GEOPOLITICS OF ENERGY IN CENTRAL ASIA: IMPLICATIONS FOR CHINA, 1991-2005

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Declaration

I declare that the dissertation entitled "**GEOPOLITICS OF ENERGY IN CENTRAL ASIA: IMPLICATIONS FOR CHINA, 1991-2005**" submitted by me in partial fulfillment of the requirements, for the award of the degree of Master of Philosophy is my work and has not been previously submitted for any degree of this or any other University.

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…….dedicated to my beloved father

Late Shri Janardan Behera…….

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ABBREVIATIONS

BTC	Baku-Tbilis-Ceyhan
CAR	Central Asian Republics
CAS	Central Asian States
CIS	Common Wealth of Independent States
CNOOC	China National Overseas Oil Company
CNPC	China National Petroleum Company
CPC	China Petrochemical Corporation
CPC	Caspian Pipeline Consortium
EU	European Union
EURASEC	European Asian Economic Community
GCPD	Greater Central Asian Partnership for Cooperation & Development
GDP	Gross Domestic Product
ILSA	Iran Libya Sanctions Act
IPI	Iran-Pakistan-India
KSCS	Kazakhstan Sector of the Caspian Sea
MTOE	Million Tons of Energy
NATO	North Atlantic Treaty Organization
NECP	National Energy Conservation Program
NGOs	Non-Governmental Organizations
NIS	New Independent States
OECD	Organization for Economic Cooperation and Development
OPEC	Organization of Petroleum Exporting Countries
OVL	Oil and Gas Corporation Videsh Ltd
PPP	Purchasing Power Parity
PRC	People's Republic of China
SCO	Shanghai Cooperation Organization
SPECA	Special Program for Economies of Central Asia
TAPI	Turkmenistan-Afghanistan-Pakistan-India
UPS	Unified Power System

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(Source: The Politics of Central Asian and Caspian Energy, Chatham House, 23-24 February 2010, International Energy Agency).

CHAPTER 1

Geopolitics of Energy: A conceptual Analysis

"The question of energy supply is, and will always be, the center of all power politics and the base of all economic activity. Therefore, it is self-evident that energy policy is a political problem and not primarily a technological one". (By Lars Kristoferson[1])

Introduction

Energy, more specifically oil, is one of the most significant raw materials and remains the life blood of the global economy. It is the pillar of economic and social development of a country. However, energy denotes the geopolitics of the 21st century; representing countries whose dependence on military and political power has been declined because of the paramount importance of geopolitical competition, like nuclear weapons or large armies were during the Cold War. The means of international influence have become more diverse and sophisticated, but the goals remain as same; national security, power projection, and control over resources and territory (Petersen and Barysch 2011: 1). In this context, geopolitics is an approach to the study of international relations by stressing the importance of locational factors in influencing relations among nations. Thus, geopolitics emphasizes geographic factors as important determinants of government policy and major determinants of the relative power position of states (Conant and Gold 1978: 3-4).

Energy has become the significant generators of spatial geopolitics by accentuating the ownership of hydrocarbon resources and control over pipeline routes. But the geopolitics of energy in today's world mainly revolves around oil and, to a

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[1] Kristoferson, Lars (1973), "Energy in Society", *Ambio*, 2 (6): 178-185.

lesser degree gas, both of which are not merely trading but geopolitical commodities. It also creates robust inter-state conflict and insecurity among consumer countries. The geopolitics of energy identifies and examines the relevant drivers that tend to dictate future trends in energy consumption and fuel choices in the context of a shifting geopolitical landscape, taking into account the attendant economic, foreign policy, energy security and environmental consequences (Verrastro et al. 2010). Nevertheless, in the world of 21st century which was the first era dominated by fossil fuels and electricity, and their enormously expanded supply, lower cost, increasing flexibility of use, and ease of control have made the first high energy civilization in history (Smil 2000: 408).

Meaning and Significance of Geopolitics of Energy

The Geopolitics of Energy apparently exemplifies the intersection amid international security, politics, and energy issues. Therefore, geopolitics is taken as a major tool for the analysis of energy politics. Energy is a major geopolitical instrument in the formulation of country strategies, the exercise of national power and in determining the shape of the international system. For the explicit understanding of geopolitics of energy, it is inevitable to comprehend first, what is geopolitics and what is energy independently. According to K. Siddhartha, Geopolitics is a long established area of geographical enquiry which considers space an important element in understanding the constitution of international relations. The term 'geopolitics' was used for the first time by Rudolph Kjellen in 1899 and it actually developed towards the end of the 19th century as a new developments in science and technology helped people to take a broader view of the world than they previously had (Siddhartha 1998: 102). However, Geopolitics is a generic term that covers "conceptual and terminological tradition in the study of the political and strategic relevance of geography. Geopolitics of energy is also replaced by energy geopolitics. Not merely geopolitics is the study between politics and geography but it also ensures the geographical dimensions of world politics, especially the interplay of natural resources, strategic dominance and geographic space on the one hand, and on the other hand the struggles for power by state and non-state actors pursuing individual and collective interests (Mayer 2012: 1).

According to Pieterse, geopolitics combines different approaches namely, economic geography, political geography and political economy; where economic and

political geography describe the economic and political status of different geographic regions and its development and interaction, and political economy addresses governance structures (Pieterse 2008: 1). Hence, geopolitics is defined as providing "tools and guidance for political action". It is regarded as an 'applied science' that intended to guide practical politics up to the point where it has to depart from the sure ground of science (Cahnman 1943: 55-59).

In this context, Mackinder in his Heartland Theory argued that the important ideal area of the world from a strategic perspective is the "heartland" of the Eurasian landmass in which he spells out the "greatest natural fortress on the earth," would have the greatest chance to project power over the entire world. (Fettweis 2003: 110). On the other hand, what do we mean by energy? , energy denotes the capacity to perform work, impart movement or raise temperature. It is derived from the Greek word "energon" which means "force in action". Throughout history – in all countries and through all ages – energy has been the main driver of economic growth, the source of military power and the major thrust of people's welfare in the society. It is a key element of human progress and there are different forms of energy change consistently from one to another like light energy to thermal energy, chemical energy to mechanical energy, nuclear energy to heat energy, mechanical energy to electrical energy etc. It is the access to energy, whether human, animal, or natural, that has primarily determined the scale and success of a civilization or state (Sikri 2008: 5). According to Williams and Alhajji, energy is one of the most important raw materials in the modern economy, especially oil. With increasing energy demand, the oil shortage will become much serious in the future, because of shrinking excess production capacity in Saudi Arabia and other supply regions (Williams and Alhajji 2003).

Nonetheless, there is a close link between geopolitics and energy which has been highlighted by Mackinder in his prominent "heartland theory" arguing that the one who controls or influences the export routes and the oil and gas resources of the Heartland, the geographical area that covers Eastern Europe including Russia and most of the Black Sea, dominates the world (Mackinder 1962: 150). According to Kennedy, the close link between energy and geopolitics characterized the power politics of the British Empire in the 18th century and the rise of Germany in the 19th

century with their ability to extensively use and control coal (Kennedy 1987: 83-94). But at the close of the 20th century, however, a new energy paradigm forged by technological advances, resource and environmental constraints and socio-economic demands has triggered to emerge, leading to a shift from fossil fuels to virtually limitless flow of renewable energy and hydrogen which in fact is the most abundant resource in the World (Flavin and Dunn 1999: 167-168).

Therefore, geopolitics of energy refers to the defining role of energy in shaping political, economic and strategic relationships between nations. (Mahalingam 2008: 2). Further, there are key determinants which identify the significance of geopolitics of energy which are as follows: first; energy, the fundamental core of energy geopolitics. In this context, the variables of Ore and Gre are used to describe the countries' potential energy resource and the Variables of Opl and Gpl indicate its domestic energy transportation capacity. The variables of Oex and Gex reflect its competitiveness in the international energy market. The indexes of energy positively influence the probability of attracting trade partners or international investors. Secondly, international relationship, the main driving force of energy geopolitics. In this regard, the variables of Trp and Ex3 describe the countries' oil-exporting concentration, which indicates the competition between its trade partners. Besides, dummy variables Mop and USp are introduced to reflect the influence of the most major international powers on energy geopolitics. Finally, geography, the basic determinant of geopolitics. The variables Are, Rdl, Nco and Col are used not merely to capture the basic geo-graphic determinants of transportation ability within the country but also to appreciate its centrality. Geography determinants can be expected to impact drawing international cooperation positively (Sun et al. 2011: 154).

However, there are also some factors responsible for the germination of geopolitics of energy, like geology, geography, degree of independence, peak oil pessimism, security of transit routes and political power (Mahalingam 2008: 3). Thus, the threat of declining oil production, the rise of natural gas, and new forms and uses of energy and energy security has become vital issues for the energy sector. As Arıboğan and Bilgin argued, that the main problem is the fact that upcoming age of energy is influenced by multiple actors rather than one hegemon or two superpowers (Aribogan & Bilgin 2008: 119).

Geopolitics of Energy: A Theoretical Perspective

In a theoretical perspective, geopolitics of energy is understood by certain traditional and modern theories. The traditional theories are Realism, Liberalism and Radicalism, which play dominant role for conspicuous understanding of international energy politics. Along with these theories, modern theory, which is known as Long Cycle Theory, also accentuated vigorously for the proper study of the geopolitics of energy in the world scenario. The first above three theories play very decisive role for interpreting international energy politics.

Realism It is a predominant theory that studies about the security, conflict and war. This theory draws attention to the geopolitics of energy by focusing the major work done by Mackinder in which he argues the heartland of the Eurasian landmass and highlights the spatial dimensions of state power and recognizes a continued international struggle for influence and control of critical geographical and geopolitical spaces (Mackinder 1919). But particularly in the context of geopolitics of energy, Realism outlines four things: first; access to control of natural resources because energy is the most critical and key element of national power and national interest, secondly; energy resources are becoming scarcer and more insecure, thirdly; states will increasingly compete for access and control over the resources, finally; conflict and war over the resources are escalating significantly (Dannreuther 2010: 3). In this perspective, another noted scholar Klare argues that,

- In the post-Cold War period, with the end of the ideological clash between socialism and capitalism and the rise of new economic powers, international relations is increasingly focused on gaining or maintaining access to and control of valuable natural resources, which is inextricably linked to the post-Cold War shifts in the balance of power. This is a major source of conflict between the most powerful states of US, China, Russia, EU, Japan, India…etc

- Natural resources, most notably oil, are becoming increasingly scarce due to rising demand in Asia and the prospect of 'peak oil'.

- Much of the world's supply of oil, and much of its new supplies such as in Central Asia and Africa, is located in fragile states with multiple inter-state disputes and conflicts where political and religious extremism is rising. Oil wealth

has the paradoxical effect of making these states more powerful international actors, due to their control of vital resources, but also more dysfunctional, more 'dissatisfied', revisionist, authoritarian and anti-Western. A link is to be found between resource wealth and the post 9/11 growth of radical Islam and the threat of international terrorism.

- International conflict over oil and other natural resources is thus becoming more and more likely.

This argument is highly appreciated by many analysts and policy makers, which mainly emphasizes the geopolitics of energy in international scenario (Klare 2001-04, 08). This realist-driven energy conflict approach suffuses Western concerns over the rise of China, the fears of Chinese expansion in Central Asia, Africa, Latin America, and the prospect of increased conflict between China and its regional neighbors, Russia, Japan and India.

Liberalism It is also another prominent and dominant theory in international world politics. This theory viewed geopolitics of energy criticizing realistic approach. Liberalists are antirealist in international relations, arguing that democracies conduct foreign policy differently than authoritarian regimes and that democracies most remarkably do not fight wars against one another, the so-called 'democratic peace' thesis (Russett 1993). In terms of international energy politics, liberals viewed two approaches; first one is "dark underbelly" and second one is "what needs to be done?"; through these two approaches, they have vividly analysed the geopolitics of energy in international scenario.

First, the dark underbelly approach put forwarded illiberal practices and perversion of politics, economics and international relations of the energy industry, which includes:

- The 'resource curse' literature which exposes the poor developmental records of resource-rich developing states and the factors which contribute to this, such as the 'Dutch disease' and the failure to develop other sectors of the economy.

- The 'rentier state' and the consolidation of neopatrimonial authoritarian regimes in resource-rich states which are seen to undermine civil society, accentuate the repressive functions of the state, and prohibit the development of

democratic states with constitutional restraints on executive power.

- The ‘resource wars’ which are generated by the predation of natural resources and the breakdown of neo-patrimonial states into warring factions whose primary incentive is the capture of rents (Dannreuther 2010).

This ‘dark underbelly’ provides the ways in which Western or other oil-dependent countries, companies and individuals are complicit or alternatively ‘turn a blind eye’ to these illiberal practices.

Another imperative approach of liberalism, what needs to be done, implies the reverse side of the ‘dark underbelly’: identifying the liberal prescriptions required to overcome the cumulative effects of these illiberal practices and institutions within the international energy realm. These prescriptive policy-driven recommendations come from multiple sources: dispassionate neo-classical economists, activist-scholars, international financial institutions, and campaigning Non-Governmental Organizations (NGOs) such as ‘Global Witness’, ‘Revenue Watch’ and ‘publish what you pay’. A very good example of this category is the International Crisis Group which has an energy security programme which produces multiple reports highlighting how ‘from Latin America to the Caucasus and from Africa to the Middle East, energy issues are among the root causes of both civil and inter-state conflict (Ibid).

Marxist or radical approach also plays significant role in international energy politics. It put forwards three theories like Dependency theory, Structuralism and Critical theory. According to this approach, the international energy issues can be found in Hinnebusch’s textbook on ‘The International Politics of the Middle East (2003)’. In that book, he argues that the Middle East economies ‘exhibit many of the classic features of dependency’ which include dependence on a few basic export commodity, most notably oil; the failure to process these raw materials into finished high-value goods, thus making their economies dependent on the core; the political salience of dependency links between local economically dominant classes and the core, which detaches these elites from the local populations and inhibits the development of national economies; and a Western-financed and supported military-security structure which represses challenges to these dependent core-periphery

relations. According to Hinnebusch, the modern history of the Middle East is a perpetual struggle between local indigenous forms of resistance, such as the radical Arab nationalist anti-imperialist struggles in the 1970s, and Western states and multinationals who have continually succeeded in repressing these attempts at national autonomy, most notably through the triumph of neo-liberalism in the 1980s and the subsequent collapse of Soviet Union left the United States (US) as the unchallenged hegemon in the Middle East (Hinnebusch 2003). The above three broad theoretical approaches – realism, liberalism and radicalism provide a strong thrust for understanding international energy politics.

Therefore, these theories can be potentially combined in a more syncretic manner and which thereby offers a more holistic conceptualization of international relations. However, all the three theories can be encapsulated by looking at the certain independent and dependent variables of these theories in a very lucid way. First of all, Realism emphasizes, in terms of independent variables, the salience of the geopolitical distribution of power, the geographical location of resources, and the value of resources but tends to give lesser attention to state-company relations and state capacity. This realist theory also accentuates on structure rather than agency and is unequivocally skeptical about the trans-formative power of regional and international institutions and the other intervening variables revealed in the analytical framework, with the partial exception of traditional great power diplomacy. In terms of the dependent variables, realism focuses primarily at global and regional geo-strategic tensions and conflicts, and the inter-state conflicts that emerge from these, and pays less attention to local and commercial conflicts with cooperative and collaborative arrangements. In contrast, Liberalism puts greater weight to agency and the trans-formative potential of the various identified intervening variables like transparency measures, legal frameworks and norms, regulatory and market measures, and the role of regional and international institutions. In terms of the independent variables, its relevance is given to state capacity and state-company relations, with less attention giving to the geographical location of resources and the geopolitical distribution of power and the value of the resources. In terms of dependent variables, the emphasis contrasts with that of realism in which it is more at the cooperative and collaborative end of the spectrum, with the deep roots of conflict resides primarily in the area of domestic and local conditions rather than at the global and regional level of inter-state conflict.

Consequently, the Marxist or radical approach paradoxically, is more incongruence with realism than with liberalism in its broad explanatory framework. It accentuates the structure over agency, with particular attention on the geopolitical distribution of power and the geographical location of resources, and is similarly sceptical with realist analysis about the prospects for regional and international cooperation; but, unlike realism, it tends to be more sensitive to state-regime-firm-local linkages and is more ambitious in seeking to identify the connections between the various levels of conflict in the spectrum set out in the dependent variables (Dannreuther 2010: 13-14).

Long Cycle Theory- Hegemony and Economy

On the other hand, another relevant theory which is referred to as Long Cycle Theory also provides an understanding of geopolitics of energy. Long Cycle theory is in a way also closer to World System theory which looks at the world as a whole as its units of analysis and consider the entire world economy working as a whole. In global political economy, the long cycle is connected to the hegemony of a state which acts as the regulator in the system. However, Long Cycle theory identifies a regular cycle of roughly 80 to 100 years in which a global leader arises dominates and then faces challenge and ultimately falls. Along with, this theory strongly emphasizes on two important factors; economy and hegemony. From this perspective, certain regular periods and cycles happen in the world. The main proponent of this theory, George Modelski noted that, in each cycle, there is a single nation that takes the lead "hegemony" and uses that leadership to dictate the rules by which the world system will be organized (Modelski 2005). This theory presumes geopolitics of energy in the following ways:

- The world is best understood as a single economic system in which nations are actors with varying and limited autonomy.
- The world system tends to produce a leader or hegemon, to whom additional benefits accrue.
- Nations allied with the leader can also prosper, but less so, and those who resist that leadership tend to suffer.
- The US is the current hegemon and immense prosperity and enhanced standards of living have come as a result.

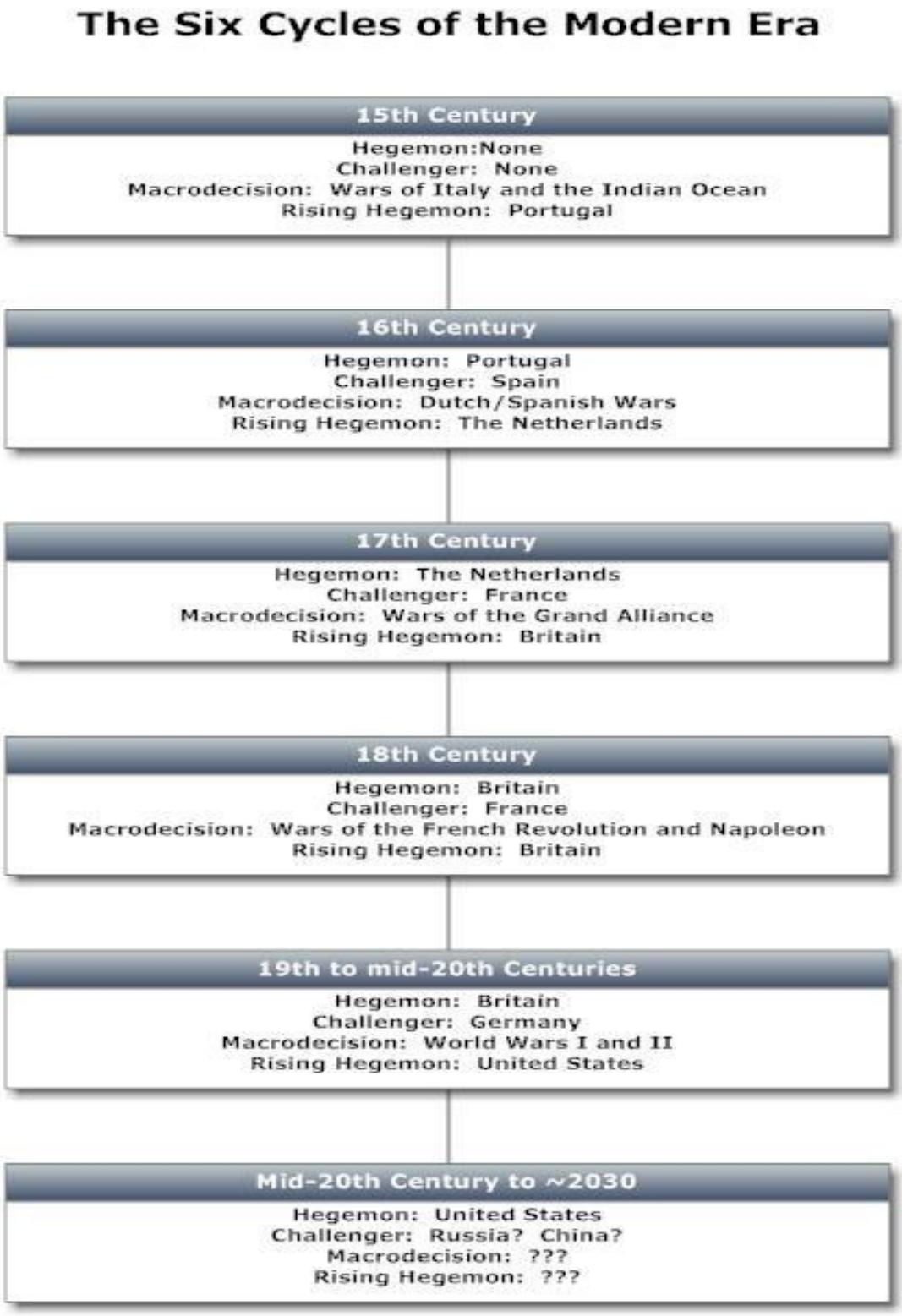
- There are two US values that are fundamental and must be defended, Liberty and Prosperity. One probably cannot exist to the degree Americans expect without the other.

- There will be a global leader at the end of the cycle and at the beginning of the next. If not the US, then someone else, someone whose interests might prove to be hostile to the US values of liberty and prosperity.

- Since there is going to be a leader, it is better to be US than someone else.

Despite all these presumptions, Long Cycle theory predicts that the hegemon of each cycle has strong fiscal base, ability to globally project influence, and the ability to best address key global issues of the period. However, a new hegemonic power rises from the aftermath of a "macrodecision" (usually a global war) which eliminates the previous hegemon and sets the stage for the next cycle. Presently, the United States is reigning hegemon, having succeeded Britain at the end of the World War II. According to this theory, there are six cycles prevailed in the modern era (EnerGeoPolitics 2010).

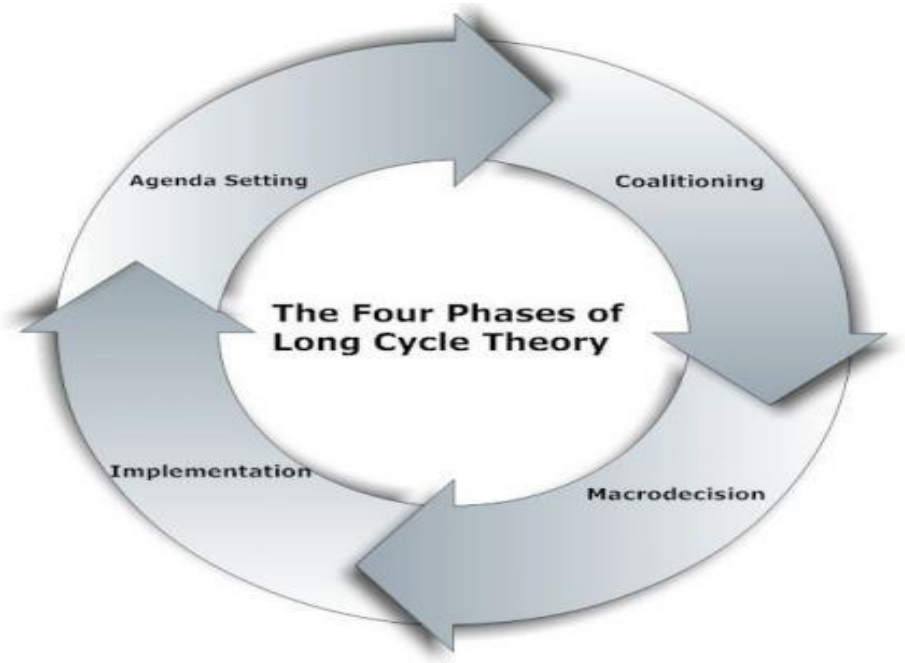
Figure: 1



(Source: EnerGeoPolitics, 2010: The Long Cycles of the Modern Age)

Along with, this theory also proposes four phases that prevails in the Long Cycle theory in the energy geopolitics of the 21st century. First, Coalitioning phase; Secondly, Macrodecision; Thirdly, Implementation and lastly, Agenda Setting. The macrodecision phase is known as coalitioning phase in which the leading power organizes those who have benefited from the system under their leadership, while the challenging power organizes those who feel aggrieved or simply believe that they could be doing better under a different system. At the end of the Second World War, the United States emerged as the world leader under the implementation phase. The US built the international institutions that created the legal and moral framework for the global trading system in which it dominated and from which it prospered. When the US became more powerful, it budged from implementation phase to agenda setting. The Washington Consensus of the 1980s and 1990s set the goal of total market globalization. In this context, there are two major models competing with the existing US system. The first one is Russian Model and the second one is Chinese Model. The Russian approach, which is a producer's model, and the Chinese approach, which is a consumer's model. The Russian model is known as Energy Hegemony, and the Chinese model is regarded as Petro-Mercantilism.

Figure: 2 The Four Phases of the Long Cycle Theory



(Source: EnerGeoPolitics 2010)

1.4.1 Energy Hegemony

Russia has huge reserves of oil and natural gas, ranks 8th largest proven petroleum reserves and the largest by far proven conventional natural gas reserves. In addition to, its central position in the Eurasian land mass puts it astride the shortest, cheapest pipeline and transit routes for those reserves and doesn't direct control on it. Russia uses its energy resources and geographical position to startle both suppliers (in Central and Southwest Asia) and users (primarily in Europe) into supporting its political projects. In addition, Russia uses its energy companies to exploit the free market. In this context, several European nations, particularly Germany have become closer politically and economically to Russia (EnerGeoPolitics 2010).

1.4.2 Petro-Mercantilism

China behaves as a classic mercantilist state across the board, not just in energy but also in other areas as well. The Chinese government and its quasi-public agents such as Sinopec are seeking to lock up exclusive access to oil and gas reserves wherever they can obtain them. Further, China uses its state-owned companies to play in foreign free markets to purchase Western companies. In 2005, the Chinese National Overseas Oil Company (CNOOC) placed a bid for the purchase of the American oil company UNOCAL. This set off a wave of panic, as political leaders recognized the potential threat to US national security, and the UNOCAL bid was eventually withdrawn under political pressure. However, CNOOC and other large Chinese companies (including PetroChina parent Chinese National Petroleum Company-CNPC- and SinoPec parent China Petrochemical Corporation- CPC) have ever since been engazed in a global acquisition strategy aimed at securing exclusive petroleum deals wherever they can be had. Nevertheless, the Chinese and Russian models are currently dominating, and the US led global petroleum market is seriously declined (Ibid). Nonetheless, all the above theories play a very significant and predominant role in world politics which provided an overwhelming instrument for the explicit understanding of geopolitics of energy in international perspective.

In short, in Long cycle theory, Modelski and Thompson argues that the global political system constitutes an exchange structure in which the transactions are focused on the interactions between producers and consumers of the goods and services of global order and justice (Modelski 2005, Thompson 1988: 45).

Geopolitics of Energy in World Scenario

The geopolitics of energy is coming closer to the core of international relations. In this context, energy is an important element, what is described as the "New Great Game" of the 21st century. In the present times, energy is universally recognized as one of the most critical inputs for economic growth (Laxmi 2007: 1). The global energy scene is changing and becoming increasingly complex, while nuclear energy, coal and wind-power, not to mention bio-fuels, have a part to play, but oil remains the single most important primary source of energy in the world (Hester 2009: 1). In today's world the geopolitics of energy especially revolve around oil and gas, both of which are not merely trading but geopolitical commodities. Thus, the global energy geopolitics will be principally shaped by the 'arc of energy', stretching from the Gulf region to the Caspian Sea, through Siberia and the Arctic region to the Russian Far East, Alaska and Canada (Sikri 2008: 2).

In the modern era, the geopolitics of energy has become more complex and sophisticated in today's interdependent world. Most countries, the industrialized ones in particular, have become unprecedentedly energy-dependent not just for their continued prosperity but even for their survival as developed nations. The geopolitics of energy arises out of the fact that most of the world's principal energy producers which are not its principal consumers. For the energy producing countries, energy is not only a source of enormous power and wealth but also it constitutes leverage, since energy is a strategic resource whose denial to any rival or enemy increases the latter's vulnerability. In this perspective, energy can be used as a very effective weapon of war. Russia, for example, is successfully using energy as a very important geopolitical tool in its relations with the countries of it's 'near abroad' as well as Europe (Ibid: 5).

The world is facing twin energy-related threats: that of not having adequate and secure supplies of energy at affordable prices but due to environmental harm caused by its use. Soaring energy prices and recent geopolitical events have reminded us of the essential role affordable energy plays in economic growth and human development, and of the vulnerability of the global energy system to supply disruptions. Safeguarding energy supplies is once again at the top of the international policy agenda. Yet the current pattern of energy supply carries the threat of severe and irreversible environmental damage. Reconciling the goals of energy security and

environmental protection requires strong and coordinated government action and public support (Birol 2007: 1-12). In this context, Klare argues that new energy geopolitics is subject to the influence of troubling trend that is an unprecedented increase in future energy demand and thanks to a newly industrialized capitalist states like China and India which are expected to account for nearly half of the global increase (Klare 2008: 2). The current global energy dynamics are dominated by five major actors, each with different agendas and interests: the United States, the Russia, the EU, the developing world including China and India, energy producers, and anti-status quo and regulative non-state actors like international and national oil corporations (Roberts 2005: 285). Ostensibly, the rise of new regional and global powers, the gap between global-level energy supply and demand, the concentration of non-renewable stocks of oil and gas in the Greater Middle East, and the spread of industrial capitalism into China and India triggered a new "Great Game" as global powers compete for access to and control over energy resources (Coskun and Carlson 2010: 207).

In the new energy geopolitics or new energy order, India and China have grown into two of the biggest consumers of Eurasian energy resources, thus becoming major competitors to the United States and the European Union (EU) i.e., growth witnessed in China and India has added considerable pressure to the global demand for more energy sources. Currently India imports 70% of its oil and gas. Consequently, India has extensively searched for long-term agreements with supplier states. Similarly, China has signed a US$ 100 billion contract to purchase crude oil and natural gas from Iran for a period of 25 years (Maleki 2007: 106). Conversely, facing the geopolitical effects of China's growing dependence on external energy suppliers, especially for the highly preferred natural gas, the EU is trying to vary both its supplies and suppliers. The uncertainty of gas imports from Russia and the deficit between energy consumption and production in Europe has led the European states to pursue other supply options besides Russia. However, other countries like India, Pakistan, and China are also potential long-term customers for the EU's alternative suppliers. Intense competition for energy supplies between Asia and Europe and the long-term deals between Asian powers and energy suppliers could cause a considerable decrease in share of the European Union in the regional supplies.

Energy has become the key strategic asset in securing Russia's economic security, along with its global status as a superpower. In order to localize power in the hands of the government, Vladimir Putin successfully renationalized control of energy resources, taking a controlling share of Gazprom, the largest Russian extractor of national gas. Both Russia and Iran's rise as energy superpowers and their power play with Europe and the United States have caused serious concerns about the future of the global balance of power. Given the current debate on sanctions against Iran, and the Russian government's efforts to dominate the global energy market, the possibility of a coordinated energy strategy between Iran and Russia could have severe implications for the new energy geopolitics. By lying at the heart of the energy geopolitics in Eurasia, such an alliance between the two energy superpowers of the region could affect the Eurasian space all the way to China and India in the east and to Europe in the west.(Coskun 2009: 186). Last but not least, pipeline politics also plays a significant role in the current affairs of energy geopolitics.

Transporting energy may be an issue of supply and demand, but essentially it is determined by geopolitical concerns. Within the context of new energy geopolitics, the routes of pipelines have become the subject of geopolitical competition for power, influence, and for economic advantage (Kandiyoti 2008: 13). For instance, the control over the pipelines and resources has made Russia an energy superpower. By reducing, the gas flows and investing in pipeline infrastructure in the former Soviet republics, Russia has been able to exert power on its near abroad. In a similar way, the power play between Iran and the United States in the Middle East also focuses on pipeline politics. The United States' insistence on excluding Iran from every possible pipeline project including Nabucco, which is projected to carry Central Asian gas to Europe, and its objections to the Iran-Pakistan-India route, reflect America's strategy to isolate Iran in the region (Coskun and Carlson, 2010: 208). In this context, the move towards a multi centered energy geopolitical order where Russia and China, as energy superpowers, rival the United States and the EU.

International Energy Market and Its Challenges

The world's energy future is increasingly becoming unsustainable and energy supply is required to meet the world's growing demand tends to become highly volatile to failure arising from underinvestment, environmental catastrophe or sudden supply

disruptions (Copper 2007: 12). There are certain global reserves, production and consumption of natural resources like oil, gas and coal. These fossil fuels play very important role in the international energy market.

Global Reserves

Oil The total worldwide proven oil reserves at the end of 2005 were estimated at 1,200.7 billion barrels, of which 902.4 are located in OPEC (Organization of Petroleum Exporting Countries) countries and 298.3 in non-OPEC countries. OPEC thus holds 75% of the global proven oil stock (BP, 2006: 6). Table 1 shows that 14 countries which together account for 90 percent of the total global proven oil reserves. The top five countries hold most two-thirds of the global proven oil reserves, all of which are OPEC members.

Natural Gas At the end of 2005 worldwide proven natural gas reserves totaled 6348.1 trillion cubic feet. The Middle East and Eurasia together hold almost three quarters of total proven natural gas reserves. The largest reserves of natural gas are found in the Russian Federation, Iran and Qatar. With current reserves and economic conditions natural gas reserves are expected to last another 66 years (OGJ 2005: 24-25).

Coal The total coal reserves in 2005 were estimated at 909,064 million tones. At current consumption levels these reserves are expected to last another 155 years. Although recoverable coal reserves are dispersed over more than 70 countries, two-thirds of worldwide reserves are located in only four countries: US 27%, Russia 17%, China 13%, India 10% (BP 2006: 32).

Global Production

Oil The countries of Saudi Arabia and Iran hold large proven oil reserves of 22 per cent and 11.5 per cent of total worldwide oil stock respectively however, their share in global production is limited to 13.5 per cent and 5.1 per cent. On the contrary, Russia, the US and China are responsible for respectively 12.1 per cent, 8 per cent and 4.7 percent of global oil production while holding 6.2 per cent, 2.4 per cent and 1.3 per cent of worldwide oil reserves (Ibid: 6-8).

Table: 1

Global Oil Reserves and Production in 2005

Country	Reserves(bb)	Share of world total in (%)	Production (mb/d)	Share of world total in (%)
Saudi Arabia	264.2	22	11	13.5
Iran	137.5	11.5	4	5.1
Iraq	115	9.6	1.8	2.3
Kuwait	101.5	8.5	2.6	3.3
UAE	97.8	8.1	2.8	3.3
Venezuela	79.7	6.6	3	4
Russia	74.4	6.2	9.6	12.1
Kazakhstan	39.6	3.3	1.4	1.6
Nigeria	35.9	3	2.6	3.2
United States	29.3	2.4	6.8	8
Canada	16.5	1.4	3	3.7
China	16	1.3	3.6	4.7
EU-25	6.9	0.6	2.5	3
OPEC	902.4	75.2	33.8	41.7
Non-OPEC	175.4	14.6	47.3	58.3
Total World	**1200.7**	**100**	**81.1**	**100**

(Source: BP 2006: 6-8 & Energy Charting Tool)

Natural Gas The production pattern for natural gas is similar to oil. In 2003, the Middle East and non-OECD Europe and Eurasia accounted for nearly three quarters of worldwide natural gas reserves yet only held 39 per cent of global production. In the same year, the OECD countries accounted for 52 per cent of natural gas consumption and 41 per cent of production (Copper 2007: 15).

Coal Since coal reserves are widely spread than either oil or gas, production is often limited to national boundaries. Most countries that consume significant amounts of coal hold their own domestic coal reserves. As a result, trade in coal trends to be small relative to worldwide coal consumption (Ibid: 16).

Global Consumption

Oil is the dominant energy source and its emphasis is given in the industry and transportation sectors. However, rising oil prices could jeopardize this leading position as alternative, cleaner and more competitive resources are sought. In 2005 worldwide oil consumption lay at 82 mb/d (BP 2006: 11). The massive oil

consumption is concentrated in three areas namely North America, Asia Pacific and Europe and Eurasia. According to the BP Statistical Review of World Energy consumption, (2006) of oil in North America in 2005 reached 24.9 mb/d followed by the Asia Pacific and Europe and Eurasian regions, consuming on average 24.0 mb/d and 20.4 mb/d respectively. World oil consumption is expected to grow 98 million barrels a day in 2015 to 118 million barrels a day in 2030.

Natural Gas In 2005, global natural gas consumption stood at 97 trillion cubic feet (tcf) and is expected almost double to 182 tcf in 2030. Natural gas has several advantages over other fossil fuels. The share of natural gas as a per cent to total energy consumption is expected to increase from 24 per cent in 2003 to 26 per cent in 2030 (EIA 2006). Worldwide natural gas consumption is concentrated in North America and Europe and Eurasia. In 2005 these regions were responsible for 28.2% and 40% of the total share of global gas demand respectively. Consumption of natural gas was far lower in Pacific Asia (14.8%), the Middle East (9.1%), South & Central America (4.5%), and Africa (2.6%) (BP 2006: 27). The Organization for Economic Cooperation and Development (OECD) countries are considered mature gas consumers with well developed infrastructure and consumption patterns. Annually growth in gas consumption is projected to be on the low side. The two main gas consuming sectors are the industrial and electric power sectors. The total share of global natural gas consumption by these sectors in 2003 totaled 44 per cent and 31 per cent respectively.

Coal Coal consumption also shows a steady upward pattern. In 2003 coal accounted for 24 per cent of total energy consumption and this share is expected to increase annually by 3 per cent up to 2015. In 2030 coal is projected to fulfill 27 per cent of world energy demand. In 2003 the OECD countries were responsible for the consumption of 2.5 billion tons. Coal consumption in OECD Europe and Japan is expected to remain constant while a moderate rise in coal demand is expected for the other OECD countries. In 2003 the US was responsible for 91 per cent of coal demand in North America and 44 per cent in OECD countries as consumption totaled 1.1 billion tons. Projections are that US demand for coal will rise to 1.8 billion tons in 2030. In 2003 OECD Europe was responsible for 36 per cent of total coal use. The real rise in the demand for coal is expected to come from non-OECD countries as consumption is expected to raise by 140 demand per cent from 3 billion tons in 2003 to 7.1 billion tons in 2030 (Copper 2007: 19-20).

Challenges

The International Energy Outlook of the Energy Information Administration (2006) has calculated that world energy consumption will increase by staggering 71 per cent in the period 2003 to 2030. The world energy consumption is expected to grow despite the relative high world oil prices of $ 47 to $ 59 per barrel. There are two basic factors responsible for the rise in demand for natural resource: the growth in global population and the rise in world GDP (Gross Domestic Production) levels. Population growth affects the pattern and size of energy demand. The global energy demand has tended to rise broadly in line with GDP growth. An increase of 1 per cent in GDP expressed in terms of purchasing power parity (PPP) ever since the 1990s was trailed by an increase of 0.5 per cent in primary consumption (IEA, 2006: 58). The economies and developing and transition countries have enjoyed average rates of GDP growth. China's GDP grew by an impressive in 10 per cent both 2004 and 2005, while India experienced a growth of 8 per cent. These factors are inevitably what drive demand and supply induced scarcity in natural resources.

However, for more apparent understanding of geopolitics of energy in world scenario, we need to focus some relevant concepts that are linked with energy. In this regard, Willrich argues that energy is linked with security because energy security is an integral part of energy politics. Further, it also links with economy and environment. As a result, energy came into lime light in the international sphere which has been illustrated by the growing politicization of energy as consumers and resource owners that have realized the vital dependence of modern societies on abundant supplies (Willrich 1975).

Geopolitics of Energy in the Central Asian Context

Since the demise of the Soviet Union, Central Asia has emerged as a major player in the global energy market. The region holds substantial oil and gas reserves abundantly. The development of these energy resources and the determining of transit routes have been subject to intense competition among external powers, particularly Europe, Russia and China (Bahgat 2009). In this context, according to an Indian Scholar, Prof. Ajay Patnaik, argues that energy has emerged as the most important factor that is shaping the geopolitics of Central Asia. The significance of energy is not just for its value as a commodity in short supply in most parts of the world but due to

its role as an instrument to advance the strategic goals of global and regional powers in Central Asian region (Patnaik 2010: 322). The Central Asia is one of the oldest hydrocarbon producing areas in the world, which has attracted special attention from both oil and natural gas consuming nations and international companies. The three Caspian-littoral states, Azerbaijan, Kazakhstan and Turkmenistan, in particular, enjoy several advantages. Equally important, these three nations are strategically sandwiched between two major energy consuming regions - China to the east and Europe to the west. Both China and Europe lack sufficient indigenous energy sources and depend heavily on foreign supplies (Bahgat 2009). But from a geopolitical perspective, Central Asia is one of the most important regions of the world due to its impact over great powers. In fact, in international geopolitics, Central Asia forms 'the intermediate zone' between the great powers, even though Russia maintains special relations with countries in this region (Huasheng 2009: 475).

The Central Asia region is also central to the relations of the three big powers the United States, Russia, and China. It is also regarded as a natural platform which connects China, Russia, and India. The region emerged as a nerve centre of geopolitics that has the capability to attract and alternately affect the influence of the 'great powers'. From a security perspective, Central Asia does not pose a threat to China. The only threats from the region to China that cannot be categorized as 'non-traditional threats' are those of terrorism, separatism, and extremism. The strategic choices China faces with regard to the region include the need for strategic security positioning (e.g., settling all boundary disputes), strategic partnerships (bilateral and multilateral, like the Shanghai Cooperation Organization (SCO), and strategic structure (mechanisms of cooperation, e.g., joint exercises, counter-terrorism cooperation (Ibid: 476).

Geopolitics has always had a global dimension even since the time of H.J. Mackinder. In the current context, understanding of a region like Central Asia would be incomplete without comprehending the global military and political transformations that are taking place (Kozhokin 2009: 478). Now, Central Asia is recognized as a geopolitical entity, attracted the attention of the great powers soon after the break-up of the Soviet Union. According to Ali Banuazizi and Myron Weiner, one of the prime reasons for studying Central Asia within a geopolitical framework is

'the way in which each republic defines its own identity – separately from, or in common, with one or more of its neighbours, or its co-ethnics in the neighboring countries have significant ramifications for the geopolitics of the entire region (Banuazizi & Weiner 1994: 11). However, it is obvious that the Central Asian states cannot be fully independent and sovereign, unless they become an integrated, independent, and sovereign region. Such a 'project', if realized, is objectively in the interests of the great powers, including Russia whose current policy towards Central Asia contains some remnants of its neo-imperial ambitions and overlooks the long-term advantages of a united Central Asia. Therefore, how the external actors approach towards the unified project can be an indication of their larger intention. It can equally be a measurement of their transition from one of imperial geopolitics to a democratic one.

Central Asia is also both a potential source of energy supply for Europe and a resource base for Russia to meet its European commitments; and a 'battle' of the pipelines continues. American pressures will remain strong, but with uneven European support. China is also looking for further involvement in Central Asian developments (Harris 2010: 177). Another significance of this region is the great Silk Road which highlighted the importance of the region accentuating its great geographical advantage of being at the crossroads of East-West trade links.

Today, the very function of the route is changing. There are two relevant factors which contribute to this changing dynamics: globalisation and geopolitical accessibility to the 'heartland'. As a result, the Great Silk Road has turned into the 'Great Energy Road'. Thus, the desire of the great powers for accessing to this part of the world or to become part of the 'great game[2]' has always been irresistible. Therefore, Central Asia will remain the focus of great power politics for a long period. Soon after independence, Central Asian countries found themselves at the forefront of fighting international terrorism, drug-trafficking, religious extremism, regional conflicts, and so on. Apart from its resource richness, terrorism has drawn the region to the vortex of international security and therefore the region's role becomes critical and central to peace and stability (Tolipov 2010: 107).

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[2] The term "Great Game" is attributed by Arthur Conolly, an intelligence officer of the British East India Company. It is a British term which was seen by the British to be strategic rivalry and conflict between the British and the Russian Empire for supremacy in Central Asia (Kurecic 2010).

According to Tolipov, by looking at the above scenarios, the future status of Central Asian countries, one can induce the following: Central Asian countries should assume their own responsibility for the fate of their region which is now occupied by two (if not more) clusters. Emergence of this responsibility is a product of independence and this idea can be taken as some modification of Mackinder's theory, i.e. the control over this key region of the world is no longer maintained by one single superpower alone (Ibid).

Summary

This chapter encapsulates the broad theoretical framework of geopolitics of energy which is highlighted by looking at energy from world perspective as well as from Central Asian context. Geopolitics of energy illustrates the intersection of energy, security and international politics among nations. Its aim is to comprehend how energy demand and supply shape international politics and vice versa. Geopolitics of energy is comprehended by certain important theories like Realism, Liberalism, Marxism and Long cycle theory. Realism accentuated on power politics by accumulating more energy a country can be powerful. Liberalism puts emphasis on agency and the trans-formative potential of the various identified intervening variables like transparency measures, legal frameworks and norms, regulatory and market measures, and the role of regional and international institutions. Marxism accentuates the structure over agency, with particular attention on the geopolitical distribution of power and the geographical location of resources. Lastly, Long Cycle theory provides an energy hegemon in each cycle with two challengers. For example in 20th century, USA is the energy hegemon and Russia and China are two challengers. Geopolitics of energy in world scenario is very complex which is dominated by five major players like USA, the EU, developing world, energy producers including companies and countries and anti-status-quo and regulative non-state actors etc. Along with this, the declining of oil production, energy security, environmental restraints and new forms and uses of energy have become hot issues in the energy sector. In Central Asian context, geopolitics of energy is highlighted by the involvement of external powers like Russia, US, China, EU, India, Pakistan, Turkey for accessing large amount of energy resources from this volatile region.

CHAPTER 2

Central Asian Energy Resources: Efficiency and Potentiality

Introduction

Energy is the most abundant and valuable natural resource of Central Asia which embroils oil, gas, coal, electricity and other renewable resources. Central Asia encompasses a vast territory in the middle of the Eurasian landmass, totaling more than 1.5 square miles. The entire region is landlocked and has no navigable rivers because of harsh geographic features (Stratfor 2009). It is a region which is known for its natural resources, particularly oil and gas and that is the predominant fuel in the region. The present regional energy situation in Central Asia does not possess a large share of the world's energy resources. One vital question is raised by Johnson, what makes Central Asian States energy more relevant?, Is their proximity to the energy hunger great powers or about them and the relative significance of energy revenues of this region themselves (Johnson 2009).

Broadly speaking, the states of Central Asia are divided in energy terms, between the haves and have-nots. The former groups are comprised of Uzbekistan, Turkmenistan and Kazakhstan, the latter of Kyrgyzstan and Tajikistan. Kazakhstan has large reserves of oil and coal, Uzbekistan has huge reserves of gas, the Kyrgyz Republic Produces large amounts of hydroelectric power. These energy reserves form a basis for economic growth and development, with energy exports promising to generate foreign exchange revenues. Central Asia is, in fact, poised to become a major world supplier of energy, especially in the oil and gas sectors. For developing and restructuring the energy sector in Central Asia, we need to focus on two core issues: one is overcoming periodic energy shortages; and other is reducing dependencies on unreliable sources of energy (Dorian 1999). All governments in the sub-region are seeking to develop new international markets that provide stable supplies of foreign exchange as they internationalize and develop ties with neighboring countries in the West and with their neighbors.

Central Asia is a producer country on the international energy scene, which has certain fundamental Characteristics: first, they are territories whose subsoil holds significant reserves of hydrocarbons, secondly; most of these reserves are extracted for export, and lastly; internally, they have a rentier component (Mane and Camara 2005: 49-76).

Primary Energy Demand Outlook in Central Asia

Central Asia represents one of the world's last great frontiers for geological survey and analysis, offering opportunities for the discovery, production, transportation, and refining of enormous quantities of oil and gas and other energy resources. It is rich both in oil and gas sector (Dorian 2006: 544). In this context, Turkmenistan and Uzbekistan are known for gas, while Kazakhstan is known for oil. The primary energy demand in Central Asia and Caucasus consisting of Kazakhstan, Turkmenistan, Uzbekistan and Azerbaijan is projected to increase from 134.1 MTOE (Million Tons Of Energy) in 2005 to 215.4 MTOE in 2030, growing at an annual rate of 1.9% in contrast to a decline (at an annual rate of 0.8% experienced after the collapse of the former Soviet Union. In natural gas, it will increase from 76.6 MTOE in 2005 to 126.9 MTOE in 2030 growing at 2.0% per year through 2030. Coal will escalate relatively slow at an annual rate of 1.6% through from 29.2 MTOE in 2005 TO 43.5 MTOE in 2030. Kazakhstan is the main consumer of coal among Central Asian states. Further oil will increase from 25.7 MTOE in 2005 to 43.1 MTOE in 2030, growing 2.1% per year a faster pace than that of total primary energy demand at 1.9% through 2030 in order to fulfill both freight and passenger transport needs as a result of economic development. However, production of fossil fuels (coal, oil and natural gas) in Central Asia and Caucasus will altogether more than double between 2005 to 2030, with oil accounting for nearly 60% of increases in fossil fuels production, followed by natural gas at 37% and coal at 3%. Therefore to meet the energy demand and production, Central Asia will require between $269 billion and $384 billion of investment (Doi and Matsumoto 2010: 5-6).

Table: 2

Primary Energy Demand in Central Asia and Caucasus* by Energy (1990-2030)

	Primary Energy Demand (MTOE)					Annual Growth Rates	
	1990	2000	2005	2015	2030	1990-2005	2005-2030
Total	165.7	118.6	134.1	170.1	215.4	-0.8%	1.9%
Coal	43.7	24.6	29.2	36.7	43.5	-1.6%	1.6%
Oil	50.2	26.0	25.7	33.1	43.1	-2.6%	2.1%
Natural Gas	69.7	66.3	77.6	98.6	126.9	0.4%	2.0%
Hydro	1.3	1.3	1.5	1.6	1.8	0.4%	0.8%
Nuclear	-	-	-	-	-	-	-
Electricity Import/Export	0.86	0.42	0.11	0.10	0.14	-7.8%	0.8%

*Azerbaijan, Kazakhstan, Turkmenistan and Uzbekistan

(Source: Asian Development Bank (2009), *Energy Outlook for Asia and the Pacific*)

2.3 An Overview of Energy Resources in all Central Asian Republics

The Central Asian states consist of five sovereign countries of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. They are endowed with abundant natural resources and energy resources, in which Kazakhstan and Uzbekistan have great hydrocarbon reserves, specifically oil and gas, and Kyrgyzstan and Tajikistan have vast water resources for producing cheap electricity and good potential for renewable energy development. The resource rich Central Asia region is located at the cross-roads between the near and Middle East, South Asia, China and Russia and has also the direct proximity to the energy hungry countries which represents the geo-strategic significance of this region. It is a well known fact that Central Asian Region (CAR) has huge energy potential (Rakhmatulina 2004: 198). The Central Asian countries are very affluent in all kinds of fossil fuel resources, especially primary energy bearers, and renewable energy resources. Large deposits of

primary energy resources and renewable energy resources constitute a solid base for the structural readjustments of industry. These reserves also serve as a stimulus for economic growth; for investment in projects related to hydrocarbon-based fuels; and for generation and transmission of electricity (Khursid 1996: 135). However, outside assistance is needed to create an infrastructure to facilitate production and transport of these products to international markets.

Kazakhstan

The State Development Program of the Kazakhstan Sector of the Caspian Sea (KSCS) bodes well for increasing the volumes of hydrocarbon production in the republic. Kazakhstan's oil reserves are estimated at 9 and billion barrels (Kandiyoti 2008). Oil is the most valuable traded commodity in the world; billions of dollar worth is traded globally every day. As such, it serves as the economic foundation of many countries. Yet in Central Asia, oil can be said to be only the second most important resource. But in Kazakhstan, Oil is in the list of the ten largest countries of the world that possess excessive energy and mineral resources. It shares a unique relationship with the former Soviet Union because of its geographical border, large Russian population, and extensive integration into the former Soviet military-industrial complex, particularly the space program. Kazakhstan is the main producer of oil in the region, with current output of crude at 1,106,000 barrels per day (b/d). The country has proven oil reserves of 9 billion barrels, or 1.2 billion metric tons (Dorian, 1999: 29-30).

The main hydrocarbon reserve base is concentrated in western Kazakhstan's Guryev, Mangistau, Uralsk and Aktubinsk regions. There are four main oil fields in Kazakhstan: Tengiz, Uzen, Karachaganak, and Kashagan. The Kashagan field has received much recent attention after preliminary drilling and exploration; however, the project has been delayed due to complicated natural and geological conditions and estimated development costs of $29 billion dollars. Kazakhstan also has sixty five to one hundred trillion cubic feet (Tcf) of natural gas reserves associated with its oil production. However, the pipeline infrastructure for moving the gas is lacking and some of the gas is being flared. The main area for current natural gas production is the Karachaganak field in northwest Kazakhstan, which contains more than twenty percent of Kazakhstan‘s total reserves. Kazakhstan is also planning to develop the Amangeldy field with an estimated gas reserve of 1.8 Tcf in the southern part of the country (Azarkan 2010: 408).

Kazakhstan has two distinct gas distribution networks – one in the west which serves the nation's producing natural gas fields, and one in the south which primarily delivers imported natural gas to the southern consuming regions (Energy Information Administration 2004). Besides these resources, this country also holds coal which is located in Northern and Central Kazakhstan. These are Ekibastuz lignite, Karaganda and Shubarkol basins that hold 77% of coal reserves of the country. Coal accounts for over 80% of energy consumption in the republic, while natural gas and mazut account for only 12−13% (Kasymova 2008)

Uzbekistan

Uzbekistan is one of the former Soviet republics that increased oil output continuously since independence. It has abundant oil and gas resources, with 60 per cent of the country's land area showing oil and gas potential. Moreover, Uzbekistan holds unique reserves of fuel and energy resources with more than 60% of the territory, holding promise for oil and gas exploration. There are five main oil and gas areas in the region: Usturtsky, Buharo-Hivinsky, South-West Gissarsky, Surhandaryinskyi and Ferganskyi, wherever 160 per cent deposits of oil and gas condensate have been explored with a total potential reserve of some 5780 million tons. Explored oil reserves are estimated at 350 million tons. Natural gas reserves are estimated at about 5 trillion cubic meters, or 1.3% of world reserves. Uzbekistan holds the second place in the region in terms of natural gas reserves and first place, in terms of natural gas production (Dorian 2006).

Currently, Uzbekistan possesses 594 million barrels of proven oil reserves, which is soon expected to increase, and estimated natural gas reserves of 66.2 Tcf. There are 171 oil and gas fields accounting for about seventy percent of Uzbekistan‘s oil production. Most of these are located in the Bukhara -Kiva region (Azarkan 2010: 409). In terms of coal reserves, Uzbekistan is second in the region. It is located at three deposits − Angrensky, Shargynsky, and Baisunsky. Uzbekistan has also explored a number of other deposits, including Terekly in Kashkadaryinskaya oblast (province) with industrial reserves of 50 million tons. Uzbekistan's coal reserves are estimates at over 3 billion tons, 1.9 billion tons of which are explored, including 1.853 billion tons of lignite and 0.047 billion tons of coal (Kasymova 2008).

Turkmenistan

Turkmenistan, an important gas and oil producing republic of Central Asia (CA) plays critical role in future world energy markets. It ranks 11th in the world reserves of gas, above Iraq. Gas production in Turkmenistan has grown more than 25 per cent from 2000 (Dorian, 2002: 20-27). However, Turkmenistan holds the first place in the CA region in terms of explored natural gas reserves that are estimated at over 2.8 trillion cubic meters. Explored oil reserves amount to more than 75 million tons. Largest deposits are located on the shelf of Turkmen sector of the Caspian Sea (they include Barsa-Gelmes, Kotur-Tepe and other) which account for about 80% of oil production in the republic. Thus, Turkmenistan's energy sector relies on thermal power plants that run on gas and mazut (Kasymova 2008).

Kyrgyzstan

Unlike some Central Asian countries, Kyrgyzstan produces only small quantities of oil but it generates huge amount of hydroelectric energy due to ample resources of water. So, Kyrgyzstan‘s plenty of fresh water reserves makes it one of the richest states in the world along with other natural resources. Kyrgyzstan's total flow of water resources comprise approximately fifty one billion cubic meters per year. The Kyrgyz energy system has eighteen power plants over the Naryn and Syr Darya rivers with a total installed capacity of 3,678 megawatts (MW). Completion of the construction of the Kambaratin Hydroelectric Power Plants 1 and 2 would increase generating capacity by 2,260 MW and the volume of annual generation of electricity by more than six billion kilowatt hours (KWh) (Sakiev 2006). Further coal is also concentrated mostly in remote mountainous areas difficult to access, which makes their exploration commercially unattractive compared to other energy resources.

Tajikistan

Tajikistan is also another significant country in Central Asia which is rich in water resources and holds the 8th highest concentration of hydro power resources in the world. It also possesses certain amount of oil and gas reserves, i.e., essential for the development of the region. Tajikistan has the potential to produce more than 300 billion KWh electricity per year; it currently produces only 17.1 billion KWh. The majority of Tajikistan‘s hydroelectric energy is produced by the hydroelectric stations on the Vakhsh River, with a total capacity of about 3,800 MW, producing fourteen

billion KWh annually. The largest of these is the Norak hydroelectric facility, which is rated at 3,000 MW. An even larger facility at Rogun, expected to be 335 meters high and the tallest dam in the world, is under construction and will have a capacity of 3,600 MW. Construction of Rogun began in 1976, and by 1996 over $802 million had been invested. Completions of Rogun will require an additional $2.2 billion (Zarifi 2007). Besides these resources, coal is concentrated mostly in remote mountainous areas difficult to access, which makes their exploration commercially unattractive compared to other energy resources. Further, Tajikistan has great potential for a tourism industry; with its geographical terrain, suitable for climbing and ecological tourism, and its ancient structures lending itself to historical and archaeological tourism.

Energy Efficiency and Potential in Central Asia

Energy efficiency[3] and potential in the energy sector play an important role not merely in terms of effective use of energy resources but also in terms of sustainable economic growth. Energy efficiency and sustainable economic growth are mutually related and interdependent processes. Energy efficiency and its conservation are extremely important factors for the economic development of Central Asian (CA) countries mainly in the transition period, due to the following reasons:

- All CA countries hold great energy conservation potential estimated at 35-40% of energy consumption. Realization of this potential should become the focus of energy policy in each state because analysis of sustainable energy use indicators shows that current energy policies and energy development strategies in CA countries are unsustainable in the long-run.

- Prices for energy resources in CA countries are still below prime cost, which discourages energy conservation and greater energy efficiency, and creates additional demand. As a result energy companies invest in building capacities that are not of high need.

- Environmental situation is worsening. The CO2 emissions are on the rise and further development of the fuel-energy complex will aggravate the situation

[3] Energy efficiency sometimes called efficient energy use is using less energy to provide the same level of performance, comfort and convenience. (www.myenergysolution.com/home-energy-basics/energy-efficiency.html.)

According to International Energy Agency, there was a reduction in energy resources of all CA countries due to slow economic growth, electricity cut-offs for unpaid bills, as well as lack of fuel due to violation of intergovernmental energy connections, and not related to energy conservation policies or increased efficiency in energy use.

Energy conservation policies of Central Asian States

In Kazakhstan, the objectives of the energy policy are presented by a number of policy documents and strategies. One of the most important documents is "Kazakhstan's Development Strategy - 2030" which focuses not only on development of the energy sector as such but also on energy efficiency and conservation (Secretariat of the Energy Charter. September, 2007). In March 2004, the Government established the Sustainable Development Council to address issues of interdepartmental coordination and inter-sector integration in the field of energy efficiency, reduction of emissions, and addressing social and economic problems. Energy

Efficiency and Energy Conservation is among nine priority directions of Council activities. The driving forces of energy efficiency in the conditions of the market economy include the need to maintain competitiveness of industrial production and the need to rationally use available energy, finance, and other resources. The Energy Conservation Program for 2005-2015 (formulated in 2004) provisioned the establishment of energy conservation systems (2005-2007), management structure for energy conservation on national and regional levels with the creation of a special state agency, centers and funds. Among other things, the Program provisioned: i) review of energy efficiency of energy intensive enterprises (in each industry and region); ii) measures to ensure accurate measurement of released and consumed energy resources, iii) technical upgrading of existing energy facilities; and iv) rational use of energy through introduction of energy conservation technologies in different economic sectors, taking into account international practice (Kasymova 2008).

In Kyrgyzstan, no separate program on energy efficiency and conservation was developed at the national level in the Kyrgyz Republic. In 1995-1996, TACIS developed a project on energy efficiency of buildings. The World Bank financed

"Rehabilitation of Bishkek City Heat Supply System". Later on, the Special Program for Economies of Central Asia (SPECA) program implemented demo projects on energy efficiency of buildings. In 2001, the Asian Development Bank approved the PREGA regional project of US$180,000. The objectives of the PREGA project included attraction of investments into development of renewable energy resources and technologies for energy conservation and reduction of emissions, formulating policies and institutional framework for energy conservation that would promote the spread of REGA technologies, and development of financial models for attraction of investments. The State Inspection on Energy and Gas under the Ministry of Industry, Energy, and Fuel Resources of the Kyrgyz Republic is the authorized state body in the field of energy conservation. The Inspection is mandated to ensure implementation of state interests related to increased energy efficiency in the course of producing, transporting, and distributing electricity, heat, and natural gas, as well as reduced losses of fuel and energy at the stage of consumption. An audit of industrial enterprises revealed significant opportunities for reduced energy consumption during the manufacturing process (Kasymova 2008).

In Tajikistan, energy efficiency and energy conservation policies are among the energy sector's top priorities. No separate Energy Conservation and Efficiency Programs were developed in the country. However, the 1996 the Law on Energy Conservation is the basis of the energy conservation policy. One of the functions of the State Energy Supervision Agency is to supervise observance of established standards, norms and rules during production, transportation, processing, transformation, storage, and consumption of fuel and energy resources by individuals and legal entities, and the operation of energy facilities and installations. The possible effect from energy conservation measures in Tajikistan is estimated at 40-50 million US$ a year with realization of the energy conservation potential of 2 million tons of conventional fuel (Ibid).

In Turkmenistan, it did not develop a National Strategy on Energy Efficiency or Law on Energy Conservation. There is no individual state agency dealing with energy conservation. The Ministry of Energy and Industry is responsible for carrying out energy policy. In Uzbekistan, the main elements of the energy conservation policy

identified in the NECA (National Energy Conservation Program) document include: increased efficiency and modernization of existing technological equipment and machinery, reduction of energy losses during production, transportation, and use of fuel and energy resources; introduction of modern energy consumption schemes; installation of energy metering and regulating devices; exploration of renewable energy resources and others.

According to some estimates, energy conservation potential amounts to 22.8 million tons of oil equivalent, of which 11.3 million are expected to be conserved in the framework of the mentioned program along with halving energy intensity of GDP. The Law on Rational Use of Energy (1998) aimed to stimulate development and introduction of energy effective technologies in production, distribution and consumption of heat and electric energy. The law gave the Government power to introduce special energy consumption modes and license various types of audits and inspections of energy companies (Secretariat of the Energy Charter. September, 2007). Energy conservation is an important part of Uzbekistan's energy policy. The objectives and tasks of the program are being carried out along with the overall reform of the country's energy system. According to Kasymova, an independent body, the State Electricity Supervision Agency, was established to promote energy conservation policies which are as follows:

- Formulation, approval, and control over execution of normative documents and rules in the areas of electricity production, transportation, and consumption;
- Organizing development and control over implementation of preventive measures aimed at ensuring safety during electricity production, transportation, and consumption;
- Participation in assessment of projects and commissioning into operation of new facilities to ensure safety during electricity production, transportation, and consumption;
- Organizing licensing of electric energy production at electric power plants that are to be connected to the single electric system (Kasymova 2008).

Problems involved in energy conservation policies of CA states

- Economic problems are caused by lack of investments both from the state and consumers; lack of private-public partnership mechanisms in the field of energy conservation; high interest rates; low paying capacity of consumers, and weak economic stimulation of energy conservation measures. In addition to this, there is a lack of i) best practices tested in other countries, ii) schemes of financial investment into energy conservation, such as leasing, financing by third parties, and energy conservation bonds that could attract external investments.

- Science and technology-related problems include meager financing of research & Development (R&D) on energy conservation, poor mechanisms for introduction of scientific and technological achievements into practice.

- Legal- majority of energy conservation laws are of indirect action, requiring adoption of significant number of secondary legislation. Few progressive standards on energy efficiency are introduced; there is a lack of systemic approach to formulation of legal acts, organization of accounting and control over use of fuel and energy resources.

- Institutional problems are caused by inflexible administrative approaches to energy conservation management, insufficient authority or lack of authorized state body responsible for pushing through the energy conservation policy.

- Information - lack of access to databases and insufficient use of information services by energy consulting and energy auditing companies, as well as producers of energy conservation equipment. Lack of large-scale information campaigns aimed at building public awareness of the advantages of rational use of energy resources and negative consequences of wasteful energy consumption and theft.

- Lack of agreement on establishment of a single regional energy market, insufficient liberalization of access to such a market for economic entities (Ibid).

In spite of these, energy conservation policies of CA states are directly linked to the development of various economic sectors, including structural transformation of the manufacturing sector. In general, the implementation of energy efficiency policy requires formulation of a long-term energy conservation strategy with the help of strategic planning and management tools. The strategy must include the main goals, sub-goals, tasks, and a clear action plan that would provide all interested parties with a transparent long-term basis for understanding and participation.

Barriers on the way to Energy Efficiency and Conservation

There are certain barriers on the way to energy efficiency and conservation are institutional, legal, economic, scientific-technical, information and market related (Ibid).

Institutional barriers

- Lack of governance powers, and in some CA states - lack of an authorized government body responsible for formulating and monitoring the implementation of national energy conservation policy;

- Pricing energy is under the influence of administrative decisions rather than economic factors.

Legal barriers

- Inadequate legal framework for energy conservation policy: energy conservation legislation that has been adopted by most CA states is of an indirect nature and requires development of a multitude of by-laws (secondary legislation) for its implementation;

- Limited development and introduction of new energy efficiency standards for energy consuming equipment and devices, insufficient revision of existing standards and control over their observance;

- Lack of systematic development and correction of State Standards (COST), SNIP (construction norms and specifications) and other legal acts that must ensure adequate quality in implementing energy efficiency projects;

- Ineffective control over consumption of fuel and energy resources.

Financial and economic barriers are related to lack of investments on the part of the state and consumers, and at the same time, with weak economic stimulation of energy conservation. Barriers include:

- Low level of tariffs on electric and heat energy that do not cover production, delivery, and distribution costs;
- Lack of capital for reinvestment and lack of working capital;
- Lack of investments, including external, and high interest rates on bank loans;
- High cost of building up capital due to high interest rates (investment pay-back period for energy saving projects is too long);
- Non-payments for consumed energy that lead to a lack of fuel for power plants, deficit of thermal and electric energy and prevent development of the energy market. Low paying capacity of consumers.

Scientific-technical barriers

- Reduced scale of R&D on energy conservation due to insufficient funding;
- Insufficient introduction of R&D achievements into production;

Information barriers

Most information barriers are related to insufficient provision of energy consumers and managers responsible for making strategic investment decisions in the energy sector with information on opportunities and benefits of energy conservation, and the availability of modern energy-saving technologies. Barriers also include:

- Limited use of Internet technologies to search for companies that produce energy saving equipment, provide consultations and audit energy facilities;
- Poor education on energy conservation: most of educational programs don't properly cover energy conservation issues;
- Insufficient use of mass media in promoting benefits from energy conservation for different categories of consumers;

- Limited awareness and impact of energy efficiency markings on energy-consuming equipment and devices on purchasing preference of consumers.

Market barriers

- Lack of experience in market research, business planning, and project management in energy conservation;

- Actual cost of irrational use of energy is covered by the society rather than by enterprises with excessive use of energy resources;

- Costs related to pollution of the environment and clean-up of waste generated during production, transfer, or consumption of energy are not covered by enterprises that contributed to such pollution;

- Excessive energy consumption is covered not only by consumers (through payment of energy bills) but also by the society (through purchases of extra energy resources);

- Economic success of energy companies depends solely on increased sales of energy. Energy companies practically do not consider the possibility of reducing expenses by means of programs that manage consumer demand for energy.

Thus, barriers to energy conservation that exist in CA countries to prevent any major progress towards energy efficiency of their economies. That is why it is important to identify priority directions and measures that could help overcome such barriers.

Basis and indicators of energy efficiency and energy conservation

Current inefficiency of Central Asian economies in terms of energy use and insufficient coverage of energy needs can be explained by a number of reasons and flaws:

- Absence of a holistic system of mutually related indices on energy conservation covering all levels of manufacturing and service sectors;

- Absence of indices for comparative evaluation of savings for various types of resources, i.e., there are no criteria as to what should be saved first of all;

- At the macroeconomic level, there is no balanced accounting and generalization of indices between various areas of the manufacturing sector;

- At the sector level, no calculations are made of energy intensity of output, its reduction and degree of satisfying growing need for energy resources through energy savings;

- Only reduction of the average energy norms for output is set as a target, with complete exclusion of a structural factor between products and branches; statistical reporting covers only part of the production process – product and technological levels;

- Energy saving from energy conservation measures is not the only way to save energy resources in material production.

Taking into account all significant energy conservation potential of almost all CA states demand for energy should be determined at the state level through planning energy intensity of the Gross Domestic Product (GDP). In other words, the threshold of energy conservation should be set based on possibilities of resource provision and development of energy sub sectors, energy imports and exports (Ibid).

Innovative measures on promotion of energy efficiency and conservation

There are some suggested measures on promotion of energy efficiency and conservation which are as follow as:

- Development and introduction of innovative energy conservation technologies and equipment through the implementation of a joint R&D Action Plan of European Asian Economic Community (EurAsEC) member- states;

- Study of international achievements in the field of innovative technologies and management in production, transportation, and consumption of fuel and energy resources. In the sector of electric energy the focus should be on strengthening the interaction between two energy systems.

- Ensuring operation of a unified electricity supply system as a reliable and sustainable foundation for industrial development of the domestic economy and international trade. The most important task in this area is to form a Single

Eurasian Electric Energy System.

- Promoting development of localized or Individual Energy and Solar Energy systems as the energy basis for a new information-oriented way of life for ordinary people, as well as small and medium businesses. Such systems provision a compact, energy effective and easily manageable technical means; standardization and autonomy of electricity supply to local facilities;

- Energy conservation should become the focus of long-term research. Harmonization of environmental requirements with economic efficiency of the energy sector will require unification of intellectual and commercial capacities of different countries and economic regions, which will also widen mutually beneficial trade and collaboration in this area.

- Development of progressive independent branches based on renewable energy resources. Above all - solar, wind power, localized (individual) power, and bio-gas. These should be made available through economically affordable technical means and in the near future could play a significant role in raising the share of clean energy in the energy balance of Central Asia (Kasymova 2008).

Problem of exporting energy resources from Central Asia

In terms of reserves of hydrocarbon raw materials, Central Asia is one of the richest regions of the world. Thus, the proven reserves of oil in three Central Asian republics–Kazakhstan, Turkmenistan, and Uzbekistan–amount to approximately 20 billion barrels, and the reserves of natural gas constitute 10 trillion cubic meters. In the Soviet era, the bulk of the oil and natural gas produced in this region was shipped northward to Russia (through the gas pipeline network “Central Asia-Center” and the oil pipeline “Atyrau-Samara”). However, once the Central Asian states acquired independence, they immediately faced an acute question about the choice of new routes to transport their raw materials. The urgency of this question resulted from the fact that, above all, the states of the region wanted to reduce their shipping dependence on Russia. It is no secret that Russia, exploiting its monopolistic right to transport oil and natural gas from Central Asia, rather often used this fact to put political pressure on the states in this region and to impose its own conditions during price negotiations. As a result, it was extremely urgent that the newly independent

states of Central Asia make an effort to gain direct access to prospective markets in Europe, South Asia, Southeast Asia, and the Far East. Moreover, this would also provide a powerful stimulus for them to increase their production of hydrocarbons and help attract foreign investment to the region. With the construction of new transportation routes, the states of Central Asia also sought to stabilize the political situation in the region. The transformation of these states into leading exporters of oil and natural gas would create a situation where the importers from South Asia and Europe would have an interest in strengthening stability and in maintaining guaranteed access to the hydrocarbon resources of Kazakhstan, Uzbekistan, and Turkmenistan. At the same time, it should be pointed out that the gradual increase of American influence in the region (which followed immediately after the events of 11 September 2001 and the beginning of the anti terrorist campaign in Afghanistan) has led to an increase of Western interest in the energy resources of Central Asia (Makhmudov 2002: 163-164). As a consequence, there has been the activation of plans to involve Kazakhstan in the Baku-Ceyhan pipeline project and a renewed interest in the idea of constructing a natural gas pipeline from Turkmenistan to Pakistan (through the territory of Afghanistan).

Conflict of Energy Interests among Central Asian States

The significance of Central Asia is known for its rich natural resources, particularly in oil and gas. But these resources are not allocated evenly throughout the region. Kazakhstan holds most of the oil, ranking 11th in the world with around 30 billion barrels of reserves. Being the richest country, Kazakhstan attracts foreign investment into its energy industry than by any former Soviet state. Uzbekistan and Turkmenistan have merely marginal oil supplies but both are extremely rich in natural gas, ranking top 20 in the world in terms of production and reserves. Both are mingled into the Soviet era infrastructure which transports their supplies throughout the region and to Russia and beyond, earning them generous revenues as well, with natural gas exports making up more than $4 billion, or 15 per cent of Uzbekistan's gross domestic product, and almost $12 billion, or 65 per cent of Turkmenistan's gross domestic product. The smaller states of Kyrgyzstan and Tajikistan have virtually no natural gas or oil to speak of and both countries exceedingly poor. They have only ample resources of water which get from the two largest rivers i.e., the Amu Darya and Syr Darya for producing hydroelectricity. Not merely they produce electricity for

domestic consumption but also they control much of the water supplies that flow to the other three Central Asian downstream countries (Stratfor 2009).

Nevertheless, due to this uneven distribution of natural resources, the Central Asian states must depend on each other to fulfill their energy and water needs. Uzbekistan supplies virtually all of Kyrgyzstan's and Tajikistan's natural gas, while the two upstream countries allow water to flow downstream to Uzbekistan. This interdependent relationship has created much disagreement among the Central Asian countries, particularly because there are not enough resources to meet the region's consumption levels, leading to pricing disputes and in many cases, like the depositing of resources. For instance, Uzbekistan temporarily cut off natural gas supplies to Tajikistan in September over the latter's instability to pay the $19 million debt of accrued natural gas bills. While natural gas exports travel via pipeline in a single direction from Uzbekistan to Kyrgyzstan and Tajikistan, electricity production and exports in the region are more complicated and diffuse (Ibid).

All of the countries produce a certain amount of their own electricity, but the countries production levels vary to the point where one country can export electricity in one year. Citing these circumstances, electricity flows have gone a number of different ways among the countries, depending on the situation. For example, to get natural gas supplies flowing again after the most recent Uzbekistan cutoff, Tajikistan agreed to repay a portion of those fees and supply Uzbekistan with electricity through the Unified Power System (UPS) in return for a break on its natural gas bill. But Kyrgyzstan and Tajikistan frequently ration electricity because they cannot produce enough, and they need to import some electricity from the bigger Central Asian countries. This situation has made antagonism between the two small Central Asian states.

Another significant event also happened among the Central Asian states which created vigorous conflict especially between Kyrgyzstan and Uzbekistan on energy issue. In this context, Uzbekistan opposed the construction of new hydroelectric plants in Kyrgyzstan and Tajikistan. If new plants were built, even more of the region's water supplies would be diverted for use in these plants and the fresh water supplies are crucial for agriculture in Uzbekistan would be diminished. Because around 90 per cent of the water from the two rivers are used to cultivate important

crops like cotton and also meet the population's water needs. Uzbekistan has an multiple occasions threatened retaliatory measures against Bishkek and Dushanbe if they build more plants. Moreover, Kyrgyzstan and Tajikistan's existing hydroelectric plants, reservoirs and transport canals are ailing from years of underinvestment in the Soviet era infrastructure. The efficiency of water use in the region is extremely low, approximately 70 per cent of the water used for irrigation is wasted or used unproductively. The problem has deepened due to Aral Sea because this is widely regarded as one of the worst modern ecological disasters between the 1960s and 2007. Though the Central Asian countries meet frequently to discuss their resource management problems, both bilaterally and at summits, they remain unable to deal with these issues or come to any sort of compromise or resolution. Without outside intervention, the region's resource development and distribution will continue to be endanger among the Central Asian states (Stratfor 2009).

Problem of energy cooperation among nations

The energy potential of the Central Asian states (CAs) is drawing the attention of investors from the largest nations of the world. Though the republic is a large producer of hydrocarbons, it needs to export to the world market for which it requires cooperation with CAS as well as international powers also. There are some factors responsible for the decline of cooperation between nations in the energy sphere which is as follows:

- The inefficient system of customs control of interstate electric energy cross-flows.
- Absence of single approaches to forming tariffs for the transit of electric energy.
- Lack of coordination in the use of fuel and energy and water resources.

However, the priority tasks in the economic development of the Central Asian countries are the expansion of integration cooperation in the energy industry and formation of a common electric power market (Rakhmatulina 2007: 9-10).

Strategy for Energy Development in Central Asia

The Central Asian countries have adopted certain strategies for the development of energy, which has been classified by three "S": they seek their Suckers 'Kazakhstan', Self Sufficiency 'Uzbekistan', and Strategy 'Turkmenistan' (Luong 1997: 1). For the energy development of Kazakhstan, it is engaged in the rapid privatization of state companies. Apart from this, Kazakhstan's strategy is to bring as many companies as possible in order to promote competition between them and to ensure that no one company dominates the development of its energy reserves. It is therefore eager to sign as many deals as possible. In addition, the government of Kazakhstan wants foreign companies win tenders to develop Kazakh energy reserves to solve problems related to exporting them. In contrast to Kazakhstan, Uzbekistan's primary goal is to be completely self-sufficient in energy so as to maintain both economic and political independence from Russia, who perceives to be its greatest competitor for influence in the region. As part of this strategy, Uzbekistan continues to rely on cotton exports in order to generate hard currency and to conserve its energy for present and future domestic use. Moreover, Uzbekistan has implemented a policy of domestic energy conservation as to keep open the possibility of acquiring revenue from selling reserves abroad and utilizing them in the same manner. Unlike Kazakhstan and Uzbekistan, the government of Turkmenistan primarily focuses on the development of natural gas. In this regard, Turkmenistan needs to think its approach including a greater role for foreign investment, which became more pressing as its economy suffered due to virtual halt in its gas exports and its hold over the population appeared increasingly volatile as a result For the export of natural gas, Turkmenistan had taken two major steps; first, it actively began to seek alternative pipeline routes for its gas to reach Western markets, including one Afghanistan to Pakistan and another through Iran to the Persian Gulf. Secondly, it resigned itself to the need to develop relations with foreign investors (Ibid: 2-3).

Summary

This Chapter highlights that Central Asia consists of five independent countries - Kazakhstan, Uzbekistan, Turkmenitstan, Kyrgyzstan and Tajikstan - which represent one of the world's last great frontiers for geological survey and analysis, offering opportunities for the discovery, production, transportation, and refining of enormous

quantities of oil and gas and other energy resources. It is rich both in oil and gas sector. In this context, Turkmenistan and Uzebekistan are especailly noted for gas resources and Kazakhstan is known for oil resources. Kyrgyzstan and Tajikstan have large resources of water for producing hydroelectric energy. Central Asian energy resources efficiency and potentiality play an imperative role in the world energy market. The effective use of energy resources of Central Asian region keeps the economic growth sustainable, for which they accepted certain energy conservation policy that helps them in their engagement with major powers of the world. Due to large resources of energy they need to export into the world market for which they face some predicaments. There are also some conflict potentialities among the Central Asian countries related to energy issues which are unsolved between them. To solve these problems, they need regional and international cooperation for the development of energy in the region.

CHAPTER 3

Contours of Energy Politics in Central Asia

Introduction

After the collapse of the Soviet Union in 1991, Central Asia came into being consist of five independent countries of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, grappling with huge amount of energy resources. The development of energy resources and determining transit routes have been subject to robust competition among external players, mainly Russia, China, U.S., EU, Turkey Japan, India, Pakistan and to some extent Ukraine. However, this chapter focuses mainly on the conflicting strategies prosecuted by Moscow, Beijing and Washington and how these powers would gain more by providing political stability and economic prosperity in Central Asia. In addition to it, there are some factors responsible for sustaining energy politics in the region. First, the significance of energy in the Central Asia region; secondly, the role of external players; thirdly, pipeline politics among major powers and the Central Asian states and finally, the development of energy in Central Asia through international cooperation. All these things are widely elaborated in this chapter.

Relevance of Energy in Central Asian Region

Energy plays a very predominant role in the Central Asia region due to massive resources of energy, particularly oil and gas. The Central Asia region is one of the oldest hydrocarbon producing areas in the world since Soviet fall in 1991. However, this region has drawn the attention of energy consuming nations and international companies from the perspective of oil and gas. (Bahgat 2011: 1). In terms of socio-economic stability, the region depicts a broader picture from the view point of resources and institutional base. Thus, Central Asian states are embodied with abundant natural resources comprising of oil, natural gas, coal and hydroelectricity and assuming an overwhelming political significance in the region. Nevertheless, on

the commencement of the 21st century, Central Asia especially- Kazakhstan, Uzbekistan and Turkmenistan emerged as a new center of energy reserves which are rich in oil and gas. Kazakhstan and Uzbekistan have large hydrocarbon reserves and Kyrgyzstan and Tajikistan have vast water resources for producing cheap electricity and good potential for renewable energy development. Therefore, outside assistance is required to create an infrastructure to facilitate production and transport of these products to international markets. However, Kazakhstan's oil reserves are estimated at 9 billion barrels (Kandiyoti 2008: 75-93).

There are four main oil fields in Kazakhstan: Tengiz, Uzen, Karachaganak and Kashagan. The Kashagan field has received much attention after preliminary drilling and exploration. Nonetheless, the project has been delayed due to complicated natural and geological conditions and estimated development costs $ 29 billion dollars. The main area for current natural gas production is the Karachaganak field in the northwest Kazakhstan, which contains more than 20 per cent of its total reserves. Kazakhstan is also planning to develop the Amangeldy field with an estimated gas reserve of 1.8 Tfc in the southern part of the country (Azarkan 2010: 408).

Another country Uzbekistan, the economic powerhouse of Central Asia became the third largest cotton producer in the world. It has immense potentiality of natural gas and is one of the 10 top natural gas producers in the world (Laxmi 2006: 178). Uzbekistan currently possesses 594 million barrels of proven oil resreves, which is soon expected to escalate and estimated natural gas reserves of 66.2 Tcf. There are 171 oil and gas fields accounting for about seventy per cent of Uzbekistan's oil production. Most of these are located in the Bukhara-Kiva region. The second richest region in hydrocarbon reserves is the Fargana Basin containing about 20 per cent of Uzbekistan's oil fields. There are also oil deposits being developed in southwestern Uzbekistan at Kokdumalak, Shurtan, Olan, Urgin, and south-Tandirchi. The Ustyurt plateau and the Aral Sea are also under investigation as potential oil fields (EIA 2009).

Kyrgyzstan's tremendous reserve of fresh water makes it one of the richest states in the world for such natural resources. Its total flow of water resources comprise approximately fifty one billion cubic meters per year. The Kyrgyz energy system has 18 power plants over the Taryn and Syr Darya rivers with a total installed

capacity of 3,678 megawatts (MW) and the completion of the construction of the Kambaratin Hydroelectric Power Plants 1 and 2 would increase generating capacity by 2,260 MW and the volume of annual generation of electricity by more than six billion kilowatt hours (KWh) (Sakiev 2006). In addition, it has mounted with coal and iron reserves besides largest proven gold reserves.

Tajikistan is also another vital region, rich in water resources and holds the 8th highest concentration of hydro power resources in the world. It has the potential to produce more than 300 billion KWh electricity per year. It currently produces merely 17.1 billion KWh. The majority of Tajikistan's hydroelectric energy is produced by the hydroelectric stations on the Vikash River, with a total capacity of about 3,800 MW, producing 14 billion KWh annually. The largest of these is the Norak hydroelectric facility producing 3000 MW, whereas Rogun 335 highest and tallest dam in the world has the capacity of 3,600 MW (Zarifi, 2007).

Turkmenistan possesses the world's fifth largest reserves of natural gas and has substantial deposits of oil. In the sphere of assured hydrocarbon resources, Turkmenistan amounts to 22.8 trillion cubic meters of natural gas and 12 billion tons of oil (Baltayevich, 2006). Having 30 per cent of the world's energy reserves Turkmenistan does not have any alternative access to the world markets. In fact, it has been unable to benefit fully from its oil and gas deposits due to the "absence of export routes and because of a dispute between the Caspian Sea littoral states over the legal status of the sea where the oil wells are to be found. With foreign investors shying away, its economy remains underdeveloped" (BBC News 2005). However, Central Asian energy issue has strong regional dimensions because the republics are tied together by a web of electricity transmission systems, as well as oil and gas pipelines developed during the Soviet period.

Role of External Players: Scramble for Resources and Allies

On the commencement of the 21st century, the world entered into a new phase of globalization. At the same time, some countries and regions have emerged as new players in international relations. The states of Central Asia came out among them, which occupies a strategically important location because it has economic potential (huge market, human and natural resources) and is well placed to become a self-sustained and self-sufficient region (Tazhin 2008: 63). After the collapse of the Soviet

Union in 1991, Central Asia came forth as major energy player in the global energy market grappling with huge amount of energy resources particularly oil and gas. The development of these resources and determining of transit routes have become subject to immense contestation among external players. The outside world's engagement with Central Asia is mainly dominated by geopolitical energy interests' rather developmental concerns. Amid the major external players are Russia, China, U.S.; but other regional powers like India, Japan, Turkey, EU, Iran are also involved in this region.

Russia

Russia regards Central Asia as part of its 'sphere of influence' because significant numbers of ethnic Russians live in this region. In this Context, Prof. Ajay Patnaik argues that Russia has always remained the geopolitical alternative for Central Asian states, even while they seek to diversify their energy, security and military cooperation with other major powers. Due to the economic decline, Russia discovered Central Asia as huge reserves of oil and gas and its presence is a redundant force in the region (Patnaik). Implicitly, the energy resources of the Central Asia assumed vital importance in post-Cold War Russian economic development and the country's foreign trade. As Peter Rutland succinctly states, "oil is both an end and a means to an end" (Lane 1999: 163). Russia's energy prowess and geo-strategic position in Eurasia make the country a major player both in the politics of the area and in global politics in terms of energy security. Especially in Central Asia, Russia operates as a major player to deter the dominance of China and United States (Malik 1997: 181-83). Russia is one of the world's largest exporters of crude oil and natural gas. After a sharp decline in production and exports resulting from the Soviet break-up, Russian oil exports increased from 3.2 mbpd in 1993 to 4.8 million bpd in 2001. In 2002 Russia's overall production approached that of Saudi Arabia and averaged about 8.4 million bpd in 2003 (Chow, 2003).

The Caspian and Central Asia states are traditionally the zone of Russia's geopolitical and economic interests. Its key interests are to control the production and transportation of oil and gas resources to the markets. Energy has been an integral part of Russian's efforts to maintain its dominance in the region. Moreover, energy is one the cornerstones of the Russian geopolitics in Central Asia. However, in order to

accomplish geopolitical gains in Central Asia, Russia managed to achieve a strategic gain in the so-called near abroad states. Russia and six countries (Armenia, Belarus, Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan), member states of Collective Security Treaty Organizatin (CSTO), to boost their security and fight against common security threats. As a result, Russian companies have deepened their relations with Central Asian States in respect of oil, gas and hydroelectric energy. It is worthwhile to note that in relations to the geopolitics of Central Asian hydrocarbons, gas and oil have two different, though inter-related stories. Natural gas trade needs pipeline networks for its transportation and sales whereas oil as a tangible commodity, offers far greater diversity in terms of transportation methods and retail opportunities for refined petroleum products. After Soviet disintegration of the Union of Soviet Socialist Republics (USSR), Central Asian producers such as Kazakhstan managed to secure foreign investments vigorously for the production and refining of their oil (Yenikeyeff 2011: 62). Particularly, Russia is pursuing a clear economic strategy in Central Asia, seeking dominance in the region's gas industry, control of its hydroelectric power. Nonetheless, Russia is eager to escalate Central Asia's long term transport contracts with two predominant gas producing countries of Kazakhstan and Turkmenistan.

The biggest challenge to Russia won't be gaining access to natural gas but being able to afford improvements to the pipeline system necessary to market it. The Kazakh and Russian gas industries are working in tandem on how to transport it through Kazakhstan for processing in Russia. Russia's Gazprom has signed a cooperation agreement with both Kyrgyzstan and the recognized Uzbek state gas company Uzebekneftegaz, the latter as a major producer and supplier of energy for the Central Asian region. According to Martha Brill Olcott, Russia is growing partnership with Central Asia's other gas producers put Turkmenistan in a difficult position, because they increase Russia's ability to isolate Ashgabat, forcing the Turkmen to surrender more control over the marketing and development of its gas industry to Russia. But the Turkmenistan-Russian relationship signed in 2003 lasted just over a year before Ashgabat cutoff supplies in an attempt to improve payment terms (Olcott 2005: 334).

Further, Russia is also more interested in Kyrgyzstan and Tajikistan for hydroelectric power. Nevertheless, Russia is posing as a large and independent energy

power, seeking a corresponding sphere of responsibility for global energy security and stability. In 2006, then President Putin officially declared that Russia intended to become the world's energy leader. Therefore, Russian government has set up tighter state control over and management of energy resources inside the country (Shaymergenov 2006:11).

China

China is also another dominant player which has commercial and strategic interests in Central Asia. China's primary concern in Central Asia was to improve the security of its Western border with Kazakhstan, Kyrgyzstan and Tajikistan. Presently, it has altered to economic significance. The energy resources of Central Asia are vital to China in various ways. First of all, Central Asia can appease an important portion of China's oil imports. Second, as Central Asia provides a new supply source, it will bolster the structure of China's energy imports and help to diversify its energy resources. Third, rich resources of mineral are especially required for China's accelerated economic development. Finally, though the region is inextricably linked to China, the Chinese economy itself is moving toward regionalization. However, Central Asia is geo-strategically and geo-economically an important region for China's energy needs to fuel its economic development.

China looks Central Asia as a huge energy resource and a market for its consumer goods, and also as a continental bridge which would expand China's reach through Iran to the Persian Gulf. Moreover, China has not merely unveiled Xinjiang to cross-border trade and traffic with the Central Asian Republics but has been overwhelming keen interest in the project for revival of Silk Route by extending the Urumchi-Almaty rail to Iran (Warikoo 2000: 253-263). China's energy interest in Central Asia has escalated since 2001 and it has become a central focus of Beijing's strategy and diplomacy in the region. After this, energy became paramount significance for China due to two relevant factors: first, the growth in China's domestic energy demand; and secondly, the change in the international situation after the events of 11 September 2001. Earlier in 1993 China became a net oil importing country, but before the annual volume of oil imports was less than 15 million tons. In 1997, the volume of oil imports jumped to more than 35 million tons and remained at this level until 1999 (Rumer et al. 2007: 144).

However, there are certain factors which have prompted China for accessing energy resources in the region. First, in 2001, China's oil imports increased sharply, rising to 70 million tons annually and it is estimated that imports would continue to rise rapidly. This has caused to China to consider the energy issue in Central Asia. Secondly, the 9/11 attacks have radical changes in the international energy situation. Thirdly, the geopolitical issue in which American military forces established bases in Central Asia, occupied Iraq, and put pressure on Iran in an apparent attempt to assert control over global energy supplies. At that time, China's demand for energy and its dependence of global supplies were slowly increasing. Lastly, in 2004, China paid nearly 60 U.S. dollars more per ton of imported oil than in the previous year because of the price escalate; the total extra cost exceeds 7 billion U.S. dollars.

Thus, all these factors in the international energy scenario forced China to pay overwhelming attention to energy policy. Nevertheless, these factors had a major impact on China's energy strategy and on the perception of its crucial energy interests in Central Asia. In 1997, China became embroiled in the Central Asian energy field on a large scale. Two significant events happened: one was the decision by the China National Petroleum Corporation (CNPC) to invest in Central Asian oil fields and to participate in the region's development; the other was Beijing's readiness to construct an oil pipeline from Kazakhstan to supply its oil need (Ibid: 145). Consequently, China didn't make energy its main interest in Central Asia; investment in Central Asian energy resources inevitably represented the commercial behaviour of an oil company. Although, the China-Kazakhstan oil pipeline is a significant cooperative energy project and has strategic important for both the countries. Nonetheless, China's energy interest was not limited to Kazakhstan, but also embodied Turkmenistan (which has rich natural gas reserves) and Uzbekistan (which holds substantial quantities of oil and gas resources).

U.S.A

The United States of America (U.S.A) also plays a crucial role in the energy sector of Central Asia. As the world's largest oil consumer, the United States uses its economic and military might to pursue its own energy diplomatic strategy on a global scale. In fact, energy foreign policy in all over the world has become even more paramount because the United States is the world's largest consumer of energy resources

(Zhiznin 2000: 72). In fact, the U.S. (United States) needs to control energy resources and transportation routes in Central Asia and to achieve regional and global dominance in the international scenario. There are some reasons, why the U.S. is keen to Central Asian energy resources. First, the United States seeks to foster energy export options for Federal Soviet Republics in the region; Secondly, the U.S is seeking for the diversification of energy resources by increasing its imports from Central Asia and lessening its dependence on Middle Eastern exports, especially those from the Persian Gulf. Thirdly, to contain the dominance of Russia and China in the region; Finally, United States is interested in fostering democratization and market economic development in Central Asia (Hall and Grant 2009: 121).

In the pursuit of geo-strategic and geo-economic goals, the policy of American continuous presence in Central Asia is pursued at all times. In this context, a programme was initiated i.e., Greater Central Asia Partnership for Cooperation and Development (GCPD), a regional forum for planning, coordination and application of American programs for Central Asia in which the region would be recognized as unified, connected by common interests and needs. Trade is the key in the region's development, demanding major improvements and the transport infrastructure. However, the main thrust of United States' energy strategy in Caucasus and Central Asia is the Baku-Tbilis-Ceyhan (BTC) pipeline, which played key role in culminating Russia's monopoly over energy routes from the Caspian and offers the West an alternative means for transporting Caspian oil outside of Russian control. The South-Caucasus Pipeline, which lies parallel with the BTC, transport gas from the region i.e., from Russian and Iranian territory and influence. The U.S. could have invited Russian companies to join in building a Trans-Caspian pipeline to connect the Kazakhstan fields of Tengiz, Karachaganak, and Kashagan to the BTC, but it had not done so due to geopolitical reasons. Nevertheless, to accomplish the full objective of Baku-Ceyhan pipeline, the United States of America (USA) must use its influence on the governments of Kazakhstan and Turkmenistan for guaranteeing the construction of a pipeline under the Caspian, as one of the Baku-Ceyhan system and that will increase the efficacy of the project (Kurecic 2010: 38).

Today the U.S. needs more oil than ever before, therefore free access to energy fuel sources has become one of the priorities. For the last ten years, energy fuel import has grown by 30 per cent. Apparently, America is increasingly dependent on oil imports; and the situation is becoming even more serious because of the inflated oil prices (Kalieva 2005: 13). Due to its failures in Iraq, Afghanistan, and elsewhere, Washington has focused its attention to the Central Asia region.

EU

The European Union (EU) is also a dominant player in the energy sphere of Central Asian region. Energy is the subtle issue of the EU's economic interests in the Central Asian countries because of political instability in the Middle Eastern countries. The EU is one of the largest energy consumers, requires to keep its economy growing which increases its dependence on energy resources. However, the energy relationship between the EU and Central Asia are concerned with two significant issues, one is the fossil energy primarily from Turkmenistan and Kazakhstan and to a lesser extent from Uzbekistan, and other is the hydroelectric energy from Tajikistan and Kyrgyzstan. Most of the energy resources consumed by the EU from the Persian Gulf and the structure of its energy imports cannot be described as diversified because the bulk of energy resources consumed by the EU members comes from OPEC (Organization of Petroleum Exporting Countries) members, mainly those found in the politically unstable Persian Gulf and two of them- Iran and Libya are accused of supporting international terrorism (Burkhanov 2007: 20).

Ostensibly, all the largest European oil and gas companies are working in the Caspian Shell (the Netherlannds), TotalFinalElf and Schlumberger (France) etc. indicating that the EU seeks to diversify its oil imports. It also buys about 20% of the oil and gas produced in Kazakhstan. European oil companies are involved in all the largest projects in the Republic of Kazakhstan, such as Karachaganak, and the development of energy resources in the northern Caspian. All the above factors made the EU play a crucial role in the region. In addition to it, the EU is embroiled itself in the energy projects with the Central Asian countries; the development of gas field in Turkmenistan in particular: Lasmo of Britain works on the Burun gas field; TotalFinaElf, British Petroleum, Shell, and Statoil are involved in developing large fields in the Azeribaizan and Turkmenistan sectors of the Caspian. Subsequently, the

EU made its energy policy for a greater access of energy from the Central Asian region. First of all in 2004 with Baku initiative the EU forged its energy policy including certain areas like the infrastructure, renewable energy supplies, energy efficiency and taking a long term perspective, possible supplies of gas that would transit the Caspian Sea. Kazakhstan wishes to have multiple outlets for oil and gas. Secondly, regarding the water issue which would get a solution to the tense relationship among the Central Asian states (Boonstra 2011: 15-16). Nonetheless, it vindicated that the EU had enormous interest in the Central Asian energy resources.

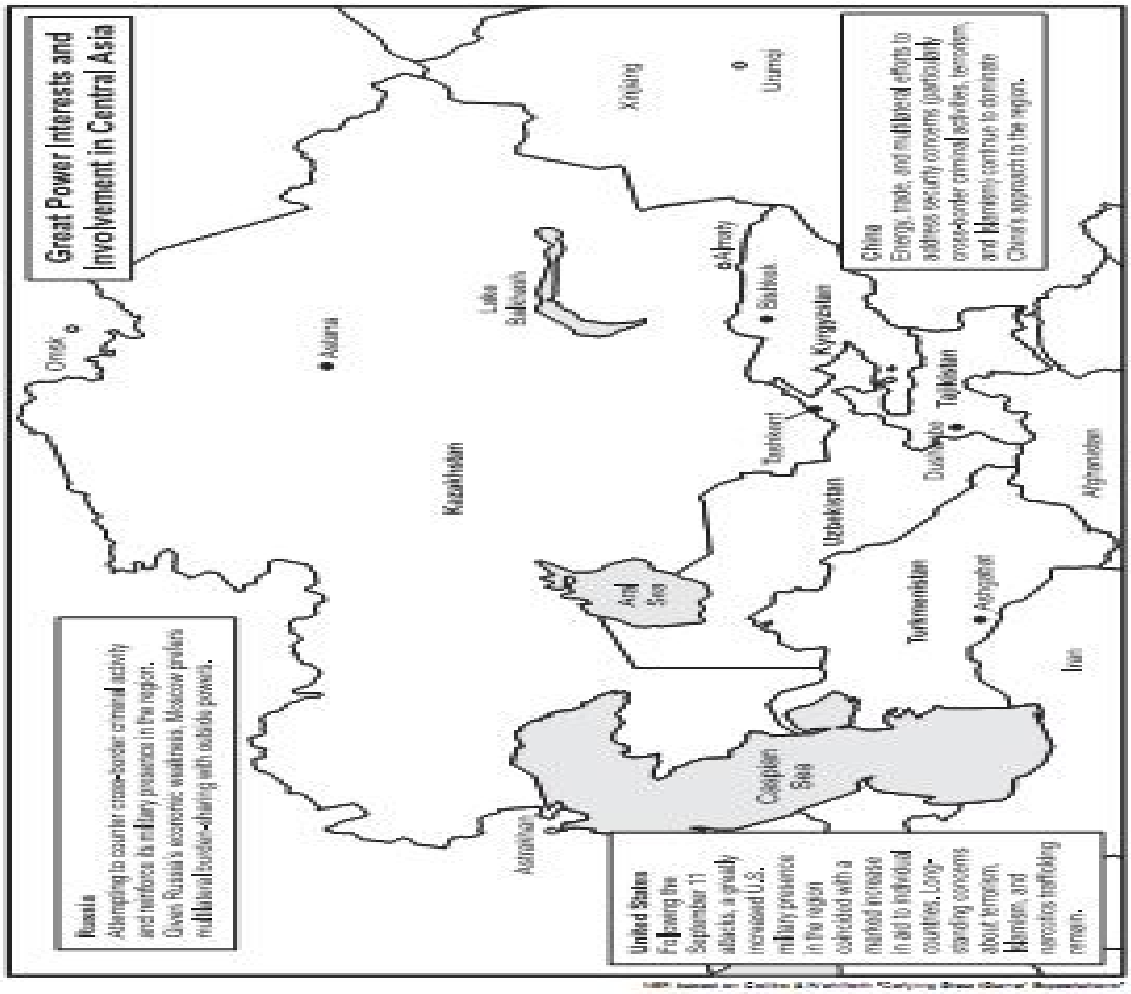
The European Union (EU) is one of the key consumers of Central Asian energy resources and seeking to diversify its supplies. This made EU to improve its relations with alternative suppliers. In 1991 to 1994 most of the European states signed the European Energy Charter in which each transit country should ensure free access to its transit facilities for end energy consumers. It means that every country receiving certain volumes of gas through transit systems would have free access to the transit system. In this context, the EU is pursuing its policy on the energy market. In 2000, gas accounted for 23 per cent of the EU energy consumption and the share is expected to reach 32 per cent by 2030. This prompted the EU to promote competition in the gas supply market by separating EU pipeline companies from gas distribution and urging free access to European pipelines for all interested gas suppliers. However, European Union is consolidating energy security at the level of gas production; EU bureaucrats and European companies are actively involved in the gas pipeline project to connect Azerbaijan and Europe via Turkey. Thus, the EU tends to transport Turkmenistan, Kazakhstan and potentially Uzbekistan gas through this pipeline (Shaymergenov 2006: 16).

Central Asia region has remained the focus of international attention due to its geo-strategic position and energy potential. It accomplished a significant place in the geopolitical field of international relations, for which major powers drew their attention rapidly for accessing the energy resources of this region. There was conflict among the major powers and with the Central Asian states. This happened because of some specific reasons. First, lack of balance and strategic certainty among the main external players U.S., Russia, China and EU; secondly, lack of balance and strategic certainty between the key external players and the Central Asian countries; finally,

lack of balance and strategic certainty among the Central Asian countries. Therefore, the national interests of the major geopolitical players in the sphere of sustainable energy supplies and control over their sources are responsible for the international political attitude over ensuring regional security in the Central Asian region.

All the above major powers and the EU play a paramount role in the energy field of Central Asian region. Despite all these players, there are also some regional players of India, Pakistan, Turkey, Iran and Japan and to a certain extent Ukraine, which have keen interest in the region.

Figure: 3 Great powers involvement in Central Asia



(Source: Collins and Wohlforth 2003-04: 318)

India

India is also another significant player which has great energy interest in the Central Asia region. It is the sixth largest energy consumer in the world. Like China, it is largely interested in the Caspian states' gas and oil sphere. Talking about the Baku-Tbilisi-Ceyhan (BTC) project, then Indian Energy Minister Mani Shanker Aiyar delineated that it would trigger another similar project, an oil pipeline that would bring Caspian close to India. However, there can be no denying the importance of reliable access to foreign energy for India in general, and of access to Central Asian energy resources in particular. As Prime Minister, Manmohan Singh observed to the Financial Times that "energy security is second only in our scheme of things to food security and it is the most emerging dimensions of our strategic partnership" with Russia (Luce and Peel 2004: 5).

Central Asia is an important area for India because it holds substantial oil and gas and hydroelectric power. In this context, it is the future source of energy for India. Despite this, though India as an "extended neighborhood" also has geo-strategic and geo-economic interests in this region. Therefore, economic diplomacy should remain India's basic policy thrust towards the region. It needs no clash but a compatibility of interests with the new states (Singh 2008: 2287). India's interest in securing reliable energy supplies and trade through Central Asia remains substantial, for which India has maintained strong relationship with the energy exporting states of Central Asia, particularly, Kazakhstan, Uzbekistan and Turkmenistan. Nevertheless, India is seeking oil assets in countries such as Kazakhstan, Sudan, Vietnam, Iran and Ecuador through Oil and Natural Gas Corporation Videsh Ltd. (OVL). It is believed that due to huge amount of oil and gas in Central Asia, it provides an alternative for the fast depleting resources in the rest of the world and can reduce India's dependence on the West Asian oil supplies.

In a nut cell, India's energy interest in Central Asia due to the following reasons: First, as India consumes more energy it needs the help of Gulf countries for importing more energy; Secondly, to sustain India's economic growth; Finally, Central Asia can be future source of energy for India. Therefore, India cannot ignore the importance of Central Asia for energy supply to fulfill its increasing demands. India's diplomatic thrust into Central Asia is the future energy requirements and strategic positioning, through bilateral visits and trade and understated military

agreements with some of the Republics. However, India is fortunately, placed close to countries with huge gas reserves, both established and potential. In this context Iran-Pakistan-India (IPI) and Turkmenistan-Afghanistan-Pakistan-India (TAPI) are two significant project extremely vital to India (Laxmi 2007: 180-181).

In the era of fast economic growth, energy has emerged as the vital input for industrial development and day to day requirements. India is one such country, which has embarked upon on the agenda of fast economic growth. This is more so in the post-liberalization phase since way back 1991. However, the diversification of energy resources for India is one of the top priorities of the government of India.

Pakistan

Pakistan is also looking at the huge energy resources of Central Asia. It wants to make Pakistan the energy-transit corridor in South Asia and the Asia-Pacific region, which will bring huge economic gains for the country. Pakistan is most likely to face a energy crisis in natural gas, power and oil in the next 3-4 years that could choke its economic growth for many years to come (Pakistan Times 2005). However, it plays very crucial role in the Central Asian energy sphere. It wants a large share of potential economic gains in the region.

Since the time of *glasnost*[4], Pakistan has actively marketed itself to Central Asia as a valuable partner, an alternative model of development to Iran and Turkey and an outlet to the outside world. Pakistan's liabilities have been its inadequate transport infrastructure and financial resources, and its role as competitor in resource base and economy with the Central Asia. Pakistan and most of the Central Asian countries are major producers of cotton and competitors in the textile industry (Hunter 1996: 135-136). Nevertheless, Pakistan is keen to the region because of some relevant factors: First, to build economic contacts with the Caspian states; secondly, it wants not to allow India in the region because of its traditional rival; Thirdly, Central Asia can be a future source of energy for Pakistan. Finally, it seeks new partners with north. All these above factors forced Pakistan to enter into the region (Skaymergenov 2006).

[4] The term "Glasnost" means 'openness' which gave the people freedom of speech and expressions. It was a policy adopted by the Gorbachev and remained as a factor for the dissolution of the Soviet Union in 1991 (Howarth 1987).

Turkey

Turkey is also a significant player for accessing ample resources of energy from the volatile region, is known as Central Asia. Turkey enjoys certain advantages in establishing ties with Central Asia, prominently in the energy sector. It is actively promoting the Baku-Tiblis-Ceyhan (BTC) oil pipeline, which by joining the Caspian oil field with Turkish ports, will allow Turkey to diversify fuel sources and alleviate the dependence of Western Europe and America on the Gulf countries, by increasing its own political and economic importance for the West (Shaymergenov 2006: 12-13). There are two important reasons for which Turkey is depended on Central Asian energy resources. One is the country's energy consumption is growing rapidly than its production and the other is the Turkey's strategic location makes it a natural "energy-bridge" between major oil and gas suppliers from the Persian Gulf and Caspian Sea on the one side and consumer markets in Europe on the other. Therefore, Turkey has endeavored to promote itself as the most appropriate route to transport Caspian oil and gas to the European markets (Bahgat 2006: 14-15).

Iran

Iran had also strong foothold in the Central Asian region for accessing energy. Thus, Iran established cordial relations with Turkmenistan which have been shaped by pragmatic economic co-operation in the energy and transportation sector. However, Iran has sought its best link up with Central Asia through a network of road and railway systems and establishing pipeline linkages. Moreover, Iran maintains robust cultural and historical ties with several Central Asian states. Despite all these relations, Iran specially focuses on the pipeline politics which promotes socio-economic prosperity and political stability in Central Asia. It is through the pipeline system, Iran took advantage from its unique geo-strategic location bridging Central Asia, the Caspian Sea and the Persian Gulf. This geopolitical zone has been recognized as "Pepelineistan" due to the extensive network of natural gas and oil pipelines (Blanche 2008: 22-25). Iran possesses nearly 16 percent of the world's natural gas reserves second only to Russia and yet its share of the world gas market is negligible as a result of the 1996 American Iran-Libya Sanctions Act (ILSA), which had driven away the much needed foreign investment in the outdated Iranian gas field

(Pahlavi and Hojati 2010: 230). However, Iran is engaged in the construction of a number of projects. The Korpeje-Kurtui, Central Asia's only gas pipeline not running through Russian territory, exports Turkmen natural gas to Iran, while the Balkanabat-Aliabad grid exports Turkmen electricity to Turkey via Iran. Other plans include the Iran-Pakistan-India (IPI) pipeline, a very ambitious ($ 7.5 billion) program sponsored by Tehran that would connect Iran to India via Pakistan through a 2,600 km gas pipeline. If the project were to be realized, Iran would join the greatest players in the international energy market (Djalili and Kellner 2006: 73-103). Regarding the major powers in the international energy sphere, United States (US) has played very active role in Central Asia opposing Iran's interest in this region by providing sanction. During the Kazakh President's visit to Washington in February 1992, he was persuaded by the US president not to export the Kazakh oil through Iran. The US administration felt deeply concerned about Iran's rearmament plan, its civil nuclear programme, and its opposition to the Middle East peace process, its initial religious activities and long time support to the terrorist groups. The Clinton administration imposed sanctions on Iran in 1995 and discouraged major pipeline projects with international funding (NATO Review 1996: 30). The US sanctions immeasurably hurt Iran's global interest in general and in Central Asia in particular. Washington's pressures have prevented several affluent countries from making investments in the Iranian oil and gas industries having connections with Central Asia. The US successfully excluded Iran from a number of lucrative Caspian Sea gas pipeline deals giving preference to Turkey which has now entered in a big way. It opposed the construction of the Turkmen and the Kazakh pipeline to Europe, whereas these two countries consider this route as the cheapest. As a result of the Iran-American tension, Iran's huge assets have been frozen, its efforts to secure western investments have encountered obstruction and many of its schemes have been put on the backburner (Singh 2004 197). Thus, there can't be ignored that the US reaction to Iran's policy towards Central Asia unpleasantly affected the development of Teheran's relations with this area.

Ukraine

Ukraine also plays a very important geopolitical role in the region. Its new leaders described Ukraine's energy independence from Russia as one of its national priorities. Because over 90 percent of Russian gas supplies to Europe are transported across the territory of Ukraine, which determines Kiev's strategic significance both for Russia and the European Union. However, the serious political crisis between the two countries, which came up after the Orange Revolution[5], made Ukraine Russia's permanent tension. Oil transit is not the mere problem ostensibly, at the instigation of the Orange leaders; Ukraine could become a military strategic springboard for the United States and North Atlantic Treaty Organization (NATO). As such, it would escalate into a grave challenge for the Russian Federation (Shaymergenov 2006). Another most important crisis over gas dispute arose between Ukraine and Russia. In January multi-year gas contract puts the Ukrainian-Russian gas relationship on a more solid foundation than in the past. Ukraine has been in technical default since February, when it failed to purchase the minimum quantity of gas it had contracted to buy. Russian President Putin and other Russians regularly question Ukraine's ability to pay and to maintain the reliability of the gas pipelines through which 80 percent of Russian gas bound for Europe is transported. Moscow also charges that Ukraine is not buying gas to fill the reservoirs in western Ukraine; these are typically filled in summer months so that gas may be drawn from them in the winter to send to Europe. Either side could trigger a new gas war. Given the impact of the economic crisis, the loss of gas sales and the associated revenues would concern Moscow. Whether they would deter Moscow from provoking a gas crisis is unclear. They would presumably affect Russian desires to end the crisis on Moscow's terms before too much revenue was lost. This could mean that Russia would escalate the crisis to press Kiev to back down (Pifer 2009: 1-11). However, Ukraine plays very pivotal role in the Central Asian energy sector, especially with Turkmenistan. Turkmenistan possess the second largest gas reserves in the Common Wealth Independent States (CIS) and has

[5] The Orange Revolution was a series of protests and political events that take place in Ukraine from late November 2004 to January 2005, in the immediate aftermath of the runoff vote of the 2004, Ukraine presidential election which was claimed to be marred by massive corruption intimidation and direct electoral fraud. The prominent leaders of this revolution were Viktor Yushchenko, Petro Seymoneko and Yulia Tymoshenko.

agreements of different levels for gas supply to the EU, Russia, Iran, China, Pakistan. In the field of energy sector, Ukraine-Turkmenistan relations were plagued by better trading delays in supply and payment. Thus, the Central Asian region had strong objective for the leading Western and Eastern countries as a large source of energy fuels.

Pipeline Politics: As a device of Energy Diplomacy

Pipeline politics plays a paramount role in the current affairs of energy politics of Central Asia. Transporting energy is an issue of supply and demand which is determined by geopolitical concerns. In the context of energy politics, the routes of pipelines have become the subject of geopolitical contestation among major powers for power, influence and to some extent for economic advantage (Kandiyoti 2008: 13). However, the interest of the key major players in the transportation issue is very much complicated and to be easily balanced. The pipeline systems are bolstering into an important tool for protecting and implementing national interests. They are called as a tool of pressure and a tool of friendly and long term strategic partnership. Moreover, the construction of pipelines is of paramount importance for the energy policies of Washington, Beijing, Brussels and Moscow, making the design and budgeting and implementation of pipeline projects always ambiguous and controversial.

Nevertheless, in the post-Soviet era, the inherited network of pipelines i.e., is the 'Northern route' has given a great advantage for Russia while making the Central Asian states dependent upon Russia for their export needs. This peculiar situation has prompted the rise of a new game of pipeline politics. Soon after the collapse of the Soviet Union, some commentators stated that Russia would lay preference to Russian firms such as Lukoil and Rosneft for exporting oil and gas to the western markets through the Russian pipeline network, seeking to protect the interests of its own domestic producers (Gidadhubli 2003: 166-195). In this context, the existing Russian pipelines had capacity to transport oil about 130 to 140 million tons per year which appeared to be inadequate due to political and technical factors. Therefore the leaders of Central Asian states felt that they are facing problem in transporting energy resources from their regions. Hence, the Central Asian states wanted to diversify their export options. The USA took interest to contain the political and economic influence

of Russia over Central Asia and the energy rich Caspian region in general. So far as the route via Iran was concerned, the USA was not interested for the involvement of Iran in this process. All these factors made USA to develop 'multiple pipelines' routes from Central Asia and the Caspian region to the world markets. Therefore, some new pipeline routes have emerged like Baku-Ceyhan pipeline linking Azerbaijan and Turkey via Georgia, and Baku-Supsa pipeline passing through Georgia terminating at Black sea port of Supsa (Ibid). Thus, the Baku-Ceyhan pipeline is also an alternative to the Central Asian states. In particular Kazakhstan has evinced considerable interest in exporting oil through these routes and there are also proposals to develop 'Trans Caspian Pipeline' which involves lying of pipeline along the seabed.

Above all, these steps indicate the desire of regional states about the diversification of energy resources of Central Asia region. The Central Asian states demonstrated their desire to prevent the energy resources from becoming the monopoly of the major powers of the world like Russia, the United States, EU and China, which assumed a great political significance in the region. In this context, Moscow manipulates the oil pipeline infrastructure which embodies the Caspian Pipeline Consortium (CPC), the Atyrau-Samara, Baku-Novorossiisk, and other pipelines. Moreover, it also imposes its conditions on the Caspian and Central Asian countries and seeks to remain the region's leader. Beijing has completed the oil pipeline from Kazakhstan through Atasu to Alashankou which goes on to reach the Asian Pacific states. For China this route is strategically, economically and geopolitically significant project. On the contrary, for Kazakhstan it is an open door to the capacious and promising Asian market. Despite their powers, the other big players of Washington and Brussels can limitedly respond with alternative transportation routes to oppose the Kremlin. The alternative BTC pipeline is of clear geopolitical importance and intended as a counterweight to Moscow.

Kazakhstan and Russia

Kazakhstan and Russia's involvement in pipeline politics is ostensibly pragmatic, in which Kazakhstan finds alternative routes for the transportation of its oil. Kazakhstan is more interested to diversify its markets and accomplish flexibility in loading and using the oil transportation systems. This is creating better tariff conditions for Kazakhstani oil and gas export exporters. Without the Baku-Tibilis-Ceyhan (BTC) oil

pipeline Kazakhstan's oil production would be vague. Kazakhstan was earlier dependent on Russia and its pipeline system. All this, forced Kazakhstan to join with BTC pipeline. Immediately, Moscow responded to this development with a great deal of urgency, since Russia wanted to use administrative measures to prevent Kazakhstani oil from joining the BTC. Moreover, Caspian Pipeline Consortium (CPC) was Kazakhstan's only outlet to the world market. However, due to Astana's potential rivalry with Russia on the world energy markets, Moscow was interested to achieve certain political gains because of the volumes of Kazakhstani oil crossing its territory and wants to use this as a lever of political pressure. Russia wants to control over the oil pipeline of Kazakhstan and to dominate the region by its influence. This pipeline politics between the two countries vindicated when the Kazakhstani state-owned National KazMunaiGaz Company was not allotted a quota of 12 million tons of oil to be moved to the Mazeikiai oil refinery in Lithuania. Thus depriving the company's opportunity to buy it (Skorniakova 2006: 47).

Turkmenistan and Russia

Turkmenistan, which has huge gas reserves in Central Asia, had found its export limited by the Russian company Gazprom's pipeline system. Turkmenistan has been seeking to find alternative export outlets to sell its gas at higher prices. It has succeeded in securing alternative customers like Ukraine and Belarus, who are prepared to embrace Ashgabat's conditions. A contract was made with Turkmenistan that allows Ukraine to reduce its dependence on Russian gas supplies and diminish the threat of a price increase. Gazprom runs the risk of losing its monopoly on Turkmenistan gas and use this as a tool of pressure on Ukraine. In order to preserve Central Asian energy exports, Russia is offering its own arguments against Trans-Caspian pipelines. However, Moscow is doing its best to prevent the implementation of the Trans-Caspian pipeline project. Azerbaijan and Kazakhstan are also the two countries that need maximum energy export independence for which they have joined forces to counter Russia's environmental objections (Shaymergenov 2006).

Washington

Washington is convinced that a wider system of energy security can be achieved by creating more energy transportation routes which meets the interests of the local states and foreign investors. After successfully lobbying for the BTC pipeline, the

Americans have been engaging themselves with pushing through a so called Trans-Caspian Gas Pipeline sandwiched to move Turkmenistan gas across Azerbaijan, Georgia, Turkey and Europe. It looks as it the United States has decided to link the two projects together as vitally important for Washington's foreign policy strategy, mainly from the view of geopolitical interests in the region. To protect itself from the Middle Eastern political risks by means of Caspian Oil, Washington has decided that alternative export routes are best suited to its interests. Nevertheless, American energy diplomacy is fond of all sorts of sanctions against states whose policies are not popular with the White House or threaten the U.S. interests. According to American reckoning, projection of democratic principles and international security can be instrumental. In this context, America and Iran relations illustrate the best example. They have been strained for a long time because many of the transportation projects involving Iranian oil failed precisely because of American opposition. However, the American policies in Iran are aimed at replacing the regime with a more malleable one to ensure America's national security and to establish direct or indirect control over this oil-rich country. For this reason, even a partner like the EU is pursuing a more independent policy in the interests of its members wishing to peacefully cooperate with Iran in the sphere of energy and transit (Kalieva 2005 24).

Development of Energy in Central Asia through International Cooperation

With the collapse of the Soviet Union, the Asian continent witnessed the emergence of new independent states (NIS), i.e., Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan in Central Asia as well as Armenia, Azerbaijan and Georgia in the Caucasus. Among all the countries, particularly Uzbekistan, Kazakhstan, Turkmenistan and Azerbaijan are strong in oil and gas sector. Many external powers are dependent on these countries for energy. However, for the development of energy in Central Asia, they need to address some policy for international cooperation. Although at distinct levels of economic development, all states are classified as developing countries and characterized by an inefficient infrastructure for energy supply, distribution and use; secondly, the energy sector ranks among the top priority areas on the national development agenda in all states; thirdly, all the NIS are not in position to abandon economic relations with the Russian Federation. However, they

stepped up the levels of economic cooperation on energy with other parts of the world, especially with the rest of the Asia and OECD (Organization for Economic Cooperation and Development) Europe; and finally, the transformation of the economy, including the energy sector, from a centrally planned towards a more decentralized market –oriented one, faces large socio-political problems (Kant and Jansen 1996: 115-116).

Areas of Cooperation

The development of energy sector in Central Asia essentially requires international cooperation, which has been categorized under two ways: one is development of physical infrastructure and other is institutional development.

Development of energy sector infrastructure

Central Asia and Caucasus region unveil a large energy resource base, though unevenly distributed region-wise. Nevertheless, specifically in Kazakhstan, Uzbekistan and Turkmenistan there are ample resources of oil and gas. But Kyrgyzstan and Tajikistan hold large share of water for producing hydroelectricity. For the development of oil and gas sector in Central Asian region, it demands finance and technical knowledge. Like for coal production and use, there is ample scope for the introduction of clean technology but the major obstacle in this is the internal financial resource. With proper adjustment of policies there can be growth of capacities of indigenous energy companies to raise investment capital internally. Further a major part of huge investment by foreign companies can be attracted to this region through their banking institutions as well as through energy transmission and distribution companies operating in energy-importing countries. Besides the development of energy resources, Central Asia offers the scope for the efficiency and environmental compatibility of energy production and use from established production facilities.

Institutional development of the energy sector

Institutional development is highly inevitable for the management of the energy sector of Central Asia. Therefore, the establishment of powerful energy department is required as a means for managing the energy sector which can help to improve energy condition for privatization. For instance, by regulating third party access and grid

maintenance; delinking regional power producers from exclusive regional power supply; delinking supply and distribution for grid-based energy carriers and introducing prices based on estimated long run marginal costs. At the same time, scarce investment resources could be allocated to those investment opportunities where economic net benefits are the largest. Typically, the energy sector in Central Asia is still failing due to the lack of institutional development. The most urgent institutional developments are as follows:

- Design of an appropriate legislative framework is inevitable because it allows the increase of energy prices according to the level of cost of living index in an economically viable way.

- The establishment of a provisional, separate government body for special consideration. This body would be responsible for energy policy, bluntly answerable to the president chairing a national, inter-ministerial energy commission. This unit is to be made responsible for introduction of energy emergency measures in crisis situations.

- The provisional energy unit would be primarily in charge of the following: the preparation of energy laws; budget financed energy investments; determination of conditions and safeguards regarding foreign energy investments; integrated national energy planning; allotment of energy related subsidies; energy price setting with gradual phase out of subsidies, including for coal and heat from district heating plants; issuance of licenses for exploration, drilling, mining, fuel import and export; design, initiation, monitoring and evaluation of energy efficiency promotion strategies; setting of energy efficiency and environmental standards and regulations; government representation in negotiations on group social agreements with workers and trade unions in energy sub-sectors prominently hard coal mining; preparations for and realization of, transition of the provisional energy unit into a durable energy ministry or sub-ministerial department, controlled by competent civil services.

- In addition to responsibilities transferred from the provisional energy unit that the design of programmes for reorganization and restricting of the entire energy sector and its sub sectors, preferably in close consultation with international bodies covering energy issues i.e., to improve the investment image of the

countries concerned as perceived by the foreign investors. The other is instituting arm's length management and preparation of eventual state divestments with regard to state energy supply and distribution corporations (Kant and Jansen 1996: 118).

In short, both development of the physical energy infrastructure and institutional development of the energy sector are key areas for international cooperation with Central Asia and Caucasus.

Implications for China in the geopolitics of Central Asia

Since the break of the Soviet Union in 1991, China has become an important competitor for influence in Central Asia and is expected to serve as a counterweight to Russia (Gladney 2000: 215). China's entry into Central Asia occurred naturally as the region became an independent geopolitical space. Since the beginning of Central Asian independence, China has exerted considerable influence over the region due to various reasons. First, China is geographically close to Central Asia and shares common borders of over 3,000km with three of the Central Asian nations, Kazakhstan, Kyrgyzstan, and Tajikistan. Secondly, settling border issues was an important area of work between China and Central Asia. Thirdly, Chinese minorites have countless ties with the Central Asian nations with respect to ethnicity, religion, culture, history, and customs which has helped china to maintain good relations with China. Finally, China and Central Asia shared more than a two thousand year long history of interrelations (Huasheng 2004: 120). The above reasons made China to play active role in Central Asia.

China's Interest in Central Asia

China's interest in Central Asia is very clear and obvious, which determines its objectives and policies in the region. Thus, there are large numbers of interests which are as follows:

- *Ensure border security*: Border security remains the central issue and concern of China in the region. To guarantee implementation of the treaty on Deepening Military Trust in Border Regions in 1996 and the Treaty on Reduction of Military Forces in Border Regions in 1997, the signatories (China, Kazakhstan,

Kyrgyzstan, Tajikistan and Russia) established a joint inspection group to meet regularly and oversee implementation (Zhao 2007: 159).

- *Combat terrorism, separatism and extremism*: China's main goal is to fight against these three evil forces for which it needs cooperation with Central Asian countries. Central Asia, as a region is closely related with the "East Turkestan" forces due to the historic, ethnic, cultural, linguistic and religious factors (Huasheng 2004: 117).

- *Guarantee that Central Asia is a stable strategic rear*: Central Asia act as a stable strategic area for china due to three important conditions. First, on resolving the disputed border issues between China and Central Asia and maintaining peace and security in the border areas. Secondly, Central Asian nations adopting a good-will foreign policy toward China and in the same way, China maintaining fairly good bilateral relations with the Central Asian states. Lastly, Central Asia is not falling under the control of any major power or group of major powers, especially those that have complicated geopolitical and strategic relations with China (Ibid., 119).

- *Energy resources of Central Asia are relevant for China*: Energy is the vital interest of China for the sustainable growth of economy and diversify a stable energy supply. Between 1997 to 2002, China's oil import amounted to 35.7 million tonnes: 27.32 million tonnes, 636.61 million tonnes, 70.26 million tonnes, 60.25 million tonnes, and 69.40 million tonnes per respectively. But in 2003, China's energy reached 90 million tonnes. China is bound to depend heavily on the international market. About 50% of China's energy import is from the Middle East (Chunrong 2003: 26).

- *Establish harmonious relationship with the Central Asian countries*: China wants to maintain good relationship with the Central Asian countries to accomplish its goals in the region. China has keen interest to wipe out border problems with three evil forces like terrorism, separatism and extremism.

- *Ensure Regional Stability*: Regional stability is also the prime objective of

China's policy towards the Central Asian region. According to Zhao, from China's perspective, stability serves as the precondition for developing normal and predictive political and economic relations with the region (Zhao 2007: 160).

- *Preventing Central Asia from becoming a battlefield of the great powers*: China is disinterested to play the role of other major power in the region. Because the other powers active role bring insecurity in the region. China doesn't allow other external players in the region.

China's Central Asian Policy: Ideas and Objectives

The Chinese policy in the Central Asia is a part of global foreign policy strategy of the Peoples Republic of China. That global policy sets basic principles and shapes regional policy. At the same time, China's specific interests predetermine concrete policies toward Central Asia. Beijing's policy towards this region was formulated in the 1990s. Thus, the basic objectives of Chinese foreign policy in this region are as follows:

- Maintenance of a favorable international situation for development and modernizations of the Peoples Republic of China.

- Prevention of attempts aimed at restraining of power growth of the Peoples Republic of China.

- Diversification of China's access to energy resources.

- To assure the world community, that economic growth and military modernization of the Peoples Republic of China doesn't represent threat for interests of other countries.

- Maintenance of isolation of Taiwan on international scene (Adil 2008: 38).

But in the modern policies, China's primary objective is to satisfy domestic demands, especially economic ones, not to expand the country's power and influence. China is very pragmatic and prudent in its policy toward Central Asia because it wants to avoid any greater power in the region. In 2003 China formulated a new conception of foreign policy which accentuated on building an amicable, tranquil, and prosperous

neighborhood (Zhao 2007: 157-158). Thus, the policy of prosperous neighborhood is the fundamental Chinese policy in Central Asia.

China's implications towards Central Asia focused on three major areas; security, energy and trade.

Security

China's engagement with Central Asia began with border issues. So the primary objective of China is to stabilize the situation in Xinjiang, decrease the economic marginalization of the latter's ethnic Turkic Uighur population, and secure China's western borders against external support for the Islamic fundamentalist and separatist movements in the province. Beijing has made Central Asia an integral part of its "develop the west" programme, in which major economic redistribution from urban eastern China to the Chinese west, primarily Tibet and Xinjiang, have aimed to consolidate national unity and decrease incentives for separatism (Swanstrom 2007). Resolution of the border issue is an important condition for China's new relations with Central Asia. The successful cooperation in resolving border issues led directly to the formation of the "Shanghai Five". The Shanghai Five and latter formed the Shanghai Cooperation Organization (SCO) have created an important instrument for China to establish its presence and influence in the region. From China's perspective, the SCO provides a security guarantee, an institutional Channel enabling China to participate in Central Asian affairs, and a general platform for cooperation between China and this region. The SCO also signaled a strategic compromise between China and Russia: the countries agreed to a strategic balance, recognized each others interests, and embarked on strategic cooperation (Zhao 2007: 164).

Energy

Energy is another geopolitical focus of China's engagement in Central Asia, with Kazakhstan as the main partner. Beijing has determined that energy security is a prime strategic goal for China and has taken far-reaching measures to reduce the country's vulnerability. In 1993, China became a net importer of oil and with its internal energy resources diminishing and its industrial base rapidly growing. The main priority China attaches to the energy potential of Central Asia is explicitly exemplified by the construction of Atasu-Alashankou pipeline between Kazakhstan and Xinjiang. This

landmark project highlighted the energy relations between China and Central Asia (Swanstrom 2007). In September 1997 CNPC signed the agreement for the project, which had been initially proposed by Kazakhstan. Between 1997 and 1999, the two sides completed a feasibility research report. According to the design, the pipeline will start from the Caspian Sea port Atyrau in Kazakhstan, run westward through the Aktiubinsk oilfields which has been purchased by CNPC and then cross through Kazakhstan to the Ala Tau Pass on the Chinese-Kazakh border. The China-Kazakhstan oil pipeline was put in three parts. The first section of the pipeline runs from Kenkijak to the Caspian Sea port city of Atyrau. It is 448 kms long, all in Kazakhstan. In March 2003, this pipeline was linked up and commenced operation. Its initial annual capacity was 6 million tons, but will eventually increase to 15 million tons. The second section begins in the small city Atasu in the Center of Kazakhstan and runs to the Ala Tau Pass in Xinjiang, with a length of 998 kilometers and an estimated cost of 850 million U.S. dollars. Thus, the construction of the transportation infrastructure remains a key facet of China-Central Asia cooperation (Zhao 2007: 167).

Trade

Trade is also another significant factor in China and Central Asia relations. China makes no secret of its attempt to win trade advantages in Central Asia, advantages that can only be won at the expense of Russia, primarily, but also Europe and the United States. According to Chinese customs statistics, the trade volume between Central Asia and China increased from a total of $ 465 million in 1992 to $ 7.7 billion in November 2005 (Swanstrom 2007). This is a tremendous growth, especially as no other country has been able to achieve a similar trade expansion with the Central Asian nations. China's share still amounts only to approximately half of Russia's trade with Central Asia is primarily in natural resources, especially oil and gas, while Russia dominates the arms sales to the region. The bilateral trade links are heavily concentrated on the border between Xinjiang and Kazakhstan. Beijing has been trying to involve other Chinese regions in trading with Central Asia, but the heavy emphasis on energy imports to China and the export advantages Xinjiang enjoys over other Chinese provinces mean the imbalance tends to continue.

Besides the economic gains, a competitive overland network would tie China closer to both Central Asia and Europe. The transit fees accruing to the Central Asian

states would give them significant economic boost and also ensure the political interest and engagement of both China and Europe in stabilizing and developing the region. China has also substantially in developing a viable infrastructure linking Xinjiang with the neighboring Central Asian nations. However, the China's engagement with Central Asia's energy, trade and security formed the basis of China's strategy in the region. In tying with Central Asia economically through trade, through energy links in pipelines and electricity grids, China hopes to secure the long term stability and prosperity of its western border regions.

Summary

This Chapter analyses how the role of major power showed their vital interests towards Central Asia after the collapse of the Soviet Union. Central Asia possess huge amount of energy resources, for which it came into being in the world energy market. However, the development of energy resources and determining transit routes have been subject to robust competition among external players, mainly Russia, China, U.S., EU, Turkey Japan, India, Pakistan and to some extent Ukraine. Central Asian states are endowed with abundant natural resources comprising of oil, natural gas, coal and hydroelectricity, which has an overwhelming political significance in the region. Nevertheless, on the commencement of the 21st century, Central Asia, especially Kazakhstan, Uzbekistan and Turkmenistan, emerged as new centers of energy reserves which are rich in oil and gas. Kazakhstan and Uzbekistan have great hydrocarbon reserves, while Kyrgyzstan and Tajikistan have vast water resources for producing cheap electricity and good potential for renewable energy development. Therefore, outside assistance is required to create an infrastructure to facilitate production and transport of these products to international markets. Pipeline politics plays a paramount role in the current affairs of energy politics of Central Asia. Transporting energy is an issue of supply and demand which is determined by geopolitical concerns. In the context of energy politics, the routes of pipelines have become the subject of geopolitical contestation among major powers for influence and to some extent for economic advantage. The development of energy sector in Central Asia essentially requires international cooperation, which is possible in two ways: one is development of physical infrastructure and other is institutional development. Subsequently, in the geopolitics of Central Asia, China has taken advantage through security, energy and trade relations with the region.

CHAPTER 4

China's Energy Interest in Central Asia and Its Implication

Introduction

Since the dawn of the 21st Century, robust competitions amid great powers over the energy resources have got intensified in Central Asia which is referred as "New Great Game". Central Asia is located in the heat of Eurasia where major powers focus their attention for accessing huge amount of energy resources. Geographically, Central Asia, encompassing Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan, assumes significance due to large resources of energy. It is an important region from the geopolitical and geo-economic perspective which plays predominant role in the world energy market. Central Asia is a pivot region due to rich energy reserves and rapidly increasing demand of energy by major players like Russia, China, U.S., EU and other regional powers like India, Pakistan, Iran and Turkey etc. However, the external players invested their vigorous effort by providing military and economic assistance to the region to maintain good relations with the Central Asian states. China has also escalated its assistance to the region for acquiring large reserves of energy and implemented its energy strategy in the region quite aggressively.

Moreover, Central Asia is a significant zone of raw materials and market place for China. Historically, China has little influence in Central Asia, partly due to its own instability along its periphery and internal problems in the Chinese heartland. The emerging arena of China's new posture is Central Asia where Russia plays a predominant role. Therefore, China is interested to reduce the role of external players, with special emphasis on Russia in the region (Hu and Cheng, 2008: 42-43). Nevertheless, this chapter looks at Chinese engagement in the energy sector of Central Asia and how geo-economic factors affect China's energy strategy in Central Asia and correspond to China's economic development and social transformation.

Significance of Energy in China

China, as the rising super power in the world's most economically vibrant region of Asia-Pacific is in competition with other economic powers like Japan, South Korea and India. It is the world's most populous country and has a swiftly growing economy. China's spectacular economic growth is mainly responsible for its rising energy demands which have abruptly become an issue of international politics because of the rapid increase in oil imports since 2004. Meanwhile, there is a great concern that Chinese oil and gas companies seeks to accumulate foreign oil assets to meet domestic needs, raising concern among other energy dependent states. As long as China's population growth and economic development continue at high pace, its energy consumption will continue to increase sharply as well. China became the second highest energy consumer in the world, surpassing Japan, though still significantly trailing the United States'. The constant and safe importation of oil has thus become a crucial issue in China's energy sector (Yang 2001). China seeks diversified and reliable energy supplies to fuel its quickly growing economy, which stood at 10.3 per cent annually in 1999 to 2000. Rapid economic growth continued into the 21st century, with the country posting 9.1 per cent growth in GDP (Gross Domestic Product) in 2003. In 1971 China's share in the world's primary energy demand was mere 5 per cent. By 2020, the International Energy Agency estimates that China's share of global primary energy demand will be 16 per cent, while its share of global population will have shrunk to 19 per cent.

Since 1994 China has become a net importer of energy, while Beijing is promoting the exploration of new oil and gas fields within the People's Republic of China (PRC). Specialists are in agreement that imports will constitute an increasing share of the country's energy consumption. In order to combat air pollution, China's energy strategy calls for diminishing the share of coal in the energy balance from 77.9 per cent in 1995 to around 62 per cent by 2015 (Shixian 2000: 48). Oil and gas consumption are expected to rise miraculously, along with nuclear and hydroelectric power. But China's domestic deposits of oil and gas are limited. Nevertheless, China's oil companies since 1997 have embarked on an aggressive campaign to secure properties and rights to oil and gas around the world, embodying in Russia, Kazakhstan and Azerbaijan, as well as Sudan, Indonesia, Iraq, Iran, Venezuela and other countries (Ziegler 2006: 231).

Growing Energy Demand and Challenges for China

China is the world's most populous and fastest-developing country. In terms of energy consumption, China is the second only to the United States. But because of its large population, energy consumption per capita remains at a very low level. China's growing demand for energy is the product of the country's economic growth which has seen widening external trade, rising incomes, growing population and escalating urbanization. However, demand for energy has soared across the whole spectrum: coal, oil, gas electricity, hydropower and other renewable, as well as nuclear power. Moreover, coal is China's main fuel source and supplies two-thirds of its energy need (Kreft 2006: 108). As China's second largest energy source is oil, its share in total consumption is increasing rapidly. With the discovery of major oil fields in North China in the late 1950s, China was triggered to produce oil on substantial scale and production expanded immensely during the 1960s and 1970s. However, despite the increase in demand for oil, oil production in china stagnated during the 1990s. As a result, China shifted being an oil-exporting country to being a net importing country since 1993. Nevertheless, China's external dependency for oil has tremendously grown over time (Lam 2005: 4-5). In this context, China relies heavily on oil imports from the Persian Gulf and other Asian neighbors like Russia and Central Asia. Thus, the International Energy Agency (IEA) forecasts a fivefold increase in China's oil imports from around 2 million bpd in 2002 to almost 11 million bpd by 2030 (IEA 2004).

China's rapidly growing economy will drive energy demand growth of about 4.5% annually through 2015 (China Statistic Bureau, 2008). As shown in figure 4 total primary energy consumption in China escalated from less than 18 quadrillion Btu in 1980 to 37.1 quadrillion Btu in 1996. It is projected to touch 82 quadrillion Btu by 2015 (EIA 2008). While energy production in China immensely increased since 1980, consumption exceeded production by the end of the 1990s and the gap between consumption and production is continuing. In short, China's rapid growth in energy demand poses great challenges to its energy security.

Figure: 4

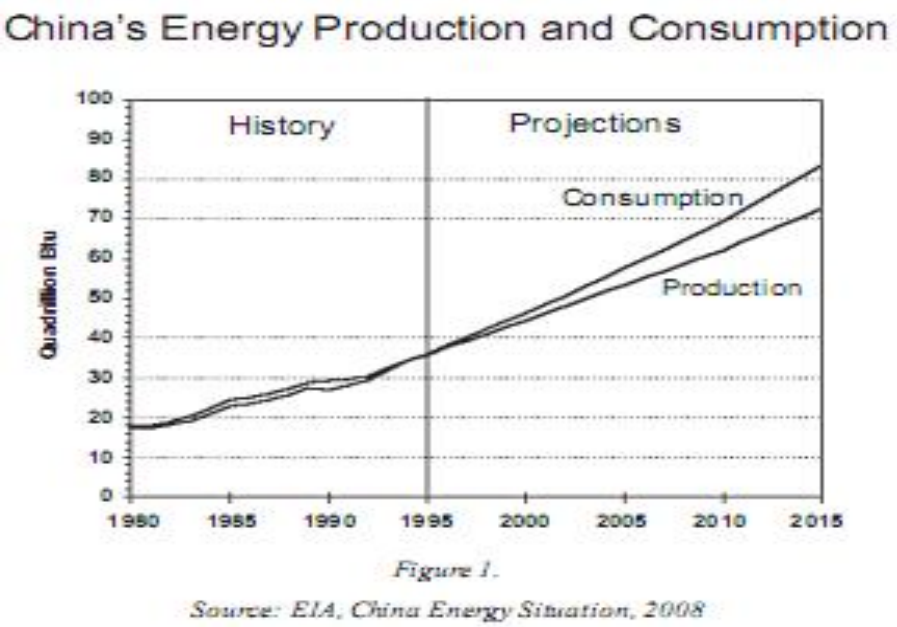


Figure 1.

Source: EIA, China Energy Situation, 2008

(Source: EIA, China Energy Situation, 2008)

Despite all kinds of energy demand, production and consumption, and possessing rich natural gas resources, China country produced virtually no gas before 1957. In contrast with stagnant oil production, China's natural gas production has been increasing over time. Though registering consistent growth, natural gas accounted for only 3% of the total energy production in 2003. The major consumers of natural gas are fertilizer and Chemical plants. Natural gas is required for power projection and domestic use. Contribution of gas to meeting China's energy needs is important, especially from environmental standpoint, gas thus plays crucial role in national energy policy. This will serve to reduce dependence on imported oil. By 2020, the share of natural gas in total energy consumption is expected to increase from its current level of 3% to 8%. Furthermore, China's demand for oil and gas will rise faster than its demand for coal. Since domestic oil production has been stagnant, imported oil has slowly increased since 1993. This is reflected in the figures; China's dependence on foreign oil was 6.3% in 1993, but jumped to 30% in 2000 and to 46% in 2004 (EIA 2006). Nonetheless, China is not free from coal usage because the use of coal has been wide spread in China due to two important factors; one is abundance and other is relatively stable and inexpensive costs. As in 2004, in China's energy mix, coal consumption accounted for more than 70% a much higher figure than the

25.5% international average (China Daily 2004). At the same time, China is heavily investing in renewable energy resources. For instance, China envisions that 15% of its energy supplies will stem from solar power, wind power and biomass conversion by 2020 (Hayes 2006).

Again, China's demand for electricity has increased as well. Its coal reserves are the mainstay of its power industry and the country is the world's leading coal producer and consumer. Coal supplies two-thirds of its total energy needs and fuels 80 per cent of its electric power generation. Therefore, increasing demand for electricity is fuelling ambitious plans to expand the nuclear power industry. All these above facts vindicates that China is enhancing its energy demand in the world energy market. However, there are certain factors responsible for the increasing demand of energy in China. First, it has the largest population of the world. Secondly, China's rapid economic development, industrialization and urbanization and finally, the transfer of manufacturing facilities, especially energy demanding ones (Xing 2011: 4).

However, the rapid economic growth of China poses energy demand challenges. The major energy resources located in turbulent and volatile regions(such as the Persian Gulf and Central Asia), vulnerable sea lanes with two choke points from the Persian Gulf to Northeast Asia (the Straits of Hormuz and the Straits of Malacca), and pipelines crossing several insecure borders have shaped China's growing sense of energy insecurity. Nevertheless, Chinese analysts observe that the United States is a proactive threat to China's energy security. There is no nation powerful enough to balance the U.S. and the American Navy dominates the 7,000 mile sea-lanes from Shanghai to the Straits of Hormuz through which half of China's oil supplies must pass. Therefore, China has adopted five strategic policies to reduce its threat in pursuing international energy. First, geographical diversification of its energy supplies; Secondly, increasing energy efficiency; Thirdly, reducing reliance on international majors, while enhancing the share of energy imports flowing through Chinese owned or controlled intermediaries; Fourthly, diversifying its reliance on oil toward nuclear power, hydro-electric power and natural gas, the supply of which is less susceptible to sea-lane interdiction; Lastly, developing the military capability to independently protect Chinese energy supplies (Calder 2005: 16). All these factors could diminish the threat to the energy security of China. Diversifications away from oil and coal, toward nuclear power and lately toward natural gas, have all been important themes in Chinese energy diplomacy.

China's Energy Interest in Central Asia

The significance of the Central Asian region as an energy market is specifically due to its geographical location between the two large energy consumers in the world, namely China and Europe. China is often regarded as one of the extra-regional powers in Central Asia seeking to influence the region's political and economic arena. China perceives itself as a major player in an increased competition with the Russia and USA for influence in Central Asia. As the USA presence in the region is embraced as a threat to China, policy makers in Beijing have given considerable importance to integrating with the region through economic activities. According to Gao, the entry of Americans to Central Asia acts as a significant part of Washington's overall strategy of suppressing Russia, containing China and dominating the entire world (Gao 2002), which ultimately forced Beijing to take counter measures to check the US influence. However, for Beijing, Central Asia is not merely paramount for the security concerns but also for the region's huge energy reserves. The energy resources of Central Asia are important for China due to several reasons. First, Central Asia is an important source of China's oil imports because this region accounts for more than 8 per cent of China's oil imports. Secondly, it would provide the structure of China's energy imports and help to diversify its energy resources. Supply diversification is one of the key objectives of China's energy strategy. Thirdly, the rich mineral resources of Central Asia are especially needed for China's accelerated economic development. Fourth, Central Asia's geographical proximity ensures security of energy supply compared to the energy import from the Persian Gulf through the two strategic choke points of Strait of Hormuz and Strait of Malacca. Finally, China's geographical location provides the leverage for direct trans-border energy import, the landlocked status of Central Asia limits the direct access of other energy voracious countries such as India, Japan and South Korea (Janardhanan 2009: 102). All these factors made China a dynamic player in the energy sector of the Central Asia region.

Besides these factors, there are other factors that prompted China to enter into Central Asia, to reduce the dependence on the sea lines of communication for oil transports. In the event of conflict or a terrorist attack, these could easily be disrupted, choking Beijing's energy supply, especially at the vulnerable Malacca Straits. The discovery of Kazakhstan's giant Kashagan oil field was another factor that made the Chinese leadership looks to Central Asia and the Caspian. The oil field, located in the

north of the Caspian sea, is estimated to be one of the five largest in the world and is claimed to be the largest oil discovery anywhere in the world (Ottaway 2003: 8).

Moreover, China's geo-economic interests in Central Asia relate to the ability of states to acquire raw materials and corner regional markets. In relation to raw material reserves, Central Asia is vital to China as it is second only to the Arabian Gulf in terms of oil resources. The Central Asian region has vast oil and gas resources; Kazakhstan, Turkmenistan and to a lesser extent Uzbekistan and China has begun to link up energy pipelines from these states to China's western border. In June 1997, the Chinese National Petroleum Corporation (CNPC) purchased 60% of Kazakhstan's Aktyubinsk Oil Company for $4.3 billion (USD). The CNPC also announced the construction of a 3000km pipeline linking western Kazakhstan too China's Xinjiang province with a price tag of $ 3.5 billion (USD). In between 1997 and early 2005, "CNPC invested nearly $10 billion in Kazakhstan" (Fu and Haan 2005; Xu 1999).

On the other hand, China is an important power for Central Asian countries, with respect to the region's efforts to come out of their dependence on Russia. Until China's entry, the energy industry in this region was enormously dependent on the Russian pipeline network for supply and distribution to customers. Thus, all the main pipelines supplying energy to Europe connecting Central Asian and Caspian states are owned by Russian oil companies except for the Baku-Tbilisi-Ceyhan (BTC) pipeline, which was built connecting Shah Deniz field in Azerbaijan to Turkey via Georgia, bypassing Russia. Russia's Gazprom oil company has signed many agreements with these countries in 2002 and 2003 for transporting 1 trillion cubic meters (tcm) gas of region's 8 tcm gas reserve. According to International Energy Agency (IEA), the deals will effectively eliminate those countries as direct competitors for export sales to Europe. However, China's involvement was seen as an opportunity for the Central Asian states. While the Russian monopoly over the distribution pipeline network to Europe had limited Central Asia's direct access to the import independent countries in the West. China's limited role in the region's energy sector was the main factor in opening energy corridor with the East. Despite Russian dominance over the region's energy market, its role may be significantly affected due to the presence of China in the region.

China and Major Powers in Central Asia

As it has been conspicuous that Central Asia is affluent due to ample resources of energy endowed in the region. For the better development of energy sector and accessing good quality of energy, major powers stepped up economic investment, providing military assistance and accomplishing stable influence in the region. Among the powers the US, Russia, China and EU, and particularly now China, have maintained relationship for accumulating energy from Central Asia region. In this context, the United States (US) involvement in Central Asia is strategic in nature which is not only associated with access to energy but also an attempt to democratize the region. The US concerns gravitate around the region's oil and as an important zone in the war on terrorism. Moreover, the US viewed that this is a platform where it can increase its influence by preventing the dominant role of China and Russia and also Iranian influence. However, US officials have prioritized obstructing Russia and China forming competitive blocs and alliances in Central Asia. It is these processes that reduce opportunities for genuine regional cooperation, actions permitting the free exercise of national sovereignty (Blank, 2008). The US perspective on China's interests and investments in Central Asia is that of a direct threat to its interests and ultimately to regional stability. Further, US is relentlessly seeking to prevent the emergence of Russian energy monopoly in the region. The US views Central Asia's large energy holdings as dominated by Russia, for which the objective of US energy policy has been focused on two things; first, the development of multiple pipelines and links to foreign consumers and producers of energy (Ibid). However, China also wants its dominance in the region obstructing the role of US in the region. The US dominance is thus severely constrained (Downs 2000). Along with, other dominant player, Russia has also large interest in the region.

Geographically, Russia is ideally positioned to exploit the huge energy reserves in its eastern lands, but must struggle to control the flow of oil and gas from the South. On its eastern borders are the energy consuming economic powerhouses of China. Japan and South Korea; to the south energy producers are Kazakhstan, Azerbaijan and Turkmenistan (Ziegler 2006: 236).

However, Chinese policy towards Central Asia is more coherent than that of Russia although the Central government does not appear fully to control the country's

oil giants, whose interests are shorter term and profit driven than those of the government. In this perspective, both China and Russia are actively pursuing a policy of integration into the international economy. Russia is committed to an active, multifaceted foreign policy in which economics is a top priority .Like China, Russia is trying to overcome the isolationist legacy of its communist past by joining the World Trade Organization and opening up to foreign investment in various spheres, particularly energy, will be critically important in domestic development and in foreign economic relations. Further, Russia on its part, attempts to monopolize regional pipelines for its own use. The objective of Russia's energy policy is to maximize the effective use of natural energy resources and the potential of the energy sector to sustain economic growth, improve the quality of life of the population and promote strengthening of foreign economic positions of the country (Ministry of Energy of the Russian Federation 2010).

Nonetheless, Russia's international activities from the energy sector compresses the development and exportation at reasonable prices, of other states energy resources; an enhanced participation on the international energy markets and the control of their energy resources and infrastructures; the energy cooperation with the neighbor; the transit of energy exports, and the technical cooperation (Fredholm 2005: 4). Along with China, Central Asia has maintained very good relations with the EU and other regional powers of India, Pakistan, Iran and Turkey in the energy sector.

China's Energy Strategy towards Central Asia

The question of energy is paramount to China's Central Asia strategy because China has observed that the energy security is a prime strategic goal for China and has taken strenuous measures to diminish the country's vulnerability (Swanstrom 2007). China's foreign policy in the 21st century is facing basic threats from the geopolitics of energy. China's growing investments in and deepening political relationships with energy producing nations in Central Asia reflect it's perceived "energy vulnerabilities" and an appetite to ensure energy security by diversifying supply away from Middle Eastern sources. Geopolitically, one of the most important questions for China is also to stabilize the west side and its western border (Zicheng 1998: 25). China has invested continuously in Central Asia since 1990s, and given special importance to the potential of Kazakhstan to act as a supplier. Not merely in Kazakhstan, but China is

also providing assistance to Uzbekistan for accessing oil and Tajikistan and Kyrgyzstan for hydroelectric power, which enables China to maintain good relations with this region.

Therefore, China has followed certain strategy for bolstering energy relations between Central Asia and China. First priority is given to set up a long term energy relations with the region through economic integration and developing trade relations. Secondly, to construct direct pipelines carrying oil and gas from the producing countries in the region to Chinese territory. Thirdly, to diminish the role of other extra regional energy hungry countries in Central Asian states. Lastly, due to the effects of geopolitics in the region, China is better off exploring bilateral and multilateral oil cooperation when implementing its overseas oil strategy. However, China's oil strategy is driven by economic benefits based on the principle of mutual trust and equality (Xuetang 2006: 136). Thus, the main emphasis of China's energy strategy in Central Asia is given on certain areas which are as follows:

Energy Cooperation between Central Asia and China

Although China paid vigorous attention to Central Asian after the September 11 attacks on the United States, increased energy engagement only appeared on the agenda after Japan emerged in 2003 as a competitor for an extension of the Siberian oil pipeline. The energy cooperation between China and Central Asia has been characterized by certain areas such as rapid investment in Kazakhstan, Turkmenistan and to a lesser extent for oil and gas exploration, and increase the security of energy transportation (Qinhua 2007: 5). In this context, the China National Petroleum Corporation (CNPC) and Kazakhstan's state oil company, KazMunaiGaz (KMZ), jointly constructed the westernmost section of the cross-border oil pipeline, running 448km from Atyrau to Kenkiyak in Kazakhstan, a project that was completed in March 2003 (CNPC 2005).

However, the launch of pipeline also marked a turning point for China's energy security. The pipeline helped Kazakhstan realize its ambitions to become a major oil exporter as well as President Nursultan Nazarbayev's wish to make China Kazakhstan's closest partner (Yahoo Business 2005). Another victory China accomplished in Central Asia was the successful takeover of PetroKazaikhstan (Petrokaz) in 2005, an international petroleum company registered in Canada but with

all of its assets in Kazakhstan. What was particularly interesting for China with this deal was the full ownership of the oil field Kumkol South, and a joint ownership of Kumkol North with Russia's Lukoil. China's energy cooperation with Turkmenistan was also expanded at the turn of the century. In June 2004, during President Hu Jintao's visit to the country, the CNPC signed two more agreements with Uzbek company Uzbekneftegaz to explore and develop prospective petroleum deposits in five onshore blocks of the Uzbek section of the Aral Sea, together with Russia's Lukoil, Malaysia's Petronas, and South Korea's National Oil Corporation (BBC Monitoring Energy 2006). Therefore, the growing activity of China in Central Asia seems to be welcomed among the Central Asian states themselves. Moreover, China can be one component in breaking the almost monopoly like status of Russia's energy ties to the region and enhance the options available to them.

Constructing Pipeline between China and Central Asia

Since 1993, China became a net oil importer and sought to diversify its supply routes. The Straits of Malacca is the funnel for 80 per cent of China's oil imports, mostly from the Middle East and West Africa (US Office of the Secretary of Defense 2005: 33). In this context, the idea of oil pipeline between Kazakhstan and China was launched in 1993, later in September 1997, China National Petroleum Corporation and KazMunayGas signed the memorandum of understanding to build an eastward oil pipeline to China. The costs of the projects were estimated at $ 3.5 billion (Pop, 2010: 208). Due to the competition with the Baku-Tbilis-Ceyhan's project and the low level of oil prices, China suspended its construction for six years until more oil reserves were found to make the project economically viable. Consequently, the construction of the Chinese-Kazakh oil pipeline triggered in September 2004. Again the two countries built Atasu-Alashankou pipeline through which China acknowledged its first oil in May 2006. This project has initial capacity to transport 200,000 b/d of crude oil, with plans to double the capacity by 2011(China-Kazakh Pipeline 2005).

However, the construction of the Chinese-Kazakh pipeline will not only make China less dependent on the Straits of Malacca, but also enhance Chinese influence in Central Asia to the detriment of Russian interests. On the other hand Turkmenistan is the fifth largest gas reserves in the world; its proven reserves of natural gas are about

3 trillion cubic meters. Yet, Turkmenistan's reserves have largely been unexploited due to the lack of export outlets. But, in December 2009, an 1140 mile gas pipeline was put into operation connecting fields in Turkmenistan with the Chinese border city of Horgos. The pipeline transits central Uzbekistan and southern Kazakhstan before reaching western China. Under the terms of the agreement, China would purchase 30cvm of Turkmen gas annually over three decades (Lanteigne 2007; 151). Thus, the impact of Chinese-Turkmen pipeline has destroyed Russia's monopoly over gas export routes from Central Asia. Moscow won't be able anymore to buy large quantities of Turkmen gas at a low price for domestic consumption and then sell its own at market prices. Nevertheless, a Russian construction company, Stroytransgaz helped build the Chinese-Turkmen pipeline. Therefore, Edward Chow and Leigh Hendrix have argued that Moscow preferred Turkmen gas to go east than west, where it would have completed against Russian gas in its primary European Market (Chow and Hendrix 2010: 38). Moreover, China also became a latecomer in the rush for Caspian and Siberian energy resources. Nonetheless, Beijing constructed three significant pipelines for accessing energy from above regions, overcoming issues such as taxes, tariffs, and environmental risks. Thus, these pipelines have been constructed in view of China's rising status as a great power and a global energy player (Karagiannis 2010:1-9).

Nevertheless, China has various concerns regarding its energy supply from Central Asia. Firstly, the internal stability in Xinjiang has caused continuous disruptions. Therefore, China adopted the Great Western Development Drive, in January 2000, focusing on five important areas: quest for equality, foreign investments, infrastructure investments, sustainable development, tackling the nationalities issues (Szadziewski 2009: 212). Secondly, the Central Asian countries have their own domestic problems. The suspicious perceptions of China and the energy nationalism can threaten Chinese investments in this region. Finally, the great power competition, the multiple energy transport routes, the Russian and American military presences represent new Challenges for China's interests in Central Asia (Pop 2010: 209).

Diminishing the influence of Other Extra Regional Powers

China has initiated very important steps to contain other countries' influence in the region's political and energy sphere. While China doesn't see Russia as a major threat in the region, the US military presence in the region has gained strong attention amid the Chinese policy makers. The US has been endeavouring to influence the region's energy market since 1990 primarily to reduce Russia's energy monopoly in the region. However, the US was also endorsing several non-Russian pipeline projects to transport energy from Central Asia to the markets in its west. According to Baran, the multi-billion BTC oil pipeline from Caspian region wouldn't have materialized without top-level engagement and active diplomacy played by the US government (Baran 2006).

There are certain issues which have persuaded US to come closely with the region; these are terrorist attacks in Uzbekistan in 2004, Tulip revolution in Kyrgyzstan and other regional issues. Despite US, Russia has strenuous energy interest in the region as well. Both China and Russia worked together to check the dominance of US in the region. Though the US believes that Kazakhstan is their best ally in the region, China's growing role in the energy industry especially the large scale investment in the oil and gas sector would make it difficult for Astana to neglect Beijing's interests in the security affairs of the region. It is also noteworthy that Beijing developed a prioritized policy orientation towards Central Asia, in contrast to the American policy, which seems to have much more reluctant ad hoc presence based on the war against terrorism (Swanstrom 2005).

Another significant player India also paid more attention in the energy sector of Central Asian region through bilateral visits and economic ties. Among the Central Asian states, India's energy interests are mainly focused on the oil and gas reserves of Kazakhstan and Turkmenistan, where China had developed political and economic strong foothold in the region. In this context, in 2005, as a major blow to India's energy interests in Kazakhstan, Indian oil companies losta an energy bid to their Chinese counterparts. An Indian energy consortium, OMEL (ONGC-Mittal Energy Limited) made a bidding to purchase Petrokazakhstan (PK) for a $ 3.9 billion. But Chinese state owned oil company, CNPC, has managed to make a higher bid worth $

4.18 billion and also made an agreement with PK, which would block any other sale agreements. As per the agreement, in breaking up the deal PK is required to pay US $ 125 million to CNPC, which ultimately avoided any further Indian intervention in the deal with PK (Janardhanan 2009: 105). Nevertheless, in these biddings the Indian oil companies hiked the energy stake price in host countries. While Chinese companies would be ready to pump in more money than any other international competitors, China wants to reduce the role of major players in the region and act as a dominant player in the world energy market.

Investments in Oil and Gas Sector

The Chinese corporations arrived late on the Central Asian energy market, but they tried to develop a methodical strategy of acquisitions. In 1997, China produced a great surprise when China National Petroleum Corporation (CNPC) acquired 60% in AktobeMunayGas (Kazakhstan). It got a twenty year user license for the Zhanazhol gas site and the Kenkiyak oil site. The CNPC was scheduled to invest $ 4 billion until 2010. In 2003, CNPC brought another 25% in that company with $ 150 million. Again CNPC obtained a participation in Uzen oil field, in 1997, but it withdrew from the project in 1999 (Peyrouse, 2007: 50-51). Since 2002, China has launched new acquisitions in Central Asia. At the end of 2002, China National Petroleum Corporation (CNPC) bought 50% in Salejan field (Kazakhstan) (Blank, 2005: 103). In August 2003, CNPC bought 35% of the North Buzachi oil and gas field and acquired the remaining 65% from Chevron two months later (Ziegler, 2008: 146). Further, in August 2005, CNPC outbid Oil and Natural Gas Corporation and Lukoil, in the auction for PetroKazakhstan, with a tender of nearly $ 4.2 billion (Xuetang, 2006: 131). In this way, China has invested largly in the oil and gas sector of Central Asia.

Energy Diplomacy

The Chinese government has been embroiled in the energy geopolitics of Central Asia through political, military and financial instruments. First, the political support for the Chinese National Oil Companies was pursued bilaterally and multilaterally. China had good neighborly relations with Kazakhstan and Kyrgyzstan. The exchange of visits at the highest level endorsed the various energy deals with these regions. China is

determined to negotiate bilaterally its energy investments in Central Asia; the Shanghai Cooperation Organization (SCO) contributed a lot to forge mutual trust and to balance Russia's historical influence in the region. The purpose of the SCO is aimed at strengthening mutual trust and good neighborly friendship among the member states; encouraging effective cooperation among the member states in political, economic, trade, scientific and technological, cultural, educational, energy communications, and other fields; devoting themselves jointly to preserving and safeguarding regional peace, security and stability; establishing a democratic, fair and rational new international political and economic order (SCO, 2006). Secondly, China's military support to Central Asian republics meant conventional arms transfers, trainings and joint military exercises, especially with Kazakhstan and Kyrgyzstan (Cornell, 2004: 246). Lastly, the Chinese financial support was represented by investments in different sectors of the local economies, loans with low interest rates and aid packages, given by China Exim bank and China Development Bank. China made certain investments in hydroelectricity sector, mineral industry and infrastructure of both Central Asia and Afghanistan in order to develop a new Silk Road and to connect itself with Iran and Pakistan.

Implications of China's Energy Diplomacy in Central Asia

China can't ignore the new "Great Game" which is played in Central Asia and Caucasus region. All the major powers like Russia, US, EU and China have embroiled themselves in the landlocked region for their own advantage. However, China got benefited from the region by accessing huge amount of energy resources. Considering its goals and advantages China played its own role in the following manner. China has unveiled the first phase of its expansion strategy in Central Asia. Facing rapidly intensive competition, China pursues integrated development in the pivotal region. Therefore, Development and production investment and pipelines are China's main priorities in the near future. Moreover, China also tends to be a major actor in the region by bolstering development activities in front line projects and pipeline construction and technical services. With the rapid development of economy, China has transformed itself and grown as a major power in the world. However, China would like to promote a balance of power in the new game in Central Asia for

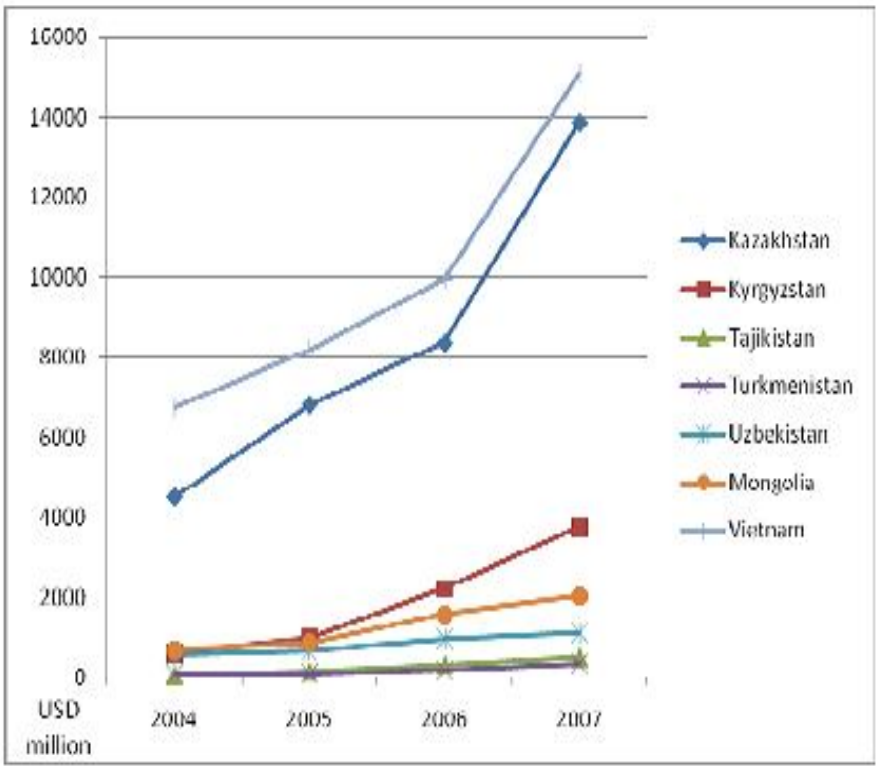
enhancing its advantages in the region. Its thirst towards the Central Asia regions was triggered by two important factors: first, China's high economic growth and Second, increasing energy pitfalls. These two factors prompted China to play its own game in Central Asia (Xu 1999 52).

China's Influence in Central Asia: Act as a dominant Player

China's relations with the new Central Asian countries first began with territorial settlements. In 1992, China, Russia, Kazakhstan, Kyrgyzstan and Tajikistan reached a deal in resolving territorial disputes, Known as the "Shanghai Five". Then these five countries with the addition of Uzbekistan, formally established the Shanghai Cooperation Organization (SCO) in 2000 (Chung 2004). Central Asian countries are important for the stability and economic development of China's northeastern region. Central Asia is located in the middle of the Eurasian Continent and was part of the major trade route called the Silk Road between the East and the West in the past. After the disintegration of the Soviet Union in 1991, trade between China and Central Asia increased by 130 per cent. In 2005, Xinjiang accounted for 40 per cent of the total volume of trade between China and five Central Asian countries (People's Daily Online 2005). Again, China is interested in exploring for oil and natural gas in Central Asia in order to diversify China's energy sources. Central Asia offers the potential of relatively safe energy sources. Central Asia offers safe energy supplies which are less likely to face blockade threats. Therefore, Central Asia is not only an energy supplier to China, but it is also an energy transit region. China is keen on building pipelines through Kazakhstan and Turkmenistan to Bandar Abbas port in Iran. The enormous project would allow China to transport oil from the Middle East to Xinjiang. In recent years, the trade between China and Central Asian countries has escalated significantly. But the trade volume is still low compared to Chinese trade with other neighboring countries. As in the figure 5 shows that among those five Central Asian countries, the total trade between China and Kazakhstan in the largest, amounting to around USD (United States Dollar) 13877 million, yet it is still smaller than the trade volume between China and Vietnam at USD 15117 million. Further, except Kazakhstan, trade between China and other Central Asian countries remains very limited. Among these

countries, only Kyrgyzstan has a trade volume with China that was larger than China-Mongolia trade in 2007 (Chinese Statistical Year Book 2008).

Figure: 5 Trade between China and its neighboring countries



(Source: Li and Wang 2009: 7)

With increasing Chinese investments and trade in Central Asia, it is natural to expect an increase in Chinese soft power there as well. But it doesn't appear to be the case. One Kazakh study found that 44 per cent of surveyed experts believe China would not achieve anything in Central Asia while only 20 per cent believe that China would be a major player in the region (Peyrouse 2008: 13). Moreover, Chinese language and culture do not receive much attention in the region but China's rise in Central Asia raises more concerns rather than extending its influence in the region. China is also accused of quietly sponsoring Chinese migration in Central Asia as 100, 000 Chinese have settled in Kazakhstan (Torbakov 2007: 158). As a traditional power, Russia had established its strong bases in the region but China is a relatively new power for which it will take time to cultivate mutual trust and confidence in the region. Trade and investment between China and the Central Asian region may be increasing but they have not yet translated into Chinese influence. However, China's influence is

constrained and balanced by various regional powers and the Central Asian countries. Russia is regarded as an active balancer in the region. Kyrgyzstan uses Russia to counter Uzbekistan and China while Turkmenistan uses Russia to check Iran. Russia is also the "guarantor of regional stability" when Central Asian countries face inter-ethnic and territorial conflicts, and a militant form of Islam (Akerman 2003: 28).

China's Energy Policy in Central Asia

China's emerging presence in the region is seen as one of the major geopolitical actor in the aftermath of the collapse of the Soviet Union and the consolidation of China's new power (Peyrouse, 2007). The two regions are now set to play a major part in China's energy policies and in the war against the separatists in China's northwestern region. The economic and political rise of Chinese has a great implication in the two regions in terms of reinforcement of China's policy objectives and the reinforcement of the geopolitical alliance embedded in the strategic calculation of energy security. Thus, the Iran-nuclear issue is testing China's foreign policy orientation in the context of its energy security consideration. China-Iran partnership has grown out of mutual need for products, ranging from arms and technology to consumer goods and China's soaring need for energy supplies (Dorraj and Currier 2008: 70).

The enlarging discrepancy between energy demand and domestic supply is driving China to make an effective energy policy to keep the planned growth. Firstly, China has to put huge investments into discovering oil and natural gas resources in the Western part of the country despite the burdens of massive capital investment, high production costs, infrastructures, environment and geological risks. Secondly, China has to depend on unstable Persian Gulf areas and other crude oil suppliers in Africa and Central Asia where civil wars, geopolitical risks and socio-political conflicts are unavoidable. In the case of its neighbors, China can construct an oil and natural gas overland pipeline from Central Asian and Russia. Cross-land pipeline options were already put on the highest negotiation between China, Russia and other Central Asian countries. In connection with its rising energy demand import, the transport of energy products has been the life line of China's economic development. China's coastal line areas are the heart of its economic growth and the frontier of its international trade. However, from an internal perspective, energy security has become the essential premise for China to accomplish its national goal of quadrupling its gross domestic

product (GDP) in 2020.

There is a genuine consensus among Chinese leaders and scholars that energy has become a key strategic issue for China's economic development, social stability and national security and key national interests is highly dependent on the access to sufficient energy resources (Liu 2006, Zhang 2006). China's sensitivity on the confluence of geopolitics and resource politics is derived from the fact that historically China has been a weak sea power. Today the rise of China is due to the rapid emergence as a major force in world energy markets and energy geopolitics. Beijing's booming energy consumption and heavy investment for energy security have raised a new range of contentious issues between China and other world powers that are adding a new layer of issues which has complex and dynamic relationships. China's economic growth is supported by three primary pillars: first, export led growth; secondly, real property growth; and lastly, government spending and among them export has been key engine driving its economic growth (Clark and Xing 2010: 10-13).

Promoting Sustainable Energy through International Cooperation

Energy and environmental problems in China resolves through self-reliance efforts but also through international cooperation. In order to diversify access to energy supplies and reduce dependency on certain exporters, China is taking many political and economic measures and providing economic aid to bolster its cooperative relations with resource-rich countries (Tseng 2008; Ziegler 2006). However, the dynamic debates on energy security are still going on in China. China's energy security will be one of the most important parts of its broader foreign policy. The world will focus soon on China's new economic and energy policies, its energy market reform and its new strategies in meeting the political challenges of rising energy costs and environmental pollutions (Clark and Xing 2003). Therefore, global attention has given more tresly to the development of energy in China. China has adopted certain policy for the sustenance of energy which are as follows: first, connecting "intermittent" sources of electricity like wind or solar to the national grid; secondly, connecting utilities mandated part of the extra costs; thirdly, feed-in tariffs guaranteeing renewable energy producers a steady, high price for electricity so as to enable them to compete with coal producers; finally, tax breaks, preferential loans,

and other financial incentives encouraging investors to support renewable ventures (China FAQs, 2010). For the international cooperation in the energy, China has won the global recognition for its achievement in the development and application of alternative energy. Therefore, China overtook the United States in the race to invest in wind, solar and other sources of clean energy. China has also maintained good relations with the past competitors in Denmark, Germany, Spain and United States to become the world's largest maker of wind turbines. Thus, China's renewable energy strategy emphasizes the sustainable growth in energy and making China strong in this field.

China-Central Asia Energy Cooperation

In the aftermath of Soviet disintegration, Central Asia accomplished its independence and drew the attention of great powers because of geo-strategic position, ample reserve of energy resources and multifarious cultural patterns. Among the great powers, China is one of them which played very dominant role with the Central Asian countries cooperating in the energy sector. There are certain factors which prompted China in the Central Asian energy areas are as follows. First, the Central Asian region is located in the central area of Eurasia, neighboring to the Western China and abundant in resources. Secondly, the three countries of Central Asia like Kazakhstan, Turkmenistan and Uzbekistan are prosperous in oil and gas reserves and are expected to become potential countries that supply oil and gas to China. Thirdly, Uranium ore reserves of Kazakhstan and Uzbekistan are quite significant and enormous potential for China in terms of nuclear energy. Fourthly, the status of transit transport of Central Asia region has much relevance to China. Lastly, Kyrgyzstan and Tajikistan are extremely abundant in hydro energy resources (Chen 2012: 35). From the perspective of trade complementary, China imports mostly from the Central Asian countries raw materials to full fill its energy demand. As a result, the Central Asian countries not only regard China as a major trade partner but an important strategic investing country since the loan offered by China not only helps Central Asian countries to maintain and enlarge development of oil resources but also creates favorable conditions for the Central Asian countries to have long term and stable supply of oil and gas to China, complying with ubiquitous interests of both the parties involved (Ibid: 34-35). Nevertheless, China is very much keen to strengthen its energy cooperation with Central Asian countries. This cooperation is a part of China's new

strategic and geopolitical approach to this region of the world, an area in which China sharply thinks of itself as a neighbor and privileged partner (Godement 2011: 1). By accentuating the energy cooperation between China and Central Asia, Lan Peng argues that the other regions of the world could supply China with oil and gas are all risky in different ways: the Middle East, which has 61 per cent of global oil reserves and 41 per cent of natural gas reserves, is politically unstable; Africa has other drawbacks such as societal instability, the risk of terrorism and its distance from China; Latin America, in geopolitical as well as geographical terms, is too close to the US (Peng 2011: 241).

Central Asia, on the other hand is a region that is close to China and has geopolitical advantages. The close cooperation of China with Central Asia helps China to boost its economic development. The main weaknesses militating against cooperation are the relative backwardness of Chinese technology, China's overdue and inadequate energy diplomacy and the influence in Central Asia of the "theory of the Chinese oil threat". One opportunity is the relative importance of Central Asian oil and gas reserves, which represent 8 per cent and 4.3 per cent of the world supply respectively. The important fact that Central Asia supplies energy to China, which gives a basis for the expansion of cooperation, while the Shanghai Cooperation Organization (SCO) provides an advantage in diplomatic context for future collaboration. The competition between major powers, particularly Russia and the US, is a threat to the development of cooperation, as is the battle over the legal status of the Caspian Sea as a sea or a lake, along with its implications for access to resources. To establish energy cooperation, Lan argues that China should support the SCO in ensuring the security of its periphery. It needs to build good relationships with all the littoral states of the Caspian Sea, as well as with the states engaged in extracting resources. China pursues trade relations with its Central Asian neighbours and enhances the power of Chinese oil companies in the region by enlarging their regional presence, their management structures, and the size of their operations. Lan endorses China's policy of increasing its energy dependence on Central Asia at the expense of the other regions of the world. But he leaves out three obvious limitations of this policy: Central Asia's relatively limited reserves, the presence of other

customers, and the so far unconvincing role played by the SCO "energy Club[6]", whose creation was announced in 2007 (Ibid: 6). In the field of energy cooperation between the two countries have been started with two significant countries like Kazakhstan and Turkmenistan. These two regions are rich in oil and gas sector. First, China established energy cooperation with Kazakhstan in the oil sector after 1991. Regarding the China's interest in oil Dr. Cohen argues that "The Chinese government has designated oil grain and water as strategic commodities with maximum influence on economic development. While China is the world's fifth largest oil producer, demand is outgrowing economic production. By 2020, China will not be able to supply itself with oil, iron, steel, aluminum, sulphur, and other minerals. Official Chinese statistics show China's oil production growing at the rate of 1.7% a year, while demand is growing at 5.8%. China is a net importer of oil since 1993 (Cohen 2003).

The energy cooperation between China and Kazakhstan have formed in two ways; one is the participation of Chinese oil companies in the exploration, development, and construction of infrastructure in Kazakhstan. The other is the Kazakhstan-China oil pipeline to deliver oil from Kazakhstan and Russia. This energy cooperation between China and Kazakhstan began in the second half of the 1990s. In 1997 the Chinese National Petroleum Cooperation (CNPC) place bids on the privatization of Kazakh Aktiubnisk Oil and Gas and won the tender obtaining 60 percent of the company stock. After this turning point, the PetroChina became active on the Kazakhstan energy market on a large scale and bilateral energy cooperation between the two countries gradually increased. Subsequently, it expanded its share of the oil market of Kazakh. In the same year, Beijing signed an agreement to build a 2000 mile (2600-2900 km), long pipeline linking Atyrau on the Caspian Sea to Urumqi, having the capacity of 20 million tonnes per year (Zeb 2005: 3-36).

In May 2003, the Committee on State Assets and Privatization of the Ministry of Finance of the Republic of Kazakhstan sold its 25.12 present stock in the CNPC International Aktobe Munaigaz; CNPC purchased those shares through competitive bidding. Thus, the CNPC came to posses percent of the stock in Aktobe Munaigaz

[6] The term "energy club" is proposed by the Russian president. The aim of this club is to bring together major energy producers and key consumers within the ambit of the SCO, who would lead to the coordination of efforts in joint energy production and transportation projects (Azerkan 2010).

(Zhao 2007: 166). Secondly, in the gas sector, China developed good relations with Turkmenistan. China is involved in Turkmenistan for gaining gas from the region. In this context, the joint statement issued after the visit of President Jiang Zemin to Turkmenistan in July 2000, attached singular importance to strengthening mutually beneficial cooperation in the energy field. The two sides agreed to conduct a feasibility study on the project of laying a natural gas pipeline linking Turkmenistan and China (Blagov 2005).

However, there are 37 Chinese investment projects in Turkmenistan totalling $383 million, including 17 projects worth $ 221 million in oil and gas sector. China also built pipeline linking to Turkmenistan through Kazakh territory. In July 2005, Kazakh President Nursultan Nazarbayev and Chinese President Hu Jintao met in the Kazakh capital Astana and discussed the proposed pipeline. After the talks Nazarbayev told that constructing a Turkmenistan-China pipeline through Kazakh territory would be beneficial for all three countries (Ibid).

The study of the China-Central Asia energy cooperation suggests the following conclusions.

- It is clear that China is seeking to extend its sphere of influence as a regional power in order to enhance its own economic and energy security. It will not seek territorial expansion into the regions of Central Asia. As in the past, the Central Asian states will continue to be viewed as “buffer zones” between the larger Eurasian powers, as well as sources for trade.

- Energy will continue to be the economic incentive for cooperation and the most contentious issue between the Central Asian states, Russia and China, as well as Iran, Turkey, Japan and the United States. China is willing to strain many of these bilateral relationships in order to enhance its own energy security interests (Gladney 2000: 222).

Summary

This chapter sums up that Central Asia is a significant zone of raw materials and market place for China. Historically, China had little influence in Central Asia, partly due to its own instability along its periphery and internal problems in the Chinese

heartland. The emerging arena of China's new posture is Central Asia where Russia plays a predominant role. Therefore, China is interested to reduce the role of external players, with special emphasis on Russia in the region. China, as the rising super power in the world's most economically vibrant region of Asia-Pacific is in competition with other economic powers like Japan, South Korea and India. It is the world's most populous country and has a rapidly growing economy. China's spectacular economic growth is mainly responsible for its rising energy demands which have suddenly become an issue of international politics because of the rapid increase in oil imports by China since 2004. Meanwhile, Chinese oil and gas companies seek to accumulate foreign oil assets to meet domestic needs, which raises concern among other energy dependent states. Central Asia is rich due to ample resources of energy endowed in the region. For the better development of energy sector and accessing Central Asian energy, major powers stepped up economic investment, providing military assistance and competed for influence in the region. Among the powers the US, Russia, China and EU, and particularly now China have strengthened engagement for controlling energy resources of the Central Asia region. To access the energy resources of Central Asia, China has adopted certain strategy towards Central Asia; first, energy cooperation between China and Central Asia; secondly, constructing pipeline between China and Central Asia; and thirdly, investment of China in the oil and gas sector of Central Asia. Finally, working to diminish the role of other external players in this region.

CHAPTER 5

Conclusion

This study discusses the foundation of geopolitics of energy in a broad perspective, especially from world perspective and with special focus on the Central Asian context. For a sound understanding of the concept of geopolitics of energy, this research has introduced Mackinder's "Heartland Theory" which projected power as the driver of world politics. This study also separates the understanding of Geopolitics and that of Energy. It highlights how these two terms are different and simultaneously close to each other. Geopolitics of energy is delineated in a theoretical framework by analyzing different theories like Realism, Liberalism, Marxism and Long-cycle theory. These theories give valuable understanding of geopolitics of energy. However, geopolitics of energy illustrates the intersection of energy, security and international politics among nations. It also comprehends how energy demand and supply shape international politics and vice versa.

Realism focuses on power politics by asserting that by controlling more energy a country can be powerful. Realism as a theory is based on security, conflict and war. In this context, this theory outlines four things as mentioned in the first chapter, access to control of natural resources because energy is the most critical and key element of national power and national interest; energy resources are becoming scarcer and more insecure; states will increasingly compete for access and control over the resources; conflict and war over the resources are escalating significantly. Liberalism is also another vital theory which puts emphasis on agency and the trans-formative potential of the various identified intervening variables like transparency measures, legal frameworks and norms, regulatory and market measures, and the role of regional and international institutions. It basically focuses on coordination and cooperation. In terms of international energy politics, this theory argues from two different approaches like "dark underbelly" and "what needs to be done". The first approach points to the illiberal practices and perversion of politics but on the other hand, another approach points out to the liberal prescriptions required to overcome the cumulative effects of these illiberal practices and institutions within the international

energy realm. Marxism strongly prioritises the structure over agency, with particular attention on the geopolitical distribution of power and the geographical location of resources. This theory is linked to dependency theory which is based on core and periphery analysis. Lastly, long-cycle theory talks of an energy hegemon in each cycle with two challengers. In the light of the last theory, it has been argued how major powers like China play energy hegemony in the Central Asian region by diminishing the other players' hegemony. This study vindicates the different phases of long-cycle theory, in which dominant power plays the role of energy hegemon.

Among all these theories, Realism and Long Cycle theory play dominant role in the international energy politics. In this study, it is also argued how practically Realism and long-cycle theory can be applied in a broad framework. In this context, China has played very active and dynamic role for accumulating more and more energy to be a dominant power in the world energy market. It wants to diminish the role of other external powers in the Central Asia region. On the other hand, in the framework of long-cycle theory, China has played the role of energy hegemon with two challenge countries like Russia and America.

Geopolitics of energy in world scenario is very complex which is dominated by certain major players like USA, the EU, developing world, energy producers including companies and countries and anti-status-quo and regulative non-state actors etc. Along with this, the decline of oil production, energy security, environmental restraints and new forms and uses of energy have become hot issues in the energy sector. The world's energy future is increasingly becoming unsustainable and energy supply required to meet the world's growing demand tends to become highly volatile due to failures arising from underinvestment, environmental catastrophe or sudden disruptions. This study discusses the global reserves, production, and consumption of natural resources like oil, gas and coal. These fossil fuels play very significant role in the international energy market.

In the Central Asian context, geopolitics of energy is highlighted by the involvement of external powers like Russia, US, China, EU, India, Pakistan, Turkey for accessing large amount of energy resources from this volatile region. Central Asia is a region that holds huge amounts of energy resources like oil, gas and coal which came to light after the collapse of the Soviet Union. This region draws the attention of major powers to satisfy and fulfill their needs and objectives.

After the disintegration of the Soviet Union in 1990s, independent Central Asian states came into being in the world map. Central Asia consists of five independent countries, Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan and Tajikistan, which represent one of the world's last great frontiers for geological survey and analysis, offering opportunities for the discovery, production, transportation, and refining of enormous quantities of oil and gas and other energy resources. It is rich both in oil and gas sector. In this context, Turkmenistan and Uzbekistan are especially noted for gas resources and Kazakhstan is known for oil resources. Kyrgyzstan and Tajikistan have large resources of water for producing hydroelectric energy.

Central Asia is a producer region on the international energy scene, which has certain fundamental characteristics. First, it comprises territories whose subsoil holds significant reserves of hydrocarbons. Secondly, there is a rentier component. All the Central Asian countries possess certain amount of natural resources with different quantities. Kazakhstan is the main oil producer of oil in the region, with current output of crude 1.2 barrels per day. Turkmenistan is an important gas and oil producing country in the region. It ranks 11th in the world reserves of gas overtaking Iraq. It holds the first place in the Central Asia region in terms of explored natural gas that is estimated at over 2.8 trillion cubic meters.

Kyrgyzstan and Tajikistan are two important countries of Central Asia with hydroelectric energy resources. In these two regions, there are two important rivers, Amy Darya and Syr Darya, which play active role in producing hydroelectric energy in the region. The Kyrgyz energy system has fourteen plants over the Naryn and Syr Darya rivers with a total installed capacity of 3,678 megawatts. But Tajikistan has the potential to produce more than 300 billion KWh electricity per year. The majority of Tajikistan's hydroelectric energy is produced by the hydroelectric stations on the Vakhsh River, with a total capacity of about 3,800 megawatt, producing fourteen billion KWh annually.

The effective use of energy resources of Central Asian region keeps the economic growth sustainable. For the sustainable economic growth of Central Asia, they have accepted certain energy conservation policies which help them for future engagement with major powers of the world. Due to the large resources of energy they need to export into the world market for which they face some predicaments. There are also some conflict potentials among the Central Asian countries related to energy which is

unsolved between them. To solve these problems, they need international cooperation for the development of energy in the region. Despite all these problems, Central Asian region also faces some difficulties in exporting the natural resources from the region. It is argued here that in the context energy efficiency and conservation, they face some barriers like institutional, legal, economic, scientific-technical, information and market related.

This study argues how the development of energy resources and determining transit routes have become subject to robust competition among external players, mainly Russia, China, U.S., EU, Turkey Japan, India, Pakistan and to some extent Ukraine. Central Asian states are endowed with abundant natural resources comprising of oil, natural gas, coal and hydroelectricity, which have overwhelming political significance in the region. On the commencement of the 21st century, Central Asia, especially Kazakhstan, Uzbekistan and Turkmenistan, emerged as new centers of energy reserves. Kazakhstan and Uzbekistan have great hydrocarbon reserves and Kyrgyzstan and Tajikistan have vast water resources for producing cheap electricity and good potential for renewable energy development. Therefore, outside assistance is required to create an infrastructure to facilitate production and transport of these products to international markets.

The first and predominant power Russia regards Central Asia as part of its natural sphere of influence because of historical domination and also because a number of ethnic Russians live in this region. The energy resources of the Central Asia assumed vital importance in post-Cold War Russian economic development and the country's foreign trade. Especially in Central Asia, Russia operates as a major player to deter the dominance of China and United States. Russia is one of the world's largest exporters of crude oil and natural gas. Next power is China, which has geo-strategic and geo-economic interests in Central Asia. China's main concern in the region is to improve the security of its Western border with Kazakhstan, Kyrgyzstan and Tajikistan. But China is interested in the Central Asian energy resources because it needs huge quantities of energy to drive its faster economic growth. U.S. is also largely focused in the Central Asian energy resources to pursue its own energy diplomatic strategy on a global scale. The US is interested in energy resources of Central Asia because of two important reasons. First, it seeks to foster energy export

options for former Soviet Republics in the region. Second, the U.S. is seeking for the diversification of energy resources by increasing its imports from Central Asia and lessening Central Asia's dependence on Russia and China in the region. And lastly, the U.S. is interested in fostering democratization and market economic development in Central Asia.

The European Union is also a dominant player in the energy sphere of Central Asian region. It is one of the largest energy consumers, requires to keep its economy growing which escalates its dependence on energy resources. The relationship between EU and Central Asia are concerned with two relevant issues: one is the fossil energy primarily from Turkmenistan and Kazakhstan and to a lesser extent from Uzbekistan and other is the hydroelectric energy from Tajikistan and Kazakhstan. India is also another player in this region for accessing energy. Central Asian region is important for India because it holds substantial oil, gas and hydroelectric power. It is the future source of energy for India. Pakistan is also looking at the huge amount of energy resources of Central Asia. It wants to make Pakistan the energy transit corridor in South Asia and the Asia-Pacific region, which will bring huge economic gains for the country. Further, it wants a large share of potential economic gains from the region. Turkey has played a very dynamic role in the energy sector of Central Asia. It has joined with this region because the country's energy consumption is growing rapidly than its production and Turkey's strategic location makes it a natural "Energy Bridge" between major oil and gas suppliers from the Persian Gulf and Caspian Sea on the one side and consumer markets in Europe on the other side. Another player Iran keeps its strong foothold in the region for energy. It has developed link with Central Asia by establishing road and railway systems. The last player Ukraine also plays an active role in Central Asian energy sector, since it depends on Turkmen gas.

Pipeline politics is also highlights another significant area of this study where dominant powers play paramount role in the affairs of energy geopolitics of Central Asia. Transporting energy is an issue of supply and demand which is determined by geopolitical concerns. In the context of energy politics, the routes of pipelines have become the subject of geopolitical contestation among major powers for control, influence and to some extent for economic advantage. The development of energy sector in Central Asia essentially requires international cooperation, which can be

categorized in two ways: one is development of physical infrastructure and other is institutional development. Subsequently, in the geopolitics of Central Asia, China has acquired some advantages through security, energy and trade relations with the region.

On the basis of the hypotheses of this study, it is vindicated that Central Asia is a significant area of raw materials and market place for China. Historically, China had little influence in Central Asia, mainly due to Sino-Soviet rift, border dispute and partly due to its own instability along its periphery and internal problems in the Chinese heartland. The emerging arena of China's new posture is Central Asia, where Russia plays a predominant role. China is the rising super power in the world's most economically vibrant region of Asia-Pacific. China's sharp economic growth is mainly responsible for its rising energy demands which have abruptly become an issue of international politics because of the rapid increase in Chinese oil imports since 2004. China became the second highest energy consumer in the world market surpassing Japan, and only behind the U.S. Therefore, China is interested to reduce the role of external players, with special emphasis on Russia in the region. China, as the rising super power in the world's most economically vibrant region of Asia-Pacific is in competition with other economic powers like Japan, South Korea and India. It is the world's most populous country and has a swiftly growing economy. Meanwhile, there is a great concern that Chinese oil and gas companies seeks to accumulate foreign oil assets to meet domestic needs, raising concern among other energy dependent states. Nevertheless, China focuses its especial emphasis on the Central Asian region because of geo-strategic and geo-economic interests.

This study also delineates that Central Asia is a theatre of competition for external powers. For accessing and controlling its energy, major powers stepped up economic investment, providing military assistance and accomplishing stable influence in the region. Among the powers the USA, Russia, China and EU, and particularly China have maintained strong relationship with the Central Asian region for accumulating energy from it. China's energy interest in Central Asia is multifarious. First, it is an important source of China's oil imports. Secondly, it would help to diversify its energy resources. Thirdly, Central Asia's geographical proximity ensures the security of energy supply. Fourthly, mineral resources are essential for economic development

of China. Lastly, geographical location provides profit for direct trans-border energy import. To access the energy resources of Central Asia, China has adopted certain strategy towards Central Asia. First, energy cooperation between China and Central Asia; secondly, constructing pipeline between these countries; thirdly, investment of China in the oil and gas sector of Central Asia. Finally, to minimise the role of other external players in this region.

This research explains how China became a dominant player in the Central Asia region by reducing the influence of predominant powers like Russia and the U.S. China has promoted its economic and strategic interests in the region, by establishing good trade relations with the Central Asian countries.

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