EMERGING THREATS TO GLOBAL PEACE AND SECURITY

NAVEED KHALIQ ANSAREE

Today's world is confronted with multiple security issues that are accentuating the discords amongst the states and nations across the globe. Out of several emerging threats, this paper focuses only on four major ones, such as: Water, Food and Energy Insecurities; Global War on Terror (GWOT) and Anti-Islam Paradigm; Global Economic Contraction; and the security concerns related to Global Warming as well as Safety of Nuclear Plants and Disposal of Nuclear Waste.

In the theoretical framework, the threats under discussion may appear distinct from each other and represent different elements of peace and security, economics, culture and religion but in strategic sense they are interlinked in a template of "Cause and Effect." While the underlying causes could be diverse, the effect created is same. The common effect in this case that connects the dots and runs through the diverse elements discussed in the article is "instability, anarchy and chaos." If these elements of threats are not effectively managed globally and in institutionalized manners, these could compound the security dilemma across the globe and transform "brush fires into wild fires" that could lead to intra-state, inter-state or regional conflicts, thus endangering global peace and security.

Water, food and energy nexus:
A new weapon of war

Water, food and energy securities not only have an interdependent nexus but also have social, economic and ecologic dimensions that have a potential to gravitate into a conflict within the segments of a society or the constituent units/ provinces of a state. The conflict can escalate into inter-state,

regional or a global conflict depending upon the nature and magnitude of underlying causes, issues and interests. Energy requires water and runs modern society; and water requires energy to move it across long distances from sources to the users.[1]

Needs for clean energy at an affordable price as well as availability of water and food in adequate quantity and quality have created a national and human security problem across the globe, particularly for the developing countries. Global trends such as population growth and rising economic prosperity are fast creating demands for energy, food and water which are bound to compromise the sustainable use of natural resources and result into shortages which may put water, energy and food security for the people at grave risk, impede economic development, lead to social and geopolitical tensions amongst the states and their peoples.[2] These could also cause irrevocable damage to the global climate and the environment.

According to statistics from the International Water Management Institute (IWMI), about 33 per cent of the people in the world are suffering from shortage of water (which was a threshold set for the year 2025); about 25 per cent of the world's population lives in areas of "physical water shortage"; and another one billion people face "economic water shortages" due to lack of necessary infrastructure to access water from rivers and aquifers.[3] Egypt imports more than half of its food due to lack of water to grow food domestically; Australia is facing major water shortage as a consequence of diverting large quantities of water for agricultural use; the Aral Sea disaster.[4] There is a world-wide concern and challenge as to how to meet the food requirements of about 7 billion people which are expected to rise to about 9 billion in the next 30 years. This would require doubling the world food production which would create increasing demands for water and energy as agriculture is the largest user of water and has enormous demands for energy. There are already major deficiencies in the existing water-energy infrastructure. The high population growth rate, change in lifestyle and dietary habits of the people will continue to put additional demands on water and energy. Drought, floods and non-availability of fresh water may cause global instability and conflict in the coming decades, as developing countries rush to meet demand from exploding populations while dealing with the effects of climate change.

Although water tensions have led to more water-sharing agreements than violent conflicts but the fragile pacts and treaties may collapse if there is not enough water to share or go around. It is globally feared that water is likely to become "a weapon of war" or "a tool of terrorism" beyond 2022, particularly in South Asia, Middle East and North Africa. Nations could cut off rivers to prevent their enemies opponents having access to water downstream; terrorists could blow up dams, and states that could not provide water for their citizens would collapse; this is the future as painted in a top US security report based on the US National Intelligence Estimates.[5] The US is preparing for threat of a global war over water which it believes to occur by 2030.[6] The study primarily focuses on the following rivers and water basins: the River Nile in Egypt, Sudan

and countries farther south; the Tigris and Euphrates in Iraq and the greater Middle East; the Mekong in China and Southeast Asia; the Jordan River that separates Israel from the Palestinian territories; the Indus and Brahmaputra rivers in Pakistan, India and Bangladesh in South Asia, and the Amu Darya in Central Asia.

Most dangerously, there are whole clusters of unstable countries fighting for the same waterbodies. Incidentally such rivers and water-basins which involve alarmingly high water shortages are also located in the same regions and theatres where the New Great Game rivalry is taking shape between the US-NATO camp and its opposing camp. It is also feared that the upstream nations who are more powerful than their downstream neighbours could be tempted to limit water access to downstream neighbours and use water as a "weapon of war." Similarly, the terrorist or rogue states may be tempted to target dams, barrages and power infrastructures. Such threats could force the states to adopt cost-intensive safety measures to protect the extensive length of rivers; albeit with little success and at huge cost to the national socio-economic development.

According to UN Secretary General Ban Ki-moon, "A struggle by nations to secure sources of clean water will be 'potent fuel' for war and conflicts."[7] Even without outright fighting, countries will use water as a tool of political leverage, similar to how gas and oil are used today. States would use their inherent ability to construct and support major water projects to obtain regional influence or preserve their water interests as evident from the following developments. Laos has proposed a $3.5-billion Mekong dam which has become a subject of an international dispute with Cambodia and Vietnam. China has recently announced a plan to build 38-gigawatt Motuo dam which would be over two times bigger than the Three Gorges Dam and located near the Tibet-Arunachal border, disputed between China and India. Through such gargantuan projects on the Tibet plateau, China is actually set to augment its long-term water and energy security. The project is perceived by an analyst as being aimed at using control of water as a political weapon against China's lower-riparian neighbours.[8] Similarly, India is also building small and medium dams by diverting or stopping water flows in the Indus, Chenab and Jhelum; all in violation of the Indus Waters Treaty with Pakistan. China, India and Pakistan are nuclear-armed neighbours, and their nuclear deterrence is tightly coupled because of geographic proximity which could become unstable in a number of ways. Therefore, water discords among China, India and Pakistan should be taken more seriously and managed and resolved in an equitable and mutually acceptable manner, failing which the whole region could be plunged into further chaos and instability, endangering the global peace and security.

Water shortages will hinder the ability of the affected countries to produce food and generate energy, posing a risk to global food markets and hobbling economic growth. North Africa, Middle East and South Asia will be hit the hardest.[9] While the coming shortage is a manageable problem for richer countries, it is a deadly "destabilizing factor" in poorer ones as such countries

are already prone to political, social and religious turmoil; and failure to provide water for farmers and city dwellers can be the trigger point for a wider "state failure." Among those most vulnerable to this scenario are Sudan, Pakistan and Iraq, which are all locked in debilitating civil conflicts; and Somalia, which has effectively ceased to function as a state.[10]

The world is faced with an energy crisis that is taking a huge toll on countries around the globe with soaring oil prices that could go up to US$ 200 a barrel (even the price of coal has doubled).[11] More than 1.6 billion people have no access to electricity; world's energy needs could be 50 per cent higher in 2030 than today; 2.4 billion people still rely on traditional biomass for cooking; the fossil fuels are finite; and several countries have been hit by riots due to electricity disruptions, including the blackouts in the developed countries.[12] The most pessimistic of experts believe the world has a few decades at least until the oil, on which prosperity hinges, starts to run out.[13] According to International Atomic Energy Agency (IAEA), hefty investments are needed in the oil, natural gas, coal and electricity sectors, such as: US$2.4 trillion (for 2001- 2010); US$3.2 trillion (for 2011-2020); and US$4 trillion for the period 2021 to 2030.[14] These extraordinary investments, which are extremely difficult to be realized, would only decrease the number of people with access to electricity to only 1.5 billion in 2030. This would mean four out of five living in the rural areas of the developing world, mainly in Sub-Saharan Africa and Asia would not have access to electricity. And that includes South Asia where 70 per cent of the rural population would not have access to electricity compared to 32 per cent of the urban population.[15] Therefore, the projected energy crisis could create instability and chaos within a state as well as on a wider scale and across regions thus projecting a grave threat to global peace and stability.

It may be concluded that the water-energy-food shortages worldwide and their strategic nexus are fast creating a scenario that could trigger intra-state, interstate, regional or global conflict in the not too distant future.[16] Water being the first and most critical need the problem demands to be addressed on war-footing. The concept of Integrated Water Resource Management and its four guiding principles could be made part of the water-strategy: firstly, recognising fresh water as an economic-good; secondly, water as a limited and endangered resource that is indispensable for the sustenance of life, development and environment; thirdly, cooperative mindset and attitude towards water-development and water-management; and fourthly, the role and responsibility of women in water-management.[17] Put plainly, it is a lose-lose or win-win scenario. The latter demands effective mass-awareness campaign at grass-roots level about the danger of water, food and energy insecurities looming large across the globe, as well as tangible measures towards instituting global, regional and state structures and mechanisms to enable the vulnerable to become part of the solution rather than becoming part of the problem.

GWOT and Anti-Islam Paradigm:
A March towards 'Clash of Civilizations'

The long-drawn-out global war on terror (GWOT) and Islamophobia that the US, European Union (EU), and their like-minded entities have embarked upon for the last two decades have created an anti-Islam/ anti-Muslim paradigm and the associated faultlines that pose a grave threat to global peace and security. The threat, if not addressed in strategic terms, could lead to confrontation between civilizations or a wider conflict. Unfortunately, no sooner the "threat" of Communism receded after the dissolution of the Soviet Union, NATO very conveniently replaced it with the "fear of Islam"; and Muslims became the "Enemy Number-1" and "Enemy from Within."[18] The template of "good and evil" that had been formed in the public mind during World War II and Cold War, was updated with a new enemy, ie Islam.[19] Fear of Islam provided justification for NATO's continued existence even after the Cold War had ended.

War with Islam fits into the plans of the neo-conservatives, Jewish and Christian extremists, who believe that until the present structure (Al-Aqsa Mosque) is destroyed, a total war with Islam takes place and the Solomon Temple is rebuilt, the "End-Time" will not come.[20] Therefore, they have to encourage war with Islam as given in their Divine Scriptures; until that happens Israel would not be restored to its ancient boundaries.[21] Such mindset of the neocons who wield substantial influence on the US foreign policy explains the doctored pretext of "weapons of mass destruction" in Iraq and the "9/11 incident." US invasion of Iraq and Afghanistan, and the so-called 'GWOT' finally got turned into a campaign aimed at discrediting Islam and associating it with the wider threat and, in effect, creating a fear of Islam amongst the public. The doubt, if anyone had any, was removed when president George W. Bush went on to claim that he was in communication with God, Who had instructed him to invade Afghanistan and Iraq.[22] Now the world knows how the GWOT got expanded to Sudan, Kenya, Somalia, Yemen and Libya, conveniently justifying spending trillions of dollars on the US war machine. Syria, Iran and Pakistan have also been on the brink, the clock ticking on-and-off for an imposed conflict.

The world population of Muslims is growing fast and estimated at 1.4 billion now, surpassing the population of the Catholic Christians. Hardly in a span of a century, the combined population of only six Muslim countries (Indonesia, Bangladesh, Pakistan, Egypt, Turkey and Nigeria) is expected to rise from 252 million in 1950 to a total of 1.34 billion in 2050. Today, 48 Muslim countries are the members of UN General Assembly, making it a majority bloc. As the growth rate in Europe is in the negative, its indigenous populace is being replaced by the immigrants who are mostly Muslims. The house of Islam is divided between Sunni and Shia. If demography is an advantage, the future seems to belong to Islam; which is accentuating the fear of Islam becoming the dominant religion of the world.[23]

Islamophobia is "*an exaggerated fear, hatred and hostility towards Islam and Muslims that is perpetuated by negative stereotypes resulting in bias, discrimination and the marginalization and exclusion of Muslims from state's social, political and civic life.*"[24] Islamophobia network is fast growing in the Western countries particularly in the US. A structured campaign appears to have been launched as a matter of national policy to exploit fears concerning terrorism and national security, and portray fellow Muslim citizens as perpetual and hostile suspects; thus creating an ideological and civilizational divide within a state. The Islamophobia network usually consists of the following five distinct elements.[25] Firstly, donors and funders who have given millions of dollars to anti-Muslim organizations in the last decade to empower a number of small and interconnected individuals and organizations to spread hate and fear against Muslims in the US. Secondly, scholars and policy experts that act as the central nervous system for manufacturing fictitious threats about Islam or mis-define Islamic principles. Thirdly, grass-roots level organizations and the religious-right that have been spreading the propaganda about the 'Islamic threat' through their national chapters in states, and members worldwide. Fourthly, media enablers and experts are the ones who broadcast misinformation around the country and the world, with their work cited many times. Fifthly, political elite who use anti-Islam and anti-Muslim sound-bites and rhetoric to appease anti-Muslim lobbies, secure hefty funds for their election campaigns and enhance the prospects of their electability. Therefore, the above stated structured campaign is creating an anti-Islam and anti-Muslim paradigm that could lead to intra-state, inter-state or regional conflict or maybe a clash between civilizations, thus posing a grave threat to global peace and security.

The anti-Islamic language and mindset also cropped up at a US military academy where an academic discourse talked of the possibility of a "total war with Islam" and the need for "Hiroshima-style tactics" to counter the emerging threat from Islam.[25] On 14 March 2011, Stephen Coughlin presented a 'Model of Operational Framework' at the US Joint Forces Staff College, Virginia. The model suggested that Geneva Convention-IV (1949) should no longer be relevant to Islamic terrorist or respected globally; and the war should be taken to civilian population wherever necessary, such as the Islamic Holy cities of Mecca and Madina (like it was applied in Dresden, Tokyo, Hiroshima, Nagasaki).[27] The model further argued, with Saudi Arabia threatened with starvation and Mecca and Madina destroyed, the Islam would almost be reduced to the status of a cult.[28] Such war-mongering, strategic brinkmanship and offending talk could bring the civilizations on a collision course and endanger the global peace and security faster than could be imagined.

As regards the 9/11 incident, a large number of professionals consider the *9/11 Commission Report* and the US official account to be "fatally flawed" and full of "cover-ups."[29] They also take the evidence that "America was attacked by Muslims on 9/11" to have been fabricated, and rather suspect that the Americans were murdered by their own government who used the 9/11 attack as "causes-belli" to invade Afghanistan thousands of miles away.[30] The

wars of Iraq and Afghanistan along with their related military operations in Pakistan are set to cost $3.7-4.4 trillion to the US economy, besides the huge cost in terms of human misery.[31] The number of people injured, maimed and dead from malnutrition or lack of treatment is far higher. It is estimated that when the fighting stops, the wars are expected to have created some 7.8 million more refugees,[32] thus making the region more vulnerable to instability and conflict.

After the 9/11 incident, New York Police Department (NYPD) has also been found to conduct increased scrutiny of the Muslim communities living in America. Some of the reports revealed the presence of a "Demographics Unit" in the NYPD that has been carrying out the profiling of ethnic communities based on "28 ancestries of interest," and incidentally all were related to Muslims.[33] Such type of demographic profiling is not only derogatory and against the values and norms that the US Constitution fiercely protects but could also strike at the very foundation of civilized societies, thus sowing dissension, resentment and chaos.

During the last two decades the paradigm of war has undergone huge transformation, adding complexity and more dimensions to the spectrum of conflict, particularly the 'Global War on Terror.' In fact the whole paradigm of war has been altered; rather it has been turned upside down. Since the 1990s, the world has been plagued with perpetual conflict, insecurity, public mind control and double-thinking;[34] all manifesting into 'permanent' wars, 'pre-emptive' wars, 'humanitarian' wars, long wars and 'wars without borders' etc; that too in flagrant violation of international law and public interest. War or state terrorism is being sold as 'humanitarian' intervention; 'pre-emptive' or 'preventive' war as 'just' war or a 'noble endeavour in service of humanity and peace'; aggression justified as 'self-defence'; and mass murder as 'collateral damage.' Perpetrators of war are presented as victims, and the antiwar movements are demonised and criminalized. The public is misled and asked to defend their homeland against the self-created enemies or the Islamic terrorists. Enemies are fabricated and terrorist organisations are created and funded. Thereafter, terrorist threat warnings are issued concerning the same self-created enemies and terrorist groups to shape public opinion and justify a multibillion dollar counter-terrorism campaign to go after such enemies.[35] Then justice is served in a bizarre manner. Instead of bringing the alleged terrorists to justice through a process of law, justice is brought to them in the form 'Drone-Attacks', state-sponsored assassinations and extra-judicial killings; like the elimination of Osama bin Laden. Such alteration in the paradigm of war has created space for the powerful states for flouting international law on 'self-defence' to further their national interests without any fear of retribution, thus promoting acceptance of unlawful norms of behaviour in the international system, leading to anarchy amongst the states and endangering global peace and security.

Unfortunately, Westerners and non-Muslims have increasingly become so used to 'scapegoating, stereotyping and denigration of Muslims (particularly Arabs)' in their art and entertainment that there is hardly any realization as to

how, and to what extent, the Western media and the Hollywood Industry is vilifying Muslims as subhuman and depriving the entire Muslim civilization of its humanity; just like the Nazi propaganda against the Jews did during World War II.[36] According to a survey, about 300 Hollywood movies vilified Arabs and Muslims in one way or the other, and the number was more than 25 per cent of the sample of movies surveyed.[37] Therefore, Hollywood and Western media is one of the causes of rise in hate-crimes against the Muslims in the Western countries, and 'blow-back' against US foreign policies and instability across the Muslim world.[38]

In summary, the Global War on Terror, anti-Islamic mindset of the neo-cons, Islamophobia and the altered paradigm of war as explained above are fanning anti-Islam and anti-Muslim perceptions in the US and Western countries as well as providing impetus to the growing fundamentalism, extremism and radicalization of the Muslim world. Indoctrinating the future leaders at military colleges that a 'total war' against the world's 1.4 billion Muslims would be necessary to protect America from Islamic terrorists are accentuating the ideological and religious faultlines that could precipitate into confrontation between civilizations or a wider conflict, thus endangering global peace and security in strategic terms.

Global economic contraction:
A stimulus for a wider conflict

'Great Economic Contraction,'[39] or economic meltdown that some may call it, has engulfed the US and other Western economies since 2008, and is projecting a serious threat to global peace and security. The 'Great Depression' of the 1930s led to World War-II, and the war turned out to be a huge stimulus to US economic growth; not because it was a cost-effective use of resources, but because nobody got worried about deficit spending.[40] The defence industry is the key driver and a major stimulus for the US economy. Therefore, the notion that war is good for the economy could make an economic sense to the US and the other countries in West once again, and entice them towards a major conflict.

The ongoing economic contraction is more severe in a sense that it applies not only to output and employment, as in a normal recession, but to debt and credit, and it takes many years before the two effects are deleveraged. The real problem is that the global economy is badly overleveraged, and there is no quick escape without a scheme to transfer wealth from creditors to debtors, either through defaults, financial repression, or inflation. That is why the present economic meltdown is more severe than the Great Depression of the 1930s. Steve Clemons, a leading economist while analysing diminishing American military power and eroding economic and moral leadership, has commented: "America is at a key inflection point in its history and that the US network of global control (aka, "empire") is disintegrating......"[41] As the United States confronts economic, demographic, budgetary, and populist constraints over its global role and power, "American decline" has gone from fringe theory to

conventional wisdom in a few short years.[42] Therefore, unless and until cost-benefit equation is unfavourable to the US and/or the anti-war deterrence is prohibitive, there is a grave danger that the US may be tempted towards instigating a major conflict, and become a potential threat to global peace and security.

Similarly, Europe is also facing major economic challenges as evident from the financial crisis in Italy, Spain, etc and particularly in Greece — a soft belly of Europe. Europe is not playing with time, it is playing with fire.[43] Poverty has returned to Europe by leaps and bounds with unemployment rising (Italy: 28 per cent, Greece: 43 per cent, Spain: 51 per cent), standards of living getting lower, number of suicides growing (Greece registered an increase of 40 per cent), and, the crisis situation may take three to four years to improve.[44] Some of the real-life indicators in the UK are: 83 per cent of teachers daily see scores of hungry students; one in five cannot pay their utility bills, and one in eight young people omit lunch to create the opportunity to feed their families; and it must be noted that the UK is not the poorest state in Europe.[45] Italy's public debt has reached $2 trillion Euros (123 per cent of GDP) and Greek is indebted by 160 per cent of its GDP.[46] Therefore, the notion that war is good for the economy could make an economic sense to some of EU/NATO countries which could be drawn on board the US war-band wagon, thus accentuating the potential threat to global peace and security.

Another dimension of the EU economic crisis is its political dimension which has struck at the very foundation of the EU and could lead to erosion of the Union-hood. The EU economic crisis has also accentuated the crisis of confidence both in the global financial system as well as in the global political system, thus creating a 'Crisis of Legitimacy.'[47] EU political elite not only protected financial elite but some of the EU members distrusted the others thus creating an existential crisis for the European Union. Therefore, the crisis has delegitimized EU's political elites, deeply divided the society and united the public in hostility. European Union stands divided in two groups; the happy ones (Germany and Scandinavians) and the unhappy ones (the rest of 20 states), and the situation is leading to rise in nationalism, envy and resentment.[48] Therefore, if the economic crisis is not managed in the strategic, political and economic sense, intra-state as well as inter-state resentment could strike at the very foundation of the Union and present a grave threat to regional and global peace and security.

Could the European Union get out of the trouble? The EU exercises very little financial and executive control over the fiscal policies of its member-states. It would be a very tall order for the European politicians to create a new financial system, either with a more integrated fiscal union or a breakup of the current euro zone. Germany has gone overboard in salvaging the EU economic mess. The German Constitutional Court had initially barred but recently allowed Germany to join the 'Euro Bonds'. Nevertheless, it is yet to be seen whether EU's parasite-economies undertake the needed structural reforms in the form of austerity steps and reduced incentives or continue with a 'carry-on' attitude as

seen over the last few years. The fear is that the parasite-economies/ peripheral countries could continue to feed on the healthier ones, (particularly on the German economy) and the EU may continue to stay stuck with the liabilities due to the decisions of the peripheral states.[49] If that happens, the European Union would start experiencing wave of individualism and heightened centrifugal forces. Europe is not very comfortable over the supply of Russian-gas and fears energy-shortfalls in the next decade. With weakened US, EU and NATO economic, political and military might, it would be difficult for the EU to influence and benefit from the Caspian energy resources which could rather get diverted to China, Pakistan and India and other energy-starved Asian countries. There appears to be no quick-fix to EU's political and economic problems. The fear is that another wave of centrifugal forces could erupt in EU in the near future and accentuate the existing threat to regional and global peace and security.

The 'Crisis of Global Political Economy' has also created the 'Crisis of Legitimacy' in China which could cause a reversal of unbridled capitalism and is fraught with the danger of regional fragmentation.[50] The Chinese economy expanded at a GDP growth rate of 8 per cent in 2012, is projected to grow at a 6 per cent during 2013-2016 and 3.5 per cent during 2017-2025, surpass the US economy by 2025 and beyond.[51] China is also worried about the possibility of a US default for the reason that China is the largest foreign holder of US Treasuries; either a default or a downgrade would incur huge losses to China, and impinge heavily on its economy.

Another dimension of the global economic contraction is the collapse or nervousness in the world's leading currencies, such as the dollar, euro and yen. It is widely speculated that if the dollar falls, its power also falls with it.[52] Standards & Poors downgrade of US long-term debt rating is a case in point. As the global contagion of deep recession, euro-zone breakup and a global financial crises spreads, the net outcome would be a significant drop in global trade volumes, by as much as 25-30 per cent, and also a high or hyper-inflationary scenarios in the dollar and euro zones. In case central banks move to control inflation it would make economic contraction conditions even worse. That is why there has been a shift in investments towards gold, metals, commodities, and Far-Eastern and smaller currencies.

The world's reserve currency is usually the money that circulates in the world's biggest economy. That was true of the British pound sterling in the 19th century, and the dollar in the 20th. If the Chinese economy is the world's biggest, as it soon will be, that is going to be the currency that would really count. A number of central banks are desperately looking for an international-reserve portfolio that is an alternative to both sick currencies, dollar and euro. Even after the debt-deal with the US, China may not be able to break free from the dollar trap and the governments would be left with no option but to inflate the burden away.[53] It is a catch-22 situation for China. Chinese Officials have been pressing for introducing an international supervision over the issue of US dollar.[54] Second-tier currencies, such as the Swiss franc, the Canadian dollar

and the Australian dollar (even when combined) cannot create an international reserve portfolio. On the back of this double global jeopardy we can anticipate widespread public strife, anger, demonstrations, riots and rebellions across regions and the globe. Therefore, the fall of the dollar, if and when it comes, could have major geostrategic fallouts and implications, thus projecting grave challenges for global peace and security.

Summing up, the US and EU appear to be failing in confronting the current crisis involving colossal debt, bleak prospects for growth and a panic situation on financial markets around the world. Common sense might call for a significant reduction in the US military budget but that is not happening. "War is the continuation of politics by other means (Clausewitz)." Economic Depression of the 1930s paved the way for the rise of fascism and the Second World War. Given the impasse and a recession in such a crisis, the fear is that war may become the last recourse of capitalism to revive the Western economies. Asymmetrical conflicts or low-intensity wars like the ones in Iraq and Afghanistan do not suit the scheme of industrial production; rather these only serve to deepen the deficits.[55] Therefore a war, if ever breaks out, would be 'a war of the first order' involving high tempo of operation and colossal destruction; so that a real-time show of American aerial military machine could boost the confidence in the US and alleviate market sentiments. Therefore, the notion that war is good for the economy could make an economic sense to the US and its allies and lure them towards a major armed conflict.

Global warming/climate change:
What could it mean to global security?

Global warming or climate change is the major environmental threat that the world is facing collectively as a whole, primarily by the act of its inhabitants and their way of life. The world is already lagging behind too much in addressing the underlying causes. The main cause is the collection of carbon dioxide and other pollutants in the atmosphere, forming a thick blanket which entraps the solar heat and causes the atmosphere to heat up slowly and gradually over a long period of time.[56] And if the world did not succeed in mitigating the global warming threat, we will pass on a hotter and dirtier air and water to our next generation along with a range of associated environmental and humanitarian disasters, such as melting of world ice cap and glaciers, heavy rains, floods, raised level of oceans and seas, submerging of coastal countries, droughts and wildfires, etc. According to a projection released by Natural Resources Defence Council (NRDC), the past decade (2000-10) has been the hottest since 1880, and the global average temperature could rise by about 7.2 degrees Fahrenheit by turn of the century. Global warming will have a far-reaching impact on the weather patterns, health, wildlife, and glaciers and sea levels.

The consequences of global warming on the weather pattern could include a greater number of powerful and dangerous hurricanes of the category 4 and 5. The hurricanes become more intense because the warmer oceans are

likely to pump more energy into storms and make them more dangerous and destructive, like the Hurricane Katrina that hit the US in August 2005; the deadliest in the US history. According to NDRC, Katrina caused the evacuation of 1.7 million people, death and health issues to 200,000 in the New Orleans and a loss of around $125 billion to the US economy. Raised atmospheric temperature causes water to evaporate faster (more pronounced in summers/falls) thus exacerbating the danger of droughts and wildfires like the ones witnessed in Russia and China in the last few years. According to NDRC, the year 2006 registered about 100,000 fires and burning of about 10 million acre of land which was 125 per cent more than the average for the last decade. The cost on fire-fighting and to the economy could be colossal. With more energy getting accumulated or pumped into the climatic system due to the raised temperature, instability of the atmosphere increases which manifests itself in the form of intense rainstorms, flooding and the consequent devastation to lives, stocks, land and properties, etc. According to NDRC statistics, 50 million people have become environmental refugees in the world by the end of 2010, and alternating floods and droughts could cause mass-migrations due to food shortages and malnutrition thus projecting grave danger to global peace and security.

The consequences of global warming on health are also grave, such as bad air, allergy, asthma, deadly heat waves, infectious diseases, food- and water-borne illnesses, epidemics etc. Hotter conditions increase smog and pollution, degrade air quality and thus aggravates the risk of pulmonary diseases, asthma and pollen allergies, etc. Even a higher level of CO_2 intensifies the wild growth and weeds (ragweed) whose pollen triggers allergies and asthma. Hotter climatic conditions enable dangerous insects like mosquitoes, flies and germs to survive, cover large band of heights and travel larger distances, thus causing outbreak of diseases such as malaria, dengue fever, diarrhoea and tick-bone encephalitis, etc. The dengue fever virus that was earlier considered to be limited up to an elevation of 3,300 feet has been found at 7,200 feet.[57] Severe heat waves could cause larger numbers of deaths. In 2003, an extreme heat wave caused 70,000 heat-related deaths in Europe and 15,000 in France alone.[58] Heavy rain falls could bring in pathogens and germs from contaminated soils like the 1993 outbreak of diarrhoea in Milwaukee that resulted in the death of over 0.403 million people.[59]

Global warming is also posing grave danger to the wildlife as the raised temperatures disrupt and shift the ecosystem. It is extremely difficult for wildlife to cope with such disruption in the ecosystem. If the present trend of global warming continues, more than one million species could become extinct by the year 2050, including the polar bear from Alaska. There is an increasing incidence of polar bears drowning while travelling greater distances in search of or reaching the ice floes. According to NDRC, only an increase of 2.7-4.5°F in global average temperature could obliterate about 20-30 per cent of the animal and plant species known so far. Similarly, the oceans are becoming more acidic

due to rising CO_2, thus posing grave danger to coral reefs and marine life. Only an increase of 3.6°F could obliterate 97 per cent of coral reefs in the world.

Another major threat and consequence of global warming is the melting of ice-caps and glaciers that could raise the water levels in lakes, rivers, seas and oceans. According to the NDRC, if the present trend of global warming is not arrested, the sea level could rise 10- 23 inches by the end of the century in addition to the rise of 4-8 inches in the 20th century. The rise in sea-level as the result of thermal expansion or melting of ice-caps and glaciers would flood the wetlands, barrier-islands, coastal areas and low-lying regions. Maldives, a country comprising 12,000 islands, could disappear under water by the end of the century, as also cities like Miami.[60] The Arctic could be ice-free in summers by the year 2040. The area of the Antarctic ice-shelf is shrinking at a rate of 9 per cent per decade and has already shrunk by about 40 per cent of its size since 1960s. In March, 2002, a section of ice which was bigger than the Rhode Island collapsed in the Larsen B ice-shelf in Antarctica. In the last 30 years, one million square miles of permanent sea-ice has vanished, i.e. an area equal to the combined size of Sweden, Norway and Denmark. The sea level could rise by 21 feet if the whole of the Greenland's ice melts as it forms 10 per cent of the ice-mass in the world.

What could be the solution? A short answer is: cut pollution and expand use of clean energy. Technology exists that could help in minimising emission of the greenhouse gases, particularly CO_2, or running vehicles on clean energy, modifying power plants and producing electricity from clean sources. The governments could adopt a five-step approach to minimise their contribution towards global warming, such as: setting limits through effective legislation on pollution that contributes towards global warming; encouraging enhanced investments in areas that involve green jobs and clean energy; driving energy-efficient and smarter vehicles, using energy-smart appliances, thus minimizing the need and addiction to the use of fossil fuel; creating green infrastructure, particularly weatherised and energy-efficient homes and buildings; and, above all, encourage people and communities to align their way of life and living style with energy-efficient practices, such as driving less, using alternative and mass-transit systems, choosing to live near transport hubs and work centres, etc.

Safety of nuclear plants and disposal of waste: A global disaster in the making

Safety of nuclear plants as well as disposal of nuclear waste is a Herculean challenge that has grave implications for global peace and security. The world has 33 recorded accidents/incidents since 1952 of varying INES (International Nuclear Events Scale) which includes six in the US, five in Japan, three each in the UK and Russia in addition to the ones in Sweden and Switzerland, etc.[61] According to Rogers, a major accident of the highest magnitude (INES-7) was in 1986 at Chernobyl in which a significant fraction of

the nuclear reactor core was externally released, thus causing widespread health and environmental effects and counter-measures over a large area. The latest nuclear plant accident took place on 11 March 2011 at Fukushima after Japan was hit by a tsunami following the Sendai earthquake. The accident was of the magnitude of INES 4-5 as it involved a release of more than 0.1 per cent of the core inventory and had only the local consequences.[62] Imagine the challenge and the cost that even two years after the accident, decommissioning of the Fukushima Nuclear Plant is turning out to be a formidable challenge not only for Japan but also for the International Atomic Energy Agency (IAEA) and the international community; and yet the process may take decades to complete.[63] Once a nuclear meltdown commences and the core is released externally, there is no easy solution or easy ending. In Fukushima's damaged reactor, several cubic metre of water is being pumped every hour to keep the reactor cool. Generally, the basements are not built with the specification to hold radioactive water. Therefore the radioactive water continues evaporating, leaking and seeping into adjoining areas; thus contaminating everything that comes in contact or gets exposed to the radioactivity, particularly the drinking water, dairy products and other foodstuffs, etc.

Need for energy at an affordable price is expected to rise exponentially. By 2030, as discussed above, the number of people having access to electricity is expected to reduce to only 1.5 billion, meaning every four out of five would have no or limited access to electricity. The world has a few decades for the fossil-fuel to run out, forcing countries to increasingly rely on the use of nuclear energy. Therefore, sooner or later, use of nuclear energy would become a necessity rather than a choice even for the developing countries; thus not only exponentially increasing the risk of nuclear proliferation but also the risk of accidents at the nuclear plants.

Even the developed and technologically advanced countries like Japan are finding it hard to decommission the Fukushima damaged reactor, how would the developing countries be able to ensure fail-safe security, manage a nuclear catastrophic accident and also mitigate the radioactive effects with their meagre resources. What if the nuclear accident is of the magnitude of INES-5 and above where the radioactivity is not localized and rather affects a very large area, like in the case of Chernobyl? What if terrorists struck a nuclear plant, the victim country will be in a national security fix of retribution against whom and how.

The disposal of the spent nuclear fuel rods is yet another emerging challenge related to the use of nuclear energy. The spent fuel requires interim as well as permanent disposal sites which must be locked away for tens/hundreds of thousands of years. Take the example of South Korea which is operating 23 reactors and plans to commission an additional 11 by the end of 2024; however, its temporary storage site for the spent fuel is already full by 70 per cent and the permanent management/storage plan is progressing painfully slow.[64] According to Lee, South Korea could need a nuclear waste disposal cellar of about 20 km^2 and 500 metres below the surface to accommodate 100,000 tons of the nuclear waste it would have by the turn of the century; and what to talk of building, even

finding a space of such dimensions in an overcrowded small country like South Korea would be a daunting challenge. Similar challenges are being faced even by the more developed countries. Transporting nuclear waste within a country stirs up fierce opposition from the populace for the safety, security and health related risks. The trans-shipment of nuclear waste across oceans is extremely vulnerable to accidents, theft and criticism and, above all, the process is laborious and cost-intensive. Imagine the challenges that the world could face if there was a widespread proliferation of nuclear plants to meet the energy needs, particularly in the developing countries.

What could be the answer? It must be kept in mind that any effort aimed at limiting or denying the use of nuclear energy would eventually fail. Countries would find ways and means or loopholes in the international nuclear regimes and policies to meet their energy needs and ensure state security. Therefore, international policies need to shift their strategic focus from "limiting to the safe management and control structures," albeit with zero tolerance for the violation of nuclear safety and regulatory standards. Enable the states to access nuclear energy but under iron-clad international safeguards, control and monitoring. Hopefully, the world could mitigate the nuclear energy related risks through a 'collective, inclusive and participative approach' rather than an 'exclusive, proprietary and limiting approach'. Similarly, the IAEA and other international forums could lay down mandatory requirements and mechanisms for the safe management and storage of the spent fuel. Temporary storage capacity could be capped at certain percentage of the total nuclear waste produced in a country. International approval for the subsequent upgradation or installation of an additional reactor in a country could be linked with the mandatory compliance of benchmarks for the disposal of nuclear waste piled up there.

Reprocessing could be an offsetting option for nuclear-waste management but it could increase the risk of weaponization and nuclear proliferation. Nevertheless, sooner or later international community would have to adopt the reprocessing option; albeit under IAEA safeguards. Let the nuclear energy succeed or fail under the weight of its own merits and demerits. Let a state have access to nuclear energy if it could afford and manage it without risking others; albeit according to the ironclad international criteria. The nuclear energy access criteria could include the following mandatory structures for a state:[66]

- Establishment of a department of nuclear energy and repository to oversee and manage long-term nuclear energy access and nuclear waste management programmes according to international standards;

- Establishment of a 'permanent repository' for the permanent disposal and storage of nuclear waste in a country;

- Placement of the primacy, responsibility and onus of disposal of nuclear waste on the producer of the nuclear waste;

- Establishment of internationally-regulated entities and agencies, in addition to the government, for promoting market forces and competitiveness in costing, management and permanent disposal/ storage of the nuclear waste; and

- Provision for irreversible budgeting by the government or producer for nuclear waste disposal as well as provision for direct payment to the service provider for the management and disposal of nuclear waste; albeit all under international auditing, etc.

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