmentally sound technologies, in particular to developing countries, through supportive measures that promote technology cooperation and that should enable transfer of necessary technological know-how as well as building up of economic, technical, and managerial capabilities for the efficient use and further development of transferred technology. Gandhi advocated limited use of Machines, the machines that would increase human efficiency and effort not that it would replace human labour. Therefore those technologies need to be used which do not harm environment and protect the necessary needs of man. He was in that sense not against machines but rather against human dependence on machines, since his final goal for human life is emancipation of man from bondage

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Climate Change and Water Security: A Case Study of India

Dr. Sudheer Singh Verma and Sandeep Kaur

The paper concerns to explore and analyse the close interrelationship between water and climate change, how water serves as a primary medium through which climate change influences the ecosystem of the Earth. Consequently, it affects livelihood and well-being of societies. Climate change is having potential to exacerbate a wide range of existing, interacting, non-climate threats to security as known as threat multiplier. For India, the availability and quality of water resources are essential to sustain such a large population and support in keeping the pace of economic growth. Climate change has emerged as a great threat to derail India's development programmes. There are certain questions need to be pondered - how has climate change impacted the availability and quality of water resources in India? To what extend will threats to water security have impacts over livelihoods and well-being of societies in India?

1 - Introduction

People often conceive climate change as a 'threat multiplier' (Steffen, 2015 and Powers, 2015) because of having potential to exacerbate a wide range of existing, interacting, non-climate threats to security. Threats to security are considered in terms of availability and quality of water. Water is the primary medium through which climate change influences earth's ecosystem and thus the livelihood and well-being of societies (The Policy Brief of the UN Water, 2010). As below cartoon made by Patrick Chappette, which was published in International New York Times describes a poor affected by climate change. Water is seen as the core of sustainable development. Furthermore, it is critical for socio-economic development, healthy ecosystems and for human survival itself (UNDESA, 2015).

The accumulation of greenhouse gases excessively emitting by anthropogenic activities in the atmosphere led to changes in the Earth's ecosystem. The level of atmospheric carbon dioxide (CO_2) has continually increased since 1950's. The continuous increase in carbon dioxide significantly altered the global and local climate characteristics, including temperature and precipitation (IPCC, 2007). Changes in the Earth's ecosystem are known as climate change. As, the Framework Convention on Climate Change (FCCC) defines climate change as "a change of climate that is attributed directly or indirectly to human activity, that alters the composition of the global atmosphere, and that is in addition to natural climate variability over comparable time periods", while the Intergovernmental Panel on Climate Change (IPCC) defines climate change as "any change in climate over time, whether due to natural variability or as a result of human activity".

Global warming is likely affecting global hydrological cycle. Higher average temperatures and temperature extremes are projected to cause changes in precipitation will affect water resource availability through changes in form, frequency, intensity and distribution of precipitation, soil moisture, glacier-and ice/snow melt, river and groundwater flows. It would lead to further deterioration of water quality (The Policy Brief of the UN Water, 2010). Climate change conclusively poses threats to water security.

For India as a developing country, climate change is an additional burden because of ecological and socio-economic systems are already facing pressures from rapid population, industrialization and economic development (Verma, 2013: 95). India's population stands on second in the world. The availability and quality of water resources are essential to sustain such a large population and support in maintaining of the pace of economic growth. India sees climate change as a threat to Water security. The paper attempts to address the following questions - how has climate change impacted the availability and quality of water resources in India? To what

extend will threats to water security have impacts over livelihoods and well-being of societies in India?

2 - Securitization of Water

One may not realise what security is...until one is not threatened with losing it (Baldwin, 1997). It is difficult to understand the concept of security. If one has no concept of security, one cannot know whether one is threatened with losing it or not (Ibid.). In addition to comprehending the concept of security is as a pursuit of freedom from the threat and the ability of societies to maintain their functional integrity against forces of change, which they see as hostile. Survival is a bottom line of security (Buzan, 1991). However, in the twenty-first century, the concept of security has developed issue based rather than a predominant idea (Ibid.).

Water is an essential for supporting life on the earth. As, Brown (1944, 275) argues that one cannot imagine man separated from water any more than one can imagine him separated from land (Quoted in Sharma, 1989, 110). Water is conceived as a valuable social good. Water is having the important social character, which plays a role in human sustenance, health, and sanitation. Water is one of the manageable natural resources, which are capable of storing and recycling, diversion and transport and all these unique properties give great utility to human beings. Uncontrolled population growth and climate change has threatened the availability and quality of water. Water security as a concept has emerged in the 1990s, but it has been rarely used. In 2000, the World Water Council, at the second World Water Forum, introduced its vision for 'A Water Secure World – Vision for Water, Life, and the Environment,' (WWC, 2000) and the Global Water Partnership published 'Towards Water Security: A Framework for Action'. The second World Water Forum introduced the first integrated definition of water security. At the forum, the Global Water Partnership defines water security as –

"Water security at any level from the household to the global means that every person has access to enough safe water at affordable cost to lead a clean, healthy and productive life while ensuring that the natural environment is protected and enhanced" (Global Water Partnership 2000).

The abovementioned definition of water security refers that every person on the Earth should have sustainable access to adequate quantities of satisfactory quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability (UN-Water, 2013). Water security is not only about the enough water but it also involves all issues associated with water, for instance, floods and droughts, addressing conflicts that arise from disputes over shared water resources, and resolving tensions among the various stakeholders who compete for a limited resource.

Water security has mainly three key dimensions – social equity, environmental sustainability, and economic efficiency. These dimensions are also known as people, planet, and profit (called as 3Ps). Thus, water security promotes environmental protection as well as social justice. It further addresses the impacts of poor water management.

3 - India's Hydrological Characteristics

Water resources of India mainly have sources in Himalayan glaciers and monsoon. Hydrological characteristic refers to the availability of water in a region or country and its distribution through rivers and tributaries or water bodies.

3.1 Rivers of India

Rivers are feeding from melting glaciers in the Himalayan and precipitation during monsoon. In the Indian subcontinent, Himalayan glaciers are divided into three basins - Indus, Ganga, and the Brahmaputra. The Indus River originated from the slope of the Kailash range near Lake Mansarovar in Tibet. It is a longest river with 3200 km. It runs a course through the Ladakh region of Jammu and Kashmir, towards Gilgit-Baltistan and then flows in a southerly direction along the entire length of Punjab, then enters into Pakistan and merges into the Arabian Sea. However, according to Indus water treaty of 1960, India can use only 20 percent of its water. A portion of it does run through Indian Territory, as do parts of the courses of its five major tributaries - Sutlej, Beas, Ravi, Chenab, and Jhelum.

Ganga River originates from the *Gangotri* glacier in Uttar Kashi (Uttrakhand). The Ganga river system consists of a large number of tributaries - Yamuna, Chambal, Koshi, Ghaghra, Ramganga, Damodar, etc. This basin is shared by ten states. They are Uttarakhand and Uttar Pradesh (34.2 percent), Madhya Pradesh and Chhattisgarh (23.1 percent), Bihar and Jharkhand (16.7 percent), Rajasthan (13.0 percent), West Bengal (8.3 percent), Haryana (4.0 percent) and Himachal Pradesh (0.5 percent) (Mohita, 2015).

The Brahmaputra rises in the great Chemayungdung glacier in the Kailas range of the Himalayas. Brahmaputra flows eastwards from this region. With a total length of 2,900 km the Brahmaputra is one of the longest rivers of the world and passes through Tibet, India and Bangladesh.
India's southern part is also well-connected by river networks. The rivers of south India can be divided into two parts on the bases of direction of flow. The Rivers Subarnarekha, Mahanadi, Godavari, Krishna, Kaveri etc. are East flowing rivers, while Narmada, Tapti, and Sabarmati are the west flowing Rivers. These rivers are sources of water to sustain livelihoods and for keeping a pace of economic growth in this part of India (Sharma, 2014).

3.2 Monsoon

'Monsoon' is the main source of water after Himalayan glaciers in India. The word monsoon is derived from '*mausim*', an Arabic word, which means season and the word is applied to winds whose direction is reversed completely from one season to the next season. The normal duration of the monsoon in India is about 100 to 120 days beginning from first June.

There are two monsoon seasons in India - one, the southwest monsoon (from June to September); and second, the northeast monsoon (from November to December). An important feature affecting the rainfall in India is the change in the direction of wind currents that occurs in different months. Rainfall in India is dependent on the South-West and North-East monsoons between June to September excluding in Tamil Nadu where this state under the impact of North-East monsoon during October and November. Rains in India are very erratic, and it is very unevenly distributed with as little as 10 cms of average annual rainfall in some places of Rajasthan, and as high as 1 ,000 cms in Cherrapunji in Meghalaya.

4 - Climate Change Impacts over Water

As the inhibiting nature of climate change is to disturb a pattern of running ecosystem of the Earth. Global warming is likely to intensify, accelerate or enhance the global hydrological cycle. Higher average temperature and extreme temperature are projected to cause changes in precipitation. Changes in precipitation will affect water resource availability through changes in form, frequency, intensity and distribution of precipitation, soil moisture, glacier-and ice/snow melt, river and groundwater flows and lead to further deterioration of water quality (The Policy Brief of the UN Water, 2010). As, IPCC (2007) observed that The global surface temperature increased by 0.74°C, in the period between 1906 and 2005, with a faster warming trend over the past 50 years. The global average sea level rose by 1.8 mm per year from 1961 to 2003, and Arctic sea ice extent decreased by 2.7 percent per decade from 1978. Furthermore, the atmospheric water vapour content increases, precipitation patterns change, runoff of many glacier- and snowmelt-fed rivers change and the warming of lakes and rivers occurs, which increases evaporation.

The insinuations of melting Himalayan glaciers and sharing of scarce river-basin water resources will pose a threat, and lead to an acute shortage of water for drinking and farming. If current warming rates are maintained, Himalayan glaciers could decay at extremely rapid rates, shrinking from the present 5, 00,000 km^2 to 1,00,000 km^2 by the 2030s. This will also be the reason for concern when we consider Himalayan hydropower as a partial solution to India's energy needs, as climate change will sharply reduce the effectiveness of the planned mammoth investments (Kapur, 2009). Historical river flows will no longer be a good measure for future flows not only due to glacier melts, but also due to the changing patterns, duration, and intensity of rainfall and the seasonal distribution of river flows. The snow and glacier melt twenty percent of the annual flow of Ganga and in summer it goes to seventy percent. The melting of snow and glacier is

due to the rise in temperature. There will be an initial rise inflow of the river, but in the long term, the flow will reduce. According to the Intergovernmental Panel on Climate Change assessment report, the Himalayan glacier would shrink by forty-five percent by 2100 if the average temperature of the earth rose 1.8 degree Celsius (Seetharaman, 2015).

With the increase in the temperature, melting glaciers and the loss of snow cover over the Himalayas are expected to threaten the stability and reliability of northern India's glacier-fed rivers, mainly the Indus and the Brahmaputra. The Ganges will be not as much of dependent on melt water due to high annual rainfall downstream during the monsoon season. The Indus and the Brahmaputra are expected to see increased flows in spring when the snows melt, with flows reducing subsequently in late spring and summer (*Ibid.*).

Increased intensity of precipitation is likely to cause greater peak runoff, but less groundwater recharge. Receding glaciers, melting permafrost and changes in precipitation from snow to rain are likely to affect seasonal flows. Longer dry periods are likely to reduce groundwater recharge, lower minimum flows in rivers and affect water availability, agriculture, drinking water supply, manufacturing and energy production, thermal plant cooling and navigation (The Policy Brief of the UN Water, 2010). The above-described climate change impacts over water are clearly visible in India. Whether water related issues in the northern part of or southern part of India is due to climate change and poor management of water resources.

Water scarcity and drought are closely interlinked in India. Water scarcity is the most potent threat arising from climate change. Four percent of water resources are prevalent in eighteen percent of the world population, which resides in India. The gross per capita water availability in India is projected to decline due to climate change. At the time of independence in 1947, the per capita availability of water in India was 6,008 cubic metres a year. It came down to 5,177 cubic metres a year in 1951 and to 1,820 cubic metres a year in 2001. Current availability of water in India is 1869 BCM (climatechangecentre.net/pdf/waterresources.pdf). The availability of water is gradually decreasing to people. Furthermore, it is estimated that India will become a water-stressed nation by 2020.

Climate change is not only affecting the availability of water but also its quality. For instance, millions of people in India are currently lacking access to clean drinking water. As, the Policy Brief of the UN Water (2010) observed that the composition and quality of water in rivers and lakes is likely to be affected owing to changing precipitation and temperature resulting from climate change. The situation is only getting worse.

Demands for water are growing day by day at an alarming rate. In addition, climate change is expected to aggravate the problem by causing erratic and unpredictable weather, which could drastically diminish the supply of water coming from rainfall and glaciers. As, the Policy Brief of the UN Water (2010) pointed out that water demand for irrigation may increase as transpiration increases owing to higher temperatures.

The unequal distribution of precipitation across India is likely to bring drought in some parts and floods another. An increase in variability of monsoon rainfall is expected to increase water shortages in some areas. Unsustainable depletion of groundwater will likely be worsened by reducing surface water infiltration in arid and semiarid areas.

Frequent droughts are also caused by climate change in India. Approximately 16 per cent of India's geographical area, mostly arid, semi-arid and sub-humid is drought-prone (Government of India, 2013a quoted in Rathore, *et al.*, 2014). In 1987 and 2002-2003, droughts affected more than half of India's crop area and led to a huge fall in crop production. Droughts are expected to be more frequent in some areas, especially in northwestern India, Jharkhand, Orissa, Chhattisgarh, and Maharashtra. In 2014, over a large part of India was being hit by drought (Times of India, August 29, 2014).Rising sea levels will have serious effects on coastal aquifers, which supply substantial water to many cities and other users (the Policy Brief of the UN Water, 2010). This phenomenon will lead to the increase in the intrusion of salt water into coastal aquifers. It will lead to

further the availability of usable groundwater. This will also affect food production, which is a sustainable population in the coastal regions in India. As, Y. Pawar (2016) observes that with the rise in the sea level and storm flows would lead to salt water interruption in the coastal areas, impacting agriculture, degrading groundwater quality, contaminating drinking water, and possibly causing a rise in diarrhoea cases and cholera outbreaks, because the cholera bacterium survives longer in saline water. The most populated cities, Kolkata and Mumbai both are particularly vulnerable to the impacts of sea-level rise and riverine flooding. According to projections for the year 2070, supported by the IPCC, Kolkata and Mumbai top the list of cities whose populations are most exposed to coastal flooding, with 14 million and 11.4 million respectively.

Extreme weather events are caused by climate change, which have resulted in increase of water-related hazards (the Policy Brief of the UN Water, 2010). In 2016, several states - Chhattisgarh, Madhya Pradesh, Bihar, Uttar Pradesh, etc. are faced severe floods in history. As, Potarazu (2015) argues that the extreme rainfall in Chennai is a direct outcome of the ever-warming planet. The rains have broken a 100-year record in Chennai. The rains, which have broken a 100-year-old record with one day's rainfall, cover a month's average. November was the dangerous month in Chennai's history, the land was drenched when the skies erupted, pounding the city with 11 inches of rain, it was 34 times the daily average. Scientists say an El Nino of extraordinary strength intensely raised temperatures in the Indian Ocean and was the cause of the rain.

India's northwest coast to the southeastern coastal region could see higher than average rainfall. Dry years are expected to be drier and wet years wetter. More dynamic rain and frequent floods during the monsoon would result in a higher proportion of runoff and a reduction in groundwater recharge. Glacier melt in the Himalayas is probable to increase flooding and affect water resources within the next two to three decades. On the other hand, India will experience a decline in summer rainfall by the 2050s. Semiarid regions of western India are expected to receive higher than average rainfall, while central India will experience a decrease of 10-20 percent in winter rainfall by the 2050s (CSE, 2002). The frequency of heavy rainfall events has also increased. A 2°C rise in the world's average temperatures will make India's summer monsoon highly unpredictable. At 4°C warming, an extremely wet monsoon that currently has a chance of occurring only once in 100 years is projected to occur every 10 years by the end of the century (The World Bank, 2013).

5 – Water and Sustainable Development

The word *sustainability* suggests the ability to support life, to comfort, and to sustain. The Earth has sustained human beings by providing food, water, air, and shelter. Sustainable also means continuing without lessening (Flint, 2002). Development means improving or bringing to a more advanced state. Water is an essential for sustainable development in its truest sense and full meaning of the word sustainability. Our economic, social and cultural life depends mostly on the availability and the accessibility to fresh and clean water supplies. As a direct result of industrialization, urbanization, the growth of mega-cities, massive amounts of pollutants have been discharged directly into waterways and leaked through to many ground water aquifers (Abu-Zeid, 1998). Treatment of waste and pollution control measures has wrapped greatly, resulting in the rapid deterioration in the quality of most surface and ground freshwater resources in the India. India has made progress in the supply of safe water to its people, but gross disparity in coverage exists across the country.

In India, water scarcity is worsened by the climate change, especially in the dry area where the most of the poor people are residing. The level of ground water going down due to less rainfall and people suffered from the water scarcity. This problem is not only due climate change, but also the commodification of water playing an important role in the water scarcity. One may say that the "commodification of water in the era of climate change". On the one hand, climate change creates a water scarcity and on the other 'commodification'. The multinational companies (MNCs) using water for their own profit. The over-exploitation of water resources by these companies is likely making the severe problem of drought. In the drought-prone area, for instance, Kala Dera (Jaipur) the Groundwater level has fallen down because of the Coca-Cola plant there. The previous studies reported that before seven

- eight years ago the water level was at 10-15 feet in that area. As a result of the establishment of plants, water level falls down at 200 feet. These companies now become a threat to the local community for their water resources and livelihood. The example is Plachimada village. A Plachimada village in Kerala's Palakkad district, transnational companies like Coca-Cola and Pepsi are taking away the natural resources like water. The Coke plant located on a 16-acre plot in the lush, green village has been guzzling groundwater, causing wells and farmland to dry up all across the villages. In Chennai, the majority of citizens – including the middle class are buying water from the city's fleet of 1,300 tankers. These tankers, in turn, make incursions into the farmlands surrounding the city, buying the water from farmers' wells. This is water taken away not just from agriculture, but from the drinking water supplies of rural communities. In Mettur, Tamil Nadu, there are communities lack drinking water, but industries draw abundant supplies from the Mettur reservoir (Laxmi, 2005).There is a need of quality water for a healthy population. According to the World Bank estimates, 21 percent of communicable diseases in India are related to unsafe water. The UN-Water programme has correctly depicted of an explicable relationship between water and sustainable development.

The UN-Water programme has adopted an objective is "*Securing Sustainable Water for All*". Water is a primary condition for achieving development goal for any country. More than one-sixth of the world's population does not have access to safe water supplies. The potential conflicts from this disparity are frightening. The escalation of a water crisis in the India is due essentially to the unsustainable use and management of water resources and to the destruction of ecosystems such as forests, and soil that capture, and release water. Moreover, we recognize our limited ability to see the needs of the future; therefore, any attempt to define sustainability should remain as open and flexible as possible through the use of adaptive management (Flint, 2004).

6- Governing Water in the Context of Climate Change

Every day, humans acquire new levels of understanding about the interrelationship between water and climatic events. The Water sector is the most affected by climate change. It is evident that water is an essential condition for sustaining a life on earth. An over-abundance of water is caused by extreme weathers leads to floods. Similarly, a shortage of water may lead to droughts. As a result, there is a need for proper management of water for avoiding water related hazards and ensuring a sustainable water supply in such scenarios – closed several river basins, expanding population, increasing urbanization and industrialisation (Molinga and Tucker, 2010).

There are several issues related to managing water resources like the capital costs, the operations and maintenance costs, and the sinking fund when ensuring uninterrupted supply of water to the population and to industrial purposes. For capital costs, the capital requirement to collect, treat, pump, store, distribute and measure through meters the water supplied to all the myriad connections. After then, wastewater, which is consumed water, is to collect, convey and treat. It is known as capital costs. After the capital costs, then, there is the electricity bill to be paid for pumping the water and treating the wastewater, the chemicals required in cleaning the water and wastewater, the salaries of the employees and meter readers, the routine repairs that are needed etc. these costs are called as the maintenance costs. Finally, there is a sinking fund to be collected to replace the entire infrastructure when the life of the equipment is over (Vishwanath, 2014).

There is a need of considering the ecological costs when designing water governance. It occurs when it is returned back to nature at a quality decided as appropriate not to cause pollution. It also includes the preservation and management of the lakes and rivers and their catchments to continue to supply the water as well as the treatment plants needed to treat the sewage to appropriate standards (*Ibid.*). As, India's Vice President, Shri M. Hamid Ansari said that "those formulating public policy on water must cater to the essential requirements and ensure the sustainability of ecosystems so that there is the availability of adequate water for everyone. Prevention of greed, waste, and conspicuous consumption must remain high on the agenda."(IUCN, 2011).

The World Water Commission endorsed that India has adopted a predominant objective to tackle the water crisis and ensuring water security. India started pilot programmes for water security. The pilot programmes have been designed and implemented on the basis of a community-driven approach involving the respective state-level nodal agencies and district-level teams. The states will use their regular allocations from the Ministry of Drinking Water and Sanitation (MDWS) for these programmes and ensure effective convergence of other sources of funds such as the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS), State Sector Funds, Finance Commission grants, so on and so forth. As, Delhi Jal Board has proposed a project under the Clean Development Mechanism (CDM) aimed to reduce greenhouse gas. But, the these initiatives remain project based and concerns to address the adaptive needs of the urban poor need further momentum, especially in terms of ensuring a supply of water from groundwater sources (Mehrotra, 2009).To cope up water related issues, there is a vital need of a comprehensive governance approach. It is also an essential to make success in adapting changes in water sector introduced by climate change for an inclusive approach. The inclusive approach demands a wide involvement of people in preserving and maintaining water resources.

Conclusion

Availability of and quality of water is critical for socio-economic development, healthy ecosystems and for human survival itself. Ensuring uninterrupted supply of enough and qualitative water to human consumption and to run economic activities in a country is known as water security. Climate change has emerged as a grave threat to water security. Climate change has altered the quality of natural resources and adverse effect livelihood of people. In India, water security has been become a major concern due to changes in the climate system. The effects of climate change over the water can be seen recently examples of India like severe droughts occurred a larger part of India and during monsoon, floods also became a major concern because that is not only affecting the lives of people but also economy of the state. So, sustainable approach is required to achieve water security. Gram Panchayats and Village Water and Sanitation Committees have needed to prepare water security plan which addresses source sustainability, and water quality. India has started to address these problems. However, there is a need of a more comprehensive approach to resolve the issue.

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Cabinet approves Paris climate deal ratification

Tribune News Service
New Delhi, September 28

The Cabinet today approved the ratification of the Paris Climate Change Agreement, which will be formalised on October 2. The decision was taken at a meeting chaired by PM Narendra Modi, who on Sunday made the announcement at the Kozhikode BJP national council.

Paris Agreement was adopted by 185 nations on December 12, 2015. India signed the agreement in New York early this year on April 22, 2016. A total of 191 countries have signed the agreement so far.

Notably, India announced its climate action plan on October 2 last year, after submitting to the UN its "intended nationally determined contribution" a day earlier

As per provisions of the agreement, the treaty will come into force as and when 55 countries contributing to 55 per cent of the total global emission ratify the agreement. So far, 61 countries have deposited their instruments of ratification, acceptance or approval accounting in total for 47.79% of the total global greenhouse gas emissions. India's decision to ratify the agreement will take the number of cumulative level of emission of countries to have ratified the agreement so far to 51.89%.

India will now be one of the key countries that will be instrumental in bringing the Paris Agreement into force. Given the critical role that India played in securing international consensus on the agreement, today's decision will further underline India's responsive leadership in the community of nations committed to global cause of environmental protection and climate justice, officials say.

The Cabinet also decided that India must declare it would treat its national laws, development agenda, availability of means of implementation, assessment of global commitment to combating climate change, and predictable and affordable access to cleaner source of energy as the context in which the pact is being ratified.

(Courtesy: The Tribune)

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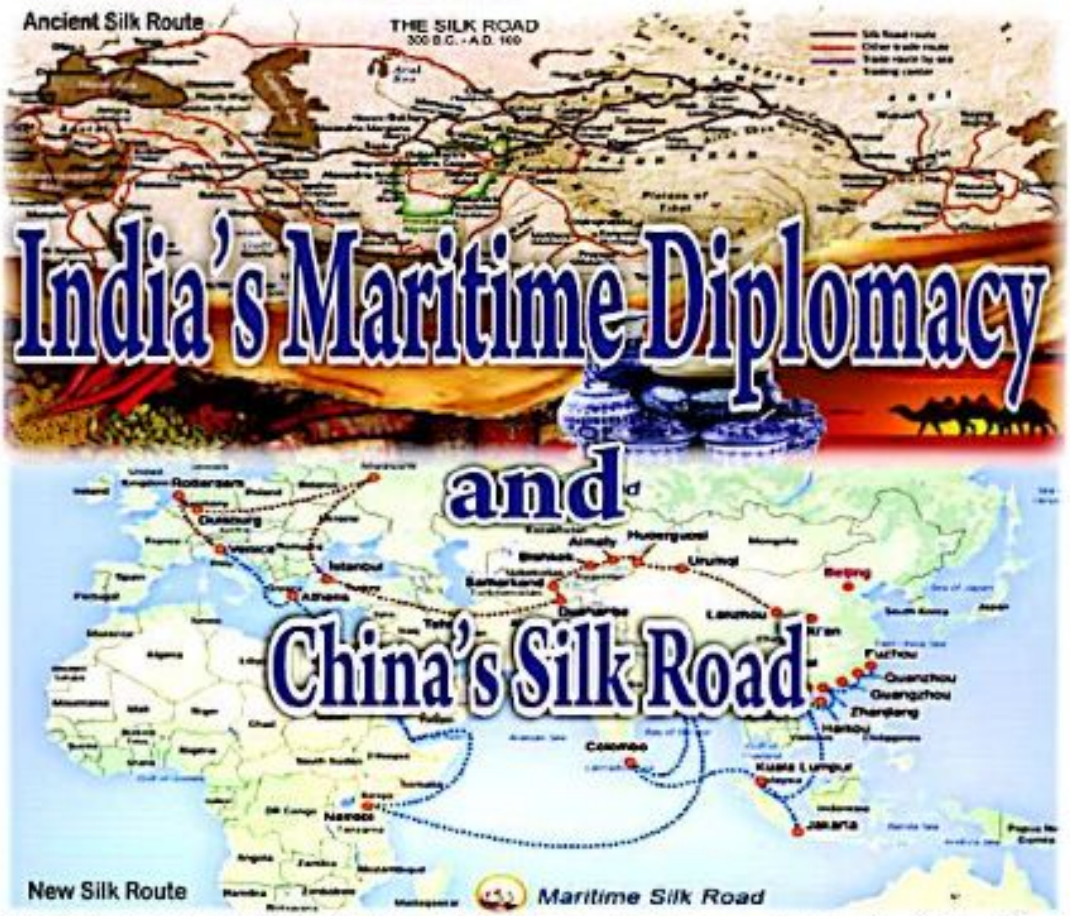

India's Maritime Diplomacy and China's Silk Road

New Silk Route
Maritime Silk Road

The Silk Road Economic Belt and the 21st Century Maritime Silk Road, collectively known as the belt and Road initiative (Xinhua)

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WORLD FOCUS

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EDITORIAL

The Silk Road was the name given to different trade routes that made trade possible from China to the west, by the Han Dynasty of China. This name was coined by a German- Silk Road/ Silk Routes.The Ottomans stopped the trade suspecting that plague came by the silk route. Then started the sea route, more called the spice route of which India was a beneficiary and sufferer that transported spices to Europe from India and the Far East, to the west, they came to trade and seeing it so good went to conquer the areas they traded with.

India and China from time immemorial are both lands of sea faring merchants who got both their countries great wealth. Diplomats followed traders to protect trading interests of both countries, then both countries came under occupation, trade. Come down now to modern times. President Xi-Jinping wants to take China to those golden days of large fleets led by Admiral Zheng that travelled the world supported by emperor Zhu Di of the Ming Dyansty. Prime Minister Modi wants India to follow the trading example of the Chola kings.

India's Maritime diplomacy took a great boost recently when India decided to have a fleet review in the Indian Ocean with 50 other countries in Vishakhapatnam. This has put India on a firm footing in the area in which China is trying to consolidate its position. Today India is a nation that watches the Indian Ocean with its different listening posts in the India Ocean Region (IOR). India has also started protecting the sea lanes from the Pirates, and giving training to the navies of the region.

All routes of the ancient world first started as trade routes, as they prospered and then people started to use them as routes of culture and ideas were exchanged through them. Later on traders became masters of the countries they traded with. China wants India to support its CPEC (China Pakistan Economic Corridor). This is a infrastructure project to bring peace and prosperity to the Pakistan occupied Kashmir and the troubled Muslim ethnic Xinjiang area of China, where terrible conditions are imposed on the Muslims of the area. As trade grows in the area, and prosperity comes to the area, sooner than later terror and trouble will travel with trade to the troubled area of Xinjiang, and from there to China occupied Buddhist. This investment by China is based on the presumption that China will gain diplomatically and strategically, but historically this region has taken money and only given trouble with interest.

The recent rejection by the Hague International Tribunal of China's 9-dash line claim in the South China Sea that interfered with Philippines fishing rights and its claim of a 200 –nautical mile exclusive economic line, puts a brake on China's claim on all areas in the South China Sea .This line was drawn by China unilaterally demarcating its maritime borders after the Chinese navy took over islands with Japan during World War 2, it was originally called 11 –dash- line now 9-dash –line as two dashes were removed excluding the gulf of Tonkin as a good will gesture to Vietnam.

This is a blow to the Chinese President's One-Belt-One Road (OBOR) who wanted the Maritime route to have started from China gone through the South China Sea and then to the Indian Ocean.This verdict is good for the political, economic and strategic interests of India and the region. This award puts China in direct conflict with Philippines, Vietnam, Indonesia, Taiwan, Japan and Malaysia.China's modern concept of the silk route is the "9 –dash-line" by which it claims 90 % of the energy and mineral rich sea region.

All Maritime Diplomacy and trade routes are wealth creators for nations, past; present and future. It is trade that drives relationships between nations and entire regions. Both India and China want to go back to the great Nations they had in the past and in all probability that will happen.

New Delhi **G. Kishore Babu**
September 2016 **Editor**

India's Maritime Diplomacy and China's Silk Road

Contents

China's Silk Road and India's Maritime Diplomacy

Anil Kamboj, Inspector General (Retd)

The Silk Road was also called "Silu" in Chinese. It was a general name for the ancient strategic transportation channel which started from China and passed through Central Asia, West Asia, Africa and Europe. In the 19th century, when the name of Silk Road was first used by a German geographer, it just included the land road from China's Xinjiang to Central Asia. Later it was expanded gradually and reached West Asia, Europe and Africa. It took in land and water routes. It is not only an important transportation route connecting the ancient world, but also a synonym for economic and cultural exchanges between the Western world and the oriental world.

The Silk Road was an international passage with historical significance. The ancient Silk Road helped to integrate the old Chinese, Indian, Persian, Arabian, ancient Greek and Roman cultures and promoted the exchange of the Western and Oriental civilizations. Half of the Silk Road, which winded along between Xi'an to the east bank of the Mediterranean, was located in Xinjiang. Xinjiang was a place where the ancient Western and Oriental cultures met and many famous historical people visited. Lots of historical relics and items of rare cultural interest were left in Xinjiang.

Coming to modern time, since coming to office two years ago, President Xi Jinping, who went to Maldives in September, and Premier Li Keqiang, who visited Kazakhstan and Serbia last month, have between them travelled to more than 50 countries.

Apart from the obligatory pilgrimages to summits with great powers, almost all the places they've visited have been linked to the grandiose master plan for the New Silk Road and the New Maritime Silk Road.

In the process, the traditional tools of Chinese diplomacy — offers of a panda here or a football stadium there — have given way to colossal sums of money, manpower and expertise for local infrastructure.

After decades of hurtling construction and development at home, China is now planning, funding, building, or helping to build, a vast network of roads, railways, tunnels, bridges, pipelines and ports across Asia and Europe.

The talk began in the early 1990s, with a European call for a New Silk Road that would connect Europe with Central Asia via the International Transport Corridor Europe-Caucasus-Asia (TRACECA). The U.S. got in on the act in the late 1990s, first with the aim of bolstering its influence in Central Asia, evident in the Silk Road Strategy Act of 1999, which died in the Senate, and then with the intention of stabilizing Afghanistan, with the Silk Road Strategy Act of 2006, which also failed to pass. Under then Secretary of State Hillary Clinton, efforts were made to get India involved, for instance with the Turkmenistan, Afghanistan, Pakistan, India (TAPI) pipeline project. During visits to Central Asian and India in 2011, Clinton spoke in favor of the Silk Road, while making India one of the pivots of the project. A ministerial-level meeting was held in September 2011 in New York to give the project a nudge.

China's proposed New Silk Road, a maritime and high-speed rail series of trade routes that could cost as much as $100 billion. Chinese maps of the project show land routes snaking across Central Asia into Turkey and up through Europe as far as Rotterdam. The sea route goes from Southern China with waypoints in Southeast Asia, Sri Lanka, Maldives, India and Kenya, then on through the Suez Canal to join with land routes at a port in Greece. On land and sea, spurs spread out like tentacles from the main route to places like Indonesia, Afghanistan, Iran and even Venice, a historical nod to the home of Marco Polo.

It may be difficult to guess as to how much China is pumping its money in its overall plan, but it is huge amount. The overall plan is known as the Silk Road Economic Belt or "One Road, One Belt". Nevertheless, recent announcements of a $40-billion Silk Road Development Fund, along with $10 billion for railways and roads in Southeast Asia, $10 billion for the same in Central Europe, and more than $50 billion in recent deals in Central Asia, give an idea of the scale of the project. The China led Asian Infrastructure Investment Bank (AIIB) has its war chest ready for action. Bank president Jin Liqun said on Tuesday that the bank has approved a $1.2 billion lending portfolio this year. The Bank President did not reveal the name of the project, but it sounds quite obvious that it is meant for their Silk Road. It is supposed to be the lending arm of China's Silk Road revitalization project. Earlier, Liqun had met with global executives from 15 multinationals anxious to hop on China's Silk Road.

For the Traders last travelled the old Silk Road between China and Europe 600 years ago, with horses and camels hauling goods passed on from caravan to caravan along the way. They may have taken long time to reach their destination. Sometime back, a freight train carrying 82 containers arrived in Madrid at the end of a 21-day journey from Yiwu, a manufacturing town south of Shanghai. China, which leads the world in high-speed rail, hopes to push its existing network outwards so that the same journey will take two or three days in the years ahead. The government says it is having talks about high-speed rail with no fewer than 28 countries.

China's increasingly aggressive posture at sea in recent years has stirred up long-standing maritime disputes with several countries now being offered multi-billion-dollar infrastructure deals. They may not easily fall into line with proposals for an "economic co-operation area" stretching from Bali to the Baltic in which Beijing would inevitably have the greatest influence. For example, Sri Lanka's President, Maithripala Sirisena, who won a surprise victory over the autocratic Mahinda Rajapaksa, campaigned partly on opposition to Rajapaksa's closeness to China. Beijing has invested $1.4-billion in Colombo for development of port, part of the proposed maritime Silk Road to connect China with Europe. Similar democratic potholes in this New Silk Road could open up in Greece, where another Chinese port project, in Piraeus would most likely come up. On the one hand, China's high-handed control of the project is being seen by some as an insult to Greek pride and sovereignty. On the other, Chinese expertise and funding for the port, and associated rail and road works, are considered vital to saving the Greek economy from collapse.

The new silk road, if it is to be created will have to overcome countless local political problems, international rivalries and probably even wars. (The route veers through Afghanistan and Iraq.) It has become a tradition for Chinese leaders to stamp a hallmark on their presidency with a simple phrase: Jiang Zemin opted for an incomprehensible theory called "The Three Represents." Hu Jintao chose 'Harmonious society," while the current President Xi Jinping spoke of "The China dream" when he took power. It's becoming increasingly clear that his dream involves much more than just China, and that it is much more ambitious than anyone imagined.

The Silk Road strategy's ambitious vision aligns with Beijing's goals much more closely than the TPP (The Trans-Pacific Partnership), which is a reflection of the U.S. international trade model writ large. The TPP's proponents see it as a new vision for free trade and market liberalization around the world. It would integrate the U.S. economy with Asia to a degree heretofore unseen, providing a backbone for the often criticized U.S. rebalance to Asia. China envisions the Silk Road as a region of "more capital convergence and currency integration" — in other words, a region where currency exchanges are fluid and easy. *Xinhua* notes that China's currency, the renminbi, is becoming more widely used in Mongolia, Kazakhstan, Uzbekistan, Vietnam, and Thailand. From economic exchanges, China hopes to gain closer cultural and political ties with each of the countries along the Silk Road — resulting in a new model of "mutual respect and mutual trust." The Silk Road creates not just an economic trade route, but a community with "common interests, fate, and responsibilities." The Silk Road represents China's visions for an interdependent economic and political community stretching from East Asia to western Europe, and it's clear that China believes its principles will be

the guiding force in this new community. But for all the ambitious talk, details remain scarce on how this vision will be implemented. Will the land- and sea-based Silk Roads be limited to a string of bilateral agreements between China and individual countries, or between China and regional groups like the European Union and ASEAN? Is there a grander vision, such as a regional free trade zone incorporating all the Silk Road countries?

India's Maritime Diplomacy

The former Prime Minister Manmohan Singh had "expressed support" for China's ambitious Maritime Silk Road plan but his successor Narendra Modi "changed" India's "attitude" towards the initiative by using delaying tactics. As per Global Times "Indian strategists and the government believe there is some geostrategic design behind the 'Belt and Road' (Silk Road) initiative. Now, India has adopted opposing, delaying and hedging measures toward different parts of the of the initiative." India from the beginning has reservations over the strategic impact of the MSR on the Indian Ocean, observers here pointed out that India first sought details of the project since its outline was unveiled in 2014.

Vice President Hamid Ansari during his visit to Beijing in June said New Delhi had sought more details about the MSR.

Very little attention has been paid to the crucial and indeed imperative role of seafaring trade and maritime security by India, and indeed the entire spectrum of maritime affairs. Until recently, there has been little realization of the importance of these issues in safeguarding the Indian way of life and ensuring that India emerges as an increasingly influential power, dedicated to peace and cooperation with all.

If we turn our pages of history, India's maritime history began in the 3rd millennium BCE when the Indus Valley established maritime contacts with Mesopotamia. Following the Roman occupation of Egypt, trade flourished with the Roman Empire, not only with India's west coast, but also with Tamil Pandyan Kings. The Chola Dynasty reached out beyond the shores of what is now Tamil Nadu between the Third and Thirteenth Centuries, extending its domain from Sri Lanka to Srivijaya (Indonesia) in Southeast Asia. Similar trade and maritime contacts flourished between rulers of Kalinga (Orissa) and the kingdoms of South and Southeast Asia, including Myanmar, Indonesia, and Sri Lanka. Across India's western shores, Quilon enjoyed growing trade links with the Phoenicians and Romans. Trade with Mesopotamia and the shores of Africa flourished. Further north, the Marathas developed a maritime force that could challenge the ships of European powers like the Portugal and Britain until they inexplicably lost interest in maritime power. Trade flourished from western shores across the Persian Gulf to the Mediterranean until European dominance of the sea lanes gained ascendancy. From the 18th century onward, India lapsed into a centuries long phase of 'maritime blindness.'

As per G Parthasarathy India and China played a significant and even dominant role in world trade up to that point. India is estimated to have had the largest economy in the medieval world until the 16th century. English historian Angus Madison has estimated that India's share in world income was then 27%, compared to Europe's share of 23%. After three centuries worth of European domination, India's share fell to 3% of the global economy. In 1950, China's share in world trade was 1% and India's was 1.9% – virtually double that of China. In 2014, India's share of world trade had a fallen to 1.7 % while China's had grown to 12.2%. This falling share of our world trade sadly reflects the relative decline of India's regional influence in Asia and indeed globally since independence.

According to a projection by the recently released *Global Marine Trends 2030* report, as the global GDP doubles over the next 17 years China will come to own a quarter of the world's merchant fleet. Several other maritime states in the Asia-Pacific, including Japan, South Korea, India, and Vietnam, are also set to significantly enlarge their maritime footprints. Admittedly, there are real threats to maritime peace and security from the changing maritime power equations and the sharpening competition over resources and geopolitical influence. The Asia-Pacific region — with its crowded and, in some cases, contested sea lanes — is becoming the centre of global maritime competition. Maritime tensions remain high in this region due to rival sovereignty

claims, resource-related competition, naval build-ups, and rising nationalism.

A lot of attention has focussed on the maritime implications of China's rise. President Xi Jinping has championed efforts to build China into a global maritime power, saying his government will do everything possible to safeguard China's "maritime rights and interests" and warning that "in no way will the country abandon its legitimate rights and interests." China.

Yogendra Kumar in his book *Diplomatic Dimension of Maritime Challenges for India in the 21stCentury* discusses the entire threat spectrum of 'traditional' and 'non-traditional' maritime challenges. India's national maritime policies will also have to cater to the possibility of a much larger scale evacuation of Indian nationals should instability and violence spread to the Arab Gulf countries, where over 7 million Indians live, in addition to catering to the security of our sea lanes from where we get over 70% of our energy requirements of oil and gas. He also focuses on challenges posed by an emerging and assertive China as it proceeds with its "One Belt One Road" initiative across our shores; in his discussion on naval grand strategy for India, the ambassador offers an interesting take as to how this challenge can be 'finessed.' In his opinion, work is required to be done in restructuring institutions and building maritime capabilities in shipyards and research institutions, to meet the forthcoming challenges and opportunities in coming decades.

As per Abhijit Singh in his Article India's 'Look West' Maritime Diplomacy, India's maritime diplomacy is most often associated with its naval outreach to East Asia. With an increase in naval ship visits to South East Asia in recent years, and attendant media speculation over New Delhi's supposed Pacific ambitions, the impression has been created that East Asia remains the ultimate destination of the Indian Navy's diplomatic endeavours. By contrast, New Delhi's nautical diplomacy in the Indian Ocean has seemed relatively modest. Developments in the past few months, however, have shown that India's attention remains squarely focused on the Indian Ocean. Since February this year, when Prime Minister Narendra Modi visited Sri Lanka, Seychelles and Mauritius, making it clear the Indian Ocean littorals remained India's top priority, New Delhi has actively nurtured relationships with its maritime neighbours. Having improved the texture of its diplomatic ties, India has also sought to undertake joint developmental projects and strengthen a maritime security trilateral with Sri Lanka and Maldives through the inclusion of Seychelles.

New Delhi's maritime diplomatic efforts haven't remained limited to the cultivation of political relationships. In April this year, the Indian Navy scored one of its biggest diplomatic successes when it evacuated over 4000 Indians and 900 foreign nationals from wartorn Yemen. Operation Rahat was seen as a credible illustration of the India's maritime peacekeeping and benign potential, more so because it was conducted amid an active conflict, amidst an unfolding humanitarian catastrophe.

The most significant dimension of India's Indian Ocean diplomacy, however, has been the outreach to Arab Gulf states, where the Indian Navy has embarked on program of sustained capacity building and security collaboration. Earlier, four Indian Naval ships departed on a month-long deployment to the Arabian Gulf, where they engaged in coordinated drills with host navies. In fact, the Indian Navy's Western outreach predates its diplomatic turn to the East. Since 2008, the Indian Navy has been partnering regional maritime forces in anti-piracy duties, providing critical support and training to Gulf Cooperation Council (GCC) navies. Through defence cooperation memorandums and joint committees on defence cooperation, it has substantially enhanced its operational synergy with Arab Gulf navies – many of them members of the Indian Ocean Naval Symposium (IONS), an initiative pioneered by the Indian Navy.

The naval engagement with Oman has been most notable. While India and Oman entered into a "strategic partnership" in 2008, naval cooperation has been on since 1993 in the form of a biennial exercise, Naseem Al-Bahr. More significantly, Oman has played a key role in sustaining India's security efforts in the Gulf of Aden by offering berthing and replenishment facilities to Indian naval ships, and hosting a crucial Indian listening post in the Western Indian Ocean. With a new super-port project at Duqm

nearing completion, Oman is poised to transform the maritime geopolitics of the Arabian Sea. Importantly for India, the ongoing engagement with Arab navies hasn't been to the exclusion of a maritime relationship with Iran. After their county's nuclear deal with the West, the Iranian naval leadership has also been on the look-out for new partners to support its naval agenda of establishing control over the Western approaches to the Arabian Gulf.

With China continuing to make military inroads, the past few years have witnessed a shrinking of Indian geopolitical influence in the Indian Ocean Region (IOR). Reports of a new Chinese naval base in Djibouti, growing submarine visits, and a spurt in Beijing's maritime military activities in the Western Indian Ocean have created concern among India's security establishment. The nature of the recent submarine forays by the People's Liberation Army Navy suggests an aspiration for a standing security presence in the IOR. For the Indian Navy, therefore, interaction with Gulf navies is a strategic measure aimed at retaining Indian influence in the IOR. New Delhi's Indian Ocean diplomacy has shown that the political role of sea power remains as important as its wartime uses. It is important to note that the Indian Navy has successfully created a durable template of maritime relations in the Western Indian Ocean. It's reassuring presence has validated India's capacity to protect Indian and regional interests, and provided evidence of a productive and dynamic maritime vision.

India proposes to counter China's maritime ambitions with a 'Cotton Route' to help forge economic and strategic partnerships with other countries by reviving ancient Indian Ocean pathways through which the fabric was exported to both the east and west. Mindful of Chinese initiatives launched since 2013 to connect coastal states, including countries in South Asia and India's extended neighbourhood, the Modi government has launched its own strategy to partner with countries with which it shares historical trade and people-to-people links. The idea is to balance China's growing maritime ambitions, especially its security interests and projects that have adverse implications for India's defence. China has identified countries including Sri Lanka, the Maldives and even India in the Maritime Silk Road initiative that connects Chinese ports with Africa's eastern coast. During 2015, Prime Minister Narendra Modi's visit to Sri Lanka, Seychelles and Mauritius, which highlighted New Delhi's eagerness to deepen ties with countries in the Indian Ocean region where Beijing is too trying to expand its influence. Apart from the 'Cotton Route', India plans to launch Project Mausam, a regional initiative to revive its ancient maritime routes and cultural linkages with countries in the extended neighbourhood.

The 'Cotton Route,' still in the nascent stages, will reach out farther and wider. It is aimed at increasing India's economic cooperation and strategic partnerships with countries in the Indian Ocean region. India's first cotton exports date back to the 1st century CE. There were regular supplies of large quantities of cloth of ordinary quality from Tagara (Ter in Maharashtra). Evidence of cotton exports is substantiated by archaeological discoveries from sites at the Red Sea ports of Berenike and Myos Hormos. Some writers also claimed that cotton was exported to Central Asia via the ancient Silk Road. It has to be remembered that silk was not the only product that moved across the ancient Silk Road. The Chinese consumption of cotton cloth is rarely discussed in surveys of Asian trade. However, what was the Silk Road for Chinese silk was, in the reverse direction, "Cotton Road," as pointed out by an expert who worked extensively on the subject, justifying the Cotton Road's equal historic importance as Silk Road.

Great-power rivalries, however, continue to complicate international maritime security. The rivalries are mirrored in foreign-aided port-building projects; attempts to assert control over energy supplies and transport routes as part of a 21st-century-version of the Great Game; and the establishment of listening posts and special naval-access arrangements along the great trade arteries. The evolving architecture of global governance will determine how the world handles the pressing maritime challenges it confronts. The assertive pursuit of national interest for relative gain in an increasingly interdependent world is hardly a recipe for harmonious maritime relations. Another concern is the narrow, compartmentalised approach in which each maritime issue is sought to be dealt with separately, instead of addressing the challenges in an integrated framework.

Conclusion

The OBOR strategy has become China's major foreign policy goal, Beijing will promote this initiative economically, politically, militarily and culturally over the next eight to ten years. For India, there are lessons from this. New Delhi also benefits from at least reasonable ties with most stakeholders in the New Silk Road, including Iran, where India has invested heavily in the Chabahar Port. But India must also make serious efforts to strengthen its links with Southeast Asia, and for this it must maintain stronger ties with Bangladesh. New Delhi will also need to work towards a manageable relationship with Pakistan, which would not only facilitate pipeline projects like TAPI, but also enable access to Afghanistan and Central Asia.

India also needs to change its approach towards border regions, and not allow security to cloud its overarching vision. One of the important cornerstones of China's Silk Road vision has been its emphasis on utilizing border regions, while also making use of their strategic location. All of this requires from Prime Minister Narendra Modi policies of pragmatism, especially towards our neighbours.

In many ways, India's "Look-West" maritime diplomacy has been critical in rebalancing the Indian Ocean's emerging strategic narrative from "political contestation" to "collaborative development."

South China Sea: Aftermath of the PCA Ruling

Prof. Rajaram Panda

Introduction

The South China Sea (SCS) has the potentials for triggering a major regional conflagration, which unless resolved by diplomatic means might engulf the world with debilitating consequences. The nature of the dispute centred on the body of water in the SCS took a dramatic turn following the ruling by the international United Nations-backed tribunal, the Permanent Court of Arbitration (PCA) on 12 July 2016, which came in favour of The Philippines and against China's expansive claims to rights in the SCS. The court found that China does not have any legal basis for historic rights to economic resources and therefore violated the Philippines' sovereign rights and Exclusive Economic Zone (EEZ). While China rejected the ruling immediately, The Philippines and other claimants welcomed the decision that "upholds international law, particularly the 1982 United Nations Law of the Sea Convention (UNCLOS), as an important contribution to on-going efforts in addressing disputes in the South China Sea". The ruling is expected to stoke further tensions in Southeast Asia and has set the stage for more tension in one of the world's dangerous flashpoints.

Besides the Philippines, China is locked in disputes in the SCS with Brunei, Indonesia, Malaysia, Taiwan and Vietnam. While the opposition from Taiwan, Indonesia, Malaysia and Brunei is muted, unlike legal recourse by the Philippines, Vietnam has taken a hard-line stance to confront the Chinese if its national interests are violated. Vietnam has history to support its stance as it has successfully driven out the French, Chinese and the US in the past from their aggression and earned freedom the hard way and is not expected to surrender without a fight. Vietnam has all along enjoyed the support of India consistently in this historic journey of struggle to earn its freedom from foreign aggressors. This bonding has solidified over the years.

Main points of the ruling

The ruling is likely to have a dramatic effect on territorial disputes and the world's relationship with Beijing. The tribunal found that none of the Spratlys, including Itu Aba, Thitu Island, Spratly Island, Northeast Cay, and Southwest Cay, are legally islands as they cannot sustain a stable or independent economic life. As such, the tribunal ruled, they are entitled only to 12-nautical mile (22 km) territorial seas under the UNCLOS, to which both China and the Philippines are signatories.

There are seven Spratly features controlled by China. Of these, Beijing appears to be building a 3,000-meter military-grade airstrip in three features – Johnson Reef, Cuarteron Reef and Fiery cross Reef, all rocks. Two others, Hughes Reef and Mischief Reef are below water at high-tide and therefore do not generate any maritime settlement. The tribunal, however, observed that Gaven Reef is a rock and not a low-tide elevation and therefore disagreed with the Philippines. The tribunal also ruled that Second Thomas Shoal and Reed Bank are submerged and belonged to the Philippine continental shelf.

On Beijing's moves in the Scarborough Shoal, a powder keg, the tribunal ruled that China has violated the Philippines' sovereign rights in Manila' 200-mile EEZ. The tribunal also ruled that China had breached the Philippine's sovereign rights in exploring for oil and gas near the Reed Bank, another feature in the region. The court blasted China for its construction of artificial islands at the seven features in the Spratlys, adding that these have caused "severe harm to the coral reef environment". It accused China of reneging on its obligation to preserve and protect fragile ecosystems.[1]

Even before the ruling was delivered, it was widely speculated that the verdict would go in favour of The Philippines and against China.[2] This led analysts to interpret that the ruling was a setback for

Chinese foreign and military policies in Asia. After three years of studying 4,000 pages of evidence and two hearings, the 4:1 ruling by the five-member jury indicted China for the way it is dealing with the SCS. From the way China reacted, the ruling shall have significant legal implications of what a reef really is and what rights it gives to a claimant nation. It is also likely to complicate further military build-up by China in the region. Given the Chinese intentions, it seems that with its far superior military might vis-à-vis smaller claimant nations, it is capable to act freely without fear despite the tribunal's snubbing and US commitment to back its allies such as the Philippines as well as commitment of global norms.

Given the strategic significance of the SCS and the amount of natural resources that lie on the sea bed, as well as being the route for over half of the world's commercial shipping, the region remains a major risk of military conflict in the next decades or so unless the issue is resolved by diplomacy. China seems aware that the negative consequences of the ruling have already dented its international image and left with negative consequences with its Asian partners (for example, Indonesia).[3]

At the moment, Beijing is evaluating the security and assessing the level of its perceived threat. If necessary, it might declare an Air Defence Identification Zone (ADIZ) on the SCS, which would give the Chinese military authority control over foreign aircraft. Beijing feels it is within its sovereign right to set up ADIZ. It may be recalled, in 2013, amid its dispute with Tokyo over the Japanese-administered Senkaku Islands, Beijing unilaterally established an ADIZ over the East China Sea, which riled Japan, the US and its allies. A similar move by China over the SCS could not be ruled out. Beijing might be looking for an opportunity by exploiting Japan's support to the award to escalate the situation in the East China Sea by looking for excuses to "punish" Japan.

It is expected of any responsible country in the world to honour the historical verdict delivered by the PCA for the sake of peace, harmony and national sovereignty of the countries in the region. Indeed, the verdict is an important milestone towards peacefully resolving territorial disputes in the SCS and a victory of International law and international relations. As stated, the tribunal ruled China's claimed historical rights and nine-dash map, declaring China's claims to the resource-rich and strategically vital SCS Sea had no legal basis. It was regrettable that instead of respecting and accepting the verdict, spokesperson of Chinese Foreign Ministry warned that any country's attempt to interfere in maritime territorial dispute would mean turning the region into a cradle of war. China does not realise that by bullying its neighbouring countries, it has put its international image at stake.

Vietnam's position

Like Philippines, Vietnam too is opposed to China's aggressive posture in the South China Sea and has kept its option to get legal solution to its claim. Vietnam sincerely wants to have friendly relations with China without of course compromising its sovereignty. As a country respecting international law, Vietnam is not expected to accept the use of force as a means of settling international disputes. That recourse is unacceptable in any civilised society. Like any law-abiding nation, Vietnam expects China to honour the tribunal's ruling and not unilaterally ignore the legitimate concerns of neighbouring countries, lest a chaotic condition shall be created endangering the peace not only in Asian region but in the world.

Vietnam reaffirms its sovereignty over Paracel and Spratly Archipelago, its sovereignty over the internal water and territorial sea and sovereign rights and jurisdiction over the exclusive economic zone and continental shelf of Vietnam as established in accordance with UNCLOS, as well as all Vietnam's rights and interests of a legal nature in connection with the geographical features of Paracel and Spratly Archipelago.

Philippines' reaction

Compared with China's belligerence in rubbishing the verdict, Philippines' voice was sober and modest. It was under previous president Benigno Aquino that Philippines had launched the legal case in 2013 after China took control of Scarborough Shoal, a rich fishing ground within the Philippines EEZ and far away from the nearest major Chinese landmass. The tribunal ruled Chinese action as unlawful. Under the new President Rodrigo Duterte, Philippines did not celebrate the verdict but only welcomed the ruling. For-

eign secretary Perfecto Yasay also called on all parties to "exercise restraint and sobriety".[4] He observed: "The Philippines strongly affirms its respect for this milestone decision." Because of the SCS dispute, and by annoying China, Philippines do not wish to lose Chinese investment for major infrastructure projects such as a railway for the impoverished southern Philippines.

Analysts in the Philippines unanimously welcomed the tribunal's ruling. Richard Javad Heydarian of the De La Salle University in Manila observed that "China has been branded as an outlaw in unequivocal terms", urging Japan, the US and other major allies to work together to exert maximum pressure so that the decision is enforced. Jay Batongbacal of the University of the Philippines' Institute for Maritime Affairs and Law of the Sea opined the decision "will reshape the regional discourse on the South China Sea disputes". He also hoped that "it will allow Philippines and China to take a step back with mutual respect, and re-engage in sober discussions for future fair resolution of their differences. Both parties now actually have an opportunity for statesmanship in directing the trajectory of the disputes."[5]

Japan's Reaction

China also has a long-standing dispute with Japan over the Senkaku (Daioyu) Islands which remain unresolved. Notwithstanding the strong economic ties with China, Japan is equally apprehensive of China's aggressive moves in the SCS as it fears that if China could control the trade routes, arteries through which the lifeblood of much of the Japanese economy pumps, its economy's future shall be at the mercy of China. Like India, Japan has maintained a consistent policy in advocating the importance of the rule of law and the use of peaceful means, not the use of force or coercion, in seeking settlement of maritime disputes.

Foreign Minister Fumio Kishida reiterated Japan's stand on the SCS when the ruling came and China reacted aggressively. He said "Japan strongly expects that the parties' compliance with this award will eventually lead to the peaceful settlement of disputes in the South China Sea". Defence Minister Gen Nakatani put the Japanese Self Defence Force on alert to closely monitor Chinese activity in the neighbouring East China Sea.

Though Japan is not a claimant to the waters in the SCS, Japan sees China's military posture, including the building of military infrastructure on the man-made outposts, in the area as an increasingly bellicose threat. In order to protect and secure its economic and commercial interests, Japan has been deepening its diplomatic ties with countries in Southeast Asia and strengthening capacity-building programs. Safety at the sea is of critical importance for Japan as bulk of its maritime commerce is sea-borne through the SCS. It has therefore been deepening defence cooperation with the Philippines and Vietnam and helping these two countries in building up their military capability.

India's position

Like its other friendly countries in Asia who are concerned about China's aggressive posture, India too has been victim of China's unilateralism. China wants to keep the long-standing border disputes with India alive and seems not keen for a long-term solution. Over the years, China is also distorting facts of history with a view to legitimise its claim. That is a matter of concern for India. Besides the border settlement issue, there are many non-issues between the two countries that China is perpetuating.

India is concerned that the security environment is worsening, threatening to leave its adverse economic consequences. While upholding its principled stand on the rules of law, India is talking with friends seeking common grounds in conformity with law. When the Japanese Defence Minister Gen Nakatani visited India in the routine annual exchange visits of the defence ministers soon after the ruling, he and his Indian counterpart Manohar Parrikar decided to work on a strategic maritime dialogue and bilateral exercises by the two navies. Both the leaders expressed "concerns" over the developments in the Indo-Pacific region and looked to work out cooperative approaches to deal with the new situation. The issue shall be taken up again at the level of Prime Ministers when Prime Minister Narendra Modi travels to Japan in November 2016. Without naming China, India advised nations against use of force and called for self-restraint, saying that all parties must

abide by "UNCLOS, which establishes the international legal order of the seas and oceans". After the ruling was issued, a statement issued by the Ministry of External Affairs said disputes should be resolved "through peaceful means without threat or use of force and exercise self-restraint in the conduct of activities that could complicate or escalate disputes affecting peace and stability". The statement further observed: "India supports freedom of navigation and over flight, and unimpeded commerce, based on the principles of international law, as reflected notably in the UNCLOS". The statement was a veiled message to China, "which has been accused by the countries of the region for unilaterally changing the geography of the region".[6]

Even when India claimed that China was not playing by international rules, China's reactions to the ruling showed its double standard when it insisted to the rules on India's membership to the Nuclear Suppliers' Group (NSG) but ignored its treaty obligations when it came to the UN-backed tribunal's orders.

The Indian media was unanimous in seeing the ruling as a damning indictment of Beijing and that it leaves China with absolutely no room for re-interpretation.[7] However, India's comments after the ruling was measured, though they were aimed at Beijing was obvious. The MEA statement that all parties should show "utmost respect" to the UNCLOS was a subtle reminder to India's own position when it accepted an adverse UNCLOS ruling on the maritime boundary issue with Bangladesh in 2014. Expert comments went along the lines of the media. While former foreign secretary Shyam Saran said China would appear as a rogue state if it fails to abide by international law, another former foreign secretary Shiv Shankar Menon felt China would continue its aggressive expansionism and does not see China backing down.[8] Mohan Malik, a professor at Hawaii, felt the ruling is not just a victory for the Philippines but indirectly to India as well. He felt that the ruling is a welcome development for India's economic and strategic interests[9], besides proving a legal and diplomatic cover to enhance its naval engagement with other Southeast Asian countries.[10]

There is a larger context in which the ruling can be seen in perspective. The ruling could also embolden other claimants in the ASEAN grouping such as Malaysia, Indonesia and Vietnam to be more pro-active to assert their claims. India might use this new situation to enhance its balancing role, which is likely to be welcome by its ASEAN partners. If India sees this as an opportunity to wean away countries such as Brazil, South Africa, Ireland and New Zealand who opposed India's membership along with China at the next plenary meeting of the NSG remains to be seen. Though no concrete answer can be given in India's favour, the ruling certainly has created a favourable environment that could favour India in the next NSG meeting.

As regards the movement of Indian naval warships, the PCA ruling now gives rights to freely move through the region under UNCLOS without informing the Chinese. Earlier, China had raised the issue with India that India must notify China in case its warships pass through those waters as China claimed almost 80 % of the water body as its own. In July 2011, Chinese naval ship got into confrontational mode when it allegedly noticed an Indian Navy ship INS Airawat passing through the waters claimed by China. Though India used to unofficially inform China if any of its warships were moving in the "disputed" waters in order to avoid a possible stand-off, India was under no legal obligation to do so. Now, with the PCA ruling, not only India would feel no need to exercise restraint, but China too is likely to assert its claims more vigorously than before. So, things get more complicated than before. However, China does not raise any objections in cases of movement of commercial vessels as China accepts freedom of navigation permissible under UNCLOS.[11]

Also, India is likely to take advantage of the PCA ruling to invigorate its Act East policy to strengthen its maritime footprint in the region, thereby reassuring its friends in the Southeast Asia of its support based on the principle of freedom of navigation and rules of law. "This will enhance India's credibility and reputation as a maritime power in the region."[12]

India-Vietnam Ties

As mentioned, India and Vietnam find themselves in the same page on the South China Sea issue. Prior to Prime Minister Modi's forthcoming visit to Vietnam in early September 2016 and following the tribunal's

ruling, senior officials of both the countries had strategic talks in Delhi to strengthen military and economic relations and thereby preparing the groundwork to Modi's visit. The 8th Foreign Office Consultations (FOC) and 5th Strategic Dialogue between the two countries held on 2 August and led by Preeti Saran, Secretary (East) from India, and Vu Hong Nam, Vice Foreign Minister from Vietnam, saw a striking convergence of perspectives between the two sides on the South China Sea. The statement issued by the MEA stated thus: "Both sides also discussed recent developments in the maritime domain and the need for peaceful resolution of all disputes in accordance with accepted principles of international law as reflected notably in the United Nations' Convention on the Law of the Sea (UNCLOS) 1982."

India-Vietnam bonding in the economic and strategic domains serves also well to India's long-term ambition of becoming a permanent member of the UN Security Council. Not only Vietnam supports India on this but also sees India as a key player in its military modernisation efforts, besides deepening economic ties. Vietnam values India's possible role as a balancing power in the region. The strategic dialogue of 2 August, therefore, setting the stage for Modi's visit in September shall be keenly watched in other Asian capitals, including in Beijing.

The problem with Beijing is that it sees the relationships between two other Asia countries with which it may have differences as a plan to work against its interests. No wonder, Beijing feels uncomfortable with New Delhi-Hanoi bonhomie which it sees as a conspiracy to contain its rising aspirations. Beijing also sees India's growing understanding and sharing perspectives with other countries such as Japan, the US, Australia and some ASEAN member countries in the same prism of containment strategy. That is unfortunate. India has taken pains to repudiate such conspiracy theories consistently articulated by state-controlled Chinese media in order to create a favourable public opinion within China. India need not be deterred by such false propaganda and should work in close cooperation with its friendly countries in the region. Vietnam is already seen as a crucial cog in India's wheel of promoting its Act East policy. Modi's forthcoming visit is expected to take India-Vietnam friendship to another level. Besides sharing common views on the South China Sea and urging China to respect international laws, Modi's visit is also, likely to see the up-gradation of their military and strategic ties.

India is soon to set up a satellite tracking and imaging centre in southern Hanoi, giving access to pictures from Indian earth observation satellites. China is uncomfortable at this as the satellite station would cover China and South China Sea as well. Bilateral defence cooperation/collaboration, including the sale of BrahMos missiles by India to Vietnam, sharing of intelligence, joint naval exercises and training to counter insurgency and jungle warfare are issues that are likely to figure prominently when Modi discusses with the Vietnam leadership. As a rising regional power with benign intent, India need not be found wanting in meeting the expectation of its friendly Asian countries to play the role of a balancing power as well as a security provider. Such a role shall help India to enhance its regional profile and provide to the maintenance of peace and stability in the Asian region.

Tangible impact on China

The ruling that went against China meant China's international image was dented. The fact that its arguments were squashed completely was like rubbing salt into the wounds. By invalidating its "nine-dash line", the tribunal's award was seen as a near total victory for Manila. Bloomberg reported that there are five ways in which China lost: 1) Nine-dash Line – China's claims to the waters based on a 1947 map with a dashed line extending about 1,800 km south of Hainan Island was not valid; 2) Itu Aba - the largest natural feature in the disputed Spratlys - is not an island; 3) China has no historic claim to resources within the nine-dash line and that China had unlawfully interfered with fishing within the Philippines' EEZ; 4) that China had "permanently destroyed" evidence of the natural conditions of the rocks and reefs where it built; and 5) undercut China's credibility as a responsible power in the region and upholder of law.[13]

How does the ruling impact on China's policy in practical terms? China may have been defeated at The Hague, but the truism is it has already extended its tentacles far deep into the SCS and is unlikely to withdraw. Can the US and other claimants drive way or force China to withdraw? It is unlikely that it would

happen. The US and the rest of Asia shall have no choice than to accept that China is the sole unipolar power in Asia. Its expression of raw power would deter any of the smaller claimant countries, with or without the support from the outside, to take on China in order to precipitate a crisis. The ASEAN grouping has been unable to forge a common front on the SCS dispute, and China is likely to exploit the disunity within the ASEAN to its advantage.[14]

The PCA ruling would have its own repercussions inside China as well. China expert Srikanth Kondapalli says that "the verdict is expected to have a long-term impact on China's domestic politics".[15] According to him, "a small but powerful faction in China – mainly propped up by the military and conservative elements – are likely to invoke Chinese 'exceptionalism' and argue to walk out from the UNCLOS much like the North Koreans did in the early 1990s from the nuclear treaty". He also argues that the PCA ruling will be gradually played out in the CPC's factional struggles and "a harbinger for gradual change in China's politics".[16] China, however, is unlikely to remove missile batteries and other military assets from the region, though its "attractiveness" in the global scene stemming from its liberal disbursement of money would have considerably been dented.

If China ignores the PCA ruling and continues to violate the rule of law and arbitration process embedded in the 1982 Law of the Sea treaty, and even considers withdrawing from the PCA, its obligation under the ruling would still remain. There has been precedence when some big powers have ignored the rulings by the international tribunal but have often come round to accommodate them. For example, in 1985, the US ignored an International Court of Justice ruling over its mining of Nicaragua's harbour, a case much debated by legal scholars.

But China's notion is that there are no permanent principles only permanent interests. If one goes by this argument, China's actions with the Philippines or Russia's annexation of Crimea in 2014 or even Iraq's invasion of Kuwait in 1990 endorse the Chinese policy. But are the vital principles of a peaceful world embedded in the UN's mandate itself not violated and would the weaker nations continue not to feel insecure?[17] The answer to such disturbing questions depends upon how a big power like China now conducts its foreign relations following the PCA verdict.

What China will do next? Jayadev Ranade opines that after a strategic pause, Beijing will revive its policy of creeping towards acquiring sovereignty over SCS or 'salami slicing'.[18] In order to gain some of its lost prestige, Beijing might draw both the Philippines and Vietnam separately and cajole them to negotiate bilaterally by using its preeminence position in the region. It remains unclear if the Philippines and Vietnam would respond if such an initiative comes from Beijing. Beijing is likely to pursue its expansionistic policy in the SCS. Already there are reports that China is planning to build 20 mobile nuclear power plants there. Citing the China National Nuclear Corporation, the state-run *Global Times* observed that "marine nuclear power platform construction will be used to support China's effective control in the South China Sea to ensure freshwater".[19]

Implications and Future

China is unlikely to give up and its belligerence is likely to be more intense. Its likely show of more aggression to assert could contain seeds of future conflagration. The call of the hour is to keep the channel of diplomacy and dialogue open. This calls for the need for the ASEAN member states to maintain cohesion and keep their own houses in order so that they speak in one voice. Such a strategy would be desirable in the interests of peace and stability in the region.

But what is feared at the same time is that the PCA ruling is likely to spawn a veritable arms race as the adversary parties would enhance their arms spending to maintain robust defence preparedness to cope with the increasingly perceived military threat from China. To up the ante, no sooner the PCA ruling came Beijing announced that it was closing off part of the South China Sea for military exercises as a part of asserting its ownership on virtually the entire strategic water-

way. Such moves would make countries such as Vietnam and the Philippines more insecure.

China is also likely to increase its military investment and raise its overall defence spending to affirm its claim to the region. However, Beijing is unlikely to have much worry as it enjoys relative military supremacy in the SCS vis-à-vis other claimants such as the Philippines and Vietnam and likely to maintain the same for a long time. Such a reality could propel the claimant nations to increase their own defence spending as strategic consideration as well as aim to control the underwater mineral resources would continue to be the drivers to sovereignty claims. While all stakeholders are likely to be engaged in safeguarding their interests and beefing up their defence capabilities, it is the global arms industry that could be the real beneficiary of the dispute as demand for defence products would grow. That would unfold another diplomatic challenge for all stakeholders. The South China Sea issue has opened a Pandora Box; so it seems.

In order to undo the dreading scenario stated above, China has a huge responsibility to take the initiative first by announcing unequivocally its commitment to respect global laws by accepting the tribunal's ruling and second, accommodate the legitimate concerns of other claimant countries to the South China Sea. There can be no substitute to dialogue and discussion than use or threat to use of force as dispute settlement means. It is here China is expected to change its strategy. From the ASEAN perspective, all the 10 member countries should see the tribunal ruling as a victory of international law and demonstrate solidarity to draw China to the negotiating table to resolve this long-standing dispute in a peaceful manner. Such recourse shall help ensure peace and stability in the region.

Footnotes

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China's Interests in the South China Sea

Jayadeva Ranade

Dominance of the South China Sea is not merely a territorial issue for China but, more importantly, one which it regards as a major step towards recognition as an unrivalled Asia-Pacific power that can arbitrate on global and regional issues along with the US. Since the 18th Congress of the Chinese Communist Party (CCP) and appointment of Xi Jinping simultaneously to China's three top posts in November 2012, the world is witness to a new thrust to China's already assertive foreign policy. Early in Xi Jinping's term, China launched major, bold, geostrategic initiatives aimed at expanding China's diplomatic and economic influence and military power well beyond its frontiers. In its bid to reshape the external environment to facilitate its ambitions, China is altering the status quo and challenging the established order in the Asia-Pacific. In the process its strategic space has now begun to rub against those of other regional powers.

China's assertiveness in advancing its territorial claims over the past few years additionally began to impinge on the sovereignty of many countries in its neighbourhood. It also focussed the spotlight on the outstanding, unsettled territorial disputes that many of these countries have with China and made countries in the region and South East Asia nervous. China's ambition and intention of becoming a major maritime power – a goal affirmed by the 18th Party Congress in November 2012 – and efforts to establish control over the South China Sea have matched the growth of its economic and military strength. They have also reinforced the apprehensions of countries which have overlapping maritime territorial claims with China.

Important is Xi Jinping's 'China Dream' which envisages: making the Chinese people wealthy; making China a strong nation; and the rejuvenation of China. This muscular aspiration for China spelt out by Xi Jinping at the 18th Party Congress has been adopted by the entire Party and has already entered the lexicon of the CCP. Pertinent to India-China relations is 'rejuvenation', which implies the restoration to China of its self-perceived rightful international status and recovery of all its territories. The new passports published by China depict its claimed territories, as do its actions in the South China Sea and East China Sea and the expanding claims over Arunachal Pradesh and Jammu and Kashmir.

China's maritime ambitions are reinforced by estimates that China would have around 415 fighting ships and 100 submarines by 2030. Official reports emanating from China also indicate that Hainan Island has been designated a base for PLA Navy aircraft carriers and that a new shipyard for building aircraft carriers was established in Dalian in 2014. Official Chinese media reports indicate China has plans to build at least three aircraft carriers. To demonstrate its blue water capability and as anticipated by the US Navy in 2015, Chinese nuclear submarines have from this year entered and begun patrolling the Indian Ocean.

China has for decades eyed the South China Sea islands and waters and regarded them as China's maritime territories. Citing historical maps and records of Chinese fishermen, China lays claim over large portions of these waters. The official Chinese media regularly asserts that at least "3 million sq kilometers" of the South China Sea is Chinese maritime territory. China also claims that its naval forces began to patrol and exercise jurisdiction over the area, establishing China's maritime boundary in the South China Sea, and cited maps published in April 1935 and February 1948, as evidence. The estimates of huge reserves of oil and natural gas have undoubtedly provided incentive for advancement of these claims. 'Sanzhong Dafa' (or the 'Three Warfares', involving legal, propaganda and psywar) is part of Chinese strategy to further claims.

The 4,982,900-square kilometers maritime area in the Asia-Pacific is poised to remain a cockpit of tension in the coming decade. The South China Sea issue has lingered unsettled since before 1974 when clashes occurred between China and South Vietnam and China seized control of the Paracels Islands. In May 1988, China and Vietnam clashed over the Spratlys archipelago when 74 Vietnamese lost their lives. After an interregnum, tensions in these seas rose again in 2001 with the Philippines Navy deciding to deploy to the Scarborough Reef. In an attempt to lower tensions, in November 2002, ASEAN and China signed a 'Declaration on the conduct of parties in the South China Sea'. China, however, decided to begin enforcing its claims in May 2009 when it submitted a map detailing the 'nine-dash line' to the UN. The US responded in July 2010, declaring that it has a 'national interest' in the South China Sea. After a series of confrontations the Philippines approached the Permanent Court of Arbitration in The Hague challenging China's claims.

Around the same time a senior Chinese Navy officer remarked to visiting US Admiral Keating in 2009 that the two countries could divide the Pacific Ocean with China talking responsibility for the area west of Hawaii and sharing intelligence with the US. The US did not respond to the suggestion. On the contrary, the US Chairman of the Joint Chiefs of Staff, Admiral Mike Mullen, on February 8, 2011 signed the US National Security Strategy, a document in which China's influence is implicitly present throughout. It states that US "strategic priorities and interests will increasingly emanate from the Asia-Pacific region" and that the US will "seek new ways to catalyze greater regional security cooperation", including with 'traditional Chinese allies' like Vietnam. "Assured access to and freedom of maneuver within the global commons — shared areas of sea, air, and space — and globally connected domains" is declared as of enduring interest to the US.

Dai Bingguo, State Councillor and China's Special Envoy for negotiations with the US, Russia, India etc. at the time described the South China Sea as a 'core national interest' for China. This remark indicated that China had elevated the issue to the same level as those of Tibet and Taiwan. Nonetheless, Chinese President Hu Jintao deliberately avoided categorizing the South China Sea as one of China's 'core interests' when he visited the US in January 2011. China was also compelled to acquiesce to the US being designated as an Asia-Pacific power in the joint communiqué issued in January 2011, China did not give up its quest to 'recover' its 'lost' maritime territories.

The Chinese leadership, however, remains intent on restricting the scope of activity of the US and other powers in Asia-Pacific waters. China's ambition is to dominate at least the area within the 'first Island chain', which is bounded between the Chinese mainland up to southern Japan along the Philippines and down to Brunei and Vietnam. The maritime area of serious Chinese interest comprises large areas of the Sea of Japan (978,000 sq kms), Yellow Sea (380,000 sq kms), East China Sea (124,900 sq kms) and the South China Sea (3,500,000 sq kms).

There were regular assertions of sovereignty by Beijing over the South China Sea. After the Eleventh National People's Congress in Beijing in March 2011, a Xinhua news agency despatch reiterated that China's maritime resources extended over 3 million square kilometres of offshore waters, adding that these contained proven marine oil reserves of 24.6 billion tones and 1.6 billion cubic metres of natural gas. The statement was an important reassertion of Chinese sovereignty. One Chinese Navy Admiral recently remarked at the Shangri-La Dialogue in Singapore that since it is called the "South China Sea" it is China's sea!

A signed article in the authoritative theoretical fortnightly magazine of the Central Committee of the Chinese Communist Party (CCP), 'Qiushi' (Seeking Truth, on December 10, 2010, published an article that detailed its perception of the US strategy against China and how China should counter it. It listed seven types of US pressure on China and China's counter-measures. Asserting that: "the U.S. seems highly interested in forming a very strong anti-China alliance... " it said "countries like Japan, India, Vietnam, Australia, the Philippines, Indonesia, and Korea are trying to join the anti-China group because they either had a war or another conflict of interest with China. They are attempting to gain benefits by using the U.S. and these are the countries that sur-

round China..." It concluded that "China must adhere to a basic strategic principle: We will not attack unless we are attacked; if we are attacked, we will certainly counterattack. We must send a clear signal to our neighboring countries that we don't fear war, and we are prepared at any time to go to war to safeguard our national interests. China's neighboring countries need China's international trade more than China needs them...Therefore, they, but not China, will suffer greater damage by antagonizing China... This is also the most effective means to avoid a war." The policy articulated in this article essentially appears to still hold.

Tension in this region is unlikely to reduce early as China will push the envelope to ascertain the US' 'red line' and simultaneously coerce Japan to back down. Beijing's determination became evident in the remarks of China's Ambassador to the US, Cui Tiankai, while speaking to a US audience in Washington in June 2014. Hinting at Beijing's assessment of US capabilities, China's Ambassador Cui Tiankai called for shifting the orientation of Sino-US relations from one of 'crisis management to opportunity management' on the ground that using coercive language is not constructive. He also frankly acknowledged that "the United States is a powerful and very strong country...the most powerful and strongest country in the world, and will remain so for many many years to come", but referring to the interests of both countries in the Asia Pacific, he asserted that Beijing is not about to withdraw its maritime territorial claims. He said that the "United States' presence, interests, and influential role in the Asia Pacific is fully and widely recognized" and that China welcomes a "constructive role by the United States in the region". Equally important was his observation that "China is also a Pacific country, and China is also an Asian country. Geographically, China is just situated in the center of the Asian continent. And we have been here for centuries, perhaps a little bit longer than the whole history of the United States. So I think it may be fair to say that neither Chinese nor Americans are aliens from Mars in the Asia Pacific, but we are somehow more indigenous than you are". He warned that "any attempt to manage or manipulate the regional affairs at the expense of China's legitimate interests in the region, cannot be justified, and would indeed be detrimental to the stability and prosperity of the entire region, and eventually will serve nobody's interests". He concluded with the observation that the US and China should work together for peace in the Asia-Pacific.

The argument was buttressed within weeks, but far less diplomatically, by Shanghai- based Chinese venture capitalist and commentator, Eric X. Li. He emphasized that China had not erred in its actions regarding the territorial disputes in the South China Sea and East China Sea and that history will "probably prove" that China had been pre-eminently agile in dealing with these situations. He declared that China's strategic objective in the region is to change the status quo, which it did not have the power to influence when it was being established, to its advantage while avoiding military conflict. He concluded by stating that China has, and always will, act in its own best national interests and that China's "worldview is to keep out barbarians and not invade them".

More recently and as the date for the decision of the Permanent Court of Arbitration drew near, Chinese Foreign Minister Wang Yi reaffirmed China claim to sovereignty over the South China Sea. Reuters quoted him as saying on June 27, 2015, that "One thousand years ago China was a large seafaring nation. So of course China was the first country to discover, use and administer the Nansha Islands. China's demands of sovereignty over the Nansha Islands have not expanded and neither will they shrink. Otherwise we would not be able to face our forefathers and ancestors." Wang Yi added that China could not face its children and grandchildren if "the gradual and incremental invasion of China's sovereignty and encroachment on China's interests" was allowed to continue.

A day earlier, reacting to remarks by US Deputy Secretary of State Antony Blinken describing China's island reclamation projects in the South China Sea as a "threat to peace and stability", the English-language official 'China Daily' warned that "China is absolutely firm in its resolve to defend its maritime territorial integrity. No matter what tricks Manila and Tokyo resort to, China will never change its stance on the maritime disputes in the East and South China seas, simply because its claims are le-

gitimate". The People's Liberation Army (PLA) Navy too re-crafted its recruitment song to include references to the South China Sea, the Senkaku (Diaoyu) Islands and 'One Belt, One Road'. It asserts:

"we will not yield a single inch of our frontiers to foreigners
China has 3 million square kilometers of ocean under its jurisdiction
Including 6700 islands with a surface area of over 500 square meters
The struggle over sea rights has not ended –
we will not give up even the tiniest bit of our resources."

The decision of the Permanent Court of Arbitration (PCA) in The Hague on July 12, 2016, which dismissed all of China's claims on South China Sea (SCS) as without legal basis, impacted adversely on China's international image. It additionally injected a high degree of instability in an already volatile situation in the SCS. The 501-page decision of the PCA favouring the Philippines went well beyond the issues raised by Manila and effectively demolished the various arguments advanced by China. It dismissed China's contention that its claims date back to the 2nd century BC and ruled that Beijing has no legal basis for its maritime territorial claims over 3 million square km of the SCS and neither over its undersea mineral and other resources. The Court concluded that 'historical navigation and fishing by China in the waters of the SCS represented the exercise of high seas freedoms, rather than a historic right, and that there was no evidence that China had historically exercised exclusive control over the waters of the SCS or prevented other states from exploiting their resources.' Significantly, it added that the "nine-dash" line used by Beijing to delineate its South China Sea claims contravenes a United Nations convention on maritime law.

For countries which have territorial disputes with China, including India, the decision importantly negates China's bid to cite ancient historical records like 2000-year old travellers' accounts and old navigation maps to substantiate its claims. While the decision was promptly supported by the US, G7 countries, 28 EU nations, Vietnam, Japan and India, the riposte from Beijing was swift and angry. Chinese President Xi Jinping reiterated that the waters had been Chinese territory since ancient times and the ruling could not invalidate history. Foreign Minister Wang Yi asserted "This farce is now over. China opposes and will never accept any claim or action based on those awards." China's Ministry of Foreign Affairs (MFA) released a lengthy 149-paragraph White Paper on the South China Sea on July 13, 2016 reiterating China's historical claims and sovereignty over the SCS. The MFA also orchestrated diplomatic protests summoning several Western ambassadors on July 12-13 to complain against the PCA decision. At a press briefing in Beijing on July 13, Chinese Vice Foreign Minister Liu Zhenmin questioned the PCA's competence and integrity saying its five arbitrators – one of whom is a Japanese – lacked knowledge of "Asian culture" and were effectively employed by the Philippines. He asked: 'Can a ruling issued by such an arbitration tribunal have any effect? Does it have credibility? Who would implement a ruling that has no credibility?'

Separately, the "Beijing Office of the Emergency Committee" promulgated heightened security precautions from the early morning of July 12, 2016. While this would have been to appease Chinese nationalist sentiment, the stated purpose was to preempt popular protests similar to the anti-Japan demonstrations in 80 Chinese cities four years ago. China's President and Chairman of the Central Military Commission Xi Jinping also instructed the People's Liberation Army (PLA) to "check all the possibilities" and "prepare to make war." The PLA has been placed on "secondary alert" and the PLA's South Zone or Southern Theatre Command, the PLA Navy (PLAN)'s South China Sea Fleet, Air Force and Rocket Forces have been placed on "pre-war status".

The Strategic nuclear forces are also on alert. China's official media publicised that PLAN's South China Sea, East China Sea and North China Sea fleets have been conducting 'live-fire' exercises in the waters near the Xisha Hainan Island from July 8-11, 2016, in the presence of senior commanders including PLA Navy (PLAN) Chief Wu Shengli.

While Chinese Defence Ministry spokesman Yang Yujun stated that the armed forces would reso-

lutely defend China's territory and maritime rights, and peace and stability, while dealing with any threats or challenges, Chinese military officers have reacted angrily to the PCA decision. One officer told Reuters that "The People's Liberation Army is ready. We should go in and give them a bloody nose like Deng Xiaoping did to Vietnam in 1979." Another with reportedly ties to the leadership described the mood in the PLA as hawkish. He was quoted as saying "The United States will do what it has to do. We will do what we have to do. The entire military side has been hardened. It was a huge loss of face". Liang Fang, a professor at the military-run National Defence University, wrote on his Weibo microblog "The Chinese military will step up and fight hard and China will never submit to any country on matters of sovereignty." Retired PLA Colonel Yue Gang said China's announcement promising regular air patrols over the region showed it was seeking to deny the U.S. air superiority afforded by aircraft carriers. He said "China is not intimidated by U.S. carriers and is brave enough to touch off an inadvertent confrontation." Li Jinming of the South China Sea Institute at China's Xiamen University wrote in the Chinese academic journal Southeast Asian Studies, "We must make preparations for a long-term fight and take this as a turning point in our South China Sea military strategy."

Other military officers recommended a sober approach. One PLA officer said "Our navy cannot take on the Americans. We do not have that level of technology yet. The only people who would suffer would be ordinary Chinese." The individual with ties to the leadership ties was quoted as also bluntly saying: "War is unlikely. But we will continue to conduct military exercises.(We) expect U.S. naval vessels to continue to come and miscalculation cannot be ruled out". Foreign Minister Wang Yi too stressed the importance of dialogue, saying it now was the time to return things to the "right track" and to "turn the page" on the ruling. It appears, though, that while China will definitely not back-off, it's next move will probably be in the period between the end of the G20 in Hangzhou next month and the US Presidential election in November.

Build a strong, modern strategic support force: Xi

BEIJING, Aug. 29 (Xinhua) — Chinese President Xi Jinping on Monday asked for greater effort in building a strong and modern strategic support force.

Xi, general secretary of the Communist Party of China Central Committee and chairman of the Central Military Commission (CMC), made the remarks during an inspection of the offices of the People's Liberation Army (PLA) Strategic Support Force.

The strategic support force bears a historic mission, it must strive to be the best in the world and be brave in innovation and exceeding others, Xi said.

Established late last year as part of military and national defense reform, the strategic support force is a new type of combat force to secure national security and an important aspect of the PLA's joint operations system, Xi said.

"Innovation is what we need most in building the strategic support force. Innovation is the fundamental solution, " said Xi, urging the force to focus on real combat, efficiency, and integration of military and civilian development.

The force should always stay on alert and maintain combat preparedness, map out a development strategy and a capacity building plan, build a new training system, and enhance its deterrence and warfighting capabilities, Xi said.

Xi particularly stressed innovation in military theory and technology, calling for the fostering of new types of combat forces and high-level creative talent.

Xi told the force to educate and guide its soldiers and officers to stick to "the absolute leadership" of the Party and urged Party committees within the force to improve their ability to guide military development and manage Party members.

Fan Changlong and Xu Qiliang, vice chairmen of the CMC, accompanied Xi on the inspection.

(Courtesy: Xinhua)

India's Maritime Environment: Navigating Naval Diplomacy

Prof. Snehalata Panda

India's maritime diplomacy is shaped as much by its own interests as it is in response to action of other nations .Even with multiple short comings India has advanced its maritime interests in the India Ocean, Arabian Sea and the Pacific Ocean. It wishes to use the seas for her own purpose while simultaneously preventing others from using them in ways that are to her disadvantage. It is not about naval power but "preservation, protection and promotion of maritime interests of the country" with a wide spectrum including political, economic and military power exerted through the use of the sea. But in future challenges will be more not only from traditional rivals but emerging economies across the region which needs a policy with futuristic vision

Introduction

With a range of options available for communication in the modern period importance of sea routes is not reduced .Rather extensive sea borne global trade aptly define the present as a maritime century. Economic linkage with the world market enhanced India's commerce following which connectivity with countries across continents became an important feature of development and security strategy. A major portion of our commercial transactions is in the sea routes of the Indian and Pacific Oceans. (1) Apart from trade India's expansive maritime environment has rich mineral and livelihood resources. Economic activities are inextricably linked with foreign policy and the geographical location assumes primacy for security not only in times of crisis and conflict but in peacetime specifically when too many nations compete for exploring the oceanic resources.

Opening up of the economy was not merely a commercial option but also advancing military exchange with a number of countries and defining strategy to achieve our interests in the maritime geography. "India wishes to use the seas for her own purpose while simultaneously preventing others from using them in ways that are to her disadvantage".(2) It is not about naval power but "preservation, protection and promotion of maritime interests of the country" with a wide spectrum including political, economic and military power exerted through the use of the sea.(3)

Successive governments since 1990s have concentrated on naval strategy because of growing sea borne trade, insecurity in the Oceanic routes of communication and challenges from emerging Asian economies. A significant change in the maritime strategy of 2007 was conversance between civil-military engagement in decision making. (4)The Navy was given wider responsibility for ensuring off shore and coastal security .This was in contrast to the earlier role of Indian Navy limited to provide assistance to the civilian authorities. In cooperation with South East Asian nations it is providing security in the sea lanes .The vast stretch of water in the Indian Ocean from Myanmar to far south east blurs the division of the area as South and South East Asia thereby changing the concept of neighbourhood. In the changed context India is promoting its own interests along with cooperating for ensuring peace and stability in the neighbourhood . At this back drop the paper focuses on the present naval strategy, explores challenges to India's maritime aspirations , responses and effective multidimensional approaches.

Maritime Strategy:

Indian Ocean boundary touches South Asian nations as well as three South East Asian nations while Malaysia is closer .Tension in the border is due to several reasons like poaching, illegal trafficking, terrorist activity ,natural disaster and so on . Modi government has formulated a four part frame work for the Indian Ocean. (5) These are defending India's interests and maritime territory, deepening economic and security cooperation with maritime neighbours and island states ,promoting collective action for peace and security and seeking more integrated and cooperative future for sustainable development. The new

official strategy released at the Naval Commanders Conference (6) outlines India's maritime interest which includes(1) "areas of national interest based on considerations of Indian Diaspora, overseas investments and political reasons" expanding to South West Indian Ocean and the Red Sea, Western coast of Africa and the Mediterranean sea. (7)

(2)Responsibility of the navy as net security provider extends not only to island states of Indian Ocean but aims to "shape a favourable and positive maritime environment "for enhancing security in India's areas of maritime interest".
3.Future fleet will be based on the development of three carrier battle groups each centred on an aircraft carrier as well as the development of an operational capability of two carrier task forces each comprising one or more carrier battle groups.
4.It focuses on punitive retaliation in accordance with India's "no first use" and "non use against non nuclear weapon states" policy. The ship submersible ballistic nuclear (SSBN) like Arihant will have sea trials as well as deployment to counter an adversary's strategy of seeking advantage from nuclear posturing and escalation. 5.It emphasizes freedom of navigation and strengthening the international legal regime at sea particularly UNSLOCS.

The ambitious strategy has to be delivered by the navy having limited capacity though it has a programme to build warships. (8)A major disadvantage is India's naval vassals are past their prime (9) and human resource is inadequate to discharge increasing responsibilities (10) Added to these India's relation with a number of littorals in the nighbourhood is far from cordial inhibiting to play an active and meaningful role in its maritime environment.

However, Modi government added dynamism to maritime engagement with a concrete shape through important agreements with India's maritime neighbours to develop infrastructure. (11)Security is an important component of the new maritime strategy to counter terrorism ,piracy and responses to natural disasters. Political component of the strategy has also an important economic component envisaging cooperation on "Blue Economy" with broader perspective on understanding , exploration and sustainable development. Cooperation with major powers adds value to diplomatic strategy for enhancing naval capabilities.

Political decision makers in India were alerted about the importance of coastal security after the unprecedented Mumbai terror attacks of 26-18 Nov, 2008.Indian Navy was assigned with the responsibility to ensure coastal as well as off shore security in February 2009. (12). It has to counter crises not only those emanating from illegal activities, piracy and such other activities that threaten the security of the country and livelihood of the people but also to respond to natural disasters. These tasks are by no means easy to be handled without careful policy and vision .The range of activities include maritime security, membership of multilateral forums, engagement with different countries to mitigate traditional and nontraditional threats(13) .It also includes visits to ports, joint exercises, personnel exchange, interaction with foreign navies, technological up gradation ,mutual learning to strengthen capacity for better response in times of crisis . (14)

Net Security Provider:

Security is the core of India's strategy to enhance capacity. India has a unique Oceanic geography with its prime location in the Indian Ocean Region which is the centre of sea borne commerce and life line of its economic interests. With the shift of global economic and military power towards Asia the strategy underscores peaceful environment and continuous strengthening of military prowess to encounter expected as well as unforeseeable challenges. Considerable portion of the sea borne trade includes import of hydrocarbon ,export of refined products ,development of deep sea mining areas and supporting scientific research in Antarctica etc. Therefore, security of the Sea Lanes of Communication(SLOC) is essential. India in cooperation with other big and small powers having a stake in the ocean resources and trade has been discharging responsibilities relating to maintenance of security in the SLOC.

Asian and some African countries export hydrocarbon to India. Therefore, the Arabian Sea as well as the Indian Ocean is important for India. While security of the water ways are very important, India has to safeguard against China and Pakistan scuttling India's growing influence in the region. China

has expanded its influence in most of the countries of West and South Asia as well as South East Asia .It is exploring all diplomatic channels to restrain India's emergence in Asia. While the goals were gradually been shaped with concrete action through multiple means, the announcement by China to link continents with its "One Belt One Road" diplomacy prompted India for a vigorous maritime strategy to safeguard its interests. (15) Discovery of precious mineral deposits in the oceans expedited diplomatic manoeuvre leading to the adoption of UN Convention on the Law of the Seas .But India has envisioned the strategy to explore the resources recently amidst increased challenges from competitors.(16)

Indo –Pacific:

Indo -Pacific takes in Indian and Pacific Oceans in a single maritime strategic system. (17) Indian Ocean's tropical waters, the western and central Pacific Ocean and the South East Asia Seas is in focus for its far reaching implications for global maritime trade and security. Increasing imports of hydrocarbon from the Middle East by Asian countries has made it the busiest trade corridor . Its geopolitical and economic importance has increased because China, India and Indonesia are steering Asian growth that was driven by Japan ,South Korea, Hong Kong and Singapore earlier. Unlike the past now economic and security interests are converging in this region. Rebalancing Asia Pacific strategy of US envisaged right alliances, engage emerging powers like China, India and Indonesia and strengthen alliances with ASEAN and East Asia Summit which in part drew the region into the ambit of strategic importance setting the backdrop for integrated engagement. Economic activities have expanded from India to Japan and the Oceans have integrated nations in different continents rather than dividing them. Almost all countries across the region are linked through growing economic activity .The sea lanes need to be protected for which the onus is on all but India with its superior naval capabilities will work for enhancing economic activities as well as providing security. Most of the affluent nations look forward to India as a security provider.

Indian Ocean Region(IOR) is a conglomerate of developing countries which can be categorized as the more and less advanced. People of multiple economic categories, race, culture and religion inhabit the region. Geographically it can be categorized as Gulf Cooperation Council(GCC) and non GCC countries, Egypt, Red Sea and the Horn, Sub Saharan Africa, South Asia , ASEAN+Ocenia.(18) Among all the countries India is large with an extensive coast line. This oceanic space is prone to insecurity both human and natural. The GCC and Iran export oil through the Indian Ocean. (19) Piracy and maritime crime in the west, around Somalia and to the east of the Strait of Malacca and Indonesia adversely affect maritime traffic in the IOR. (20)

A new thinking is perceptible in India's approach to the IOR as it does not view the influence of other powers as colonial legacy. Rather it initiated a strategic discourse with big powers, specifically U S, to play a significant role in the ocean region. The broad frame work for expanding maritime cooperation between India and US in the Indian Ocean and the Asia Pacific is an extension of India's strategic perceptions , its economic and military potential, political stability and contributions to human security . (21.) But challenges are too many. New developments like cooperation between Russia and China, China and South Korea, Russia and Pakistan, ambivalent relationship between Japan and China indicate that diplomacy is multilayered for different reasons. The challenges will intensify with enhancement of Pakistan's naval power .(22) At the moment China –Pakistan joint military exercise in Pakistan Occupied Kashmir is keenly watched by India for possible course of action.

West Asia:

India's naval engagement is usually associated with South East Asia ,Indian Ocean and the Pacific as per the frequency of joint naval exercises, contribution to sea lanes of security ,counter piracy operations and disaster management .But India's Naval Diplomacy is not restricted to strengthen political and economic relationship .It has an unparalleled record of rescue operations. (23)."The efforts were so effective that over 26 countries including US and UK sought India's help in rescuing citizens."(24) Outstretching to Persian Gulf countries is a significant offshoot of India's naval diplomacy preceding its engagement in the South East Asian countries. Indian Navy has partnered with the Gulf countries in anti piracy through training and support to countries

in the Gulf Cooperation Council(GCC) apart from contributing to capacity building and working in close collaboration with the Gulf countries in security operations. Many of the Arab Gulf Navies are members of Indian Ocean Naval Symposium (IONS) initiated by the Indian Navy.

India's naval cooperation with Oman dates back to 1993 when the biennial naval exercise was conducted. (25) Both the countries have entered into a strategic partnership in 2008 .India has provided hydrographic support to Oman besides providing naval training while Oman has offered berthing and replenishment facilities to India in the Gulf of Aden. Strong ties with Oman have facilitated cultivation of naval engagement with Muscat. China has set up naval base in Djibouti apart from enhancing frequency of its submarine visits in the western Indian Ocean Region(IOR) for possible permanent presence in the IOR. In order to retain India's presence there India has to cooperate with navies of the Gulf countries.

China:

Challenges from China are multifaceted. So far European powers and US were predominating India's maritime environment .India therefore had to call for Indian Ocean as a "zone of peace". But emergence of China as a competitor with its deep penetration into India's neighbourhood has raised apprehension about its motives. It has alerted India not to consider Indian Ocean as its back yard. Its "New Silk Road ,New Dreams" project envisages linking continents along with creating awareness about China's historic past ,its cultural meaning and friendly policies towards its neighbours . With a thrust on "economic ,political and geographic vision" it will bring "new opportunities and new future to China and every country along the road that is seeking to develop" .The expression that "it is more than speedy transportation" strengthens this notion. The nations along the roads will be provided with technical and economic assistance which is an intelligent approach to enlist their support . The roads will create an interdependent community with "common interests, fate and responsibilities" over a vast stretch of geography on a new model of "mutual respect and mutual trust". The One Belt One Road(OBOR) encapsulates former Chinese president Hu Jintao's vision to protect "maritime rights and Interests " of China as the 21st century is the century of Oceans". It is not clear whether China proposes to have bilateral agreements with all of these countries or work through regional orgnisations but following the announcement China has increased financial support to the countries included in the project.(26)

China's reactions following the decision of the Permanent Court of Arbitration (PCA) on its claims to the sovereignty of nine dotted lines in the South China Sea indicate its unwillingness to abide by international law. Claims by different nations have made this region a flash point for conflagration. China has reclaimed sea and deployed fighter jets and surface to air missiles in Woody Island in South China Sea(27). Delivering judgement on a petition filed by Philippines claiming sovereign rights over the Scarborough Shoal ,PCA ruled that China violated international law by harming coral reef environment in the South China Sea on which there is no evidence to support its historical claim. China claims waters within the "nine dash line" in the South China Sea basing on a "1947 map ..looping about 1120 miles south of China's Hainan island" which includes important sea routes and fishing waters as well as potential oil and mineral deposits". The United Nations Convention on the Law of the Sea (UNCLOS)details rules for drawing zones of control over the world's oceans based on distances to coastline of which China is a party. But it has rejected to accept the verdict as "waste paper and would not back down from its activities in the South China Sea even in the face of a fleet of American aircraft carriers" .China's stand will flare up a conflict with Philippines and its ally the United States.(28)It would be a loser if trade to South East Asian countries will not be allowed through Malacca Strait when sanctions will be imposed. But sovereign nations may not adhere to the rulings of the international tribunal more so the P5 of United Nations Security Council(UNSC) .China being a permanent member of the UNSC, has vehemently reacted to the decision considering it a diplomatic tool to contain its rights in South China Sea. The decision did not affect China's sovereignty on territory that is the rocks and reefs that dot the waters as it is not included in UNCLOS. PCA did not direct China to leave the bases it has built on its artificial islands nor has it made China's nine –dash line illegal. Reasons could be its huge investments in these islands for

which it has to convince the stakeholders in Chinese decision making processes. But going against the verdict will be very difficult for China. China's assertions has drawn international attention specifically that of US which so far had dominated the region and now exhorts China to discontinue militarization of the region. China on the other hand wants the US to end its patrol.(29)

China's reaction has compelled U S to send Navy destroyers to patrol near the islands twice in recent times.(30) But it claimed to have started military air patrol over the disputed islands and shoals following the verdict of PCA ..(31)It has also closed a portion of South China Sea for conducting military exercises without declaring the period of closure. It may trigger hostility between US and China and challenge "the US backed Asia-Pacific Order". Since 1970 economic relation between US and China has improved but political relationship is hazy. Much less is military to military relationship. Only in 2014 China participated in the Rim of the Pacific (Rim Pac) naval exercise. During President Obama's visit to China both the leaders had given a leg up to the military to military cooperation but limited to dealing with humanitarian crisis of which joint naval exercise is important. But cyber attacks in US brew suspicion regarding China's real motives and its posture. After PCA verdict their relationship may worsen but US needs China 's support to deal with North Korea. Therefore, both will try to resolve the problem diplomatically.(32)

China 's first overseas air base was set up in Djibouti in East Africa where U S and Japan have naval operations . This waterway connects the western Indian Ocean with the Red Sea and adjoins the patrol grounds for the Gulf of Aden Counter Piracy Mission in which Chinese navy has been participating since 2009. China has a network of naval bases encircling the maritime environment of India .With this strategy it could negotiate with strategically located coastal and island neighbours around the Indian Ocean basin for access or full-fledged naval basing rights .It has been cultivating good relationship with these countries. India views Chinese approach as the groundwork for future strategy to thwart India's ambition to be a regional power. Its approach is based on the concept that "commercial access to important theaters constitutes the uppermost purpose of sea power .Political and military access are mere enablers."(33)

For logistics support China needs some form of access to ports . Indian Ocean states are apprehensive of a positive response to China for possible conflict with U S and India save Pakistan where the Gwadar port is being made available for China. It has provided finance for the development of Gwadar , Colombo and Mahe ports(34) . Installations in Djibouti seem to counter piracy in the SLOCs. Indian academics and policy makers view China's action in the Indian Ocean has economic and diplomatic intentions along with naval and military strategy. A section of Indian academics view the "silk road diplomacy" is rebranding the "string of pearls strategy". As the underlying intention is to "envelop India in a geostrategic mesh"(35) The nature of relation between China and India being far from cordial any policy of China relating to the Indian Ocean is aimed to contain India .Comparative capabilities of both the countries are overwhelmingly favourable for China .Another section in India view the Belt and Road Initiative by China will knit together the region for mutual political, economic and cultural benefit.(36) Though China denies that its policy is aimed at containing India. Chinese foreign policy analysts exhort India to "get used to "higher profile Chinese presence in the Indian Ocean.(37)

China being a permanent member of UNSC "can get away with impunity" in the South China Sea decision .But other P5 members would restrain China's emergence as a key player in the international realm .Besides so far China's rise is peaceful in view of which it can be argued that it will abide by international law. Philippines is not willing to counter China indicating that there will be no resistance to its posture .(38)India has opted to explore hydrocarbon in the Vietnam coast. Therefore, it has to counter restrictions in using the international water resources. Diplomatic channels need to be diligently managed to explore of Oceanic resources. Its geography is favourable to meet the challenges .The Andaman and Nicobar islands are suitable to monitor the egress and ingress of ships including the Peoples Liberation Army Navy(PLAN).

Concluding Observations :

International shipping and freedom of navigation are the most challenging in view of China's claims and counterclaims Major international shipping lanes in the Indian Ocean (IO) are located close to India. As India expands to the East Asian waters ,China has been moving forward in strengthening political and economic cooperation with the littorals of Indian Ocean. Much of India's naval diplomacy is designed to counter challenges emanating from China's expanding influence in the IOR. Sino Pak military cooperation to upset India is not ruled out for which strengthening India's economic, defence , and naval capabilities are as essential as membership of international organizations .

The South China Sea, Malacca Straits and Arabian Sea have immense importance not only for India but several other countries in the region and outside who compete with India and involve in wrangle when their national interests collide with the norms of globalization.US and Russia too have tremendous influence in the region. Therefore ,India's diplomacy has to be channeled to safe guard its interests respecting the sovereign equality of nations , overcoming challenges posed by the competitors and use its resources for improving the life and livelihood of the people inhabiting the shores. Much of the dispute is over illegal use of resources and trespassing the water boundary .Along with official processes awareness programmes need to be conducted for the sea shore inhabitants so that unnecessary legal action could be avoided.

India has signed an agreement with US for expanding maritime cooperation in the Indian Ocean and Pacific thereby breaking away from the past hesitation and giving a concrete shape to Indo –US relation in the maritime environment. Good relation with China and US is the hall mark of India's strategy following globalization but embroiled in diplomatic complexities .While US has cooperated with India in conducting joint naval exercises and other activities , China has suspected India's perspective .This is reflected in containing India's interests in the Indo –Pacific maritime environment obstructing entry in regional and global institutions. Even it has suspected Indo –Japanese cooperation ,India's engagement in hydrocarbon exploration of the South China Sea in Vietnam coast and annual joint naval exercises with South East Asian nations, U S and Japan . The South China Sea is important for commerce for the South East Asian nations, Japan and India . China's claims have compelled India to tie up with countries in the region, U.S and Japan to counter possible control of the sea routes by China. At the same time it is cooperating with China in conducting joint exercises the first of which was conducted in Chusul(39)

Containing China is perceived to be better handled with India's military and economic prowess. Therefore US and Japan are interested in strengthening India's military. However, creating and sustaining an environment of trust among the smaller nations in the Indo Pacific region is essential . The IOR littorals are much smaller in territory as well as coast line .They might be apprehensive of India's vastness when relationship is broached .The Indian Association Rim Association (IORA) and Indian Ocean Naval Symposium (IONS) need to be active .India has two options ; to cooperate with China or partner with Japan in the Partnership for Quality Infrastructure(PQI).At the moment its diplomacy is opaque but expert opinion alert India about the possible threats from China in future. Friendly gesture from China is limited to commercial sphere that is for China's advantage .Viewed from the present gesture China will interrupt India's influence in the region and international sphere by diplomatic means.

So far Indian Navy has played a key role in guarding the SLOC , providing security to vessels of foreign countries, relief and rescue operations earning admiration for its deft handling and management of crisis .To strengthen maritime diplomacy Forum For India –Pacific Cooperation (FIPIC) has been instituted which comprises fourteen Pacific islands. The forum will cooperate to deal with the crisis arising from climate change, in space technology and solar energy. Strengthening this forum will enhance India's commitments to environmental and human security.

Several limitations inhibit India to play an autonomous role in materializing its maritime ambition. Its Project Mausum is a non starter. Challenges from the region are too many .India does not have

military presence in the Pacific islands. Neither US nor Japan would like India's emergence as a key Asian power. Some members of South East Asian Association have ambition to emerge as regional powers as well as play key role in international forums. In other words economic interests is the main binding force compelling nations in the region and outside to cooperate with India .But they are apprehensive of India's expansive posture .

China's defence policy has evolved since 1978 when modernization in agriculture, defence ,science , technology and industry were mooted. India's foreign policy orientation changed much later following economic reforms in the 1990s. It evolved under successive governments but became pro active recently. However, frequent reference to China will damage India's aspirations adding problem to the sustained boundary dispute and obstructing India's emergence as regional power and participation in global institutions. (42) This can be inferred from Philippines gesture for a conciliatory approach following the PCA verdict. It has opted "for joint development deal with China in exchange for infrastructure aid". Similarly the Association of South East Asian Nations reportedly has not disclosed its decision following the verdict. Japan, Australia and Singapore have made careful statements on the issue.(41)

Simultaneously India has to partner with US navy to improve its capabilities and resources in order to equip to meet the challenges. Access to US technology will reinforce Indian military and the rebalancing strategy for Asia-Pacific and Indian Ocean will add to the diplomatic dimension. The Defence Technology Transfer Initiative is meant to ease technology transfer for the military . India has signed an agreement with US for expanding maritime cooperation in the Indian Ocean and Pacific thereby breaking from the past hesitation and giving a concrete shape to Indo –US relation in the maritime environment .U S is unwilling to play active role in the Indo Pacific region for several reasons. It is encouraging regional powers to enhance their naval capabilities .Most of the south Asian countries are enhancing their naval capabilities .But most Asian countries support US presence to counter Chinese assertions in the South China Sea and overwhelming presence in the Indian Ocean. Besides many of the Asian countries are acquiring powerful nuclear submarines. Japan, France, Russia have stake in the IOR .Thus there is a reordering of power relations and power shift in the key regions of IOR. India has been committed to build the Chabahar port which will allow access to Afghanistan to protect its investments. It has assumed a significant role in the changed scenario which needs to be sustained with diligent diplomatic means.

India's maritime diplomacy is shaped as much by its own interests as it is in response to action of other nations in the recent past .After independence not much attention was given to naval diplomacy for several reasons, internal as well as external thereby losing a plethora of opportunities to have its naval presence in the neighbourhood .Now also decision making is bedeviled by the absence of a single decision making agency to take a call on maritime issues. Lack of coordination among the decision making bodies adds to conflicting opinions and delay . Experts are not given due space in policy making. The internal handicaps need to be overcome while external threats are to be taken care with prudence and agility. Even with multiple short comings India has advanced its maritime interests in the India Ocean, Arabian Sea and the Pacific Ocean. But in future challenges will be more not only from traditional rivals but emerging economies across the region which needs a policy with futuristic vision.

In the globalised world Asia cannot be explained as divided entities of East, South, South East, Central and Middle exclusive to one another as developments in one sub region impacts others . Political instability, nature of economic growth, extremism and natural disaster in any one region has pervasive impact on the other .Therefore disturbance/s in one country or region cannot be successfully leveraged without the cooperation of the other. The ships travelling in the seas originate in different nations, the crew is also from different nations for which independent action will not be sufficient to provide security and counter illegal activities. Surveillance activities require cooperation between nations and speedy response.

The "Asian Century"is marked by economic power ,as destination of investment ,huge natural

resources and market potential of India and China. It is rebalancing of the international economic power structure .Obviously this has thrown up new challenges for India having a major role in shaping the rebalancing strategy. China is augmenting economic and military power in a stable political system to keep itself immune from dominance of any other powerful country. Indian government has focused on a vigorous foreign policy and security strategy despite limitations internal as well as external. Processes of decision making in India is much different from China. But not withstanding the restraints it has emerged as a potential power with capabilities and resources to counter challenges which need to be managed with sagacity to widen its space in the international sphere.

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The land based "New Silk Road will begin in Xi'an in central China, and continue up to Kazakhstan after crossing Chinese territory. It will then connect Iran ,Iraq, Syria and Turkey. From Istanbul it will cross the Strait of Bosporous and move to Europe including Bulgaria, Romania the Czech Republic, Germany, and Venice in Italy. There it will connect to the Maritime Silk Road which begins in Guangzhou crossing Kuala Lumpur, Kolkata ,rest of Indian Ocean to Nairobi ,Kenya, Horn of Africa, Red Sea and link Venice.China's One Belt One Road (OBOR) initiative proposed by President Ji Xinping adds new dimension to Indian naval diplomacy.The policy aims at greater economic integration of three continents, Asia , Africa and Europe. The "Road" envisages to link the maritime route of the Indian and Pacific Oceans .The "Belt' includes a host of connections like, railways, highways, telecom, oil and gas pipeline projects from coastal China to Europe through Central and West Asia" "China's grand strategy, India's grand dilemma", Livemint,8 February,2016,http://www.livemint.com

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New Maritime Silk Road (MSR) *versus* Project Mausam: Is it Geo-economics or Geo-politics?

Dr. Alok Kumar Gupta

Alfred Thayer Mahan in his book *The Influence of Sea Power upon History 1660-1783*[1] most famously presented his concept of 'sea power' which was based on the idea that countries with greater naval power will have greater worldwide impact. His concept had an enormous influence in shaping the strategic thought of navies across the world, especially those of United States, Germany, Japan and Great Britain. His concept ultimately led to European naval arms race in the 1890s. It was indeed a revolutionary analysis of the importance of naval power as a factor in the rise of the British Empire. Mahan's argument that British control over the seas, combined with a corresponding decline in the naval strength of its major European rivals paved the way for Great Britain's emergence as the world's dominant military, political and economic power. This was learned as lessons by United States' policy makers who thought of using the concept for expansion of their overseas market. Since then it has resonated with many leading intellectuals, strategic thinkers, political leaders and foreign policy makers in different parts of the world to address the economic and political challenges in different times. Mahan seems to be more relevant in the contemporary world than he may have been during his life time or in the immediate aftermath. His concept of 'sea power' continues to be the dominant ingredient of 'strategic thinking' in the contemporary world. Forecasts are being made that the third world war is at our gate and it shall be about water.[2] It is also being claimed that where terrorism is active, there is usually a scarcity of water. These are symbolic statements to emphasize and re-emphasize the significance to water bodies and water in particular, in spite of the fact that about two-third of the globe is made of water alone. The importance of water has been increasing not only because of its utility in terms of sustenance of life, but also because of it being the facilitator of cheapest mode of transportation for trade and commerce. Therefore, alongside the struggle for scarcity of water for sustenance of life, there is distrust among nations and hence a struggle for managing and mastering the authority over sea, Oceans and other water bodies of the world. Such struggle has been there since last more than two centuries. Initially the seat of struggle was confined to North America and Europe, and now the seat of struggle and confrontation is shifting to Asia-Pacific and to put it more precisely the Indo-Pacific region. Mahan's advocacy, which was based on an analysis of history of war and 'struggle for power' therefore seems to be far more relevant in the contemporary world.

Like Germany before the First World War, China in the 21st century has embraced Mahan. Naval War College professors Toshi Yoshihara and James Holmes have examined the writings of contemporary Chinese military thinkers and strategists in this regard in their important work, *Chinese Naval Strategy in the 21st Century: The Turn to Mahan*. With regard to Mahan's elements of sea power, China is situated in the heart of east-central Asia and has a lengthy sea-coast, a huge population, a growing economy, growing military and naval power, and, at least for now, a stable government. China's political and military leaders have not hidden their desire to supplant the United States as the predominant power in the Asia-Pacific region.[3] Therefore, China's embrace of Mahan is a reason enough for countries like US, India and other Indian Ocean littorals to acquaint themselves with the writings of Mahan and then analyse the Chinese initiatives at Sea and Oceans.

China's initiative of New Maritime Silk Road and Economic Belt seems to be an endeavour to fulfil its aspirations of becoming a 'sea power' to be reckoned with on the globe. Therefore, it makes it imperative to understand the aspirations so that other regional and global powers can accordingly fine tune their foreign and defence policy as well as their strategic thinking.

Maritime Silk Route—From Old to New:
During Tang Dynasty of China, Maritime Silk Route (MSR) was a major channel of communication, through which ancient China made contacts with the outside world. Since, then it was often discussed in history of China and the world as an ancient system of inter-state communication and channels of trade and commerce. This was also suggestive of an open economy and globalization of trade and commerce. However, with the recent intentions of reviving the old route for furthering the economic interest of the participant countries has given indications of evolution of a new kind of geo-political strategic game-plan of China in the Indian Ocean and its vicinity. Though, China is trying to be smart by advocating only the economic interest and luring the countries on the charted route to join the proposed project as it would add means and value to their economy. This is being evolved on the pretext of exploring the unique values and ideas of the ancient Silk Route and to achieve common development and common prosperity of all countries in the region.[4] This development has attracted enormous interests among policy makers and scholars. Kenya[5], Germany[6], Sri Lanka and Malaysia[7] have already advocated the positive side of the effect and have expressed their willingness to join. Is it pure geo-economics or China is trying to redefine and re-design the geo-political chessboard of the Indo-pacific region to limit United States and India as pivot to Asia-Pacific? India to meet the challenge posed by Chinese initiative has been prompt at launching its own version of MSR known as "Project Mausam" and 'Spice Route". Therefore, there it necessitates understanding and comprehending the 'strategic thinking' and initiatives of both the countries to better understand their game-plan and the changing geo-politics or geo-economics of the region.

The Origin
The idea of the Maritime Silk Road (MSR) was outlined during Li Keqiang's speech at the 16th ASEAN-China summit in Brunei, and President Xi Jinping's speech in the Indonesian Parliament in October 2013. Chinese leaders underlined the need to re-establish the centuries-old seaway into a 21st century MSR, while celebrating the 10th anniversary of ASEAN-China strategic partnership.[8] It envisages connectivity with Southeast Asia, South Asia, West Asia and even Africa by building a network of port-cities along the erstwhile silk route as Maritime Silk Road (MSR). This shall link the economic hinterland of China which aspires to improve its geo-strategic position in the world. The main emphasis being placed on stronger economic cooperation, closer cooperation on joint infrastructure projects, the enhancement of security cooperation, and strengthening maritime economy, environment, technical and scientific cooperation.[9]

China Security Journal was quoted as saying that the priority of the initiative was 'port construction' and 'free trade zones' in the Indian Ocean and with this China hopes to coordinate, customs, quality supervision, e-commerce and other agencies to facilitate the scheme.[10] Therefore, prima facie it seems that it involves only economics i.e. trade and commerce. However, a deeper analysis reveals that it is more than that as China seems to be attempting to achieve the objectives of designing the geo-politics of the region to its own advantage by changing its geo-economics.

The Proposed Road
The Xinhua News Agency has released the map of the proposed project which runs as follows: It is divided into two parts as "New Silk Road" and "New Maritime Silk Road" also known as Silk Road Economic Belt (SREB). According, to the map[11], the land-based "New Silk Road" will begin in Xi'an in central China before stretching west through Lanzhou (Gansu province), Urumqi (Xinjiang), and Khorgas (Xinjiang), which is near the border with Kazakhastan. The Silk Road then runs southwest from Central Asia to northern Iran before swinging west through Iraq, Syria, and Turkey.[12] From Istanbul, the Silk Road crosses the Bosporous Strait and heads northwest through Europe, including Bulgaria, Romania, the Czech Republic, and Germany. Reaching Duisburg in Germany, it swings north to Rotterdam in the Netherlands. From Rotterdam, the path runs south to Venice, Italy—where it meets up with the equally ambitious Maritime Silk Road.[13]

The Maritime Silk Road will begin in Quanzhou in Fujian province, and also hit Guangzhou (Guangdong province), Beihai (Guangxi), and Haikou (Hainan) before heading south to the Malacca Strait.[14] From Kuala Lumpur, the Maritime Silk Road heads to Kolkata, India then crosses the rest of the Indian

Ocean to Nairobi, Kenya (the Xinhua map does not include a stop in Sri Lanka, despite indications in February 2014 that the island country would be a part of the Maritime Silk Road). From Nairobi, the Maritime Silk Road goes north around the Horn of Africa and moves through the Red Sea into the Mediterranean, with a stop in Athens before meeting the land-based Silk Road in Venice.[15] Indeed the proposed project in its totality is an ambitious plan of China with tremendous potentials to alter the balance of power as well as the geo-economics and geo-politics of the region across which it is proposed to traverse.

New Silk Road: New Dreams

The Chinese political leadership has been quite melodious right from its announcement and advocated that by the objective of the MSR is greater economic cooperation and well-being of all the participant countries will be ensured. The new leaders put forward the "2+7" formula of cooperation—consensus on two issues; deepening strategic trust and exploring neighbourly friendship, and economic development based on mutual benefits and win-win outcomes.[16] They also put forward seven proposals—(i) signing the China-ASEAN good neighbour treaty; (ii) more effective use of the China-ASEAN Free Trade Area and intensive Regional Comprehensive Economic Partnership negotiations; (iii) acceleration of joint infrastructure projects; (iv) stronger regional financial and risk-prevention cooperation; (v) closer maritime cooperation; (vi) enhanced collaboration on security; and (vii) more intensive people-to-people contacts along with increased cultural, scientific and environmental protection cooperation.[17] The endeavour, thus, promises to explore the cultural meaning of the Silk Road, and spread awareness of China's friendly policies towards neighbouring countries.

The enormity of the project is revealed from the maps of two Silk Roads released in May 2014 which has been explained above. Both the proposed roads shall link three continents which exposes the China's ambitions of reclaiming its place as the "Middle Kingdom", linked to the world by trade and cultural exchanges. However, Chinese leaders want to re-assure their commitment to the path of peaceful development, emphasising that a stronger China will add to the force for world peace and the positive energy for friendship and will present development opportunities to Asia and the world, rather than posing a threat.[18]

China has established an Asian Infrastructural Investment Bank (AIIB), which could provide a strong investment and financing platform for multimodal connectivity, like building high-speed rail, ports, airports, within related countries. It is also a leading partner in the New Development Bank (NDB) established by BRICS. Meanwhile, in order to get wider support, China may consider establishing the bank headquarters in one of the capitals along the MSR, possibly Jakarta, Bangkok, Singapore, and other countries deemed friendly.

Undoubtedly, China is taking decisive steps to im prove its overall geopolitical position by developing extensive transport networks, building roads, railways, ports, and energy corridors through such initiatives. Historically, the MSR was divided into two main sectors: lands 'above the wind" (ports in the Indian Ocean) and lands "below the wind" (the straits of Malacca, the South China Sea, the Java Sea, and further east).[19] These terms referred to the season of sailing. Long-distance voyaging along these routes became possible once seafarers discovered the rhythm of wind, which provide reliable power for sailing ships. Shipbuilding and navigation in China were fairly advanced, and Chinese navigators had some ability to predict monsoons.[20]

Therefore, with the dreams of New Silk Road along the land as well as Ocean China aspires to fulfil many of its long cherished political and strategic dreams. It makes it obvious that China quite subtly is making all efforts to build a strong international personality of its own to challenge the erstwhile powers of the world. It is trying especially to contain United States in its endeavour in Asia and the Pacific. It is also making moves to contain India and limit its role in its own turf.

The Implications

The proposed project has raised many pertinent questions: such as (i) Is it mere geo-economics that China is trying to aim at? (ii) Is it that in the garb of economic interests China is endeavouring to achieve its strategic aspirations? (iii) Is it Chinese attempt at redesigning the geo-political chessboard of South Asian

Politics and Asia-Pacific? (iv) Is it that China wishes to be the "Middle Kingdome" country in the Asia-Pacific region? (v) Is it really possessing potentials to safeguard Asia's security and ward-off threats to regional order by building an Asian Community as advocated in the Chinese media? (vi) Is it really going to create business opportunities as advocated by German officials?[21]

The commitment from Sri Lanka to join the Maritime Silk Road indicates the proximity of the two states' strategic aspirations and is a reflection of the assimilation of national interests.[22] Malaysia too has expressed its willingness to support the project. Accordingly, a major project fair for international trade of halal products was held in Beijing in early March 2014 where more than 200 companies from China, Malaysia and Indonesia attended the activity and signed strategic cooperation agreements with seven Chinese institutions including China's Economics Chamber of Commerce.[23]

The MSR is a vital strategic project for China in the Indian Ocean, and will expand up the western coast of India and further west to Iran, a vital exporter of oil to China. The brand new port of Hambantota, 85 percent of it paid for with a Chinese loan, is located on the south of the island, historically not a traditional shipping route.[24] However, it is the perfect location to meet the strategic objectives of the MSR and Sri Lanka too has defended Hambantota by advocating that it is purely a commercial port.

China has disputes and acrimonious relations with many countries of South Asia and Southeast Asia due to their stake and maritime disputes. This has presented a kind of complex circumstances for itself towards building a better relation with its neighbours. Through their vision of re-energising the MSR, Chinese leaders aim to impart a new lease of life to China's peripheral policy and diffuse the tension. It again seems that MSR could be an attempt to counter the "String of Pearls" argument.

Strategic Objectives

It would support friends and clients thereby neutralising similar activities by other naval powers, or merely by showcasing one's maritime power. Indeed, naval power has certain advantages as an instrument of diplomacy. Naval forces are more resilient, and they have greater visibility. Thus, the proposed MSR has clear strategic objectives, and India and many other countries are studying implications of this bold policy statement carefully. It has become a kind of consensus in Asia that without economic development, equality, mutual trust and cooperation frequently linger on the largest and most populous continent. As advocated, China's two initiatives to build Silk Road Economic Belt and a 21st-century Maritime Silk Road have shown its willingness to explore on how to translate the new concept to concrete common interests and friendship with other Asian countries.

China seemingly respects the traditional influence and interests of big powers in the region by advocating the principle of peaceful co-existence. However, in the garb of advocated objective the intentions seem to be otherwise i.e. to put aside the United States or co-govern the region with US. US too has taken number of initiatives in the region to ensure its allies like Japan by instilling confidence in them that it will be helping them deter threats in any eventualities. The region suffers from both traditional and non-traditional threats to its security. Accordingly, China is looking forward to build its personality in a manner that it can have a determining role in such as transnational crime, terrorism, energy crisis, drug trade, Korean crisis, crisis in South China Sea, etc. China has also adopted an aggressive posture before the world community by adding another dimension to its advocated objectives. Aggressiveness of China was writ large when it shirked aside the orders of the International Tribunal on the Complaints lodged by Philippines regarding China's claims in South China Sea. China refused to acknowledge the rulings of the Tribunal in utter violation of the International Law. Thus, China seems to have been adopting a multi-pronged strategy to achieve its objectives on SREB. China is projecting itself as the harbinger of common, comprehensive and sustainable security measures to build peace in Asia through build-up of an economic stakes in the Indo-Pacific or Asia-Pacific region.

The Ambiguity

China's economic vision is no less expansive than the geographic vision. Despite this expansive goal,

it's not clear yet what will tie together the disparate countries along the proposed roads. China has discussed building up infrastructure (especially railways and ports) along the route, yet the vision includes more than simply speedy transportation.[25] China envisions a trade network where "goods are more abundant and trade is more high-end. China expects the economic contact along the Roads to boost productivity in each country on the account of advocated economic compatibility with many of the countries along the planned route and has offered technological assistance to countries in key industries.[26] There may also be Chinese ambitions of strengthening its own currency. China has also envisioned the Road as a region of more capital convergence and currency integration, where currency exchanges are fluid and easy. China's currency, the *renminbi*, is becoming more widely used in Mongolia, Kazakhstan, Uzbekistan, Vietnam, and Thailand, yet it cannot claim that it will become the Silk Road's primary currency, rather hopes that local currencies will be the dominant means of economic deals.[27] Therefore, if the dream becomes the reality then there are probabilities of greater exchange of local currencies and a boost to regional local trade.

The proposed road will not only create an economic trade route but an interdependent community with common interests, fate and responsibilities from East Asia to Western Europe. Therefore, it seems an ambitious talk with a lack of vision as to how it shall be implemented. Will the land- and sea-based Roads be limited to a string of bilateral agreements between China and individual countries, or between China and regional groups like the European Union and ASEAN? Is there a grander vision, such as a regional free trade zone incorporating all the Silk Road countries? Or will China be the tie that binds it all together, with no special agreements directly linking, say, Kazakhstan and Germany.[28] Therefore, at this stage it seems it is an ambitious project of China where China will be the pivot in Asia-Pacific, and all other participant countries shall keep looking towards China for guidance to take-off the project at different stages and in different countries. However, the release of the map by Xinhua suggests that to mitigate the ambiguity China may propose the blue-print of the entire project and a road-map for its concretization in different phases.

Challenges before India

The Indian strategic community has a cause to worry and they must be wary about Chinese rising naval profile in the Indian Ocean with the construction of port infrastructure in Pakistan (Gwadar), Sri Lanka (Hambantota), Myanmar (Sitwe), and Bangladesh (Chittagong). China has offered at official levels that India too should become a partner in the proposed Roads. However, there are no indications of any sort by the Indian side on the proposal. China indeed nurses to be the great maritime power of the world. Xi's predecessor, Hu Jintao put the idea of China's maritime destiny at the centre of Chinese grand strategy in the 21st century and oversaw the dramatic expansion of the People's Liberation Army (PLA) Navy. Hu's naval assertion, however, has frightened its neighbours from Japan to India through the ASEAN and has increased maritime tensions in Asia's waters.[29]

From a Chinese perspective it was a smart move to invite India to join the Maritime Silk Road project. However, the move has posed a kind of dilemma between the two competing ideas: one is working together with China in the maritime domain and the other is the long-standing goal of limiting China's influence in the Indian Ocean.[30] Given Indian capability and domestic politics it seems India cannot opt for any of the two courses of actions available before it. India cannot learn to live with China's growing naval profile and cannot work together in a project in which its own personality gets subdued. On the other hand, India lacks the capability to challenge the Chinese growth on military as well as non-military security front. India has been suffering from slackness in the arena of its defence modernization to match the Chinese defence profile. India mostly aims at matching Pakistan even though many defence experts advocate otherwise and say Indian defence build-up has China in its focus. Accordingly India has launched 'Project Mausam' to match or some may say to counter the ambitious project of China.

What is Project Mausam?:

Project 'Mausam'[31] is a Ministry of Culture project with Archaeological Society of India (ASI), New Delhi as the nodal agency and Indira Gandhi National Centre for the Arts (IGNCA), New Delhi as its Research Unit. The endeavour of the Project is to

position itself at two levels: at the macro level it aims to reconnect and re-establish communications between countries of the Indian Ocean world, which would lead to an enhanced understanding of cultural values and concerns; while at the micro level the focus is on understanding national cultures in their regional maritime milieu.[32] The central theme that hold Project 'Mausam' together are those of cultural routes and maritime landscapes that not only linked different parts of the Indian ocean littoral, but also connected the coastal centres to their hinterlands. More importantly shared knowledge systems and ideas spread along these routes and impacted both coastal centres, and also large parts of the environs. Like MSR of China this project too is an exciting, multidisciplinary project that rekindles long-lost ties across nations of the Indian Ocean World and forges new avenues of cooperation and exchange. The project launched in partnership with member states, will enable a significant step in recording and celebrating this important phase of world history from the African, Arab and Asian-world perspectives.

Objectives of the Project Mausam:

The initiative envisions India as the centre of the "Indian Ocean World", which stretches from Africa in the west to Southeast Asia in the east.[33] This project aims to explore the multi-faceted Indian Ocean World—collating archaeological and historical research in order to document the diversity of cultural, commercial and religious interactions in the Indian Ocean—extending from East Africa, the Arabian Peninsula, the Indian subcontinent and Sri Lanka to the Southeast Asian archipelago. The project will promote research on themes related to the study of Maritime Routes through international scientific seminars and meetings and by adopting a multidisciplinary approach. It will encourage the production of specialized works, as well as publications for the general public with an attempt at promoting a broader understanding of the concept of a common heritage and multiple identities.[34]

Therefore, there are two major units of the project: (i) Project Research Unit and (ii) World Heritage Nomination Unit. The main objective of the project as envisaged is transnational nomination of Maritime Cultural Routes, creation of a comprehensive database and UNESCO web platform on Maritime Cultural Landscapes and Routes and; linking other UNESCO cultural conventions with the World Heritage convention through this theme. Therefore, this project aims to revive the lost linkages with the nations along the Indian Ocean that have shared links with each other for millennia by redefining the 'cultural landscape'.

Like China's Maritime Silk Road, Project Mausam as envisaged would boost regional commercial and cultural linkages—but where the MSR would have all roads leading back to China, Project Mausam seeks to return India to its role as the Centre of Indian Ocean trade.[35] This clearly reveals India's mistrust of the MSR and of China's Indian Ocean ambitions. China already has suggested of a linkage between Mausam and MSR to assuage the concerns of India.[36] China's Foreign Ministry spokesperson, Hua Chunying made a remark in response to a question regarding India's 'Spice Route'[37] and 'Mausam' projects that, China is ready to work with South Asian countries, including India, Sri Lanka to strengthen policy communication, identify the meeting point of their development strategies, explore effective ways of mutually beneficial cooperation and common benefit of the region, countries and the people.[38] The Chinese have also proposed that the MSR would dovetail with the "Global Maritime Fulcrum", an initiative of Indonesia, another emerging economy, which seeks to develop the maritime resources of the archipelago in a comprehensive manner. All these projects seek to achieve expansion of regional integration, especially for trade and commerce. Obviously, it shall also help them to expand influence: culturally, economically, and strategically.

Conclusion

MSR is an oceanic connectivity project initiated by China in which Indian Ocean is the core. China is establishing a naval support facility in Djibouti. It has signed a deal to develop industrial park and a deep water port in Kyaukphyu in Myanmar. China's deep sea enterprise also includes development of 10 berths at the Maday Island Terminals (a major pillar of China's energy security) and the Yanbye Island Terminal. Sri Lanka has added another dimension to the MSR with prospects of the revival of the stalled Colombo port city project under new conditions and a Special Economic Zone at Hambantota, unfolding the

ambitious MSR. However, the Colombo port city project seems to be in doldrums by now as Sri Lanka has succumb under Indian pressure as the news in the media spells. China is already steering the Gwadar to Kashgar economic corridor. Therefore, it is quite obvious from the ensuing development that China's profile in Indian Ocean is growing by leaps and bounds. The belt and road initiatives aimed at expanding road, rail and port infrastructure, to further China's trade and influence around the world has a maze of network connectivity which includes a Eurasian highway connecting China with Europe through Central Asia, the MSR; Bangladesh, China, India and Myanmar (BCIM) economic corridor; and the China-Pakistan Economic Corridor (CPEC). Chinese president Xi has set up a $40 billion Silk Road Fund to finance the project. The newly formed Asia Infrastructure Investment Bank (AIIB) and the New Development Bank (NDB) floated by BRICS countries is expected to play a key role in financing the project. Therefore, one can only imagine China's commitment to the project and aggressiveness with which it is pursuing the same.

India on the other hand seems to be doing its own bit just for the sake of doing it and saving its own image. The project envisaged by India does not spell out any concrete plan of action which could be considered as one that matches China. It seems to be just a philosophy which is at the nascent stage of a dream. The dream conceived does not reveal any potential to become a reality. One can only imagine its effectiveness in Indian context where it takes an era for a policy to ripen and get translated on the ground. Mausam lacks what MSR possesses, is a hard fact. It may be Modi government's most significant foreign policy initiative designed to counter China, inspired by its historical role as the focal point for trade in the Indian Ocean. India is yet to reveal actual details on the policies and projects that it intends to pursue to advance Project Mausam. Indian government may aspire to expand its maritime presence, culturally, strategically and psychologically[39] but it lacks the zeal and vision to translate it into reality. Comparatively at this stage the project smacks of a half-hearted and arbitrary initiative.

Undoubtedly, the success of the MSR initiative will be consequential to regional stability and global peace. This thrust on reviving the ancient maritime route is the first global strategy for enhancing trade and fostering peace, proposed by the new Chinese leaders. This contains the metaphor of friendly philosophy from the old Silk Route to build the new one. There are hurdles on the way, the biggest one being to get India on board the MSR. China can easily achieve it by winning the trust of India by dissolving the strategic issues between the two countries. China's repeated insistence that the MSR is a multilateral project sounds like a chorus rather than a solo, which India most likely is not going to buy. Therefore, it shall continue to be a challenge for China to resolve the deeper issues of mistrust and strategic competition between the two.

The MSR as advocated is a route for envoys of friendship, with far greater significance than a purely mercantile road. The MSR places China in the "middle of the "Middle Kingdom" and is an effort in initiating a 'grand strategy' with global implications.[40] The hope is that the erstwhile MSR, which served more for trade and establish friendly relations, would continue to do so in the revived form, rather than create new naval rivalries or power displays thereby disturbing the peace in Asia in general and South Asia in particular. Therefore, Indian strategic community need to devise means and mechanism to respond the Chinese initiative in a befitting manner so that it is able to maximize its national interests without jeopardising its economic interests and its strong presence as a power to be recon with in the Indian Ocean region.

India so far has maintained silence on MSR, over concerns about its potential for expanding China's influence in its immediate neighbourhood. Indian officials assert that India cannot give a blanket endorsement to Chinese initiatives as it has its own strategic projects like 'Mausam' and 'Spice Route' in the Indian Ocean. China has expressed its willingness to align MSR project with that of the Indian project, however, India has maintained a silence on the same as well. According to some experts India is trying to increase its leverage in negotiations with China as India's support and participation is of great significance in the MSR project. India's lukewarm response is owing to Indian apprehensions that it would amount to enhancing dominant presence of China in the In-

dian Ocean; and it would also facilitate China's land-locked western provinces by providing and opening markets of South East Asia and Middle East. However, at present it seems that India is failing to comprehend the geo-economic rationale and the security orientation of the MSR project. India is trying to unfold for itself if there is any attempt towards reordering Asia by China or undermining US influence in the region. Opinion for now stands divided within India: with one group advocating for joining; and another advocating a policy of wait and watch the military dimensions of MSR; especially when both the maritime and continental Silk roads are going to traverse India's periphery. Undoubtedly, the MSR project has potentials to maximize India's economic benefits through enhanced trade and commerce; but obviously not at the cost of compromising on Indian security or making it vulnerable. It is thus for the Diplomatic Community of India to devise means and mechanism in a manner that they become a part of it on its own terms and conditions rather than on Chinese terms and conditions. India may enter into negotiations to concretise its own fair and befitting role in the evolution of the New Maritime Silk Route. There is no doubt that China is pushing its MSR in India's backyard with the eager support of countries like Sri Lanka and the Maldives. The plan is boon to the economies of the entire region therefore India must look out for its own strategic interests before it is too late. China has signalled India and its neighbourhood that it is ready to reorient its foreign policy to address regional concerns. China has revealed enough of flexibility and accommodativeness in its approach that India must capitalise upon. India is uniquely placed to play a major role in Indian Ocean trade and security. India's power and location can serve to organize the states of the Indian Ocean littoral. Even Sri Lanka has been surprised at the move of China that China, India and Sri Lanka should all work together to avoid any suggestions of regional animosity. China understands the importance of India's participation in the project, therefore is seeking complementarity instead of competition to move forward with its project. China seems to be ready to work with India for a win-win cooperation and collective development. Therefore, there is an imperative that India must capitalize on the opportunity being thrown by the developments in its proximity. It is undoubtedly China's geo-economics that shall help it to design the geo-politics of the region, which India can better understand and comprehend by being a part of it and not outside of it. India too should learn Mahan's thesis and embrace it in its foreign policy formulations. Given the nature of contemporary world, no country can prevail in its endeavour to design the geo-politics of its region according to its whims and fancies without designing the geo-economics.

Footnotes

[1] He wrote the first book in 1890s and two years later he completed a supplementary volume *The Influence of Sea Power upon the French Revolution and Empire 1793-1812*.

[2] Amrita Gupta, a policy innovation journalism fellow of Carnegie Council writes that in 2015 NASA

's satellite data revealed that 21 of the world's 37 large aquifers are severely water-stressed. With growing populations, and increased demands from agriculture and industry, researchers indicated that the crisis is only likely to worsen.

[3] Francis P. Sempa, "The Geopolitical Vision of Alfred Thayer Mahan", *The Diplomat*, December 30, 2014, www.thediplomat.com

[4] Rajeev Ranjan Chaturvedy, "Reviving the Maritime Silk Route", *The Hindu*, April 11, 2014.

[5] Christine Lagat, "Kenyan scholars say China's Maritime Silk Road frontiers of growth", Xinhua English News, May 05, 2014. Retrieved from http://news.xinhuanet.com/english/china/2014-05/05/c 133311162.htm

[6] Zhu Ningzhu, "German Official says Silk Road creates business opportunities, March 27, 2014.

[7] Tang Danhu, "Chinese, Malaysian companies sign cooperative agreements, promote "Maritime Silk Road", *Xinhuanet* (Online English News), March 30, 2014.

[8] Ibid., no 4.

[9] Ibid., no 4.

[10] Ananth Krishan, "China's maritime Silk Road to focus on infrastructure", *The Hindu*, April 20, 2014.

[11] The map is available in Shannon Tiezzi, "China's 'New Silk Road' vision Revealed", *The Diplomat*

, May 09, 2014.

[12] Shannon Tiezzi, "China's 'New Silk Road' vision Revealed", *The Diplomat*, May 09, 2014.

[13] Ibid., no.12.

[14] Ibid., no 12.

[15] Ibid., no.12.

[16] Ibid., no.12.

[17] Ibid., no 4.

[18] Ibid., no.4.

[19] Ibid., no.4.

[20] Ibid., no.4.

[21] Ibid., no.6. Retrieved from http://www.xinhuanet.com/english/china/2014-03/10/c 133175736.htm

[22] Jack Goodman, "Sri Lanka's Growing Links with China", *The Diplomat*, March 06, 2014.

[23] Ibid., no.7.

[24] Ibid., no.22.

[25] Ibid., no.12.

[26] Ibid., no.12.

[27] Ibid., no.12.

[28] Ibid., no.12.

[29] C Raja Mohan, "Will India Join China's Maritime Silk Road?", *The Indian Express*, February 15, 2014.

[30] Ibid., no.29.

[31] Monsoon or Arabic 'Mawsim' refers to the season when ships could sail safely. This distinctive wind-system of the Indian Ocean region follows a regular pattern: southwest from May to September; and northeast from November to March. The English term 'Monsoon' came from Portuguese 'Monsoe', ostensibly from Arabic 'Mawsim'. The etymology of this word signifies the importance of this season to a variety of seafarers. This intertwining of natural phenomenon such as monsoon winds and the ways in which these were harnessed historically to create cultural networks form the building blocks of Project 'Mausam'. Retrieved from www.ignca.nic.in

[32] For detail visit www.ignca.nic.in

[33] Shannon Tiezzi, "Can China Woo India to the Maritime Silk Road?", *The Diplomat*, April 07, 2015.

www.thediplomat.com

[34] Ibid., no.32.

[35] Ibid., no.3.

[36] Atul Aneja, "China's Silk Road diplomacy willing to entwine India's projects", *The Hindu*, April 6, 2015.

[37] The 'Spice Route' of India, visualizes the India-centred link-up of historical sea routes in Asia, Europe and Africa.

[38] Ibid., no.36.

[39] Psychologically means to remind the region that why the Ocean is called the Indian Ocean.

[40] Ibid., no.4.

Chabahar to Sagarmala:
Making Sense of India's External & Hinterland Sea Lane Prospects

Dr. R. P. Pradhan and Dr. Jajati K. Pattnaik

Introduction

India's maritime space both externally and internally is under serious churning today. Caught between maritime forces and strategies building around South China Sea to Indo-Pacific region and the corresponding American 'Asia Pivot', India is riding maritime high table diplomacy in the neighbourhood sea lanes to protect and safeguard her strategic maritime assets and interests. Chabahar is one such India's strategic naval diplomacy in the Persian Gulf. While the national and international media is agog with this maritime volatility and the corresponding stake holder countries moves and counter moves, India's silent but strategic internal maritime space redrawing through 'Sagarmala Project' - India's internal maritime connect grand strategy is not only a vision but a silent connectivity revolution in India's coastal corridor towards an efficient maritime economy and efficiency.

Apart from Chabahar strategic deal, India-Bangladesh maritime tango, India's series of sea lane emerging engagements stretching from South China Sea to Indian Ocean Rim and Arabian Bay is seemingly driving India's serious resolve towards an efficient external sea lane connect that had been neglected for ages. On the other side however, what so far has not captured international imagination and interpretation and largely been an internal and hinterland waterway story is India's ambitious Sagarmala Project -2.

Sagarmala, is a significant flagship port and maritime infrastructure and connectivity project for the government of India today. The project aims at holistic Port infrastructure development, coastline modernization, mechanization and computerization connecting together twelve major and 160 minor ports where central and state governments and private players are set together to jointly create modern India's most efficient sea connect infrastructure.

India's larger maritime vision therefore is a double edged road map and score card dominated externally by high table maritime naval diplomacy along littoral countries and strategic collaborations in the high seas of India's neighbourhood. On the other side, 'Sagarmala' - India's sporty internal hinterland coast line structural connectivity is a promise towards efficient maritime transport highway and capacity building for the future transportation of India's economic prosperity for the coming years. India's maritime architecture therefore is seriously in the making both in the external and internal front jointly holding relevance to India's strategic and economic frontiers.

Triangular Maritime Strategic Canvas

In the larger canvas, three prominent configurations constitute the emerging strategic dynamics in the Asia-Pacific and South China Sea region. First, China's 'Nine Dashes'[1] and rising China's land and maritime boundary dispute with all her fourteen neighbours. Though China claims to have resolved twelve such bilateral disputes, the serious division within ASEAN post Hague arbitration verdict signifies the volatility of such boundary dispute resolution. On the other hand, Chinese 'One Belt One Road (OBOR)', 'Silk Route', 'Nine Dashes' and 'String of Pearls' spreading from South China Sea through Indian Ocean, Persian gulf and the African coast signal Chinese serious intent of eminent strength and strategic display. Second, Japanese on the other hand, apart from increasing their defense expenditure, talk of 'Maritime Commons' and Freedom of Sea from Oceania to Hawaii and number of littoral countries in the Asia-Pacific have reasons to be in consonance. Third, given the Chinese rise, Washington's 'Asia Pivot' and shifting of larger component of the American sea ability to Asia-Pacific region and series of their sea lane collaborations including Japan and India clearly spells a strategic shift and race for maritime sphere of influence. The US seems to move 60% of American navy to the Indo-Asia Pacific and for this purpose; it

has started contacting heads of 35 states (Pereira, 2016).

India philosophically positions herself towards a Maritime Commons orientation and strategizes for independent foreign policy of goodwill without any overt confrontation with Chinese. However, Washington's Asia rebalancing and larger maritime strategic positioning of other stake holders leaves India with little option than to look for reliable strategic collaborations that can stand the 'push-pull' at times of eventuality. Chabahar port deal therefore, like Port development in Bangladesh is more strategic than mere trade and access collaborations.

Additionally, recent Hague Convention arbitration rejecting China's historic sovereign right over greater part of South China Sea and vindicating Philippine claims practically leaves the larger maritime space to belligerent Chinese counter moves. China has not only rubbished UNCLOS but threatening to move away from UN Convention of Laws of Sea which virtually leaves the Hague arbitration redundant. In the absence of international sea policing, existing Laws of Sea which was ratified by over 160 countries goes simply for a toss. China, adding to the confusion is displaying real time warship buildup to protect and enforce the so called 'Chinese sovereignty' over the larger part of South China Sea over an area extending up to 850 sq km (AFP, 2016).

The ten members of ASEAN also seem divided on the issue. ASEAN Foreign Ministers Meet hosted by Laos in the third week of July remained seriously undecided as to how to respond to Hague arbitration. Malaysian statement alarming China's activities in South China Sea was quickly disowned by ASEAN and Cambodia and Laos were accused of falling into China's cheque book diplomacy leading to division within ASEAN. ASEAN faced the prospect of being unable to issue a statement after a meeting for only the second time in its 49-year history (AFP, 2016). Earlier in 2012, ASEAN remained divided due to Cambodia's resistance to language about the South China Sea.

Hague Verdict: Solution or a Problem?

China's maritime ambitions, post Hague UNCLOS verdict seem to have at least theoretically rocked visible Chinese sea lane ambitions in South China Sea. However, it has also opened up a new phase of high table maritime diplomacy that may seriously endanger the region's maritime calculations and render strategic engagements and assets volatile. Beginning with 'String of Pearls', predatory 'Nine Dashes' and controversial Senkaku Islands in Far East and series of islets and reefs in the South China Sea have been global buzz word of Sino Maritime Hegemony in the region uncomfortably placing all the stake holders in anxiety. Former Secretary of State Hillary Clinton raising the South China Sea issue in an International Forum in Hanoi in 2010 planted the first highly publicized seed of ASEAN division on the issue which Vietnam, Philippines, Malaysia and Brunei welcomed. Hillary raised the fundamental concern around respect for freedom of navigation, peaceful resolution of disputes, freedom of commerce, negotiation of a Code of Conduct for dispute resolution and, most relevant here, the view that claims to water could only be based on legitimate land-based claims. Through Hillary's Hanoi statement perhaps, Washington expressed the first and most clear policy statement and intent of Washington's involvement in the region which six years later is becoming more and more complex (Bader, 2014).

The Hague verdict is the end of a phase of naval diplomacy in the region and carries significant strategic implications. First of all, it has set an encouraging path and precedent for ASEAN members such as Vietnam and Indonesia, which have previously threatened to take China to international court over the South China Sea disputes (Reuters, 2015). Even Japan is considering compulsory arbitration against China in the East China Sea (Takenaka, 2016).

The verdict, whether China agrees or not, made it very clear in legal terms that China enjoys no sovereign rights to exploit the marine and energy resources which is conflicting the EEZs of a number of ASEAN members and Philippines is not alone. Even if none of China's neighbors actually pursue a legal warfare strategy, these countries are in a strong position to credibly threaten Beijing with simultaneous, multiple arbitration cases to legally embarrass China at the international forum and generate negative public opinion (Heydarian, 2016).

More law suits will be a soft power coup and huge setback for China's claim to regional leadership. If China fails to comply with the verdict, Manila can also ask the International Seabed Authority, constituted under the UNCLOS, to suspend existing permits it has granted China to extract seabed resources in international waters (Heydarian, 2016). Mean while, Manila has full options of filing additional arbitration cases against China if the latter unilaterally exploits hydrocarbon and other natural resources within the Philippines' EEZ (Carpio, 2016).

India's Maritime Goodwill Curve

In the context of regional maritime volatility, Indo-Iranian high diplomatic Chabahar port deal was widely celebrated in India as a strategic victory which seemed to have pushed China deep looking into prospects elsewhere in the Arabian Sea for port and trade anchorage. Simultaneously, India's Sagarmala project and series of India's external and internal maritime ideas, road maps and initiatives hold high prospect for India's maritime future which is beginning to unfold incrementally.

Contrary to Chinese sea lane hegemony, India, under Prime Minister Modi is seemingly joining the high table of international maritime diplomacy towards a corridor of ***'India's Maritime Goodwill Curve'*** that is structurally beneficial to India and her economic interests and strategically neutralizing China's String of Pearls ambition.

While China is strategizing the String of Pearls over eighteen port facilities stretching from Chongjin port in North Korea to Hambantota Port in Sri Lanka and Luanda Port in Angola, two very prominent developments in the regional maritime space in the last few months has been very disappointing to Beijing's interests.

In February, Bangladesh scraped China proposed deep sea port- Payra and India seem to have wide options (Media, 2016). Meanwhile, Japan is also expected to develop another deep sea port – Matarbari - in Cox's Bazar for Bangladesh (Paul, 2015).

Three months later in May, India successfully and strategically dislodged Chinese critical ambition in the Persian Gulf. Barely 72 km away from Gwadar port, India signed the strategic Chabahar port agreement with Iran which analysts call it as India's calibrated stroke against China's expanding regional network. Net implication, India possibly plucked away few pearls leaving the Chinese string scrambled and shattered (Pradhan, 2016). In the process, additionally, India is carefully but creatively crafting a strategically reliable Maritime Goodwill Curve in the region which is likely to be complimented with Japanese Capital and Washington's Asia Pivot equations. China's 'Nine Dashes' claim against all her maritime boundary countries are also smaller but are sources of strategic relevance to the Indian Maritime Goodwill Curve.

Sagarmala: Hosting India's Economic Efficiency

Previous UPA government very rightfully designated 2010 -2020 as the Maritime Decade of India. Maritime Agenda 2020 document with fifty-four prominent agenda items proposed a grand vision to create, build and sustain the maritime infrastructural needs of the Country for the decade. India's Maritime Agenda proposed Rs.4.43 lakh crore investment and Rs.1.2 lakh crore of investments proposed for the shipping industry alone (GOI, January, 2011). Looking back, India's Look East Policy 1990s, India's Maritime Policy 2004 and the corresponding economic globalization, very thoughtfully strategized this maritime vision. NDA government under the enterprising Prime Minister Narendra Modi taking the reins in New Delhi in 2014, seem to have dumped maritime decade and its vision. It is of course another matter that for all practical purposes, India's Maritime Vision had reached almost nowhere. In the larger context of 'Make In India', 'Digital India' 'Skill India' and real time effort to convert India as an investment and manufacturing destination, Modi Government rechristened the Agenda 2020 into Sagarmala Project-2. Agenda 2020 therefore is nearly thrown into garbage bin and Sagarmala is scheduled to be achieved with stringent immediate and bench mark mile stone targets.

Sagarmala: What it Promises?

Ambitious Sagarmala Project proposes connectivity of at least a dozen proposed smart cities and several coastal economic zones (CEZs) with potential to lift India's GDP growth by 2%. A long pending shipping industry concern of 'Infrastructure Status' to the

sector is in the offing facilitating capital flow to the sector. A strategy of port led development that happened in South Korea in 1970s & 1980s and was also efficiently experienced in China in 1980s to catapult these countries into economic efficiency is likely to be seen happening in India through this ambitious Sagarmala initiative. India's port led development shall accomplish modernization of 12 major ports as well as 1,208 islands identified for development as part of the project.

A massive financial allocation of Rs 4,000 crore to develop special economic zone (SEZ) at Jawaharlal Nehru Port Trust and coastal economic zone (CEZ) in Kandla port are target priorities. While World Bank is advising the Ministry of Shipping on the development of the inland waterways and the Clean Ganga Mission, McKinsey is the consultant for Sagarmala and the overall job pitfalls are likely to be over 10million jobs (PTI, 2015). More than half of India's rivers are to be transport modes and the shipping ministry has appointed consultants and detailed project reports (DPR) are at critical stage of development (Bureau, 2015).

Under a PPP mode involving central - state governments and private players, it is a grand vision to connect twelve national and nearly hundred sixty minor ports by a network of rail, road and water ways. The project is analogous to ambitious Golden quadrilateral of NHAI, which has swiftly linked all the four metro cities with Express Ways through roads, resulting in speedy and higher traffic handling capabilities.

For the efficient administration, Sagar Mala Development Authority (SMDA) is to drive and administer the vision to realty. It is endeavored to synergize and integrate the potential regions with various existing government development initiatives like the National Highways Development, Inland Waterways, Smart Cities, SEZs, Industrial Corridors and Dedicated Freight Corridors. Under the ambit of port-led development framework government hopes to increase its cargo traffic three-fold in next 5 years. The benefits will lead to Strong Economical boost, reduction in logistic cost, raising 10 million jobs. Infrastructure and employment would get a massive boost and eventually, to the country's economy.

Lessons from the Neighbourhood

When we compare India's maritime economy with that of successful maritime economies in our neighbourhood like Singapore, South Korea, Hong Kong, Taiwan and China, we get embarrassingly disturbing matrix. While India's sea lane security is driven by external factors, we are nowhere near internal maritime security confidence and maritime trading economy efficiency and further worse, India today compares meagerly in maritime infrastructure and capacity to that of most of these island economies.

In spite of India being a large coastline power of the world, our shipping industry, port and coastal infrastructure and its corresponding economic productivity do not match or even decently compare with many small maritime countries of the world.

While USA, Japan, Germany and Greece have been the major maritime economies of the world with more than three times shipping vessels and multiple fold maritime trade shares, in comparative terms, India fails to compare in the sector with Singapore, South Korea and Hong Kong too.

It is important to note that global shipping sector is experiencing slump. In January-May 2014, the aggregate shipbuilding output in China amounted to 13.02 million dwt, down by 24.3% year on year (Wissmann, 2015). Correspondingly, South Korea, Singapore and other South East Asian shipping economies are in recession.

However, many of the economies in the region, beginning even in recession times have made it big in the shipping and maritime sector and virtually shifted global maritime economy to Asia in 1990s. Singapore for example has over 1,021 vessels with 32 million DWT (Dead Weight Tonnage) capacities and connected to 600 ports of the world. In 2000, there were a total of 15 shipping groups in Singapore which has grown to 130 by 2014 (Fabbri, 2015). Singapore shipping sector commands over 7000 shipping companies; 20% of the world ship repair market share;70% of the world market share for jack-up rig building and 70% of the global market share of Floating Production Storage Offloading (FPSO) vessel conversion. The sector employs over 1.5million workers and contributes 7% to Singapore's GDP. Hong Kong on the other hand, with 712 vessels and

37 Million DWT is the 8th largest owned fleet country in the world and 65% of this is Hong Kong flagged with 506 Companies employing around 14,000 people. The shipping sector generated business receipts and income totaling HK$108.3 billion in 2014 (Tsui, 2016).

India ranks 18th in the shipping economy of the world with a shipping Gross Tonnage (GT) of 15.5 million(less than half of Singapore & Hong Kong); has a fleet strength of 1,122 ships (722 coastal and 349 overseas ships) (Pradhan R. , 2016). Indian shipping industry consists of around 31 major shipping companies and the top nine companies account for nearly 70% of the total fleet by DWT. The scenario speaks of the long distance Indian shipping industry has to cruise to match with comparable shipping economies in the region.

The case of South Korea and China are bigger lessons for India. South Korea started structuring her maritime economy as part of her capital intensive industrialization process in early 1970s. With series of Shipbuilding Promotion laws, governmental incentives, capital guarantee, facilitation for technology import, South Korea through her third and fourth five year plans, constructed and developed a very efficient shipping economy. In the shipbuilding sector, South Korean current global market share is around 35% (OECD, 2015).

Today, South Korea is the world's second largest shipbuilding country in the world. South Korea leads in the production of large vessels such as cruise liners, super tankers, LNG carriers, drill ships, and large container ships. Korea is also home to the world's three largest shipbuilders (Daewoo Shipbuilding and Marine Engineering, Hyundai Heavy Industries and Samsung Heavy Industries), which supplies nearly half of the global ordering.

What may seem embarrassing is, while India's cumulative global shipbuilding market share is about 1.45%; South Korean top three shipbuilders individual global market share is several times higher than that of India's cumulative market share.

While Navy symbolizes geopolitical and strategic strength and confidence, efficiency in the entire maritime gamut and maritime economy is about assured strategic and economic security. It is also the most efficient mechanism to transport countries to prosperity through internationalization of domestic goods and services, access to distant markets and capital, linkage to resources and raw material and at domestic level; it is also about employment and economic development.

Rear-Admiral Alfred Thayer Mahan, one of the best known American naval and geopolitical strategists stated: "Control of the sea by maritime commerce and naval supremacy means predominant influence in the world ... (and) is the chief among the merely material elements in the power and prosperity of nations" (Mahan, 1890). Some three centuries before Mahan, British Sea Explorer Sir Walter Raleigh observed that "he that commands the sea commands the trade and he that is lord of the trade of the world is lord of the wealth of the world" (Ilias, 2009).

Mahan and Raleigh largely talked about maritime security driven trade and commerce expansion. While the European colonial powers pursued a similar expansionist agenda and China in the last two decades is following a similar model, lessons from Singapore and South Korea are a typical neoclassicism model.

Conclusion

Strategizing maritime efficiency is India's structural need today. Chabahar to Sagarmala therefore are not only ideas of India's emerging maritime sector role, they are also real time strategic and economic needs for India's possible economic growth strategy and employment generation opportunity. While India's naval diplomacy shall strengthen India's security dynamics and globalize India's maritime visibility in the neighbourhood and beyond, integrated and efficient maritime corridor shall deliver the real time ability to transport India to the next generation economic growth which is India's internal need and global expectation too.

All these drawing board ideas however has to be put on ground on real time basis with a defined time line and with business like efficiency and cost effectiveness. India's mega ideas have not been efficient accomplishments and Sagarmala in

conjunction with our efficient naval diplomacy face the delivery on the ground challenge.

Soon after Indian jubilation on the Chabahar deal, Iran, in order to balance the regional engagement paradigm, was quick enough to clarify that more players in Chabahar are welcome too- an obvious reference to Iran-Pakistan relation and Iranian apprehension of Chinese antagonism. Additionally, Iran is also keen to tap into China's Silk Road opportunities in Pakistan. One major project possibility could be, the extension of the Iran-Pakistan gas pipeline along the China-Pakistan Economic Corridor (CPEC) leading to China's Xinjiang province.

India is slated to invest over US$500 million in Chabahar. Chabahar offers India a gateway to access the Afghan border up north (once a railway line is completed in the hinterland). Chabahar can also be used to evacuate Iran's natural gas to India either through an undersea pipeline or as liquefied gas. The proposition makes good sense so far. However, it is also possible that India develops the Chabahar port but eventually it is the Chinese factories in Xinjiang province and Central Asia gear up to export their products to the Indian market via Chabahar-in which case, Chabahar could at the end run be a dazzling pearl in the necklace of China's One Belt One Road (CBOR). What India needs post Chabahar deal is efficient Indian product connect via Chabahar port which is dependent on our all round productivity efficiency. Sagarmala idea and grand vision also critically hinges on our ability to translate drawing board ideas into efficient and operational reality. Next few years therefore are critical and testing times for India's maritime vision and its critical realization on the ground.

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India-China: Dynamics of Maritime Diplomatic Engagements

Dr. Rajesh Kumar

As India China turn their gaze seaward in search of prosperity and energy security, both have embarked on a naval build up unprecedented in the nation's modern history. Both countries in earlier centuries participated in mercantile trade and had their association with Southeast and South Asian nations. Indian leadership and strategic experts have been trying to revive the grand old strategy of 'Indian Ocean being regarded as British lake/ Indian lake', therefore commanding the entire region as maritime power. China's contemporary leadership also sees their rise as economic, military, and naval power as merely the latest phase in a benign regional dominance that had its origins in the Ming era. India and China, both today are busy in their naval build-up and fierce diplomatic manoeuvres and are trying to prevail upon their neighbours/coastal nations not to align with external powers to balance them. For India, it persuaded South Asian neighbouring countries not to align with United States of America or China (Indira doctrine). For China, it never liked ASEAN nations seeking U.S. presence in South China sea, East China sea or Asia Pacific region or Indo-Pacific region, as the great power game gets played in a region, right from Gulf of Aden to Straits of Malacca. Greater concerns for economic development is driving both of them to emerge as sea powers. The present paper looks at India-China maritime diplomatic engagements' dynamics in the 21st century. It looks into the reasons why China perceives India's 'Look East/Act East Policy' along with closer Indo-U.S. strategic cooperation as challenge to its dominance, whereas, India has serious apprehensions about China's alleged 'String of Pearls' policy and 'Silk Economic Road Belt and Maritime Silk Route' 'One Belt One Road' and its recent stand on South China Sea and East China Sea. It concludes with the wisdom that there is enough space for both of them to grow and prevent direct conflict with each other by accommodating each other's aspirations and both have great chance to reaffirm their full faith in the policy of 'Panchsheel' and 'Peaceful Co-existence'.

India's Maritime Diplomacy in the 21st Century

The Annual Report of Ministry of Defence 2014-15 says "India is a maritime nation and the country sits astride a very large number of busy International Shipping Lanes, that criss-cross the Indian Ocean. More than 90% of our trade by volume and 70% by value is transported over the seas. For a rapidly growing economy seeking new markets worldwide, these trade figures will only spiral upwards in the future. The last decade has witnessed India's dependence on his maritime environment expanding substantially as his economic, military and technological strength grew, his global interactions widened and his national security imperatives and political interests stretched gradually. It can thus be assumed that the 21st century will be the 'Century of the Seas' for India and that the seas will remain a key enabler in his global resurgence". In light of above, India has begun focussing a lot on its maritime diplomacy.

The policy document produced by the Indian Navy in October 2015 defines maritime diplomacy in terms of engagement with different countries to mitigate traditional and non traditional threats.[1] (Indian Navy 2015: 84). India's maritime diplomacy has been well explained by Pradeep Chauhan, a retired Vice Admiral. According to him "India's 'Maritime Diplomacy' is a function of the desire of the nation to preserve, protect and promote her maritime interests". He specifies that the maritime interests are founded in a single axiom that "India wishes to use the seas for her own purposes while simultaneously preventing others from using them in ways that are to her disadvantage" and define and shape maritime-diplomacy as an instrument of state policy. He further says that maritime diplomacy is not merely about naval power but has a wide spectrum which involves political, economic and military power exerted through use

of the sea.[2] Thus in India, maritime diplomacy is conducted by Ministry of Foreign Affairs and Indian Navy and maritime security engagement have become cornerstone of her regional foreign policy initiatives.

Today India government is pretty busy in getting its maritime presence enhanced in Indian Ocean Region as well as Asia Pacific region. India is also impacted by developments beyond its immediate neighbourhood and the Indian Ocean region. Developments in West Asia, Central Asia, South East Asia and the Asia Pacific have a direct bearing on India's interests. India is interacting more actively with littoral states of the Indian Ocean Region and employing maritime security engagements as a cornerstone of her regional foreign policy initiatives. India's maritime economic activities have continued to expand across a large range, including energy security, seaborne trade, shipping and fishing, with substantial Indian investments and citizens overseas. India has an overwhelming reliance on the seas for its external trade and for sustaining its energy needs. These include crude and liquefied hydrocarbon imports, export of refined products, offshore development, and economic partnerships across the world. India's trade and energy security, development of its deep sea mining areas, and supporting its scientific research stations in Antarctica, are all dependent on its Sea Lines of Communication (SLOCs). This has lent a pivotal role to the security of India's SLOCs and increased the importance of the sea routes, international shipping and *freedom of navigation* to India's national interests. The revised strategy[1] has, therefore, accorded increased focus on the following: The safety and security of seaborne trade and energy routes, especially in the IOR, considering their effect on global economies and India's national interests; The importance of maintaining freedom of navigation and strengthening the international legal regime at sea, particularly the United Nations Convention on the Law of the Sea (UNCLOS), for all-round benefit; The considerable scope and value in undertaking cooperation and coordination between various navies, to counter common threats at sea.

India's Maritime Diplomatic Activities in Recent Years

With the emergence of new maritime flashpoints and entry of various maritime players, maritime diplomacy has gained traction in the global politics. The South China Sea, the Malacca Straits, the Arabian Sea, Piracy in Gulf of Aden form the basis of our maritime diplomacy with countries like Singapore, Japan, Australia, Vietnam, U.S.A. and Sri Lanka. India's maritime role has increased as the maritime security environment is becoming complex as countries are competing and trying hard to prevent any loss to their national interests. India's own security and development gets affected by the assertiveness of countries like China, Pakistan and other powers in its maritime neighbourhood. Great Powers like the United States and Russia have their own interests in the regions of India's maritime influence. The new issues like piracy and terrorism have made its maritime diplomacy ever challenging and multifaceted. Conduct of naval exercise with countries like Vietnam, Philippines, Japan, China, U.S.A., Malaysia and Brunei has become important way of maritime engagements with littoral nations regularly.

India has major strategic interests as well as economic and commercial stakes in continued peace and stability in the Asia Pacific region. India's view is that all countries must exercise restraint and resolve bilateral issues diplomatically and without recourse to the use or threat of use of force. India supports freedom of navigation in international waters and the right of passage, in accordance with international law. India believes that the current regional security landscape calls for a cooperative and inclusive approach. On its part, under the 'Act East' policy which places renewed emphasis on engagement with the Asia Pacific, India has been an active participant in various bilateral as well as multilateral fora with a focus on security matters such as the East Asia Summit, ADMM – Plus and ASEAN Regional Forum (ARF).[4]

There is also a need to further improve regional responses to challenges such as transnational crime, terrorism, natural disasters, pandemics, cyber security as well as food and energy security. While, the threat from piracy in the Western Indian Ocean has diminished, the problem has resurfaced in the Gulf of Guinea in which a number of Indian seafarers have been affected. The activities of terrorist outfits in West Africa pose a growing threat to the stability of states in the region. The linkages between

local groups and terrorist organisations outside the region are a matter of concern. India has historic ties with several African nations and has sought to deepen its bilateral ties with African countries through the strategic initiative of the India-Africa Forum Summit (IAFS) mechanism that seeks to promote regional and continent-level political and economic cooperation with African countries.[5]

Indian Ocean Remains as Core of India's Maritime Diplomacy

A new struggle for dominance over the Indian Ocean has started with the rise of major economic powers in the Asia-Pacific that rely on energy imports to sustain their growth. Not only does most oil and gas shipping transit through the Indian Ocean, but these energy resources are also produced in the littoral states. The seabed of the Indian Ocean is rich in mineral resources. It is in the interests of the world economy that a free and uninterrupted flow of oil and goods through the ocean's Sea Lines of Communication (SLOCs) is maintained. The world today relies on the US to maintain peace and stability in the region.[6]

The aim to maintain stability in the Indian Ocean goes to the heart of India's economic interests. More than 95 percent of its exports are shipped through the surrounding waters. Up to 81 percent of the oil volume that India consumes is provided via the Arabian Sea. India actually drills up to 70 percent of its hydrocarbons in offshore blocks. Since the late 1990s, state-owned energy companies have discovered more promising offshore deposits of gas and oil. Apart from energy, the Indian Ocean is precious for several other assets, such as mineral ores and fishing grounds.

Besides hydrocarbons the Indian Ocean contains several other valuable minerals. Titanium, Zirconium and Thorium are found in the Indian Mannar Gulf and the Bengal Gulf. In several millions of square kilometres, the Ocean floor is also covered with so called poly-metallic nodules; these are volcanic composites that hold manganese, iron, and nickel. Several of these areas are commercially exploitable.[7]

Chinese interests and strategies in the Indian Ocean under 'string of pearls' and India-China Maritime Security Competition

Scholars view that Asia's economic growth has brought a rapid expansion in the external dependence and vulnerabilities of its societies. Industrialisation and urbanisation have created massive demand for energy, raw materials and consumer markets for rapidly growing economies. Between 1990 and 2007, China's oil consumption tripled and India's increased by over two-and-a-quarter times. The International Energy Agency estimates that by 2030, China's energy thirst will have doubled again and India's will have grown by two-and-a-half times.[8] China's foremost interest in the Indian Ocean is to protect its increasingly important supplies of energy that need to transit that region. In recent times non-conventional security threats such as piracy have also emerged. They have plagued the Strait of Malacca and more recently the region off the coast of Somalia. Thirdly, the Chinese have gone into Africa in a big way. China apparently also sees itself as a possible long-term competitor of India and the US. Such Chinese strategic planning is reflected in 'string of pearls' which includes the Gwadar port in Pakistan, naval bases in Burma, electronic intelligence-gathering facilities on islands in the Bay of Bengal, funding the construction of a canal across the Kra Isthmus in Thailand, a military agreement with Cambodia and the building up of forces in the South China Sea. Thus there is no denying the fact that the Chinese thrust into the Indian Ocean is gradually becoming more pronounced. The term 'string of pearls' was coined in 2003 by a team of Booz Allen consultants, in a report for the Pentagon, to describe China's attempts to gain a strategic foothold in the Indian Ocean. Soon 'string of pearls' came to mean the encirclement of India by China.[9]

This "string of pearls" strategy brings the Chinese navy to strategic locations such as Myanmar, Bangladesh, Sri Lanka, the Maldives, the Seychelles, Pakistan and Eastern Africa. Other experts have argued that Beijing is determined to build blue sea navy to counterbalance India's naval strength and eventually to break through an Indian maritime blockade. The People's Republic certainly has good reasons to fret about the protection of its economic life lines in the South Asian seas. Approximately 62 percent of

the country's exports and 90 percent of its oil imports are shipped through the Indian Ocean. The Ocean also acts as a conveyor belt for other natural resources that are excavated in China's new-found mining empire in Africa.[10] It is building container ports in Bangladesh at Chittagong and in Sri Lanka at Hambantota. It is suspected that at Hambantota the Chinese have also constructed a naval facility, or at least are going to use the deep sea port for this purpose in case of need. The Chinese have also acquired a terminal for 30 years in Colombo port. The deep sea ports at Gwadar and Hambantota will allow the Chinese to monitor Indian and the US naval activity in the region. If we take into account this aspect of Chinese ventures, this also means containment of India and a challenge to US military power. The 2003 Annual Defence Report[11] stressed that "the seas surrounding India have been a theatre of super power rivalry in the past, and continue to be a region of heightened activity from and by extra-regional navies on account of global security concerns. The 2006 Annual Defence Report[12] for instance said that it will continue to monitor "China's military modernization, including in the maritime sector".

China is reluctant to depend on US naval power to keep sea lanes open in the Indian Ocean, through which 80 per cent of its oil passes through. It has decided to boost its own naval power at 'choke points' along the sea routes from the Persian Gulf to the South China Sea. China has deployed its Jin class submarines at a submarine base near Sanya on the southern tip of Hainan Island in the South China Sea. As a result of changing Chinese naval doctrine, the Sino-Indian relationship is becoming competitive. China is becoming more assertive in playing a greater role in the Indian Ocean region, protecting and advancing its interests, especially Chinese commerce, as well as countering India. The Chinese presence in the Indian Ocean has significantly expanded China's strategic depth in India's backyard and is likely to reduce the manoeuvrability of the Indian navy.[13]

In the light of ever increasing threats, since 2000, Indian Navy has been conducting more and more exercises in the eastern part of the Indian Ocean, even in the South China Sea. The Navy also wants to bring the Eastern Command on a par with its Western counterpart. INS Kadamba and the new base south of Visakhapatnam are expected to become equals. Whereas the Western Naval Command has been reinforced with the supply of the most advanced surface combatants such as the Talwar Class Frigates and the Delhi Class Destroyers, the Eastern Command is likely to profit from the new generation of vessels. Its home port will reportedly berth two aircraft carriers, support ships and new Scorpene submarines. "China has fuel interests of its own as fuel lines from Africa and the Gulf run through these waters, and so they are also building up their Navy", Vice Admiral Raman Suthan, commander of the Eastern Fleet claims, "we keep hearing about China's interest in Coco Island and are wary of its growing interest in the region, and we are keeping a close watch. The naval fleet in east India has long legs and, with the government's emphasis on the look east policy, we are strengthening the east now". Officials from the Ministry of Defence also acknowledge that the Far Eastern Command will expand its capacity beyond maritime policing, and that India "should maintain control over the Andaman Sea as China's principal maritime gateway".[14] Thus, Asia's industrialising and urbanising giants represent the greatest growth trajectory for demand for energy and minerals in the world, both today and into the foreseeable future. It is a demand growth that is both insatiable and structural - meaning that if the demand is not met with dependable supplies at sustainable cost it will threaten social, economic and political cohesion in Asia's rapidly industrialising societies. Particularly in energy, there is only one source of sustainable supply in the world that can hope to meet the demand: West Asia's hydrocarbon reserves. For many West Asian producers the demand for security provided by East and South Asia's energy thirst is as structurally compelling: without continued robust demand for energy and reliable flows of export dollars, the stability of their own mostly autocratic societies would also be threatened.[15]

India- China- U.S.A. Stand Off in South China Sea (SCS) and East China Sea (ECS) Region

Another area of flashpoint between India-China and U.S.A. in recent years has erupted in South China Sea and East China Sea region. China's actions for asserting and defending its maritime territorial and exclusive economic zone (EEZ) claims in the East China Sea (ECS) and South China Sea (SCS), par-

ticularly since late 2013, have heightened concerns among observers that China may be seeking to dominate or gain control of its near-seas region, meaning the ECS, the SCS, and the Yellow Sea. Chinese domination over or control of this region could substantially affect U.S. strategic, political, and economic interests in the Asia-Pacific region and elsewhere. China has recently completely rejected the verdict pronounced by Permanent Court of Arbitration, Hague in favour of Philippines, thereby raising serious concerns within minds of many countries of the region.

China is a party to multiple territorial disputes in the SCS and ECS, including, in particular, disputes over the Paracel Islands, Spratly Islands, and Scarborough Shoal in the SCS, and the Senkaku Islands in the ECS. China depicts its territorial claims in the SCS using the so-called map of the nine-dash line that appears to enclose an area covering roughly 90% of the SCS. China is a party to multiple maritime territorial disputes in the SCS and ECS, including in particular the following: i) a dispute over the Paracel Islands in the SCS, which are claimed by China and Vietnam, and occupied by China; ii) a dispute over the Spratly Islands in the SCS, which are claimed entirely by China, Taiwan, and Vietnam, and in part by the Philippines, Malaysia, and Brunei, and which are occupied in part by all these countries except Brunei; iii) a dispute over Scarborough Shoal in the SCS, which is claimed by China, Taiwan, and the Philippines, and controlled since 2012 by China; and iv) a dispute over the Senkaku Islands in the ECS, which are claimed by China, Taiwan, and Japan, and administered by Japan. [16]

In addition to maritime territorial disputes in the SCS and ECS, China is involved in a dispute, principally with the United States, over whether China has a right under international law to regulate the activities of foreign military forces operating within China's EEZ. The position of the United States and most countries is that while the United Nations Convention on the Law of the Sea (UNCLOS), which established EEZs as a feature of international law, gives coastal states the right to regulate economic activities (such as fishing and oil exploration) within their EEZs, it does not give coastal states the right to regulate foreign military activities in the parts of their EEZs beyond their 12-nautical-mile territorial waters. The position of China and some other countries (i.e., a minority group among the world's nations) is that UNCLOS gives coastal states the right to regulate not only economic activities, but also foreign military activities, in their EEZs. The dispute appears to be at the heart of incidents between Chinese and U.S. ships and aircraft in international waters and airspace in 2001, 2002, 2009, 2013, and 2014. [17] The issue of whether China has the right under UNCLOS to regulate foreign military activities in its EEZ is related to, but ultimately separate from, the issue of territorial disputes in the SCS and ECS: The two issues are related because China can claim EEZs from inhabitable islands over which it has sovereignty, so accepting China's claims to sovereignty over inhabitable islands in the SCS or ECS could permit China to expand the EEZ zone within which China claims a right to regulate foreign military activities. The two issues are ultimately separate from one another because even if all the territorial disputes in the SCS and ECS were resolved, and none of China's claims in the SCS and ECS were accepted, China could continue to apply its concept of its EEZ rights to the EEZ that it unequivocally derives from its mainland coast—and it is in this unequivocal Chinese EEZ that most of the past U.S.-Chinese incidents at sea have occurred. China in recent years has succeeded in developing artificial islands in SCS region. All kinds of reports and pictures have been appearing in media that the artificial island has been converted into PLA Naval Base.

The U.S. position on territorial and EEZ disputes in the Western Pacific (including those involving China) includes the following elements, among others: The United States supports the principle that disputes between countries should be resolved peacefully, without coercion, intimidation, threats, or the use of force, and in a manner consistent with international law. The United States supports the principle of freedom of seas, meaning the rights, freedoms, and uses of the sea and airspace guaranteed to all nations in international law. The United States opposes claims that impinge on the rights, freedoms, and lawful uses of the sea that belong to all nations. The U.S. is of view that Territorial disputes should be resolved peacefully, without coercion, intimidation, threats, or the use of force, and in a manner consistent with international law. [18]India faces a Herculean

challenge in protecting its interests in the South China Sea. As discussed in preceding paragraphs, China has been laying claim on almost the entire South China Sea without recognising similar rights of countries like Vietnam, Philippines, Malaysia, Taiwan and Brunei. Vietnam has invited India to explore and exploit natural resources within the Southeast Asian 200 nautical mile Exclusive Economic Zone in the South China Sea on which Vietnam claims sovereign rights. Vietnam has already allocated oil blocks to India from where India's ONGC Videsh Limited supplies oil to Vietnam. China has expressed its reservations over the presence of Indian company ONGC Videsh in SCS for oil exploration. India also supports the principle of freedom of seas, meaning the rights, freedoms, and uses of the sea and airspace guaranteed to all nations in international law. It wants unhindered right i.e., freedom of navigation as per international law.

India supports freedom of navigation in international waters and the right of passage, in accordance with International law. India's view is that all countries must exercise restraint and resolve bilateral issues diplomatically, according to principles of International law and without recourse to the use or threat of use of force. India is of the view that in the current regional security landscape, there is a need to promote a cooperative approach. Hence, we remain actively engaged with the Asia Pacific community through a web of bilateral as well as multilateral fora like the East Asia Summit, ADMM – Plus and ASEAN Regional Forum (ARF), so as to contribute to peace and stability in the region.[19] India has entered into several agreements with U.S.A. to cope up with the emerging maritime threats from China. U.S. also sees that India can play important role in its 'Asia Pivot' policy.

The South China Sea is strategically important for India as 5 Trillion Dollar of global trade passes through South China Sea annually and over 50 per cent of India's trade with the South East Asian and the East Asian Nation passes through it. India fears that complete dominance of the South China Sea region by China in future will control India's trade route. Therefore India has joined the United States and Japan in voicing concern on China's unilateral moves and at the same time India also supports freedom of navigation in the region. The joint declaration made during President's Obama's visit to India in Jan 2015 clearly stated that Asia Pacific region consisting SCS and ECS remains an area where India and U.S.A. shall cooperate and India might be joining U.S. 'Asia Pivot' policy. India's collaboration with Vietnam, the United States and Japan is a calculated risk, having potential of antagonising China. To ward off any negative impact on its diplomacy towards China, India also finds methods to cooperate with China. India and China have conducted their first 'joint tactical exercise' in Chushul. Prime Minister Modi met Chinese President several times including the President Xi-Jinpin visit to India in Sep-October 2014

Since mid July 2016, countries have been witnessing assertive postures of China by totally rejecting the verdict given by Permanent Court of Arbitration, Hague in favour of Philippines thereby rejecting China's claim over disputed island belonging to Philippines. In recent past, India has several times conveyed its reservations over CPEC passing through an area which is disputed and reminded Chinese government about their reservation regarding Indian companies like ONGC Videsh's presence in disputed sea water between Vietnam and China. Undoubtedly, China's stand over SCS and ECS are becoming so hard that scholars and media have started making forecasts about the beginning of World War III in SCS and ECS region only. World has witnessed the skirmishes that have taken place between China and Japan near Sen-Kaku island. The problem got aggravated when recently North Korea fired some missile towards Japan which raised its concerns further that it was an act on behest of China only.

The upcoming G20 summit provides China a unique chance to demonstrate China's "good intentions" as as a responsible stakeholder. To facilitate the summit, China's Foreign Minister Wang Yi visited India in second week of August 2016 for strategic communications with Indian side. According to Wang, China and India reached an important consensus that both states should firmly support each other in hosting the upcoming G20 Summit in Hangzhou, China and the BRICS Summit to be held in Goa, India. China allegedly took assurance from India that it shoul;d not be raising South China Sea issue during G-20 Summit at the same time China

would cooperate with India over the issue of India's membership of Nuclear Suppliers Group (NSG).[20]

China Silk Road Economic Belt cum Maritime Silk Route (One Belt One Road-OBOR)

During various state visits in 2013, China's president Xi Jinping announced the Silk Route Economic Belt (SREB) and the 21st-century Maritime Silk Route (MSR). These two major initiatives were initially packaged and labelled under the overarching term 'One Belt, One Road'(OBOR), in short: 'Belt & Road'. These two different routes ultimately connect China with Europe, Africa and Southeast Asia. This impression is further enhanced by a map published by the news agency, depicting both a land route running from inner China to Southern Europe (via the Netherlands) and a sea route connecting the port of Shanghai ultimately with the end point of the land-based route in Venice, via India and Africa.[21] Ongoing and planned projects will focus on the development of a wide array of assets, including ports, roads, railways, airports, power plants, oil and gas pipelines and refineries, and Free Trade Zones, etc., as well as a supporting IT, telecom and financial infrastructure. To date, PwC has tracked the equivalent of c. US$250 billion in projects that have either been built already, recently started construction or have been agreed on and signed in relation to B&R.[22]

Some of the core elements of the B&R initiative (such as a focus on infrastructure investments in underdeveloped Western China and Central Asia) are far from new and long predate the public announcements in 2013. B&R, however, bundles all ongoing and planned efforts – such as the China-Pakistan Economic Corridor (CPEC) and the Bangladesh-China-India-Myanmar Corridor (BCIM) – under one unifying framework. The idea of 'connectivity' along two main routes, and the investments that will go into it, is intended to be an effective and integrated way to stimulate trade and exports with China's neighbours, increase export demand for Chinese capacity (e.g. construction and engineering capacity), help internationalise the Chinese currency Renminbi (RMB) and create goodwill amongst its many neighbouring countries.[23]

The "road" actually means the maritime route connecting the Indian and Pacific Oceans and the "belt" comprise highways, railways and telecom, oil and gas pipeline project from coastal China to Europe via Central and West Asia. India faces a great dilemma and is undecided whether to cooperate with China on OBOR or float a competing vision altogether or partnership in Japan's initiative called Partnership for Quality Infrastructure (PQI). India has been raising serious concerns regarding China's biggest ever project worth $46 billion 'China Pakistan Economic Corridor' (CPEC) being undertaken as part of its OBOR Grand Strategy as it is likely pass through POK and Gilgit and Baltistan region of Pakistan which is under dispute with India. Indian government views became more explicit through Prime Minister Narendra Modi's speech from ramparts of Red Fort on 15th August 2016, when he said that POK, Gilgit and Baltistan are India's part only.

However, an international relations expert, Thomas Zimmerman emphasizes that CPEC faces considerable challenges as the security question is most crucial. Most of the infrastructure investment under the CPEC framework is slated to run through Khyber Pakhtunkhwa and Baluchistan, two of Pakistan's most insecure and politically fraught provinces. Baluchistan, where the Gwadar Port is located, poses particularly significant challenges, as it has seen popular resentment and local opposition to Chinese investments from separatist movements. For instance, six armed militants stormed Pakistan's Jiwani Airport in Gwadar killing one engineer and kidnapping another. It is clear both Pakistan and China will need to be aware of, and find sustainable solutions for, unexpected security challenges that will occur in the process of implementing CPEC. [24] Indian Prime Minister Narendra Modi's 15th August 2016 speech has generated a lot of debate in country and abroad over the reference of Baluchistan in his speech. It seems that India has tried to achieve some strategic advantage by intentionally raising this issue of Baluchistan openly.

Thomas adds further that different political parties must reach an agreement on CPEC's planned route. Political parties in Khyber Pakhtunkhwa and Baluchistan initially were unhappy with the plan and criticized the Pakistani federal government's attempts to distribute the majority of CPEC's resources in Punjab instead of other provinces. During an All

Parties Conference in Islamabad in late May, participants appeared to reach a consensus on the CPEC route. Prime Minister Sharif announced that the western route of the project, for which funds will soon be released, would be constructed first. He also pledged to take full political ownership over the project. The western route will undoubtedly face more security threats than the eastern route. However, the major part of the project under the CPEC framework is based along the eastern route. How to distribute more resources to the western route remains a big problem.[25]

India's answer to China's OBOR is the International North South Transport Corridor (INSTC) which has made significant progress during the year. Following up on the dry run study conducted by Federation of Freight Forwarders' Association in India (FFFAI) on the INSTC Route, India hosted an interactive session on INSTC at Mumbai in June 2015, followed by Expert Level and INSTC Council Meetings in Delhi in August 2015 and a conference to popularize the INSTC route in Mumbai in December 2015. Customs officials of India, Russia and Azerbaijan also met in Astrakhan, Russia in November 2015.[26]

India's Naval Maritime Activism

New Delhi's sanguine approach to maritime security has had a profound impact on how the nation has regarded the use of naval power. In a relatively threat-free environment, India's navy has focused on soft power projection and on benign and constabulary roles. This has been reflected both in words, via the 2004 version of the Indian Maritime Doctrine, which defined the navy as an "effective instrument of India's foreign policy by generating goodwill through maritime diplomacy," and in actions, as over the past decade the Indian navy has frequently displayed with a certain panache its desire and capacity to be viewed as a provider of public goods as well as a reliable partner. Indian ships have thus taken part in a wide range of humanitarian and disaster relief operations over the years, whether in the wake of the devastating 2004 tsunami or the 2008 cyclone Nargis. India has also engaged in non combatant evacuation operations, such as in 2006, when four Indian ships successfully evacuated more than 2000 Indian, Nepalese, and Sri Lankan citizens from war-torn Lebanon. More recently, Indian ships were dispatched to repatriate Indian citizens from Libya. The Indian navy is also engaged in multiple, increasingly institutionalized, naval exercises with a plethora of both regional and extra-regional navies, ranging from France to Singapore. During the first decade following the cold war, the Indian navy conducted close to fifty joint naval exercises with more than twenty countries. Since then, India's naval interactions have grown exponentially. Large-scale collective naval manoeuvres—such as the MILAN exercises (meaning "confluence" in Hindi), which include several navies from South- east Asia and take place biennially off the Andaman and Nicobar islands, or the IBSAMAR exercises, which involve the navies from India, Brazil, and South Africa—form the most visible, high-profile examples of India's turn to maritime pluri-lateralism. New Delhi also engages in annual bilateral naval exercises with countries as varied as Japan (JIMEX), Singapore (SIMBEX), France (VARUNA), and the United States (MALABAR).[27]

The defence exchanges from China to India in 2014-15 included the visit of 8 member border delegation led by Lt Gen Qi Jainguo, Dy.CGS (MO) from April 22-23, 2014. A 8 member delegation led by Lt Gen Zhu Fuxi, Political Commissar, CMAC visited India from September 22-26, 2014. A 25 member delegation led by Maj Gen He Hangjun, Dy Chief of Personnel Division of General Political Department visited from December 20-25, 2014. A 12 member delegation led by Sr. Col Chu Wei Wei visited from August 11-13, 2014. A 6 member delegation led by Sr. Col Geng Yensheng, Chief of Information Affairs Bureau, Ministry of National Defence visited from July 2-5, 2014. General Zhang Youxia, Director of the General Armament Department of the PLA visited India from February 27 to March 2, 2015. Exchanges from India to China included the visit of a 2 member delegation led by ACOP (HRDA) that participated in WPNS symposium held at Qingdao from April 21-24, 2014. INS Shivalik made a port call at Qingdao port from April 21-24, 2014. A 2 member Navy delegation visited from December 9-12, 2014.[28] Beside, 7th Round of Annual Defence & Security Dialogue (ADSD) was held in Beijing from 9-11 April 2015. Indian delegation was headed by Defence Secretary Sh. R.K. Mathur. The two sides had an in-depth exchange of views on issues of mutual interest

and agreed on the Annual Calendar of Exchanges for the year 2015. The 5th India-China Joint Military Exercise, Hand in Hand - 2015 was held from 12-22 October 2015 at Kunming Military Academy, Yunnan, China. The Joint Exercise met its stated objectives; to exchange experience on counterterrorism training and conducting counter-terrorism operations, enhance mutual trust and understanding and promote healthy military interaction between the two armies.[29]

Conclusion

Concurrent with the diplomatic thaw of the last decades, the military interaction between China and India has evolved from a trench war to pacification, and since the 1990s also to confidence building. China has facilitated India's membership to SCO whereas it also opposed India's entry into NSG. The armed forces of both countries have reduced their presence at the disputed boundary and have engaged in an increasing number of exchanges. The Annual Report of MEA 2015-16 says, India-China bilateral relations continued on the high growth trajectory during 2015. There was expanded engagement both in terms of high-level political exchanges and economic interactions. Prime Minister Modi's visit to China in May 2015 was a significant landmark in our bilateral engagement. India and China agreed that their simultaneous re-emergence as two major powers in the region and the world offers a momentous opportunity for realisation of the Asian Century. Both Countries agreed to pursue their respective national developmental goals and security interests in a mutually supportive manner and in a spirit of mutual respect and sensitivity to each other's concerns, interests and aspirations. Closer Developmental Partnership which is at the core of India-China bilateral relations received a further boost during PM Modi's visit with the signing of an unprecedented agreements/MOUs in areas including railways, trade and commerce, science and technology, space and people to people exchanges along with 26 commercial/business agreements amounting to US$ 22 billion. Other important visits during the course of the year included visit of Home Minister in November 2015. Visits from the Chinese side include Chairman NPC in June 2015, Vice President of China and Vice-Chairman of Central Military Commission in November 2015, Chief Executive of Hong Kong SAR in February 2016. Significantly, while New Delhi is increasingly apt to engage in naval cooperation, it remains leery of joining groupings with rotating command structures, which could curtail its operational autonomy. Finally, India is an active member of several regional forums and institutions, such as the Indian Ocean Rim Association for Regional Cooperation, which focuses on trade issues and was launched in 1997, or the Bay of Bengal Initiative for Multi-sectoral Technical and Economic Cooperation. Both have been cooperating with each other on global forums like BRICS, G-20, and BASIC. Both countries need to remain ever ready for engaging each other in serious discussions to avoid any flashpoint in sea waters. Both need to chalk out maritime CBMs matching with the kind of CBMs both have for maintaining peace and tranquillity on Line of Actual Control. Both also need to remain ready for accommodating each other's legitimate aspirations so as to avoid direct confrontations over complex issues like SCS, ECS, CPEC and OBOR initiatives. There is enough space for both of them to grow and prevent direct conflict with each other by accommodating each other's aspirations and both have great chance to reaffirm their full faith in the policy of 'Panchsheel' and 'Peaceful Co-existence'.

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India as Maritime Power in Indian Ocean: Modi's Vision of Foreign Policy

Dr. Satish Kumar

Introduction

The Indian Ocean, the world's third largest body of water makes it the most pivotal areas of contestation among the world politics. The greater Indian Ocean region encompasses the entire arc of Islam, from Sahara Desert to the Indonesian archipelago. It also includes of Somalia, Yemen, Iran and Pakistan. It almost has positive as well as negative configuration. It is one of the busiest routes of trade at the same time a network of global terrorism, piracy and drug smuggling. Indian foreign policy failed in its initial years to streamline the strategic importance of Indian Ocean. The strategic thinker and career diplomat, K.N Pannikar outlined the relevance of Indian Ocean, where he advocated for Indian dominance in the water bed. Despite these intellectual currents nothing very substantive was done to vision India as a leader of the Indian Ocean. Nevertheless, the current regime in India outlined its strategic lay out in which Indian Ocean initiatives were given high importance. The aggressive foreign policy of Modi made it clear to reach out the countries of different continents which are connected by seas. It extended from neighbour to extended neighbour to pacific countries. Modi used the multilateral approach in extending its outreach to Indian Ocean. In doing so not merely the neighbors but also far flung of African countries became relevant. The marathon tour of Indian PM could be seen in the same context. The importance of regional organisations has increased in the context of the blue economy. PM Modi spoke of the blue economy to Saarc leaders. In September 2015, the Indian Ocean Rim Association (IORA) hosted the first Ministerial Blue Economy Conference and identified priorities. Goal 14 of the UN's Sustainable Development Goals (SDGs) — "Conserve and sustainably use the oceans, seas and marine resources for sustainable development" — makes detailed references to the reduction of marine pollution, conservation of coastal and marine areas and regulated fish harvest. The convergences in the IORA and SDG agendas have to be developed into action.

The current Indian naval strategy is being driven by the idea "that the vast Indian Ocean is its mare nostrum ... that the entire triangle of the Indian Ocean is their nation's rightful and exclusive sphere of interest. Over the course of its history, the Indian Navy has played a significant role in facilitating India's economic and military rise. With India's economic and commercial interests stretching across oceans and a growing diaspora spread across continents, India's maritime interests encompasses an expanding and vast array of portfolios that include securing trade and commerce, human security, overcoming asymmetric challenges , boosting coastal security, the development and preservation of ocean resources, energy security etc. After assuming the role of being a 'net security provider' in the Indian Ocean Region (IOR), the Indian Navy is more than ever a potent instrument of India's foreign and security policy with a strategic mandate to fortify and bolster India's maritime power projection capabilities. As a consequence, India's maritime diplomacy is to assume salience in the coming decades.

India's genuine maritime interests are related to its vast coastline stretching nearly 7,600 kilometres; distant archipelagos on both sides of the coastline; an Exclusive Economic Zone (EEZ) of 2 million square kilo metres; a continental shelf; mining rights in the ocean-bed; the protection of offshore installations and industries along the coast; and an expanding trade (more than 95 per cent of which is sea-borne, especially oil supplies). India is one of the few countries that has a Coast Guard whose capabilities are soon to include frigates, medium-range reconnaissance aircraft, a larger number of inshore and offshore patrol boats, and so on. Another factor that strongly supported the case for naval expansion was the British decision in 1967 to withdraw its forces east of Suez, raising fears of a vacuum in the Indian Ocean. In March 1968 Admiral Chatterji claimed that

the "Indian Navy would eventually be in complete charge of the Indian Ocean after the withdrawal of the British fleet east of Suez". This was the first clear indication of the Indian navy's ambitions in the Indian Ocean. In the revived naval expansion plan, the acquisition of submarines was developed. Another push came from 1971 war.

The 1971 Indo-Pakistani war was very significant in many respects. First, India successfully overcame some of the earlier fears of using unfamiliar Soviet-made systems. Secondly, Indian naval personnel perfectly co-ordinated Soviet and British-made ships for employment in war. Thirdly, the Indian navy could confidently sever its historical attachment to British weapon systems. Fourthly, old naval doctrines (mostly borrowed from Britain) were scrapped and new doctrines evolved. And finally, and most importantly, all three armed services were involved in the war for the first time, and hence had to co-ordinate their actions.12 The Indian navy gained the prestige it desperately sought and its future potential role received due cognizance. The navy also recognized the need for indigenous production in order to avoid excessive dependence on external sources of supply and also to economize on the cost of the planned expansion. The allocation of funds for the navy increased dramatically from about 3 per cent of the defence budget in 1962-63 to 9.7 per cent in 1976-77. After this period, the navy went into its second phase of expansion. India's maritime interests have grown over the years together with its naval expansion. Along its vast coastline there are major and 180 minor ports actively engaged in foreign and coastal trade. In addition, there are two archipelagos on the east and the west situated away from the mainland. For instance, the Andaman and Nicobar islands are about 800 kilometres from the nearest point on the mainland.

First, the revised strategy expands India's areas of 'maritime interest' in meaningful ways. These include 'areas of national interest based on considerations of Indian diaspora, overseas investments and political reasons'. Since the Indian Maritime Doctrine of 2004, revised in 2009, India's areas of maritime interest have been defined as both 'primary' and 'secondary'. While the 'primary' area has broadly encompassed the northern Indian Ocean region, the 2015 strategy expands this both southwards and westwards to include the south-west Indian Ocean and the Red Sea (formerly a 'secondary' area of interest). The 'secondary' area of interest is also expanded to include the western coast of Africa and the Mediterranean Sea.

Strategic Importance of Indian Ocean

Even today, in the jet and information age 90 per cent of global commerce and 65 per cent of all oil travel by sea. Globalization has been possible by the cheap and easy shipping of containers on tankers, and the Indian Ocean accounts for fully half the world's container traffic. More than 70 per cent of the total traffic of petroleum products passes through the Indian Ocean, on its way from the Middle East to the Pacific. As these goods travel that route, they pass through the world's principal oil shipping lanes, including the Gulf of Aden and Oman. Forty per cent of world trade passes through the Strait of Malacca; another 40 per cent of all traded crude oil passes through the strait of Harmuz.

The future is more contested in Indian Ocean. The two largest countries of the world where almost 70 percent population live within the two hundred kilometers of water bed, are vying for more and more energy. China and India are contesting. As the whole Indian Ocean seaboard, including Africa's eastern shores, becomes a vast web of energy trade, India is seeking to increase its influence from the plateau of Iran to the Gulf of Thailand-an expansion west and east meant to span the zone of influence. The revised strategy expands India's areas of 'maritime interest' in meaningful ways. These include 'areas of national interest based on considerations of Indian diaspora, overseas investments and political reasons'. Since the Indian Maritime Doctrine of 2004, revised in 2009, India's areas of maritime interest have been defined as both 'primary' and 'secondary'. While the 'primary' area has broadly encompassed the northern Indian Ocean region, the 2015 strategy expands this both southwards and westwards to include the south-west Indian Ocean and the Red Sea (formerly a 'secondary' area of interest). The 'secondary' area of interest is also expanded to include the western coast of Africa and the Mediterranean Sea. Approximately 4 million Indian workers are working in the six Arab States of the Gulf Cooperative

Councils and send home $ 4 billion remittance annually. Modi's special emphasis of building the relations with Iran and other Gulf countries, explained the new thrust of foreign policy.

China's Threat and String of Pearls Policy

China's Foray in the Indian Ocean China emerged as the biggest military spender in the Asia-Pacific in 2006, overtaking Japan, and now has the fourth-largest defense expenditure in the world. The exact details about Chinese military expenditure remain contested, with estimates ranging from the official Chinese figure of $35 billion to the US Defence Intelligence Agency's estimate of $80-115 billion. But the rapidly rising trend in Chinese military expenditure is fairly evident, with an increase of 195 percent over the decade 1997-2006. The official China's navy is now considered the third-largest in the world behind only the US and Russia and superior to the Indian navy in both qualitative and quantitative terms. The Peoples' Liberation Army (PLA) Navy has traditionally been a coastal force and China has had a continental outlook to security. But with a rise in its economic might since the 1980s, Chinese interests have expanded and have acquired a maritime orientation with intent to project power into the Indian Ocean. China is investing far greater resources in the modernization of its armed forces in general and its navy in particular than India seems either willing to undertake or capable of sustaining at present. China's increasingly sophisticated submarine fleet could eventually be one of the world's largest and with a rapid accretion in its capabilities, including submarines, ballistic missiles and GPS-blocking technology, some are suggesting that China will increasingly have the capacity to challenge America.26 Senior Chinese officials have indicated that China would be ready to build an aircraft carrier by the end of the decade as it is seen as being indispensable to protecting Chinese interests in oceans.

China has deployed its Jin class submarines at a submarine base near Sanya in the southern tip of Hainan Island in South China Sea, raising alarm in India as the base is merely 1200 nautical miles from the Malacca Strait and will be its closest access point to the Indian Ocean. The base also has an underground facility that can hide the movement of submarines; making them difficult to detect. The concentration of strategic naval forces at Sanya will further propel China towards a consolidation of its control over the surrounding Indian Ocean region. The presence of access tunnels on the mouth of the deep water base is particularly troubling for India as it will have strategic implications in the Indian Ocean region, allowing China to interdict shipping at the three crucial chokepoints in the Indian Ocean. As the ability of China's navy to project power in the Indian Ocean region grows, India is likely to feel even more vulnerable despite enjoying distinct geographical advantages in the region. China's growing naval presence in and around the Indian Ocean region is troubling for India as it restricts India's freedom to manoeuvre in the region. Of particular note is what has been termed as China's "string of pearls" strategy. This "string of pearls" strategy of bases and diplomatic ties include the Gwadar port in Pakistan, naval bases in Burma, electronic intelligence gathering facilities on islands in the Bay of Bengal, funding construction of a canal across the Kra Isthmus in Thailand, a military agreement with Cambodia and building up of forces in the South China Sea.32 Some of these claims are exaggerated as has been the case with the Chinese naval presence in Burma. The Chinese initiative — one belt, one road is a $150 billion grandiose development strategy and framework for China to push for a bigger role in global affairs and to increase its exports. Some see it as an opportunity for India, others as a challenge. The blue-water economy will become central to the development of the entire region. Our competition with China is likely to be exacerbated by the competition for a piece of the blue economy, as evidenced in Bangladesh.

Non-Traditional Threats to Indian Ocean

Growing Threats from Non-State Actors Non-traditional threats to global security have grown exponentially and maritime terrorism, gun-running, drug trafficking and piracies are the major threats that India is facing from the sea-borders of the country. With vital shipping lanes passing through the area, India has been emphasizing the importance of maritime security in the Persian Gulf and the Gulf of Aden. Various terrorist organizations from Al Qaeda to Jammah Islamiah use maritime routes around India in the Indian Ocean region for narcotics and arms trafficking through which they finance their operations. Indian intelligence agencies have warned

the government that India might face seaborne attacks by terrorist groups against the nation's oil rigs, involving production and support platforms, along both coasts of India. Piracy in various parts of the Indian Ocean, such as the Malacca Straits and the Horn of Africa, is rampant, requiring a strong Indian maritime presence. Most of the attacks and hijackings on the high seas are clustered in three areas: the Gulf of Aden and the eastern coast of Somalia; the coast of West Africa, particularly off Nigeria; and the Indonesian archipelago. Yet the biggest challenge to the Indian navy might come from the expansion of the prowess of that other Asian giant in the Indian Ocean: China.

Modi's Initiatives

Competition between China and India is also increasing for influence in Myanmar, as the Andaman Sea off Myanmar's coast is viewed as a crucial energy lifeline for China while India also needs Myanmar for meeting its energy requirements. India will be rebuilding Myanmar 's western Sittwe port and is one of the main suppliers of military hardware to the ruling junta. China's growing penetration of Myanmar is one of the main reasons India is reluctant to cease its economic and military engagement with the Myanmar ese junta despite attracting widespread criticism from both outside and within India. India's "Look East" policy, originally aimed at strengthening economic ties with India's Southeast Asian neighbours, has now led to naval exercises with Singapore, Thailand and Indonesia.

The ASEAN member states have joined the Indian navy in policing the Indian Ocean region to check piracy, trafficking and other threats to sea lanes. India has also accelerated its naval engagement with a number of Persian Gulf states, making port calls and conducting exercises with the navies of Kuwait, Oman, Bahrain, Saudi Arabia, Qatar, United Arab Emirates and Djibouti, as well as engaging with the navies of other major powers in the region such as the US, the UK and France. It has also been suggested that to more effectively counter the Chinese presence in the Indian Ocean and to protect its trade routes, India will have to seek access to the Vietnamese, Taiwanese and Japanese ports for the forward deployment of its naval assets.49 India is already emerging as an exclusive "defence service provider" for smaller states with growing economies that seek to strengthen their military capabilities in Southeast Asia and West Asia, such as Vietnam, Indonesia, Malaysia, Singapore, Qatar and Oman, providing.

Developments in the past few months, however, have shown that India's attention remains squarely focused on the Indian Ocean. Prime Minister Narendra Modi visited Sri Lanka, Seychelles and Mauritius, making it clear the Indian Ocean littorals remained India's top priority, New Delhi has actively nurtured relationships with its maritime neighbours. Having improved the texture of its diplomatic ties, India has also sought to undertake joint developmental projects and strengthen a maritime security trilateral with Sri Lanka and Maldives through the inclusion of Seychelles.

New Delhi's maritime diplomatic efforts haven't remained limited to the cultivation of political relationships. Indian Navy scored one of its biggest diplomatic successes when it evacuated over 4000 Indians and 900 foreign nationals from war torn Yemen. Operation Rahat was seen as a credible illustration of the India's maritime peacekeeping and benign potential, more so because it was conducted amid an active conflict, amidst an unfolding humanitarian catastrophe.

The most significant dimension of India's Indian Ocean diplomacy, however, has been the outreach to Arab Gulf states, where the Indian Navy has embarked on program of sustained capacity building and security collaboration. Earlier this month, four Indian Naval ships – Trishul, Tabar, Deepak and Delhi – departed on a month-long deployment to the Arabian Gulf. India's "Look West" diplomacy, however, is not all about Indian interests. The tour by Indian naval ships to the region came only a few days after Prime Minister NarendraModi's visit to Abu Dhabi, the first by an Indian premier in 30 years. As India and the UAE announced a strategic partnership, many of the themes reflected upon in their joint statement were an expression of India's solidarity with the UAE (and more broadly Arab Gulf states). Prominent among these were human security, counter-terrorism, and regional defence. But the GCC's central concern still remains the security of energy shipments through regional chokepoints. With

political tensions heightening the vulnerability of the Gulf's vital waterways, the joint statement affirmed India's commitment to strengthening maritime security in the Northern Indian Ocean.

The Indian Navy's burgeoning ties with Arab Gulf navies demonstrate the utility of maritime power as a foreign policy tool. New Delhi's Indian Ocean diplomacy has shown that the political role of sea power remains as important as its wartime uses. While "hard-power" projection remains effective, the modern exercise of "soft power" through "hardware" has no credible substitute. More importantly, the Indian Navy has successfully created a durable template of maritime relations in the Western Indian Ocean. Its reassuring presence has validated India's capacity to protect Indian and regional interests, and provided evidence of a productive and dynamic maritime vision. In many ways, India's "Look-West" maritime diplomacy has been critical in rebalancing the Indian Ocean's emerging strategic narrative from "political contestation" to "collaborative development."

Fiji, where the Indian-origin population is more than half, has traditionally been India's sole interest in the Pacific Islands. That diaspora-fixated interest has hurt India's ties with Fiji - New Delhi twice snapped diplomatic ties after military coups targeting the Indian community.Modi government has earmarked a series of projects through which it plans to deepen India's economic footprint in these islands. Eleven of the 14 nations will be represented by heads of state or government, and the remaining three by foreign ministers, the officials said.

Modi will offer cooperation in agriculture and fisheries, training for small and medium-sized enterprises, hand-holding of educational institutions, and enhancing opportunities for government officials and diplomats from these countries to learn their craft in India.

Conclusion

India has inherited British regime, but failed to catch up some of the structures which were laid out by the regime. Independent India did not imagine of a strong naval base in Indian Ocean. The look east policy did initiate importance of Indian Ocean but remained confined to economic trade and commerce, the strategic insight remained missing. The current regime did start it innings with a strong dose of security and strategic concerns under the banner of Indian foreign policy. Three major thoughts were intertwined. First, India has major stake in India Ocean, it must play its due role. Second, there is need to challenge the ever expanding role of China in the Indian Subcontinent. Third, India has to use multilateral approach in expanding its graph in the sea shores. These attempts have been quite successful in bringing fundamental changes in the strategic stratagem within and out of the country. The neglected Navy got a major push. The make India campaign has evolved and conceptualized indigenous structure. Since India is very late riser, therefore, it will take time to be a solid power in Indian Ocean. The supports of multilateral approach are encouraging. India-US joint venture is a great booster. Containing China in South East matches US interests with India. The overwhelming support of the east Asian countries to India, is also important. The active part of Naval exercises conducted with many European countries. The idea of dominating India Ocean is a far flung dream, but India is moving solidly on its way.

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Loss of Expansive Claim over South China Sea: Opportunity for India to Level Scores with China

Dr. Pramod Kumar

Pain to the pain givers, should be the strategy of present India as the neighbours who always troubled and betrayed India are in trouble. Time has gone when India took pride in teaching ethics to the countries. They considered India as a banana republic and a moral teacher and thus did not give any importance either in regional or in international matters of importance. Most opportune time has come when India can exert pressure on its deaf neighbours and achieve the things it qualifies for. Once lost this opportunity, these opportunists will never be in India's nest.

Ever increasing demand for energy and fast depletion of the traditional sources have made China and some other similar countries desperate to search for alternative sources. Chinese activism in the South and East China Seas should be looked in this angle. The region around these Seas have become the most dangerous place in the world as a super power like the US is viewing this as a potential place for it to play the role of a real super power after the end of cold war and almost finished role in west Asia, particularly in Iraq and Afghanistan. Energy is emerging as the single largest issue which has the potential to involve all the countries and trigger the war. Everlasting question of economic development will lead people to complete disaster as nobody knows the limit to it. Developing countries try to develop more and the developed ones try to maintain their position and thus there is a blind race to discover the new and unknown sources of energy, as the known sources of energy are on the verge of depletion. Capturing the South China Sea by China is an attempt in that direction. The uniqueness of Asia is that it comprises the two most populous countries of the world (India and China), which are not only giants in size and population but they are growing fast too. In order to fuel their economic growth, they require huge amount of resources, particularly energy. On the other hand, Japan, which is a developed country, has been facing the energy-related issues after the famous earthquake and radiation from its nuclear plants. It is also in search of sources of safe energy. There are some other countries in the region that have become active and alert in recent times and they too look at South China and East China seas with economic interest and security concerns. Energy security is extremely important for China, India and Japan but over presence or attendance of either of these countries could possibly pose severe security concerns to the other small countries of this region, including the countries in ASEAN. Vietnam, Cambodia, North Korea and South Korea and Japan have been a traditional concern and having a strategic agreement with Japan, the US wants to be present there at any cost. Small countries like Vietnam have direct economic interests and thus, in recent times, Vietnam has invited India to explore natural oil and gas. Vietnam, on its own, cannot fight against the mighty Chinese. Therefore, it sees India, which is a regional power and an emerging world power, to be a potential balancing force which can contain China and provide security and economic gains to it. The South China Sea dispute is between China and Taiwan taken together and four of their neighbours whereas the East China Sea between China (and Taiwan) and Japan and in the sea of Japan between Korea and Japan.[1] Fisheries and under sea oil and gas deposits are the basic reasons behind the dispute in these seas and bare the potential of any flash military conflict as has been observed recently. This interest has forced countries of this region to interpret and define the maritime law and principles for asserting claims. As a consequence of the economic development, the consumption of energy in China has increased in the proportion of 1:08[2]. The perception that, Chinese people prefer to ride a bicycle than the motorcycle has changed dramatically and presently China is a country having a very large number of motor bikes and four wheelers because of the change in people's choice. Through the linkages, other sectors of the economy also develop and similarly, agriculture in China has also developed and that has increased the

demand for energy manifold. It is not that China does not have the other sources of energy. The fact is that China is endowed with a huge deposit of coal, but due to the bad quality, undeveloped mines because of very difficult terrains and lack of proper technology, it becomes extremely difficult for China to depend on coal. Environment issues and climate change and the awareness regarding the carbon emission in the world together, force China to find alternative source of energy. Oil consumption in China has risen by 70 percent in recent years. Heavy dependence on road transport and exceptional increase in the number of transport as well as private vehicles has increased Chinese oil consumption enormously and at present it consumes about 8 million barrels of oil a day. This high oil consumption has forced China to increase its oil imports by around six folds in a decade. Overdependence on the imports of oil and gas has led China to a situation which no developing country would like. In November 2010, China witnessed a nationwide shortage of diesel which caused gas stations to close. In 2008, China spent 33 times more on crude oil than 1999. The demand of oil in China has increased at the rate of 24 percent since 1990. This had put pressure on world oil prices too.[3]

The Japanese Angle:

Another big player in these seas is Japan. Japan's economic growth after the II world war has been phenomenal. Accordingly it is now world's fourth largest consumer of energy and imports second largest amount of energy after the U.S. Though in recent times Japanese economy has slowed down, still its high dependency on imports due to the shortage of indigenous sources of supply of energy, Japan has to import most of its crude oil and natural gas including uranium from the other countries. In 1999, Japan's total energy consumption was approximately 21,300PJ and its dependence on imports for primary energy stood at more than 79%. Oil provided Japan with 52% of its total energy needs, coal 15%, natural gas 13%, hydroelectric power 4% and renewable sources 1.3%. About half of the Japanese energy stock is consumed by the industrial sector and 25% by the transportation, with the remainder used by the residential, agricultural and service sectors.[4] Japan is not so much gifted by the nature so far as natural resources in general and sources of energy in particular is concerned. This is the reason why there are so many tussles in the East and South China Seas. Japan which is the second largest consumer of oil after the U.S. has very little oil reserves of its own. Hence Japan has been depending heavily upon the OPEC countries. It is believed that there is a huge reserve of gas near the sea coasts of Japan. Nearly 97% of Japan's natural gas requirement is imported. Japan imports 36% of it from Indonesia and 19% from Malaysia.[5]Japan either uses most of its gas for the generation of electricity or is used in the petrochemical industry. Under these circumstances, Japan was forced to establish the safe and clean source of energy which is atomic energy, but in recent times, series of accidents at Japan's nuclear power plants have brought strong protest from the public. Consequently, Japan has stopped the new planned installations of new reactors and stopped the steady increase in capacity in last few years. Still Japan stands third in the world as far as installed reactor capacity of nuclear energy is concerned. The picture on the front of nonconventional sources of energy and their usages in Japan is also not encouraging. Hence, a country like Japan which is very developed, and the third largest economy in the world, unavailability of sources of energy at home and depending heavily on imports would certainly be giving it many worries for the uninterrupted and adequate supply of energy.[6]

Indian Angle

'Bhima' the legendary symbol of power and strength (Second among the Pandavas) was recognised so, not only because he was big, tall and powerful but he proved his might many times and thus he was recognised so. India, if it desires to be known and recognised as the powerful and mighty, has got to stretch its hands around and make the countries around feel its might. This is the most opportune time for India to declare that it is mighty and ready to play big brother's role in the region, as China is in its most vulnerable condition at present particularly after the rejection of its claim over South China Sea by the International court of arbitration very recently. Now it has lost legitimacy whatsoever over the south or East China Sea but it wants the hold over them at any cost. At the same time now it realises that unless it convinces India to be silent or neutral it will become impossible for it to fulfil its goal. Since India is a regional power and many small countries like Vietnam