



**Policy Perspectives Foundation**

***Essentiality of Resilience  
for  
National Security  
in  
21st Century India***

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**Essentiality of Resilience for  
National Security  
in  
21<sup>ST</sup> Century India**

Prof. Gautam Sen  
Col. Ravinder Pal Singh  
Lt. Gen. Harinder Singh

*“Any Mass application of force on contentious issues has a germ of self-destruction imbibed in it. Gandhi understood that far ahead of time.”*

Gen McArthur to K P S Menon  
when Menon asked the General if he had read Gandhi



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The Working Paper includes three theme papers-*Building Resilience For India's National Security; National Security Resilience and Capacity Building: 2023-204; and Building National Security Resilience (NSR) through Military Readiness* by Prof. Gautam Sen, Col. Ravinder Pal Singh, and Lt. Gen. Harinder Singh respectively. These papers are the outcome of multiple discussions amongst the authors over a period of time. The deliberations led to a working /position paper is now before the readers. The paper presents a new methodology to incorporate the concept of 'Resilience' to achieve workable National Security Policy making architecture. The paper is a work in progress which hopefully, when fully developed, would bring about a paradigm shift from the existing process of weaponisation of National Security Policy. The authors believe that this will produce a holistic paradigm enabling nation states, to concentrate on securitising the non-military dimensions and thus, be instrumental in ushering in peace and stability globally, and among the nation-states, in particular.



# Foreword

The concept of national security has been expanding and over time has included more aspects as the nature of threats change. Several non – military aspects that span over a wide range of dimensions and domains, like institutions of governance, economy, food, sensitive technologies, ecology, environment, pollution, energy, and the rights of the unborn in the ecosystem of a nation state are determinants of nations’ real capacity and power. Cyber security and critical information infrastructure are new but critical and an integral part of national security. In this context, the term resilience has assumed greater salience as it means calibrating the vitality of a nation to securitise and develop capacity, readiness, and capability to thwart threats and bounce back, if hurt in quick time. This requires a cohesion and capability to act in unison.

India’s strategic autonomy is very important because of its unique geo- political position. It is critically important to understand and institutionalise the mechanism to build resilience in modern India of the 21st Century. Building resilience would also involve securing political economy, eradication of poverty, elimination of illiteracy, shoring up public health, risk reduction of natural and manmade disasters. This would require additionally a concerted effort to build solidarity amongst the people. This in turn would entail to bringing the people at large closer to the governing process and this can be done by ensuring transparency in decision making process and adhering scrupulously to rule-based participation by institutions and organizations in government from both private and corporate sectors as well as NGOs. To build a specialized focus on resilience would require an institutionalized network of multi-disciplinary skills and might take nearly a decade. The political framework as well as the civil society will play a paramount role to nurture this process function in an interdependent but independent way.

I am very happy to present before the readers this working paper of the PPF on this important subject. We are aware that this is only a beginning and many consultations with scholars and practitioners will be needed to shape the thought further. We hope that we will be able to generate healthy debates and exchange of views in the coming days.

Two of the theme papers included in the working paper were presented by Professor Gautam Sen and Col. Ravinder Pal Singh on 14 June 2022, which were followed by a discussion with the PPF faculty and invited participants covering the expertise in diplomacy, internal security, intelligence community, experts from the administrative services, academics, research personnel and communication experts. The presentation by Prof. Sen highlighted *inter alia* the global security challenges faced by India in the twenty first century and the way forward to achieve strategic autonomy. Col. Ravinder Pal Singh in his presentation incorporated empirical evidence and corroborating references as to how National Security Resilience and Capacity Building can be addressed for the period 2023- 2040 and justified the essentiality and need for resilience.



It was also considered necessary to bring in the military dimensions of capacity building and readiness to fortify as well as securitize the concerned dimensions. For the military dimension, the piece by Lt. Gen. Harinder Singh discusses the concept of readiness and capacity building to complete the trilogy of theory of IR, the economics, and the military dimensions to produce this initial intellectual and structural architecture of resilience as a new fulcrum to conceptualize the potential of power that can be undertaken to be achieved by a nation state to become a major power.

It is hoped that these fresh inputs both in theoretical and conceptual terms will be able to focus India's attention to task ahead and make India work towards achieving resilience for safeguarding her national interest and national security perspectives.

**P C Haldar**  
*President, PPF*

# Prologue

It is necessary at the preamble of presenting the “Working Paper Report Based On the Discussion On Resilience for Capacity Building for National Security in 21 st Century” to acknowledge the genesis of rationalising a new method to examine the concept of National Security from a far wider and holistic pedagogy. It was essential thus to move away from the post 1945 period of conventional IR theory based sovereign nation state behaviour represented as actors in the global arena devoid of a consensus on rule based international law.

Superpowers and Major Powers around the world relied heavily in the cold war period on technology that provided deterrence and hence alliance produced effective countervailing power to pit one set of political ideology against another

– open market based capitalism versus state capitalism.

With the acquisition of the nuclear weapons, the Marxist-Leninist theory propounded during the Stalin period that “*War is inevitable between the capitalist and proletariat, in theory possible and in practice winnable by the Communist regime because of their having superior weapons of mass destruction, superior motivation and superior trained manpower of their standing armies*”. Much of the arms race between the East and the West and the mass production of Arms and positioning of trained manpower by the former Soviet Union against US and her NATO allies was based on the theory of winning a nuclear war. However, the inevitability of a no war situation in the post Stalin era made Nikita Khrushchev to rationalise that “*War is still inevitable, in theory possible but in practise may not be winnable*”. This was the first stage of revisionism that was unfolding in the Eastern Superpower regime led by the former Soviet Union. It was Mikhail Gorbachev who realised that Soviet Union had to accept that “*War was neither inevitable, nor in theory possible nor in practice winnable*”

Thus up to the collapse of the Soviet Union in 1991, proliferation and nuclearization occurred in beyond the original five countries right up to North Korea and with many other nation states aspiring to be nuclear nation state – the attempt continues even today. Bipolarity has definitely given way to multi polarity and nation states small or large started defining their national security perspectives based on their own national interests. By the beginning of the twenty first century, the world had transformed into an “Age of uncertainty and a world in transition”.

It is in the recognition of the “Age of uncertainty and a world in transition” that the nation states found it necessary to redefine their national security perspectives. There were no definitive answers as each nation states started reeling under the weights of internal security presuppositions and external threat perceptions whether from the immediate neighbours or otherwise. While the threat of a nuclear holocaust during the cold war prevented an all-out war which was avoided, that

in the 21<sup>st</sup> Century it became evident that nation states of all dimensions must find a way to avoid war at all costs.

Some in the field of IR theory and professionals in the areas of policy making and practitioners in the field of utilising the Armed Forces for political and strategic purposes, started thinking about the alternatives to achieve stable national security policy making. One constant question that cropped up persistently was to find the answer to the method to be adopted by nation state to avoid inextricable conflict situation whether from their neighbourhood states or from a larger power centre.

We confined ourselves to the case of India with a troubled neighbourhood states mostly ill-liberal democracies of various dimension. To crown it India has a neighbour which is the third major power aspiring to be a superpower with the third largest economy, largest Armed Forces in the world and a cultural philosophy to establish the “*Middle Kingdom*” and harping on a metaphor that “what is mine is mine and what is yours is negotiable”. It was in this complex situation that we thought of rationalising the national security perspectives of India despite the huge asymmetry between India and China. It was Col Ravinder Pal Singh who brought in the concept of “**Resilience**” whose definition I have subsequently rationalised and has been recorded above and the factors which need to be studied as an ongoing work in progress for India to strategize. As I finalised the proceedings of the deliberations between the two of us, we decided to incorporate a short deliberations about the strategic military aspects. The need for this was pointed out by Lt Gen Harinder Singh (Retd) just a few weeks back. He has presented an analysis of Resilience through capacity building and readiness in military affairs with the intent to use the same in times of military operations against any adversary that India may face.

The present presentation consist of the three deliberations covering first the conceptual basis of Resilience at normative levels and the second as to how National Security Resilience and Capacity Building can be addressed for the period 2023-2040. The third is Resilience through readiness and capacity building in the domain of military affairs. In the end I wish to emphasise that this is a work in progress with the military aspect in detail to be incorporated in a further presentation by end of this year. It is our fond hope that this initial study incorporating the term “**Resilience**” will find its place in the new conception of National Security Studies and policy making by academics and policy makers equally.

**Gautam Sen**

## Executive Summery

The working paper includes three theme papers which were discussed over a period of time. The collection of papers presents a new methodology to incorporate the concept of Resilience to build a workable National Security Policy making architecture. This working paper is a work in progress which will develop into a paradigm shift from the existing process of weaponisation of National Security Policy making to a holistic paradigm in which nation states will be able to concentrate to securitise the non-military dimensions to usher peace and stability at global levels in general and nation states in particular.

To explore the long-term threats to India's strategic autonomy has become very important for India today. It entails the understanding and institutionalise mechanism to build Resilience in the 21<sup>st</sup> Century India. The term Resilience for India in strategic context means recalibrating the vitality of a nation to securitise and develop capacity, readiness and capability of the non-military dimensions involving ecology, environment, pollution, energy and the rights of the unborn in the ecosystem of a nation state and couple it up with the fortification of political economy, eradication of poverty, eradication of illiteracy, public health disaster management of both natural and manmade disasters, transparency in decision making system and a rule based participation by institutions and organisations in Indian Government with those from the Private and Corporate sector as well as the NGOs in an even playing ground is essential.

It is needless to repeat that in order to build a specialised focus on Resilience and an assessment of the same in the Indian context may or would require institutionalised network of multi-disciplinary skills. In this long-drawn capacity building process which will have to be spread over a decade to fructify, the role of the political system as well as the civil society is paramount to function in an interdependent but independent way

Firstly "An Overview" has enumerated as to what were the Security Challenges that were faced globally between 1945 and 2000 and identify how the world remained strictly bipolar till the demise of the former Soviet Union till 1991. This was followed by enumerating the global security Challenges faced by India in the twenty first century and the way forward to achieve strategic autonomy. Secondly an enumeration has taken place as to how National Security Resilience and Capacity Building can be addressed for the period 2023-2040 and justify the essentiality of Resilience as the fulcrum of India's entry into a major power status.

To acknowledge the genesis of rationalising a new method to examine the concept of National Security from a far wider and holistic pedagogy, it was essential to move away from the post 1945 period of conventional IR theory based sovereign nation state behaviour represented as actors in the global arena devoid of a consensus on rule based international law. Superpowers and Major

Powers around the world relied heavily in the cold war period on technology that provided deterrence and hence alliance produced effective countervailing power to pit one set of political ideology against another – open market-based capitalism versus state capitalism. While the threat of a nuclear holocaust during the cold war prevented an all-out war which was avoided, that in the 21<sup>st</sup> Century it became evident that nation states of all dimensions must find a way to avoid war at all costs.

Some in the field of IR theory and professionals in the areas of policy making and practitioners in the field of utilising the Armed Forces for political and strategic purposes, started thinking about the alternatives to achieve stable national security policy making. One constant question that cropped up persistently was to find the answer to the method to be adopted by nation state to avoid inextricable conflict situation whether from their neighbourhood states or from a larger power centre.

The deliberations confine to the case of India with a troubled neighbourhood states mostly ill-liberal democracies of various dimension. To crown it India has a neighbour which is the third major power aspiring to be a superpower with the third largest economy, largest Armed Forces in the world and a cultural philosophy to establish the “*Middle Kingdom*” and harping on a metaphor that “*what is mine is mine and what is yours is negotiable*”. It was in this complex situation that it was thought to be appropriate to rationalise the national security perspectives of India despite the huge asymmetry between India and China.

The study consists of the three deliberations covering first the conceptual basis of Resilience at normative levels and the second as to how National Security Resilience and Capacity Building can be addressed for the period 2023-2040 from a socio-economic and developmental perspectives and the third is Resilience through readiness and capacity building in the domain of military affairs. It is our fond hope that this initial study incorporating the term “**Resilience**” will find its place in the new conception of National Security Studies and policy making by academics and policy makers equally.

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# Building Resilience for India's National Security

Gautam Sen

## Introduction

To explore the long-term threats to India's strategic autonomy has become very important for India today. It entails the understanding and institutionalise mechanism to build Resilience in the 21<sup>st</sup> Century India and also create decision making and a rule based participation by institutions and organisations in Indian Government with those from the Private and Corporate sector as well as the NGOs in an even playing ground. It is needless to repeat that in order to build a specialised focus on Resilience and an assessment of the same in the Indian context may or would require institutionalised network of multi-disciplinary skills. In the limited time we decided to share the burden of ploughing through the strategic conundrum by uncovering the mosaic of the "World in Transition". In the first part, I will first give an overview as to what were the Security Challenges that were faced globally between 1945 and 2000 and identify how the world remained strictly bipolar till the demise of the former Soviet Union till 1991.

More painful was the period between 1992 and 2000. It made the monopoly of nuclear weapons which had made the construct of superpower into a binary platform crumbled and has made Cyber space to become dominated by information technology. The domination of Information Technology can be seen more clearly in the period from 2001 to the present 2022. Therefore, the world or the global order between 1945 and 2000 can be dubbed as the "World in Transition" and from 2001 onwards till date can be labelled as the "Age of Uncertainty".

In the deliberation of this paper, the following issues will be covered:

1. Historical Overview of Strategic Challenges of the 20<sup>th</sup> Century
2. Global Security Challenges facing India in the 21<sup>st</sup> Century
3. Great Power Competition
4. Recommendations
5. Conclusion
6. Historical Overview of the Strategic Challenges in the 20<sup>th</sup> Century
7. Nuclear weapons had achieved the reputation of offering deterrence for implementing strategy in warfare. Technology and foreign policy were intricately interrelated. Herman Khan had written the "Deadly Logic" and Kissinger had perpetuated "Nuclear Weapons and Foreign Policy". Mac Arthur



was the role model for every soldier in the western world while Mao and Ho Chi Minh in developing societies of South and South East Asia. There were no takers of Lenin or Che Guevara. War was divided in two levels – conventional and nuclear. Strategic Challenges have gone through three distinct phases between 1945 and 2000.

8. *WWII 1939 – 1945*

9. The impact of Technology in conducting warfare was fully evident and expanded dramatically for conduct of warfare in Air, Land, Sea and Under Water. Technology decided Policy Making unleashing the power of the Atom. Possible use of weapon of mass destruction became a reality and the Strategic Challenge was to win the war

10. *COLD WAR 1945 – 1991*

11. Ideology takes the centre stage with Liberal Democratic form of Governance operate with Market Forces and compete with Centrally Planned Economies of Socialist Countries to establish Bi-polarity. Strategic analysis was based on privilege information leading to government monopoly in both the systems. Large reduction of numerical manpower strength of the Western Armies with focus on high end technologies to incorporate nuclear weapons “sited for all round defence” through military alliance politics of NATO to protect Western Europe by creating a ring fence around the southern tier of the Soviet Union having Muslim population through SEATO, CENTO. EAST AND WEST represented by the US and the Soviet Union prepared for three and half wars at the height of Cold War. SALT-I, 1991, SALT-II, 1993, CTBT, 1996, PTBT (Partial Test Ban Treaty, 1963), NPT July 1968, entered into force Mar 1970, Review and Extension Conference was carried out in 1995 and was decided that Treaty should remain in force indefinitely. ABM treaty was concluded on May 1972, Treaty on the Reduction and Limitation of Strategic Offensive Arms (SART-I, 1991), START-II was initiated in 1993 but did not come into force, Similarly Treaty on Conventional Armed Forces in Europe (CFE, 1990) was also carried out. Soviet Revisionism during the Cold War period – Stalin to Khrushchev to Gorbachev ultimately to the balkanisation of the Soviet Union in 1991. Proliferation of nuclear technology and nuclear weapons spread in other nation states and the world became multipolar.

12. Challenges during Cold War was to (1) Avoid nuclear holocaust (2) Defining periphery and limit the periphery of Deterrence which explains the interplay between Non- proliferation and proliferation doctrine.

### **Post Cold War 1991 – 2000**

What were the conceptual issues? The question was to ask if a new world order emerging? Did it indicate the end of the existing agenda because of the end of a perceived permanent enemy and the loss of Bipolarity due to the Soviet balkanization. Would the world in transition lead to the demise of the Nation State as a unit of International Relations and Politics? Will Emerging European Integration lead to the architecture of

a Super State? What will be the fate of Political, Economic, Fiscal, Exchange Rate Mechanism, Migration, and Environment. Does Europe replace former Eastern Bloc? What was Europe's world vision? In the so-called New World Order will it witness the:

- a. Demise of the Collective leadership
- b. Demise of State Capitalism
- c. Technology and Development
- d. Technology and Ethics
- e. Demise of the welfare state
- f. Rise of the individual
- g. Evolution of International Political Economy –  
Regime theory, trans-nationalism
- h. Nation State, Society, Identity
- i. Technology and trans-nationalism
- j. Governance
  - People including Human Rights
  - Government including Bureaucracy
  - Technology including environment In Management what will happen to
  - International Org
  - Resource Distribution
  - Ethics and Values

In Strategic Considerations what will be the

- Concept of Power
- Concept of the Use of Force
- Waging of Humanitarian Wars
- Demise of Classic deterrence
- Cost effective paradigm

Will the new Paradigm of Integration work through

- Exchange rate mechanism
- Guarding Intellectual Property Rights
- Ensuring Energy Security

Will the International System after Soviet Demise do

- Damage assessment
- Shift from Strategic nuclear to nonstrategic dimension Ecology environment, pollution, energy and the Rights of the Unborn
- Assess the future of CIS and China
- Future of Russia and the role of Europe
- Future of Asia and the role of China
- How Clash of Civilizations at Macro level will act with Bias.
- How at Micro levels clash of/conflict between ideologies to be replaced by conflict between religions and differing ethnic groups
- How Emerging China as a major power operate

### **Global Security Challenges facing India in the 21<sup>st</sup> Century**

It is abundantly clear in 2022 that the notion that Russia and China would integrate into the liberal international order is out of even imagination. It is rather the other way round in the international arena where we are witnessing the advent of a new era of intensified great power competition. This great power competition is different than that which existed during the Cold War and up to the beginning of the 21<sup>st</sup> century and the collapse of the Soviet Union and emergence of China as an economic and military power. While the US has maintained its leadership as a superpower with her European allies and Japan, India has been emerging as an important player in the global order with the fastest growing economy, showing potential to be self-reliant with capacity building for resilience also in non-military arena like containing the COVID pandemic,

### **Two Scenarios**

If we measure today's security environment by what was expected a decade or so ago, it is clear that the United States is facing near worst-case scenarios on both great power competition and transnational threats. This is compounded, moreover, by a negative synergy between them that makes each even more dangerous and difficult to deal with.

Over the past decade, China and many other authoritarian states have become both more repressive at home and more assertive abroad. Unlike in the 1990s and early 2000s, they are willing to use hard power to push back not only against the United States but other adversarial states to them like India and the lesser powers in Southeast Asia by making South China Sea as pivot for their actions militarily and diplomatically to achieve their objectives. Against India, ***China has almost stated as categorically as possible when dealing with the international border issue that “ what is ours(China ’s) is ours and what is yours(India) is negotiable”*** Fearful that liberal democracy and the US led international order and supported by her NATO partners, will undermine their regimes, they are systematically seeking to create an international order safe for autocracy, which includes shaping and interfering in the politics and society of democracies. ***Both China and Russia have started wooing every “Illiberal” democracies around India and the United states in specific case is also no exception. China’s strategic rationale of countries through which the Chinese Belt and Route is being fashioned to basically to extend her hold by sheer financial means and making them enter the debt trap.***

***Meanwhile, COVID-19, which is by no means the most lethal form of pandemic we could face in our lifetimes, has claimed over two and a half million lives, including those of over 500,000 Americans and equal numbers in India, and cost more than \$26 billion in the US and a similar amount to India if we take into account the purchase power parity between the dollar and the rupee.*** It has simultaneously upended the lives of billions of people around the world and roiled the domestic politics and economies of key countries in ways that will have repercussions for years to come.

Indeed, the COVID-19 crisis illustrates the negative synergy between great power competition and transnational threats—one that fundamentally changes both for the worse. The autocratic nature of the Chinese regime and its paranoia about its hold on power and standing in the world made it less likely to cooperate with the international community. It covered up the virus in the crucial early months and continues to withhold vital information from the World Health Organization. The current pandemic highlights the way in which China has increased its influence in international institutions in ways that damage the interests of other nations. And, independently of Chinese behaviour, the more nationalistic outlook of governments around the world has undermined the type of international cooperation we are used to witnessing in a crisis and reinforced the sense that every nation is fending for itself.

The pandemic will have long-term strategic consequences for every nation state globally and will leave an undeniable impact on the global international order. While the United States saw a 3.5% economic decline in 2020 and other democracies saw even more staggering losses, China’s economy grew by 2.3%. By one measure, China has gained five years on the United States and will now become the world’s largest economy by 2027 rather than 2032. Early talk of China’s “Chernobyl moment” has long passed, and it is now clear that the Chinese government believes it has emerged stronger from a global crisis for the second time in fifteen years (the first occasion being in the aftermath of the financial crisis). China took this opportunity to dramatically increase its geopolitical assertiveness: it cracked down on Hong Kong; it clashed with India; and it has embarked on an ambitious diplomatic effort to increase its influence overseas through the selective distribution of medical supplies and vaccines. ***It is also likely that the long-term effects of the pandemic***

*will be to plunge parts of the developing world into crisis and place severe downward pressure on defense budgets not only that of the U.S. but her allied countries, including in Europe and significantly that of India too which has been dubbed as one of the top largest growing economy in the world* The pandemic reveals that issues we traditionally think of as fostering cooperation are, in our world, more likely to take on competitive characteristics. *To take another example, the race to mitigate climate change may also become its own area of competition between the United States and China on one hand and now specifically with India too.* While the United States and Europe will be competing with China for a technological edge on innovations to produce a carbon-neutral economy and for access to raw materials (magnets, batteries, high-performance ceramics, and LEDs, among others) *India will have to compete equally on the key domain as world's manufacturing hub. In some of these areas, the United States and Europe are at risk of dependence on China. In case of India it is alarming when one takes into account the trade deficit between the two is in excess of a \$100 billion and rising in favour of China.* Hence it is critical to ensure that the free world become more self-reliant when it comes to the decades-long effort to develop clean technology.

It is commonplace for experts to talk about strategy prioritizing traditional threats or transnational threats. What we need today, however, is a comprehensive strategy that not only tackles both, but recognizes the linkages between the two, and the way in which these threats undermine our interests and the international order. The crises of 2020 demonstrate that every nation state large or small, major, or lesser power be prepared for a world with more severe and frequent global shocks, against a backdrop of emboldened adversaries and limited cooperation between the major powers. *This certainly means competing strategically with China as well as Russia more so with the ongoing situation emerging from the Ukraine crisis. It also means that India with the second largest population in the world must take concrete steps at strategic level to arrest the growing asymmetry with China, dependence on Russia for military products and steps to limit the fallout from the pandemic in the free world and like-minded states. As the United States and its allies must prepare to deliver public goods, like global public health, in this environment, which will likely mean building new coalitions of the like-minded so is the role of India important to assist the neighbourhood illiberal states and take them away from the economic dependence on China.*

## **Contending Revisionist Powers**

While it is necessary to contemplate a world in which the United States and its allies compete with China and other autocratic regimes beneath the threshold of war, we cannot lose sight of the professed traditional mission of post-war U.S. strategy: to deter aggression by adversaries. *This too has become more complicated as great power rivalry has intensified and the entry of emerging democratic powers like India coming up in the centre stage of world events, its growing influence on world politics and a leading actor in international political economy*

We often think of revisionist powers as countries hell-bent on global domination, like Nazi Germany or the Soviet Union. But revisionism rarely manifests itself with all-out war. Revisionist states traditionally

go after the non-vital interests of their great-power rivals, because this generally doesn't provoke the type of retaliatory strike that attacking a vital interest would. Threatening non-vital interests—for example, by attacking a non-ally—leaves the status quo power torn over how to respond and whether retaliation is worth it.

Of course, the term “non-vital interest” is somewhat misleading. It only holds true when viewed narrowly and in isolation. ***While annexation and unprovoked invasion like the case of Ukraine clearly constitute a breach of the peace and threaten vital interests of nation states, seizing small rocks or strips of territory poses a more ambiguous threat.*** Such moves appear to be of limited strategic importance, until, in the aggregate, they acquire much greater value. At the outset, the fact that no treaty has been breached and the territory seems to be of limited importance is highly significant to the dynamics and psychology of any given crisis. It is precisely the small strategic value of the contested territory that causes the dominant power to refrain from going to war over it at an extraordinary cost, one that would be vastly and inversely proportionate to the value the dominant power places on the disputed territory.

This is not a new problem. It is textbook revisionism, and it poses the most complex problem a major power can be confronted with. ***The purpose of revisionism is to make deterrence extremely hard and to encourage rival great powers to accommodate them diplomatically or to limit their response,*** to the point of being ineffective. While a regular security dilemma between two status quo powers can be addressed with reassurance and transparency, a revisionist power will not be satisfied with the restraint of others.

The most important piece of the post-war world order is not the United Nations or international financial institutions, important as they are. It is healthy regional orders. It will be truism to accept that America's greatest success after World War II was to create a system in Western Europe and Northeast Asia that brought an end to German and Japanese imperialism and provided the basis for shared prosperity. One has to accept as a realist that if those regional orders fall apart, so will the global order. A war between China and Japan, for example—the world's second and third largest economies, would have massive repercussions for the global economy. A Russian incursion into the Baltics catalysed by Ukraine crisis would raise the risk of nuclear war between the world's two largest nuclear powers.

It should come as no surprise that China and Russia are regionally focused. After all, major powers are usually primarily concerned with their immediate environment rather than abstract notions of global leadership. But it is the vulnerability of regional orders that makes the global order vulnerable. If there is a major challenge to the international order, it is most likely to occur at the regional level. It is for this reason that Russian and Chinese activities in their neighbourhoods are more reflective of their approaches to the international order than of their explicit policy on global issues, although those are also important. Ultimately, a country's willingness to honour the norm against territorial conquest is much more important than its compliance with the dispute settlement mechanism of the World Trade Organization or voting weights at the IMF.

## **Great Power Competition**

The concept of global security is in the foremost position in the minds of international relations policymakers and government officials in most countries. However, the maintenance of global security only bears true significance for the so-called 'great powers. These powers have the ability to influence the international stage in one direction or another, change the lives of millions, and control the future. In his book *The World after the Peace Conference*, Toynbee describes the concept of a great power as "a political force exerting an effect coextensive with the widest range of the society in which it operates" (Toynbee, 1926). In other words, a great power is a nation that has enough scope to successfully exert its own influence and interests on the international stage. In a critique of Toynbee, it would be good to argue that not only does a power need to have the necessary resources and political will to exert itself across the world, but also needs to have the recognition of being a great power by other foreign states and societies. As an example, Estonia in the modern-day cannot send troops to remote corners of the world or lead international coalitions at the United Nations, due to its limited resources and lack of ability to do so. By comparison, the United Kingdom does. Metaphorically, it has a seat at the table, and other states recognise the ability of the United Kingdom to impose itself on the international stage, therefore making it a global power.

In this context it can be argued that great power competition amongst the great powers does threaten global security by analysing three major global powers: the United States (U.S. or America), Russia, and the People's Republic of China. Each of these countries has the ability to exert itself on an international stage as well as domestically, which is in coherence with the critique of Toynbee. Although, unlike the United States, Russia and China aspire to 'steal' America's position as world hegemon. Their ambitions to be the undisputed world power, currently, are just ambitions. As long as the United States, either in prosperity or decline, remains the world hegemon, the threats to security posed by China or Russia will remain constrained regionally, therefore not being a menace to global security.

The examination of great power competition being a threat to global security will be analysed by first looking at the United States. It will argue that due to the loss of American economic, manufacturing, and technological supremacy versus the other great powers, and its imperial overstretch, a term that will be scrutinised later on within the scope of this essay, they run the risk of no longer being the world hegemon; therefore, risking global security in the process. The second great power considered will be Russia. Russia's great power competition will be gauged by its recently adopted policy of sovereign democracy, and how that affects its diplomatic relations with American policies, as well as how their natural resource exports influence the attitude other nations have toward Russia. The third nation to be assessed is China. China's growing economic entanglements and its 'soft power' strategies are generally considered to be a large threat to not only the position of America but also world peace. Though, as long as America remains the world hegemon, neither China nor Russia, will truly threaten global security, however much these countries wish to become the world power. Overall, the essay will take a Machiavellian view of great competition, meaning that the urge to compete and crush inferior nations is inbuilt in the concept of international relations. The 'victory or death' mentality of this world view means that the idea of great power competition, or even interaction,

is a significant threat to global security and peace; this therefore would mean that with the diminishment of America, the preverbal ‘vultures’ have begun to circle waiting for their ‘time in the sun’.

Firstly, the discussion around great power competition threatening global security must start with discussions around the world’s current, or now former, world hegemon — the United States (U.S.). The U.S. has been the sole world power since the fall of the Soviet Union in 1991 and has been a strong presence on the international scene, arguably, since the end of the First World War. Currently, the United States’ position no longer looks as solid as it has in previous decades, which invites other great powers to attempt to become the world hegemon, therefore threatening global security.

The primary factor in arguing for the U.S.’s decline causing great power competition with the other great powers, and therefore creating an unstable world, is the loss of the gigantic economic gap it has over other nations. For many years the U.S. was the predominant economic power in the world, especially with the collapse of the Soviet Union; the U.S. and the world viewed American economic power as unstoppable (Grunberg, 2005). However, with the emergence of China, the European Union, and India as possible economic rivals, the U.S.’s position is far from the one it had in the late 1990s. Kemp argues that due to the transfer of America’s industries overseas, they became reliant on foreign powers and, therefore, diminished their position in the eyes of international powers. (Kemp, 1990). Kemp’s analysis of the U.S. economic situation is, I believe, largely correct. For example, U.S. plastics manufacturing has largely moved into West Asia, especially China (China Briefing, 2011). America’s howling out of its manufacturing and industrial base diminishes its status as a world hegemon because, no longer having its industry in its national territory, this allows China to gain a better position over America. The Sino- American industrial relationship is one of deceit and Machiavellian jostling due to the underhandedness of this dispute. As long as America is the dominant power in this relationship, however, global security will be largely secure as China will not dare to challenge America’s power in open confrontations; China will wait until America is no longer a world hegemon.

Finkelstein argues that, unlike previous industrial revolutions that America has experienced, it will not be able to keep up with the ‘Third Industrial Revolution’ as he puts it. He argues that the U.S. will fail to grasp the opportunity to revolutionise its society and institutions in line with the technological innovations going on elsewhere: the invention of the computer, fibre optics, and improved missiles for example (Finkelstein, 1992). Although Finkelstein’s analysis is now out of date, he hits on a crucial point relating to the attitude of American economic policy. Though America, unlike Finkelstein’s viewpoint, maintained its position as a leader in technological development, it blundered the opportunity to limit other great powers in also improving their technological capabilities. For example, Russia’s recent development of the Tsirkon 3M22 Missile, a hypersonic missile, has caused large concern on the international scene (Cole, 2021). This development of highly advanced military equipment is a by-product of America’s failure to successfully maintain its technological dominance in the world. A decline of American technological hegemony is a large and consequential event for the concept of global security. Without its technological dominance, America will no longer be feared. The lack of fear, as seen in previous decades, allows other great powers, namely



America's enemies, but also her allies, to challenge or subvert the world's peace in an attempt to profit from the existence of a power vacuum, which, therefore, threatens global security.

The economic, technological, and manufacturing situation of the United States is not hopeless, however; a declining nation is not a dead one, and recovery is always possible. In his book, *End This Depression Now!* Krugman argues that strong and decisive economic stimuli must be made in order to pull America up from the depression it was in during the Obama administration (Krugman, 2013). If America manages to reverse its decline, then global security will be solidified. A stronger America would cause nations like China or Russia to not have the capabilities or desire to threaten global security without risking the reaction of America.

Furthermore, the American web of alliances and military engagements has caused its 'empire' to experience imperial overstretch. In the *Rise and Fall of the Great Powers*, Kennedy argues that the term imperial overstretch is when the power in question has "a vast array of strategic commitments which had been made decades earlier" (Kennedy, 1988). This assessment of a great power being overwhelmed by its obligations fits with the current position of America very well. Since the Second World War, America has, either intentionally or otherwise, found itself with international commitments that have a global reach. This concept is echoed by Burbach and Tarbell who argue that America aims to spread the Neo-Liberal model to "less sophisticated" nations (Burbach & Tarbell, 2004). This attempt to impose American ideology can be seen throughout the last century. The Vietnam War, military coups in South America, and U.S. military occupations in the Middle East are examples of this attempt to eradicate opposition to the American worldview. As a result of these incursions, America has worn its military capabilities too thin. If America's military might is stretched too thin across the world, or at the very least diminished, then the effects on the globe's security are significant as it leaves a power vacuum in less stable parts of the world where the U.S. has, depending on your attitude toward America, either occupied or liberated. This power vacuum will soon be occupied by another great power, causing conflict, disputes, and possible violence, which would cause global security to be in peril.

This idea of the U.S. being in terminal decline is challenged by Lieber. He downplays the urgency to fix America's problems. He argues that America, as well as previous world hegemon, has experienced decline and then rebounded from that decline (Lieber, 2012). This argument does carry with it some weight. For example, when the British Empire lost the Thirteen Colonies it was costly, being the most populous proportion of the Empire at that time (Canny, 1998, p. 92). However, even due to this significant loss, the British Empire went on to dominate the world, regaining its losses with the East India Company, Suez, and Hong Kong. This suggests that the U.S., though in decline, could, if it had the political will, reverse its misfortune, and regain its position as an undisputed world hegemon, therefore solidifying global security. However, even if the U.S. could reverse its decline due to its imperial overreach, the weakness America currently displays in its armed forces, especially after the chaos of the withdrawal from Afghanistan, highlights to other nations that it is no longer a force to be respected. Similar to the U.S. decline in technological and industrial capabilities, a lack of American presence causes the globe to be less secure as it invites competition to become the world hegemon.

Secondly, the position of Russia must be considered when debating whether great power competition threatens global security. Russia is an exceptionally traditional nation and has always, in my opinion, been separated from the powers of central and western Europe. This feeling of separation has caused Russia to become distrusting of The West — it forever wants to be ‘part of the gang’ and but enjoying the independence being ostracised brings with it. These two sides of Russia, Russia the West, and Russia the mysterious, are the fundamental crux of its foreign policy, security tactics, and diplomatic actions.

In his book, *U.S. Regime Change and Great Power Assertiveness*, Tsygankov argued that the position Russia currently takes on the West is an attempt to protect European values and assert its sovereign democratic rights (Tsygankov, 2016). He argues that Russia views the world, and especially Europe, as a collection of independent states which have the right to govern themselves. I would argue that this is a largely correct analysis of Russia’s position. In the now-famous speech at the 2007 Munich Security Conference, Putin fiercely defended Russia’s right to maintain its sovereignty and argued that a unipolar world, the idea that world power stems from one state, was no longer feasible (President of Russia, 2007). This idea of a multipolar world is a cause for concern for the concept of global security. Without a strong and decisive centre of world power, the globe will descend into different nations acting in their interests, devoid of any supranational authority that can properly keep the world peace.

Also, Russia’s current position in Europe has been stronger than it has been in previous historical periods. The fall of the Soviet Union, in 1991, brought with it nine years of political struggle and uncertainty. However, under the leadership of Putin, Russia has managed to turn its fortune. The new Russia should be a concern to the West, especially to the European Union. Lucas argues, quite correctly, that Russia’s position in Europe is advantageous for its political and foreign policy, that being the upkeep of its democratic sovereignty, due to its strong oil and gas exports (Lucas, 2014, p. 213-217). The strong natural gas exports are mainly to Germany (Rystad Energy, 2020; Gazprom Export, 2021). This fact is significant, due to the broader ramifications between Russo-German relations, and to a greater extent, relations between Russia and the European Union. In a somewhat hypocritical move, Russia has managed to diminish the sovereignty of Germany, as well as many other oil and gas-dependent countries in Europe, to bolster its position on the world stage. In the context of great power competition threatening global security, an observer should not be surprised when dealing with hypocrisies in international relations. Russia’s stranglehold on Germany, and other states of the world, is a cause for concern for the security of the world, as it allows Russia to act without proper international backlash. This could be seen in Germany’s tepid response to Russia’s incursions into Ukraine in 2013-14 (Spiegel, 2014). Russia’s position in having such a large natural resource to export to Europe is a symptom of a larger problem. If a sovereign state can dictate through force, coerce, or manipulate another sovereign state into either acting or not acting in their interests, it poses a threat to global security, as it allows a state to act separately from the global community. If one great power can use Machiavellian tactics, such as manipulation and coercion, against another great power to achieve its strategic goals it causes a threat to global security. A state with all the power can wield significant damage to global security.

Overall, I would argue Russia's position is not one of massive international concern. The Russian threat, or what we Westerners perceive it to be, is not the massive bogeyman as it was in previous decades. With the Soviet Union dead, the Russian psyche must be one of defence first due to its massive loss of perceived friendly territory. And with NATO's expansion into what Russia could perceive as its sphere of influence, the West risks igniting tensions that shouldn't exist. Perhaps the duality that Russia seems to have only needs to be coaxed out to be a cooperative member of the European Community. A cooperative Russia would benefit not only peace in Europe but also global peace.

Lastly, when dealing with great power competition threatening global security, the role of China must be analysed. China has a rich and complex history and culture; from the Qin Empire to Xi Jinping, China's civilisation rivals that of even the great Empires of Europe. As Kissinger argues, in his book *On China*, the Chinese view themselves as having a national destiny to be, not only the dominant power in Asia but also the world hegemon (Kissinger, 2012). And with China's recent diplomatic feelers in the international arena, incursions into the South China Sea (Sevastopulo, 2021), and threats against Taiwan (Patel, 2021), they, like Russia, are testing the will of the West – but more specifically the United States. However, some argue that China cannot, and can never, become the world hegemon due to economic failings and domestic crises.

Though China boasts, and can rightly do so, of being the second-largest economy in the world (Research FDI, 2021), its economic capabilities are not as impressive as first thought. With Chinese economic modernisation came, similarly to the United States, international obligations. As Li argues, China has become too interdependent and connected to the world economy to be a major threat to global security (Li, 2004). This is somewhat correct as a great power like China cannot invade or wage a war on another power, whether it is against a minor power bordering China or a great power overseas. Concerning Li and similarly the American industry, China has developed an overreliance on the importation of minerals from Africa (Devaland, 2009). This overreliance on a foreign power's resources, in this case, minerals, is a large cause for concern as, like the ability of Russia to manipulate other European countries, China is influenced by another power.

Though China might not be able to threaten global security in the military sense, the great power jostling can be felt through diplomatic and financial means. China's attempts to wield soft power, to develop its position on the world stage, could be a cause for concern for global security. Dumbaugh (2008) is correct when arguing that China's infiltration of world organisations is an exercise in soft power. With China joining the World Trade Organisation in 2001 (WTO, 2001), and it is looking more likely that China will join The Trans- Pacific Trade pact (Reuters, 2021), just to name a few organisations, it suggests development in their soft power strategy. Its attempts at increasing its obligations, and therefore increasing the quantity of great power competition, have become more and more obvious. However, though China has undoubtedly advanced its position since the fall of the Soviet Union, I would argue that the threat China poses to global security through its competition with great powers, is largely minimal — and will be confined to China's immediate proximity. About Kissinger's argument, Hoo views Chinese foreign policy, during the Xi regime, as being fiercely China First (Hoo, 2018). This could be a problem for both global security and how other states interact with China, as a China that views whatever it does as infallible, it leaves no wiggle room to either

compromise diplomatically, or avoid international crises: Therefore, risking the escalation of conflict. Though China does not yet possess the title of world hegemon, but its ambitions most definitely include that. The attempts, as Dumbaugh (2010) argues, to infiltrate world organisations is an attempt, like the United States, at spreading their influence to a greater extent than without these organisational groups being there. But, as long as the U.S. is the world power, then that impedes China, or for that case Russia, from becoming the world hegemon.

Overall, China's ambitions to become the world hegemon are undoubtedly there. The incursions into the South China Sea and the rustlings of overtaking the United States as the largest economic power are indications of this desire. Although, this desire will remain simply a dream as long as America remains top dog. The world may see significant threats to its security in regional areas (Indian-Chinese border, South China Sea, Korean Peninsula) in China's bid to become number one, but as long as the United States can maintain its position, global security will remain together.

In conclusion, the concept of great power competition threatening global security is undeniably obvious, the horrors of the 20th Century are simple reminders of this fact. However, with a world hegemon, those threats are far less significant, almost negligible. American power has and hopefully will, continue to bring order to the world. Though China and Russia, and other great powers, may envy the U.S. and wish to replace her as world hegemon, it is unlikely they will do so. As long as America can be more Machiavellian than that the other powers and retain its national cohesion, global security will remain secure for the foreseeable future.

### **Recommendations**

To achieve Strategic Autonomy, India needs to enhance its strategic competitiveness vis-à-vis China and other authoritarian powers. In that regard, the following recommendations are made:

1. Pursue military modernization to continue to reorient India's defense policy toward dealing with major power competitors. The United States must also integrate initiatives to improve strategic competitiveness with efforts to rebuild the domestic economy after the pandemic, including a strategic approach to technological innovation and reducing the vulnerability of certain sectors of our society to interdependence with adversaries. Strategic thinking must also be integrated across all relevant government agencies and departments.
2. Nest competition with China in a positive and affirmative vision of the free world, which we would continuously work to strengthen and improve. This would include: increasing the free world's resilience to pressure and shocks from authoritarian states; protecting democracy and the rule of law from illiberal forces; coordinating on technology policy; enhancing cooperation on transnational challenges such as climate change and global public health; and developing a suite of capabilities to shape the international order. It must also involve an ambitious and proactive effort to help free societies and like-minded partners recover from the pandemic, including in the developing world.

3. Continue to deepen Indo-US alliance and partnerships in the Indo-Pacific, including by focusing on deterrence by denial, improving the credibility and resilience of the Indian presence in the region, encouraging cooperation between allies and partners, assisting allies and partners in responding to external coercion and interference, deepening cooperation with US, Japan, Australia and South East Asian countries as it balances against China, and time has come to strengthening ties with Taiwan.
4. Reform the defense spending target for India to incentivize European allies to invest in civilian as well as military capabilities—such as new technologies—that would enable them to compete with China.
5. Facilitate a national conversation about the type of strategic competition that India wants to engage in. Great power competition is not a strategy in itself; it is a condition that we must cope with in all of its dimensions. We are still at a relative early stage in identifying different strategies of competition. Over the next ten years, India must refine and develop thinking on the objectives of the competition and the means to accomplish these accordingly.

**Note:**

While composing this position paper, I have digressed from the research method by not footnoting. However, I will be remiss if I do not acknowledge the numerous writings of scholars, professional in the field, US Congressional Research monographs, UN Reports and number of independent papers on the subject. I have taken the liberty to quote and rearrange their thoughts to provide seamless output in these deliberations which has not appeared so far to my known knowledge. I would like to acknowledge all the authors whose work has enriched my understanding and assessment.

# National Security Resilience and Capacity Building: 2023-2047

Ravinder Pal Singh

## Background

Ever since India's Independence, its' security concerns have been largely concerned with threats from its partitioned other: Pakistan, except for the 1962 border conflict with China. Even though issues emanating from India's un-demarcated border with Tibet Autonomous Region have remained unresolved, but these have not loomed large in the list of India's security concerns. Threats from China get activated as and when it suits China, such as in 1962. The Chinese in the past three decades, have been abiding with Deng Hsiao Peng's advice in the 1980s, that "should observe calmly; secure our position; cope with affairs calmly, hide our capacities and bide our time; be good at maintaining a low profile; never claim leadership." During the past three decades, China has eradicated poverty; grown in its economic power as the World's leading manufacturing and trading nation; acquired deeper financial reserves than ever before; developed industrial capacities and competitive military technologies have been created for making and exporting weapons. In short space of 30 years the Chinese power have emerged stronger more than five times stronger than India. Consequently, a perception of invincibility of Chinese military power has developed within China, which is used to communicate its capabilities of deterrence.<sup>1</sup>

A hubris of power, drives two elements Chinese nationalism: one, never again should the Chinese society suffer the experiences of the Century of Humiliation (1840-1949), and its abiding national belief, that never again would the Chinese suffer at the hands of foreigners. Two, the Chinese people led by the Communist Party of China (CPC) have to correct the historical wrongs where external powers on its borders have seized its rightful territories have seized during the colonial period.

China's concern for the need to build its military power corresponds with rise in its economy since early 1990s. The Chinese bring into play their traditional 2500 years old board-game of Weichi or Go, in its international relations in handling their concerns with the USA, currently the sole superpower. Weichi avoids the main challenge, while using complex strategies and tactics to gain strength and concurrently weaken or contain, potential adversaries that may putatively support their main challenge. If China's main challenge is the sole superpower, the United States, then it would avoid getting into the Thucydides trap. It would revert to Deng's advice to bide their time, use it to reduce and contain challenges to regions near and abroad.

As China recognizes sovereignty of states, but it does not recognize equality of states. To maintain its position in Asia's pecking order, it created power and perceptions of invincibility of the PLA through strategies of coercion, military intimidation, or containment. In addition, China has been adept in creating

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1 Writings of Scholars: Xueting Yan CICIR, Tsinghua University, China Academy of Military Sciences, et al.

legal instruments to address its perceived grievances, such as recent enactment of the recent China's Border Security Law 1 January 2022. It aimed at empowering local commanders to act for restoration of perceived territorial loss during the colonial periods. For similar reasons, China also lays claims to much larger exclusive economic zone by creating artificial Islands in the South China Sea.<sup>2</sup> However, skills at Weichi also guide the Chinese to avoid in situations of risks of antagonism with another military power. Such as diplomatic dexterity shown in converting grievances on sublimating its historical colonial era wrongs into agreements, such as accepting in Agreement with Russians to shelve and freeze the North East Manchurian boundary ceded by the weakened Qing dynasty.<sup>3</sup> The flexibility that China has in its strategic overtures to the strong and the weak, to advance its strategic purpose may well get expressed in elite capture in Nepal and Bhutan, in the manner of North Korea or Laos.

In the Asian region, other than Japan and India, no other country has the military-political heft to contest the Chinese power on their bordering territories. Japan has a Treaty alliance with the US and possesses a stronger industrial and technology base that gives it economic resilience. The other presumptive power in Asia is India, is seen by the Chinese as a 'lower hanging fruit' that does not have competing attributes of power. The assessment of Chinese security analysts and policy makers see India as a large demographic power, but not a power with military, industrial or economic strength.<sup>4</sup> Political mobilisation of the Indian society is also seen to be weak and fractious vis a vis China's capacities to mobilise its society.

Even though, the two economies were at par till mid-1980s, China has raised the productivity levels of its human resources and economy to more than five times that of India's. Whereas the Indian leaders over the past seven decades, have been engaged with electoral compulsions continued to neglect building resilience in fundamentals of its economy and national power. The absence of verifiable policies and decision-implementation process to build competitive national resources, define the dominant trend of the past three decades which will define our future as well. It indicates India's inability to convert the largest demographic asset on the planet, to its economic strength. India's failures in managing domestic stability are attributes of its irascible electoral politics. The phrase "Chindia" popularized in the decade of 2000s, is now dead and buried.

### **Significance of Building India's National Security Resilience (NSR)**

In the context of the foregoing discussion, a public discourse is needed to frame the significance of NSR. In terms of capacity building needs in India, first of all, we have to understand the challenges and barriers;

2 Although not recognised in International Law, China uses the term "jurisdictional seas" to describe inland waters, the territorial sea, its contiguous zones, its exclusive economic zone (EEZ), and make claims on Islands outside its EEZ, such as in the SCS and in continental shelf.

3 The heavy losses suffered by the PLA at the hands of Soviet rocket artillery at Ussuri River conflict in March 1969, and the perceived Soviet threat in the 1960s was strong impetus for Chou enlai and Mao Tsedung to re-think China's geopolitical strategy as they knew that China couldn't match Soviet forces in an all-out war. After this clash, Russia-China border agreement was announced in May 1991, but left a few disputed border islands to be resolved in the future. In December 1999, the Chinese announced a formal resolution of their 30 year old border dispute and gave up their claims on Primorski Kray region. see Jyotsna Bakshi, Strategic Analysis, IDSA Jan 2001 (Vol XXXIV No. 10) *Russia-China Boundary Agreement: Relevance for India and Nixon's China Game* : Sino-Soviet Border Disputes; American Experience <https://www.pbs.org/wgbh/americanexperience/features/china-border-disputes/>

4 Xue Tong Yan, op cit.

potential value, the policies and practices that need to be developed for building resilience in security sector's capacities to impose prohibitive damages to the aggressor in the Himalayas and in the Indian Ocean Region.

The public discourse should examine the changes required in the state's institutional capacities and in industry; economy, financial and technology sectors to implement India's NSR objectives. It will require institutionalizing two steps, namely: one, processes to be structured to integrate, facilitate, and implement cost efficient decisions for NSR, that mutually reinforce and converge with opportunities in India's economic, social and security sectors. And two, if India were to build NSR as a national initiative, what would it take to coordinate a whole of society approach? What modifications in the public sector delivery will add to security sector resilience? What kinds of national legislation, public or private institutions or special purpose implementation vehicles will be required to sustain National Security Resilience Capacity Building. A mutually reinforcing relationship between NSR and the country's need for strategic autonomy would balance India's arms acquisition capability building investments with NSR and socio-economic decision-making processes.

### **Aims, Approaches and Initiatives FOR ENHANCING Comprehensive Strategic Power (CSP).**

Chinese strategic approach on containing India is taking three forms: one, keep the LAC un-demarcated and unresolved to sustain the dispute and to lean on India: indicators are Galwan, Doklam and Somdang Chu incidents. Two, maintain and increase calibrated pressures in the border region of North India, where most of the Indian population resides. Using elite capture strategy in the buffer states of Nepal and Bhutan; and three, stretch Indian military industrial capabilities to endure or reach breaking points in handling the combined threats of China and its long standing South Asian proxy: Pakistan. Without provoking a conflict on its Western borders, in any case half of India's security resources has already got locked in by this collusion.<sup>5</sup> Consequently, policy challenges that confront India's leadership will find this threat asymmetry getting wider and India's capabilities to endurance these threats will be required for a longer time frame.

What could be the Chinese aims in confronting India? Dissuasion and risks of openly lining up with the Quad; accept India's sovereignty as a subordinate actor to China in Asia; influence India to replace its pursuit of strategic autonomy with a policy of unapologetic attention to China's concerns. In terms of long term threats from China's global security aspirations to India, these need to be viewed, more in terms of hegemonic intent rather than only in terms of territorial or border differences. Consequently, India's decision-makers need re-assess some of its fundamental national security assumptions to assess the need to build coherence in a much wider scale of national resources for resilience. It leads to the questions of kinds of initiatives that India can develop to build its national security resilience to rebalance the power asymmetry with China? How should national security resilience be enhanced by convergence with India's developmental initiatives, and why?

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5 The Chinese regard India as a threat, which has to be managed. Containment is a war strategy for a society which is culturally conditioned by Sun Tzu's Art of War "keep the enemy under strain and wear him down" p.99 "Agitate him and Probe him" p.152 (translation by Samuel Griffiths, Watkins Publishers 2005).



There are two approaches to studying NSR initiatives: One, to conduct studies based on expert opinion to focus on rationale, barriers, limitations, and opportunities, from perspectives of different fields of national capacity building. By use of evidence and data-based knowledge, identify methods to institutionalize national security resilience capacities. Two, interrogate established assumptions that maintain a monopoly of professional views, and have shown resistance to change. Examples of such unverified narratives are: operational logistics stocking capacity is required for ten days of intensive war fighting; comparative impact of GNP or PCI on military effectiveness; or examine methods that seek increase in GDP allocations to defence budget for military effectiveness instead of looking at value alternatives to enhance security sector resiliency.

The intention of NSR studies is to contribute towards the country's thought leadership for a designing a policy framework and higher doctrine to build an eco-system that supports national security resiliency through convergence of wider strategic and developmental policies. The scope of such narratives will be broader than assumptions of security being currently applied in the defence sector. This will include policy segments that had been neglected in understanding the requirements of national security resilience building. For example: relationship of poverty eradication and achieving educational standards with NSR; power generation for competitive manufacturing and building advanced technology export competitiveness on military industrial conversion capabilities.

There is a need to debate the concept, framework, and structures of NSR to define a National Action Plan for implementing NSR strategies. What kinds of policy research, training initiatives and performance evaluation process are suitable for creating NSR capacity building plans. For example the narratives that are being interrogated are selected on the basis of scale of their impact on national economy and security sector resilience building; the scope of applications should be wider; and convergence of socio-economic needs with capacities that would reinforce or enhance the country's NSR.

Selected Pillars for Building Capacities in National Security Resilience (NSR) In order to develop a practical shape and provide a formative understanding of NSR framework, it is suggested that to begin with, following seven pillars could be discussed as focus areas:

- (i) Rethinking linkages between strategic autonomy and national security resilience in view of changing nature of conflict, such as: wars of attrition, controlled intensity of military coercion and intimidation, cyber attacks on nation's privacy. Walking the fine balance of politico-military isolation, reducing dependency on Russian weapons as well as the Quad for developing India's strategic autonomy.
- (ii) Enhancing Comprehensive Strategic Power (CSP). Examine limitations of assessing national security resilience in terms of allocation of the GDP to the defence budget. Implications of neglect of initiatives to enhance per capita income (PCI) and constraints on arms acquisitions by low PCI. Examine alternative ways to enhance high impact sectors, such as: poverty eradication and female labour force participation rates; educational competitiveness for human factor productivity; revisit India's long term energy plans for competitive manufacturing outcomes; and opportunities for advance technology exports.

- (iii) Economic capacities for national security resilience: Conversion of economy, industrial, technology sectors; abilities to absorb conflict-related shocks on primary, manufacturing, and service sectors for provision of essential goods and services.
- (iv) Financial Sector Resilience: Integrated financial planning, trade diversification; financial system resiliency stability to absorb shocks of long duration conflict; ability to reconfigure and recover to restore financial services.
- (v) Operational resiliency to sustain conflict durations. NSR and military capabilities required for border regions and Indian Ocean region (IOR) to deter Chinese perceptions of invincibility with high military probability of imposing significant risks at prohibitive costs to the aggressor. National stocking policy; replenishment and operational sustainability in the context of long duration conflicts; limitations of manpower in handling sophisticated equipment; repair and restorability.
- (vi) Impact of vote bank politics on communal or social polarisation and national social cohesion; how can de-radicalisation of fault lines be developed as national security imperative? Impact of politicisation of social threats to perceived loss of opportunities to a community. Pursuit of exclusionary welfare-ism for electoral gain that could undermine trust and resilience in the society.
- (vii) identify and develop breakthrough technologies through Integrated commercial and operational deployment of entrepreneurial finance to provide cost-effective innovations to sustain export competitiveness in these emerging technologies. Discuss delivery and R&D limitations of advanced technology open competition development model, instead of an exclusive control of public sector R&D model.

### **The Three Narratives**

It is natural for any decision-making process to carry its cognitive bias. A strong confirmatory bias gets reinforced by group beliefs, such as: the views of the military on security matters remain above interrogation vis a vis that of experts, should these be civilians. Cultural or Affinity bias also lead to developing a preferred opinion when situations are judged through lens of stereotypical assumptions of group-beliefs. A scientific interrogation of decisions made through deductive logic helps in reducing the impact of such bias, therefore, decision-makers in India need to re-examine their national security narratives to build resilience capacities. It is likely that broader scientific review may run contrary to the establishment's professional opinion.

To examine existential bias operating in the Country's national security imperatives, the paper will examine three narratives: One, adequacy of operational logistics stocks for ten days of war-fighting at intense battle rate. Two, should assessment military effectiveness be made only on the basis of GDP allocations to the defence budget or should assessment of national military power combine GNP and PCI growths; and Three, nation's strategic autonomy is dependent on its diplomacy and independent of its comprehensive strategic resilience which is developed through convergence of security sector needs and economic growth.

### **Narrative One**

Sufficiency of war fighting stock for duration of ten days intense battle.

Any country's military resilience depends upon sustainability of its economic growth, then evidence is clear that expansion of China's military growth lies in its economy's growth which has direct outcome in terms of growth in its military potential.

Studies on correlation of growth in Indian economy and military effectiveness may not turn out to be accurate, if we merely use the conventional metrics of GDP, military expenditures or bean counting of major systems. Do these indicators provide sound empirical constructs for policy makers and analysts to develop force designs for national security resilience?

In this context, we need to examine assumptions made by Chinese scholars on invincibility of the PLA,<sup>6</sup> which has emerged from China's rapid economic development, that made major contribution for modernization of PLA, building its military security sector's relative resilience. In view of the foregoing, one find that Indian military's assumption are not scientifically analysed, that logistics planning for ten days of stocking for intense fighting. How would its military enable adequate sustainability, should circumstances of conflict stretch out for a much longer duration.<sup>7</sup>

### **Narrative Two**

Military's effectiveness is dependent on allocations from the GDP

As security studies generally assume that military power is a direct product of economic resources, the size of a country's GDP is indicative of the state's potential defence budget and military power. Consequently, defence budget as a ratio of GDP is often used as a proxy for a nation's economic power and military capabilities.<sup>8</sup> It needs reiteration that GDP is only an aggregation of goods and services indicating a country's economic performance for that year. Allocations from the GDP to the defence sector are merely indicative of the military's burden on society, among other burdens, such as Health and Education. As the World Bank funds a country's development programmes and the IMF gives large loans to avoid the country from defaulting its debt burden, a country's economic viability is assessed on criteria such as its GDP growth rate and balance between defence and development expenditures.<sup>9</sup> To discuss norms on restraints in public

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6 Chinese scholars compare national power in terms of four indicators namely: Military, Economic, Industrial and Demographic power. In assessment of early 21st Century State Power Structures for China, France, Britain, Russia, Japan, Germany and India, China is assessed strong in all the four indicators, whereas, India is assessed strong in terms of military and demographic power only. Xue Tong Yan, "Rise of China and Its Power Status" Chinese Journal of International Politics, Vol. 1, 2006, 5–33, pg 21.

7 Deposition of VCOAS, Lt Gen Sarath Chand at the meeting of Parliamentary Standing Committee in March 2018, because of paucity of funds to stock arms, ammunition, spares are limited for 10 day intensive war. "Indian defence forces out of funds, won't sustain 10-day war, says Parliament Standing Committee". Gurung, India Today. 14 Nov 2018. and Shaurya Karanbir (14 Mar 2018). "Shortage of funds a big worry, says Army to Parliamentary Panel". The Economic Times. Retrieved 14 Nov 2018.

8 Indiandefencebudgetas ratio of gdpasrangedbetween 2.89% to2.5 % in thelast 10 years. However, indiandefenceexpertssuggestthat India should allocate2.5% of gdp to thedefence sector. Statista.com and seeindia's defence spending in seven charts times of India 30 jan 2021, see [http://timesofindia.indiatimes.com/articleshow/80600625.cms?utm\\_source=contentofinterest &utm\\_medium=text&utm\\_campaign=cppst](http://timesofindia.indiatimes.com/articleshow/80600625.cms?utm_source=contentofinterest &utm_medium=text&utm_campaign=cppst)

9 Interviews with staff fromThe IMF Policy Development and Review Dept. and the World Bank's, Post Conflict Unit: these ratios were developed as information tools to discuss balance between external debt and defence budget. However, both these institutions are wary of using these linkages, being a touchy issue beyond the remit of both these institutions. However, the international and national socio- economic debate tend to use these linkages to restrain military expenditure demands.

expenditure, these institutions display global data on military expenditure as a ratio of GDP for purpose of norms setting.

India's defence and strategic research community, started to link Indian GDP's allocations to defence budget as indicator military effectiveness. The public debate on national security sought allocations of 3% of GDP to the military, on an assumption that such a scale of allocation is required to provide necessary hard power to national security. These arguments are driven by unverified assumptions, which get supported by confirmatory bias, reinforced by group beliefs of India's security analysts. Think Tanks also confirm this opinion, without scientific validation of methodology or the question why should GDP allocations to the defence budget be used as a proxy for military power. Consequently, assumptions that any increase of GDP allocations to India's national security resilience will add to military effectiveness are both misplaced and leap of logical inconsistency.<sup>10</sup>

If a country's annual GDP allocations is the sole basis of deciding its military acquisitions, the process will continue to have limitations of coherence and predictability in long term plans. As annual GDP may fluctuate with short term ballooning effect in the economy, such as: a boom or bust in stock markets or financial sector and oil sector, But these events do not alter the country's socio-economic depth or resilience. As GDP could rise, even as the country's debt is increasing or its natural resources are being depleted, which indicates that a country's economic growth is not sustainable. As the GDP can rise and fall precipitously in free market economies, a stable and steady indicator of the health of an economy is seen as the per capita earning levels of its citizens.

As decisions to acquire major weapons systems are at discretion of the State, but these decisions are constrained by competing basic socio-economic demands. Therefore, exclusive indicator of GDP allocations does not provide sound theoretical or empirical constructs for policy-makers to develop force designs or national security resilience. It is recommended that country's should create dashboards to understand constraints on acquisition of military capacities and effectiveness of policy outcomes such as: allocation priorities to improve per capita income through poverty eradication, low education standards, potential shocks to the economy and other competing demands. For that reason, NSR capacity building policies need to look at opportunities of convergence with socio-economic factors, that can build or impair growth in the society. This will help in understanding alternative pathways to enhance security sector resilience.

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10 See Joseph Stiglitz, "GDP Is the Wrong Tool for Measuring What Matters," *Scientific American* <https://www.scientificamerican.com/article/gdp-is-the-wrong-tool-for-measuring-what-matters/> As economists focused on the intricacies of comparing GDP in different times, across diverse countries and constructing complex economic models that predicted and explained changes in GDP, they lost sight of the metric's shaky foundations. Experts seldom studied the assumptions that went into constructing the measure—and what these assumptions meant for the reliability of any inferences they made. Instead, the objective of economic analysis came to explain the movements of this artificial entity. GDP became hegemonic across the globe: good economic policy was taken to be whatever factor increased GDP, the most. The study by Amartya Sen, Jean-Paul Fitoussi and Joseph E. Stiglitz, "Mismeasuring Our Lives: Why GDP Doesn't Add Up." New Press, 2010, assesses the limits of GDP as a measurement of the well-being of societies, for example, how GDP overlooks economic inequality, that shows how most people can be worse off, even though GDP income is increasing.

### **Narrative 3**

#### **A country's strategic autonomy is independent of National Security Resilience?**

Wars are started, fought, and progressed over a variety of assumptions, foremost among these are false optimism. At times, decision-makers miss out an essential point in their assumption, that diplomacy can develop strategic autonomy for a country without developing its NSR capacities. As disputes can quickly escalate into wars, in operating these two mutually reinforcing assets in separate silos, decisions can lead to false assumptions of military power providing the desired political objectives.<sup>11</sup> Confirmatory bias in political decision-making process often results in mistaken assumption of its military's power, where diplomatic, economic, financial and defence sectors do not build a coherent assessment process.

Assessments on post-conflict outcomes show relative accuracy in measuring comprehensive power when per capita income (PCI) is coupled with Net GDP Costs: (which excludes expenditures spent on production of GDP, i.e., costs of production of goods and services; welfare; internal security and domestic policing). Such studies show a more accurate proxy for military effectiveness, as the side with higher Net GDP and PCI, has won nearly 70% of disputes and 80 % of wars.<sup>12</sup> Reasons for finding a higher PCI as a more accurate proxy of military effectiveness are because countries with high PCI have: a higher scale of technology diffusion in its civilian economy.<sup>13</sup> Its higher standards in education, enables its military manpower efficiency in equipment maintainability and serviceability of transportation fleets, as well as restorability of damaged equipment in adverse battlefield conditions. Better education also enables training of military volunteers to operate complex weapons systems, and enables larger scale of mobilisation in shorter time frames. Higher PCI also enables military manpower to innovate new technology intensive systems for reconnaissance, surveillance, target acquisition and precision engagement (RSTAPE).

In terms of technology R&D and industrial resilience, a country with higher PCI can develop flexible manufacturing of export competitive products by converting its precision engineering industries to international standards. Consequently, during intense operations, its industries can meet surge in demands for spare parts of its military's equipment. A country with higher PCI can develop advanced technology R&D sector to innovate new weapon systems for rapidly evolving battlefield counter measures in shorter time frame. Whereas, pervasive use of digital communications technologies in a country's civilian sectors are also enablers of military sector's efficiencies. In view of foregoing, a country's with higher PCI will have technology-industrial convertibility advantages and deploy its financial, economic and technology strengths to contribute its national resilience. Countries with large GDP and large availability of military-age manpower can provide higher military effectiveness.

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<sup>11</sup> Recent examples: President Putin's assumption of replacing the present Ukrainian Government with a favourable one was based on their General Staff's assumption that operations against Ukraine will get over in two weeks time. US troops surge in Afghanistan by President Barrack Obama in 2009. Some earlier examples are: the Bay of Pigs in Cuba in 1961; the US Army surges during the Vietnam War. Setbacks suffered by the Indian Government's forward policy in NEFA and Ladakh was in absence of efforts to build sustainable national security resilience.

<sup>12</sup> Michael Beckley, *Power of Nations: Measuring What Matters*. International Security, Vol. 43, No. 2 (Fall 2018), pp. 40-41.

<sup>13</sup> Michael Beckley, "Economic Development and Military Effectiveness," *The Journal of Strategic Studies*, 19 Feb 2010, pp. 50-53.

If a country's economy can sustain its military capacities and war fighting resilience, then evidence is clear: that enhancement in China's military potential is a consequence of its economic growth and its per capita income since mid- 1980s. China's rapid economic growth and industrial development, led Chinese scholars to make assumptions on invincibility of the PLA, enabled by. This ability has led to modernization of PLA, and building up its military potential, technology, and security sector's resilience. <sup>14</sup> In view of the foregoing, it is incredulous that Indian military planners continue to assume adequacy of logistics plan for ten days of stocking scale for the entire army at intense fighting rates? Would a scale of 10-days stocking provide its military with adequate operational sustainability, should circumstances of conflict stretch out for a longer duration?<sup>15</sup> As China has more than 5.7 times of India's GDP and Per Capita Income (PCI) because it had prioritised its socio-economic deficits from 1970s to 2000. There is a need for a better understanding of correlation of country's higher PCI and its capacities to augment its military's combat effectiveness.<sup>16</sup> As arms acquisition decisions are not obligatory but discretionary expenditures, there are competing demands on public finance for making allocations for poverty eradication; human development, education and health projects. It is found that in countries with higher PCI, such competing socio-economic demands are weaker and financial feasibility of arms acquisition decisions are higher.

A comparison of military technology/firepower and military manpower indicators.

To indicate contribution of a country's PCI to its military effectiveness a comparative assessment is required of ratio of military's manpower to a country's holdings six major weapons systems<sup>17</sup> and technologies for: reconnaissance, surveillance, target acquisition and precision engagement (RSTAPE). For example this comparison is of four major countries which have significant military capabilities, namely: France, UK, Germany and India is on the basis of: (i) similar sized economies in terms of nominal GDP; (ii) similar sized defence budget allocations. But three countries in this sample, have a higher ratio of firepower and technology to its military's manpower. Whereas, the fourth country India, has a lower ratio of firepower/technology to manpower, which correlates with having the lowest PCI among the sample of these four countries. Findings from this comparison are countries with higher PCI are able to have a higher scale of firepower and

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14 Xue Tong Yan "Rise of China and Its Power Status" Chinese Journal of International Politics, Vol. 1, 2006, 5–33, pg 21. Chinese scholars compare national power in terms of four indicators namely: Military, Economic, Industrial and Demographic power. see: Early 21st Century State Power Structure for China, France, Britain, Russia, Japan, Germany, and India. China is assessed strong in all the four indicators, whereas, India is assessed strong in terms of military and demographic power only.

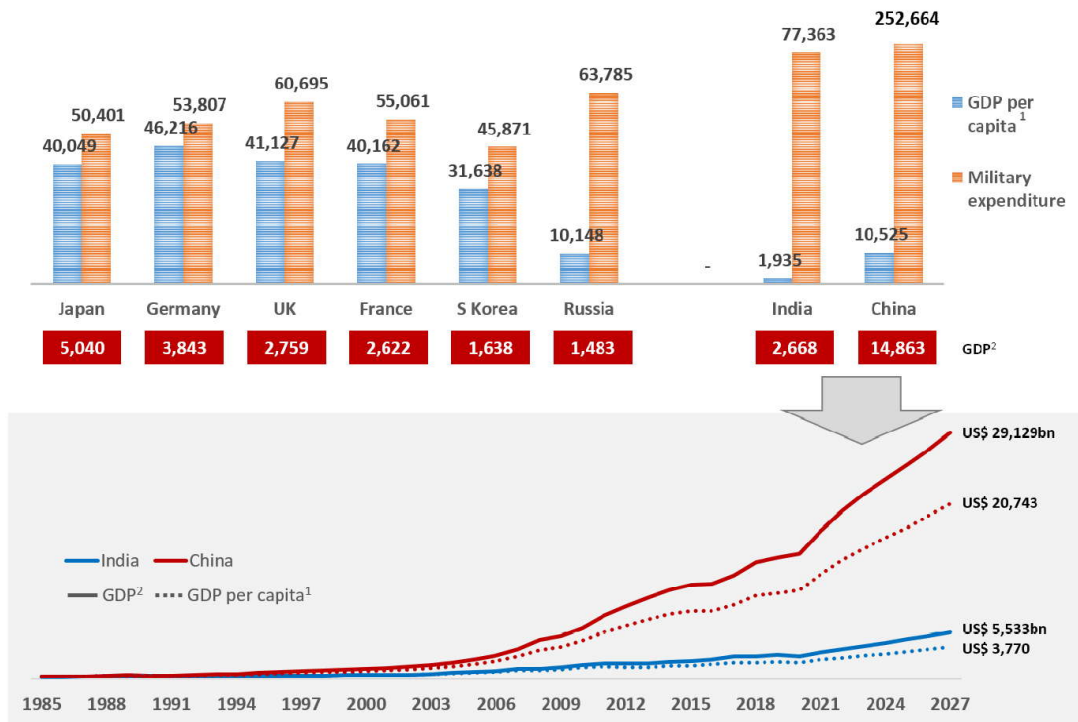
15 Deposition of VCOAS, Lt Gen Sarath Chand at the meeting of Parliamentary Standing Committee in March 2018, because of paucity of funds to stock arms, ammunition, spares are limited for 10 day intensive war. "Indian defence forces out of funds, won't sustain 10-day war, says Parliament Standing Committee". Gurung, India Today. 14 Nov 2018 Shaurya Karanbir (14 Mar 2018). "Shortage of funds a big worry, says Army to Parliamentary Panel". The Economic Times. Retrieved 14 Nov 2018.

16 Because of demands of the military applications technologies and components require smaller production runs. Which requires large scale commercial of the shelf (COTS) applications of equipment for military applications to reduce its R&D costs. Examples are: the US Army requirements for hand held communications and use of satellite surveillance and reconnaissance led to development of mobile phones and digital camera using space-based photography. The US Government, Defence Advanced Research Project Agency (DARPA) developed the internet communications which was required for optimum application of precision targeting combination of fire units over wide areas. Microchips were developed for cruise missiles and F 14s of the USAF; the US Navy needed development of system for location of its submarines and other assets at sea, which led to the GPS.

17 The UN Register of Conventional Arms 1994 has identified destabilising six weapon systems, namely: naval combat ships; combat aircraft and helicopters; tanks and fighting vehicles; artillery and rocket projectors; and missiles for tactical and strategic applications.

technology-intensive equipment for military applications as opposed to manpower. Except for India, the other three countries: Germany, France, and the UK, show a greater balance in their PCI and military budgets.

In this sample, India is unable to sustain a comparable firepower/technology to Its manpower ratios because of its lowest PCI. (for graph see next page)



This limitation is evidenced in India’s acquisition of weapons systems that are lower in cost, but uncertain efficiencies from the former Soviet Union, creating a politico-security dependency on the Soviets/Russians, which continues to the day. As any arms acquisition dependency undermines a country strategic autonomy, therefore one can conclude a correlation: low PCI has low NSR and low strategic autonomy. And the opposite holds true: that a higher PCI enables a higher NSR, allows acquisition of sophisticated arms and technology for military effectiveness, and facilitates strategic autonomy. The large gap between India’s PCI and its defence budget causes an imbalance in its NSR capacities.<sup>18</sup> The correlation of a country’s higher PCI with its military effectiveness can also be explained by a few examples, such as:

18 India is an anomalous situation: its GDP is the 5<sup>th</sup> highest in the World. Source <https://worldpopulationreview.com/countries/countries-by-gdp> However, in terms of India’s per capita income in 2021 assessed at \$2,191, it holds unenviable rank at 144<sup>th</sup> position out of 194 economies in terms of its per capita income. Sources <https://statisticstimes.com/economy/country/india-gdp-per-capita.php>.

- India's decision to acquire 126 Rafael multirole aircraft was based on the government issuing an Acceptance of Necessity (AON) to the IAF. However, due to India's low PCI levels, the Government had to trim down this AON and acquired only 36 aircraft.<sup>19</sup>
- A similar rationale is found in the UAE's decision to purchase of 80 Rafael aircrafts, which was facilitated by UAEs higher PCI of 37,500 USD (18 times higher than that of India's), even though it's GDP of 358 bn USD is less than one eighth of India's GDP.<sup>20</sup>
- Another example of impact of conflict on a country with higher PCI is seen from the Russian attack on Ukraine in February 2022. Within one month, Germany decided to increase its defence budget to 102 bn USD. This decision was financially feasible and sustainable, because of Germany's PCI is among the highest in the world (25 times higher than India's).

India's decision-makers need to note that by simply increasing the ratio of defence budget to its GDP, makes a perfunctory difference to its security sector's resilience. A country's security needs require it to reduce the gap in its arms acquisition with that of its threats, then it has to enhance its PCI. The chart on Page. 8 illustrates the growing gap between China's PCI and that of India's, which enables the former to acquire a higher scale of weapons and equipment.

#### 1. China Unprecedented Growth Questions Limitations of India's Policy Makers in Building National Security Resilience NSR?

To understand what has contributed to China's unprecedented economic growth, one needs to compare, the Chinese reforms 1978 with that of India's in 1991. It aimed at combining three factors of production: land, labour, and manufacture of durable capital goods.

China's policies focussed was on poverty eradication, increasing its Female Labour Force Participation Rates (FLFPR) and enhancing educational standards. Since the mid-1980s, estimated 800 million Below Poverty Line (BPL) population were lifted out of poverty. It has since reported that only 3% population remains BPL. To enhance its FLFPR, China also gave boost to secondary and tertiary levels of education levels. A boost was also given to building capacities power generation and industrial consumption to reduce the costs of production and increase the scale of its manufactured goods for global exports and its large domestic market in China. This export capacity is steadily shifted to exports of technology value-added products.

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19 Tejas, a light weight interceptor has good Electronic warfare (EW), Radar and Beyond Visual Range (BVR) capabilities, but the IAF has a capability void between the performance of the LCA and its heavy weight air superiority fighter Sukhoi 30. An operational need was expressed for an aircraft with capabilities of long range bombing, electronic warfare, and to launch air to air BVR missiles. This operational void requires a medium weight multi role aircraft, which led the Cabinet Committee on Security to approve the IAFs original AON for 126 Rafiels. However, India could buy only 36 aircraft at USD 7.5 Bn, due to competing demands of poverty, gender inequity, public health, and illiteracy etc. These important socio-economic considerations impose constraints to limit arms acquisition allocations and consequently military effectiveness. As a result, India continues to have an operational void due to shortage of funds for multi-role combat aircrafts.

20 United Arab Emirates GDP per capita - 2022 Data see <https://tradingeconomics.com/united-arab-emirate>.



The focus of India’s economic reforms in 1991 was to liberalize the economy to increase employment opportunities; deregulate the industrial sector to boost manufacturing sector productivity; make Central public sector units more competitive; a liberal investment policy aimed to encourage foreign investments, and Information Technology exports. These reforms addressed India’s immediate balance of payments problem. A trickle-down effect of growth was expected to lift larger population out of poverty.<sup>21</sup>

Both these countries assumed, that an increase in the size of earning levels and the middle class will increase consumption and the size of retail market. This difference illustrates in the emphasis on China’s poverty eradication policy increase in FLFPR and their outcome. More than three decades later, the relative impact of these two different policies and their outcomes is illustrated in the chart on Page 8 giving a comparison of GDP and Per Capita incomes of China and India.<sup>22</sup> India is among the most unequal countries in the world with rising poverty and income gaps between the poor and the rich.<sup>23</sup>

As low PCI impairs building capacities for national security resilience, if India’s planners assume that, in a large country like India, one-size-fits-all policy can be successful, then evidence has proven it to be



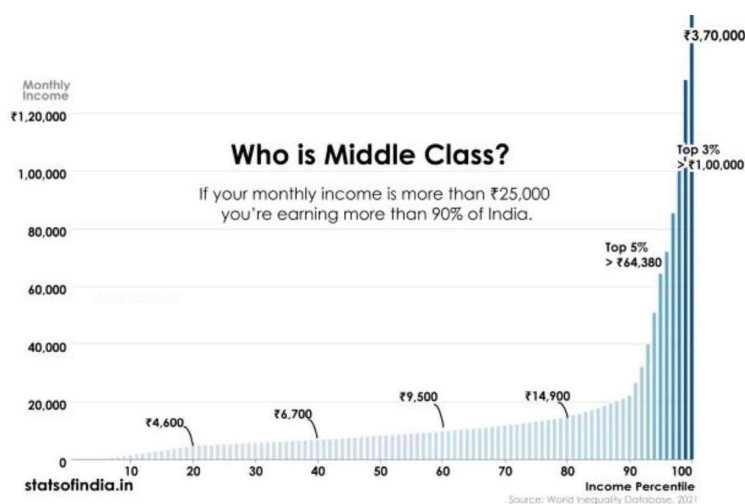
Top 1% population makes 22% of national income; At the 2nd Tier 10% population makes 37% of national income; At 3rd tier of 39% population make 28% of national income; and the bottom 50% population only make 13% of national income. The above illustration shows income distortion which has dragged down India’s per capita income.

21 Reliving Landmark 1991 Economic Reforms. <https://www.thehindubusinessline.com/article35547510>  
 22 China GDP 1960-2022 Macro trends <https://www.macrotrends.net/countries/CHN/china/gdp-gross-domestic-product> and India GDP 1960-2022 Macro Trends <https://www.macrotrends.net/countries/IND/india/gdp-gross-domestic-product>

erroneous by the absence of Middle Class that was much touted claim of India’s planners to have emerged from its reforms. A comparative data Years 2000 to 2018 on growth of Middle class as percentage of population shows its growth in India from 1.2 % to 5.7%, whereas in the same period, the Middle class in China grew from 3.1 % to 50.7%.<sup>24</sup>

Evidently policy implementation by public administration services in India, trained as revenue collectors to administer in conventional colonial model, do not build subject specialisations to meet diverse challenges in our multi-dimensional poverty eradication. India’s failure in lifting productivity in its public sectors has consequently led to lower growth in the country’s per capita income.

A. Poverty Eradication: India may become largest demography of the BPL and poverty vulnerable to population in the world. India is estimated to have 380 mn BPL population (with less than two USD daily earnings or at Rs 4800 per month). India has 210 mn poverty vulnerable population PVP.<sup>25</sup> (those with less than five USD daily earning or Rs 12000 per month) and India’s average national per capita income of 2000 USD or at Rs 16000 per month). Another data set indicates the scale of poverty problem. If monthly earnings of 40% of people is less than Rs 7000/- that is below poverty line and another 20% are earning at rates that make them vulnerable to poverty. It has remained neglected by successive Governments in absence of dedicated programme on poverty eradication.



- 23 World Inequality Report 2022: Lucas Chancel, Thomas Piketty, E. Saez and G. Zucman also informs deteriorating quality of official data.
- 24 Thomas Lee, Lived Change Index shows China attach much more importance on politics of human development? [https://www.quora.com/Why-does-China-attach-so-much-importance-on-politics/answer/Thomas-Lee1181?ch=15&oid=319273660&share=76e28922&srid=nX3wX&target\\_type=answer](https://www.quora.com/Why-does-China-attach-so-much-importance-on-politics/answer/Thomas-Lee1181?ch=15&oid=319273660&share=76e28922&srid=nX3wX&target_type=answer)
- 25 This paper aims looks at alternative solutions for magnitude of poverty eradication problem, rather than contesting assessment methodologies of various economists and Committees. See UNDP Multi-dimensional Poverty Index 2021 and other reports: “Why raising income alone won’t end Poverty”, Times of India, New Delhi, Oct. 13, 2021; “Hard to Count”, but poverty in India is falling, Times of India, New Delhi, 13 Oct 2021; Times of India, New Delhi, 25 Nov 25, 2021; “Poverty in India is on the rise again”, The Hindu, 4 Aug 2021; and “Alarming Hunger or statistical artifact?” The Hindu, 18 Oct 2021.

China's poverty alleviation and skill development programme was launched in early/mid-1980s for poverty targeting 800 million BPL population. Over the past three decades, China invested 20 billion USD in its poverty alleviation targeted programmes at Village levels; and precision targeted programmes at Household levels. It had over the years, deployed 2.8 million trained staff for poverty eradication, out of which 800,00 expert staff continue to live in villages.<sup>26</sup> The current estimates are that only 3% of Chinese population are below poverty line.<sup>27</sup>

Indian leaders need to realise that colonial models of public administration with civil servants staffing various Whitehall-type ministries have demonstrated failure in eradicating poverty in India in the past 70 years.

Consequently, there is a need to develop alternative methods of public service delivery for poverty eradication objectives. A national plan and agency will require an empowered National Agency for Multidimensional Poverty Eradication and Development (NAMPED) assess barriers, limitations, opportunities to research and respond flexibly to causes of poverty and deprivation in different Tehsils. India would require to develop capacities to train 600,000 village level master trainers for delivery of the required agri-engineering skills after getting trained at Agriculture Universities and at Training Centres. The agri-engineering skills needed in the villages should aim to promote farmer enterprises in protected cultivation (PC) horticulture; fisheries; poultry; dairy parlours; solar power generation for operating farm machinery and food processing technologies etc. This would add to non-agriculture economy in India's rural sector and reduce share of labour force employed in agriculture sector, incentivise farmers to switch to agricultural related businesses. The master trainers would need to set up pilot projects in each village, to have these tested, modified and validated for costs and outcome efficiencies. Thereafter, on launching full scope projects, their implementation and outcomes will need to be audited and verified by an independent process deployed for specified cluster of Tehsils in the identified districts.

Enhance Female Labour Force Participation Rate to reach best national averages.

How and what can be the value of female employment and women empowerment initiatives for national security resilience? There is a need span conventional wisdom and overcome barriers in assessing value addition to national security resilience through enhancement of Female Labour Force participation rates (FLFPR). This will require overcoming our cultural resistance to change in assessing barriers, limitations and opportunities in broadening the participation rates as well as equalising compensation levels offered to the male labour force. For example, by creating revenue generating vocations that will add to female per capita income at state levels from the current national levels of 19% FLFPR to levels of 55% achieved by Himachal Pradesh, it is likely that public understanding will develop on the linkages between national security resilience and underutilised asset of India's female labour force.

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26 China: What is Targeted and Precision Poverty Alleviation Part II? <https://youtu.be/LFOkRykYAeg>

27 See Wang Sangui, Li Zhou, Ren Yanshun, "The 8-7 National Poverty Reduction Program in China: The National Strategy and Its Impact" Institute of Agricultural Economics Chinese Academy of Agricultural Sciences 12 South Zhongguancun Street, Beijing 100081, P. R. China

Challenging questions for implementing ways to enhance FLFPR in India *leads us to* studies by McKinsey 2015 and scholars. It examines woman's work roles and the potential economic impact of advancing women's and gender equality measure at state levels: India's Female Empowerment Index (Femdex) estimates for three leading states provide a useful indicator of what is achievable in three different parts of the country, namely: 0.70 Mizoram; 0.67

Kerala; 0.63 and Himachal Pradesh, a conservative North Indian state. It has achieved the highest FLFPR of 55.7 %. It is estimated that full 60% participation for India could potentially add 2.9 trn USD to its economy in 2025.<sup>28</sup> Another study by Mckinsey in 2018, informs the multiplier effects on the Indian economy could add \$770 billion to India's GDP by 2025 by increase in 10 percentage points of FLFPR.<sup>29</sup>

As example: the gap between the FLFPR of Himachal Pradesh and average ratios in India are 35 percentage points, should all the States strive to achieve the standards achieved by Himachal Pradesh, the country could potentially add to the GDP approx. 2.7 trn. USD. With the defence budget @2.5% of GDP, this policy success can putatively add 72.5 bn. USD to defence budget, which could result annual acquisition of 18 squadrons of Rafael aircraft.

#### Educational development for economic and human factor productivity

In the decade of 1950s, China, South Korea, and India were at similar levels of education standards. As early as 1960s-1970, China emphasized a policy of nine years of compulsory schooling and started with elementary schools in every village; junior high school in every township and senior high schools in every commune. The nine years of compulsory education created huge educated work force that helped in industrial reforms of the 1978.<sup>30</sup> While China in 1960s gave priority to removing illiteracy and ensuring universal 9 years schooling, India emphasized higher education in this period, especially elite engineering institutions like the IITs. India introduced free and compulsory education, decades after China did, in the shape of Right to Education legislation in 2009. By mid-1980s, China had achieved Gross Enrolment Ratio of 100%. World Bank report defined literacy as people aged 15 and above who can read and write. It informs that by 2018, India's literacy rate as 74% and China had achieved 96.8% literacy.<sup>31</sup>

Impact of China's education-linked productivity can be studied in different sectors. An assessment of value addition of education to the workforce productivity in national agriculture sectors can be done through

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28 Ashwani Deshpande, Ashoka Universitythe Mckinsey GlobalInstitute(MGI), powerof parity: advancingwomen'sequality in India Nov 2015,p.2 [https://www.mckinsey.com/~/media/mckinsey/featured%20insights/employment%20and%20growth/the%20power%20of%20parity%20advancing%20womens%20equality%20in%20india/mgi%20india%20parity\\_full%20report\\_november%202015.pdf](https://www.mckinsey.com/~/media/mckinsey/featured%20insights/employment%20and%20growth/the%20power%20of%20parity%20advancing%20womens%20equality%20in%20india/mgi%20india%20parity_full%20report_november%202015.pdf)

29 Jonathan Woetzel, et al *The Power of Parity: Advancing Women's Equality in Asia Pacific* McKinsey Global Institute, April 23, 2018: p. 99.

30 Cai Lei, "Did Mao Industrialize China" [https://www.quora.com/Did-Mao-industrialize-China/answer/CaiLei?ch=15&oid=382389532&share=e34cbfca&srid=nX3wX&target\\_type=answer](https://www.quora.com/Did-Mao-industrialize-China/answer/CaiLei?ch=15&oid=382389532&share=e34cbfca&srid=nX3wX&target_type=answer)

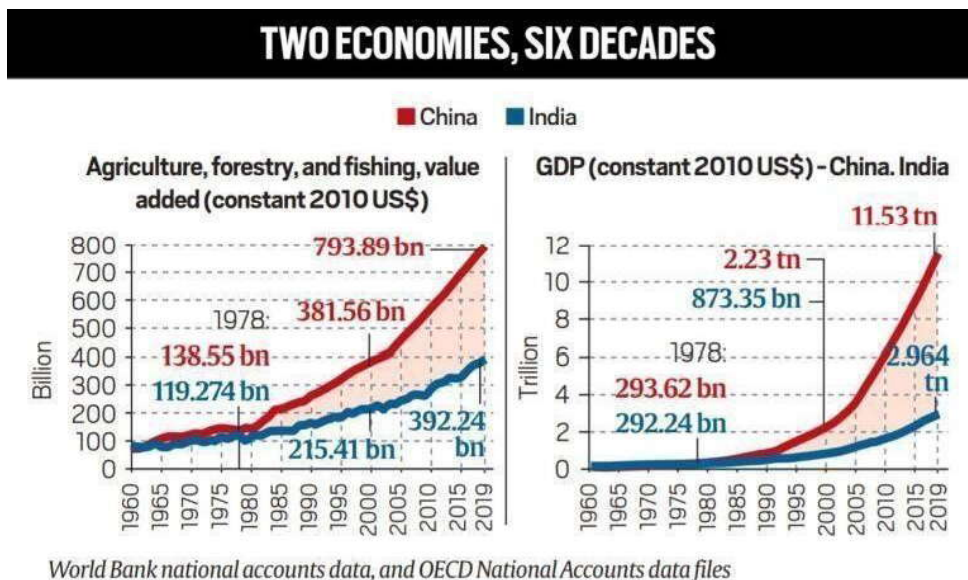
31 Naveen Kumar of the University of California, San Diego and Vinitha Varghese of the University of Illinois, Chicago. "China has 20-year edge. The question is can NEP help India improve education quality, see UN University paper" <https://theprint.in/india/education/china-has-20-year-edge-but-nep-can-help-india-improve-education-quality-un-university-paper/1030680/> and Adult literacy in China 1982-2018 see Statista: <https://www.statista.com> > Society > Education & Science

a comparison of inputs-outputs in China and India. Despite the fact that India has more arable land than China, its annual per capita outputs and per acre yields in wheat or rice production, as examples of staple grains, continues to lag behind that of China's: <sup>32</sup>

**Workforce to Agri-yield ratios:** Indian population engaged in agriculture is 42%, and output is 300 bn USD, or 19% share in its 2.7 trn economy. China's population engaged in agriculture is 8%, and output is 900 bn USD or 7.9% share in its USD 10.5 trn economy.

**Agriculture Yields** Year 2020 Wheat yield: China was 2.4 bn tons and India's was 1.8 bn tons. Year 2019 Rice yield: China 211.4 mn tons India 177.6 mn tons. Year 2017 Horticulture per capita annual consumption in India was 81 kg and China was 324 kg. China to very large extent, has adapted modern horticulture technologies such as green houses and aquaponics.

China spends a lot more on agriculture knowledge and innovation system (AKIS) It invested 5.6 times the amount spent by India 2018-19 on agri- R&D. A study on the impact of investment and subsidies on agri-GDP growth, and poverty alleviation revealed that the highest impact is from investments in agriculture Research and Education (R&E). Indian agriculture experts advocate learning from China's agriculture research and education systems.<sup>33</sup> It is one thing for India to spend on agriculture R&E, but a major block in growth



<sup>32</sup> Janus Dongye Qimeng, "Does China produce enough food to feed its populace or does it have to import food?" [https://www.quora.com/Does-China-produce-enough-food-to-feed-its-populace-or-does-it-have-to-import-food/answer/Janus-Dongye-Qimeng?ch=10&oid=132745322&share=d02f67e3&srld=h0lwZ&target\\_type=answer](https://www.quora.com/Does-China-produce-enough-food-to-feed-its-populace-or-does-it-have-to-import-food/answer/Janus-Dongye-Qimeng?ch=10&oid=132745322&share=d02f67e3&srld=h0lwZ&target_type=answer), data extracted from Statista: China GDP and India GDP, FAOSTAT, Virtual Capital, Helgi Library and Govt of India Ministry of Statistics and Programme Implementation.

<sup>33</sup> Gulati Ashok and Shakshi Gupta, "India Can learn Lessons from China " <https://www.financialexpress.com/opinion/india-can-learn-agri-policy-lessons-from-china/1748398/> Financial Express, 29 Oct 2019. The study estimated that for every rupee invested in agri-R&E, GDP increases by `11.2, and for every million rupees spent on agri-R&E, 328 people are brought out of poverty.

of Agri-GDP is the gap in rural education levels, to understand and apply this knowledge at farm levels. To what extent lack of education in India's rural sector impairs growth in our rural economy in non-farming and agricultural sectors? The charts below show a correlation of trajectories of China and India's growth in the agriculture production corresponds with trajectories of GDP growth in China and India.<sup>34</sup>

Among the agriculture sector reforms, four examples of illustrate contribution of rural high school level education in China.<sup>35</sup> These reforms included: Agriculture Price Reforms provided incentives for farmer's choices which resulted in 47% increasing in agricultural output; Productivity Growth, in the farm sector aimed at improving per hectare productivity; Market Liberalisation gave strong incentives to farmers to adopt new technologies and delivery of agriculture Research and Education to develop rural non-agriculture farm (RNF) skills. The relative efficiency of these reforms was laid by growth in education that led to growth in its agriculture productivity.

Along with dedicated poverty eradication programme launched by China in mid-1980s, rural education and RNF skills building had enhanced its female labour force participation rates, that led to China's rapid growth after 1990. RNF skill-building provided additional income outside farming; improved farm productivity; lifted rural labour and marginal farmers out of poverty; reduced the demand on subsidies; improved drip irrigation and solar power consumption. Even though, India's State governments had launched such programmes, but with indifferent effort and interest. The millstone around the necks of poor farmers in India is the Government's failure in creating dedicated methods of delivery of four services: one, rural education; two, delivery of RNF skills and agri-R&D; three, multi-dimensional poverty eradication; and four, enhance FLFPR at Village and Tehsil levels. Practical initiatives should be developed, for example: a 15 year programme of using 6 million school teachers as paid volunteers to teach at village schools for one year on completion of their college graduation, as well as work on multi-dimensional poverty eradication programme.

The foundation of success in China's agriculture growth, rural sector economy and RNF income was in its education development. India's leaders need to note that 42% of India's labour force produces only one third of agriculture output of that of China's 8% labour force. The focus of India's reforms in 1991 was on urban wealth creation, incentivising foreign direct investments, eliminating state monopolies and controls on industrial licensing. It was expected a trickledown effect of this wealth will benefit the lower segments of our economy. Clearly our rural education, agriculture practices and RNF skills delivery need to be re-designed to enhance rural sector and agriculture productivity. India's per acre yields.

Take two examples from South Korea's educational policy and planning of 1970s-1980s. It illustrates how priorities given to education have facilitated its technological competitiveness, and a country which had

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34 Agriculture Reforms in India and China: Comparative Analysis March 2021 <https://samjhao.com/UPSC/agriculture-reforms-in-india-and-china-comparative-analysis>.

35 Ritesh Jain, "How China's 'Real' Economy Beats India In Wealth Creation," Outlook India, 27 Jan 2022. <https://www.google.com/search?q=Ritesh+Jain%2C+%E2%80%9CHow+China%27s+%27Real%27+Economy+Beats+India+In+Wealth+Creation&oeq=Ritesh+Jain%2C+%E2%80%9CHow+China%27s+%27Real%27+Economy+Beats+India+In+Wealth+Creation&aqs=chrome.69i57j35i39.12399j0j4&sourceid=chrome&ie=UTF-8>

started from a lower per capita income base is now a member of OECD. One, South Korean education policy aimed at providing secondary level education for all. By 2019, it resulted in nearly 50% of its adult population (between 25 to 64 years) having achieved Tertiary education standards.<sup>36</sup> In 25 years, from 1980s to 2005,

South Korea made five-fold increase in its Gross Enrolment Ratio (GER) for tertiary education. Two, in 1980s, South Korean government began to strategically invest into human capital development through STEM education, research and technological innovation. With estimated outturn of two third graduates were in STEM subjects.

As a result of these policy directions and achievements, a phenomenal economic and technology growth was achieved in South Korea. A Nikkei study identified ten fields of emerging technologies that are being competitively commercialized. Country rankings describe their comparative standards in these selected fields of emerging technologies. While China leads in the nine technology fields, South Korea ranks among the top three in nine fields:<sup>37</sup>

1. Artificial Intelligence: China; USA; S. Korea; Japan; Germany.
2. Quantum Computing: USA; China; Canada; Japan; Ireland
3. Regenerative Medicine: China; USA; S. Korea; Japan; Switzerland
4. Autonomous Driving: China; USA; Japan; S. Korea; Germany.
5. Block Chain: China; USA; S. Korea; Japan; Germany.
6. Cyber Security: China; USA; S. Korea; Japan; Israel.
7. Virtual Reality: China; USA; S. Korea; Japan; Germany
8. Lithium ion Batteries: China; Japan; S. Korea; USA; Germany.
9. Drones: China; USA; S. Korea; Japan; Netherlands
10. Conductive Polymers: China; Japan; S. Korea; USA; Germany.

What should political leaders do in countries that are technology followers and want to catch up in these fields? There is a need build specialized educational facilities in R&D on emerging technologies to

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36 **L. Yoon**, “Education level of adult population South Korea 2019” Statista April 14, 2022. Deepti Mani and Stefan Trines, “Education in South Korea” Oct 16, 2018.

37 See Nikkei study 2017 <https://qph.fs.quoracdn.net/main-qimg-a34bddea8f26d62ee49fb4b68c6d5ec0-lq> Machine Intelligence, Artificial Intelligence, Data Analytics, Machine Learning, Deep Learning, and Predictive Analytics are techniques that could radically change our world.<sup>37</sup> Two new developments from China are: “Zuchongzhi 2.1,” is 10 million times faster than the current fastest supercomputer and its calculation complexity is more than 1 million times higher than Google’s Sycamore processor. China has reached quantum septillion times faster than the world’s fastest existing supercomputer. IBM has created the world’s largest superconducting quantum computer as of 2021. According to the Xinhua News Agency, China is developing new light-based quantum computer prototype, “Jiuzhang 2.0,” with advantage in a superconducting quantum computing system.

reach competitive international standards. For example, trends in Information Technologies indicate since mid- 2000, an exponential global growth and information diffusion from analog to globally connected data media and info-graphics.<sup>38</sup> For the first time in history, a huge amount of data is becoming open source and available to anyone.

Societies with large STEM and science-based manpower will be able to deploy benefits from this information explosion with innovate and use their skills for new growth opportunities provided by connected data. As information driven digital technology revolution is an emerging field, no economic activity will remain untouched by this new technological competition or information warfare, both industrial and military.

As digital transformation picks up pace, demands for different types of digitally connected workers: operators, engineers, executives in the field, working from remote locations will drive this growth? The benefits of Digitally Connected work force are to reduce human errors; increase productivity; enable efficiencies of time and costs; improve safety standards of workers; enhances decision-making, and 24X7 monitoring in the fields of work that include sectors such as: oil and gas; quality control in manufacturing industry; construction; chemical production; mining and metals; industrial and vehicles manufacturing; airports and seaports; telecommunication and power utilities etc. New technologies would enhance worker productivity through data and AI controlled processes; smart sensors; Internet of Things (IoT); cloud computing.<sup>39</sup> New market opportunities would enable interaction between the manufacturers and customers. To increase competitiveness, countries will have to facilitate regulatory data protection and privacy compliance across global export markets.<sup>40</sup>

Among the challenges of India's tertiary education policy are how digital transformation improve productivity and unlock new efficiencies by training and deploying "Connected Workers" in the next three decades? If demands for skills in digital expertise remain unmet by India, it will impact a country's trade performance, its export earnings and per capita productivity.<sup>41</sup> Therefore, country's tertiary education policy has to create digitally connected knowledge workers of the future. Whereas, as India's new education policy is silent on this assessment. Does it reveal limitations in our policy making and implementation processes? Unless large scale investments are made in India's STEM education, in financial accounting and technology management, it will be wishful to expect higher returns on investments in digital and informational autonomy in decades to come. As of 2016 estimates, the global out turn of STEM graduates was the highest in China:

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38 Jeff Desjardins, "History of computer science applications and Evolution of Media: <https://www.visualcapitalist.com/history-computer-science-one-infographic/>; June 2018. See Jeff Desjardins, <https://www.visualcapitalist.com/evolution-of-media-data-future/> July 7, 2022. See Nick Routley, 5 Mega Trends Fueling The Rise of Data Storytelling, <https://www.visualcapitalist.com/data-storytelling-megatrends-infographic/> July 5, 2022.

39 Katie Jones, Connected Workers: How Digital Transformation is shaping Industry's Future? <https://www.visualcapitalist.com/connected-workers-digital-transformation-future/> Virtual Capitalist July 2020

40 The EU President, Ursula Van Leyden at Raisina Dialogue April 2022, emphasized the need for data privacy and data protection standards to be harmonized between India and EU as European countries are already complying with European Data Privacy Regulations. However, the law in India is still in the process of debate. See "Where is the Law" Times of India, 2 Aug 2022, p. 22. Data Privacy Law in India is expected soon, Ministry of Communications Times of India, 20 Sept.2022.

41 Katie Jones, op.cit Note 37.



4.7mn, followed by India's output: 2.6 mn.<sup>42</sup> An assessment of quality of this out turn can be identified by international rankings of its academia and the scale of technology patent applications. Views of a leading Aerospace and Defence manufacturer need to be noted: "there is a long way to go to adopt latest technology and to improve the quality of technological education of the workforce in India."<sup>43</sup>

Our political leaders should not repeat failures of our lackadaisical education policy of the 1960s and 2000. For a country like India with its huge baggage of illiteracy, low levels of secondary education, there is need to think alternative policy delivery and implementation methods such as special purpose implementation vehicles (SPIV) instead of relying on colonial era educational services. Our repeated policy failures will affect not only national productivity, but national security as well.

### **B. Challenges and Opportunities in Developing an Energy Policy and Milestones**

The goals set by the Indian Government for replacing fossil-fuel based energy by renewable energy aims to generate 500 GW of non-fossil fuel capacity by 2030. (Virtual Capital Its revised guidelines for thermal generation companies provide incentives to set up renewable energy generation capacity by themselves or through developers, under the existing Power Purchase Agreements. Because costs of renewable energy generation is lesser than that of thermal energy, these incentives provide sharing of gains between the power generator and distribution companies by bundling these two energy sources.<sup>44</sup> With increase in commercialization of renewable energy technologies, the per unit cost of solar power in India is Rs 2.62 per unit, nearly half of the cost of electricity from nuclear power plant Rs 4.10 per unit.

India has passed the targets of its installed solar capacity of 50 GW in Feb 2022. It now aims to triple its renewable energy capacity from the installed 157 GW of March 2022 to generate 500 GW from renewable energy by 2030, of which 60 per cent will be from solar power.<sup>45</sup> This would require an investment of 225-250 billion USD to meet this target, as well as supportive government policies, private sector participation and technological developments. However, India's energy policy has to be seen in the context of understand the challenges and limitations of the solar energy consumption gap that India needs to span, when compared to China, the only country similar in terms of demographic scale. In 2020 China's per capita consumption was 28072 Kwh, India per capita consumption was 6438 Kwh.<sup>46</sup> India's limitations in increasing its solar power generation capacity is its dependency on import of critical raw materials like lithium, cobalt, and

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42 Which Country is technologically more advanced? <https://www.quora.com/Which-country-is-technologically-more-advanced-China-or-Japan>

43 David Zeigler VP, Dassault Systemes, "Technology skilling vital for aerospace and defence sectors", The Hindu, 2 January 2021.

44 Ministry of Power: Mission 500 GW by 2030, "India takes one more step to reduce carbon emission and reduce the cost of power to consumer." See post of Press Information Bureau, Delhi, 16 Nov 2021

45 See Bharath Jairaj and Niharika Tagotra, "India's solar capacities: Milestones and challenges", The Hindu 15 March 2022 <https://www.thehindu.com/sci-tech/energy-and-environment/indias-solar-capacity-milestones-and-challenges/article65227709.ece> and Moody's report: [https://economictimes.indiatimes.com/industry/renewables/india-needs-225-250-bn-investment-to-meet-its-2030-renewable-energy-target/moodys/articleshow/92173747.cms?utm\\_source=contentofinterest&utm\\_medium=text&utm\\_campaign=cppst](https://economictimes.indiatimes.com/industry/renewables/india-needs-225-250-bn-investment-to-meet-its-2030-renewable-energy-target/moodys/articleshow/92173747.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst)

46 Govind Bhutada, "Mapping per Capita Energy Consumption", Virtual Capitalist; [https://elements.visualcapitalist.com/energy-consumption-percapita/?utm\\_source=VC+Elements&utm\\_campaign=48c0e571da-VCE\\_Email\\_September\\_13&utm\\_medium=email&utm\\_term=0\\_f3fdb4328c-48c0e571da-46036025](https://elements.visualcapitalist.com/energy-consumption-percapita/?utm_source=VC+Elements&utm_campaign=48c0e571da-VCE_Email_September_13&utm_medium=email&utm_term=0_f3fdb4328c-48c0e571da-46036025) June 28, 2022.

nickel used for the production of solar panels and other renewable technologies. China also controls 75% share in every stage of solar panel manufacturing and makes the world's majority of solar panels. China share of solar panel global demand is 36.4% whereas, India share is 7%. The government needs to find answers to building up India's share of solar panel manufacturing capacity currently at 1.3%, whereas China's share was 55% in 2010, which has now been raised to 84%.<sup>47</sup>

China wants to reach its climate targets by 2060 as set in the Paris Agreement, with 80% of its electricity coming from Carbon free sources. It is therefore scaling up its capacities for mega production not only for itself, but to create a sufficient scale of production for several other countries to become dependent on supply from the Chinese sources. As China aims to develop 75% of global supply renewable energy equipment: solar panels, solar turbines, EV batteries etc, it is buying up most of the related raw materials to dominate the global supply chain. Investments in nuclear energy are seen as stabilizing mix of energy sources, for which China wants to build 150 nuclear reactors.<sup>48</sup>

There is a need to examine industrial economics of small modular reactors (SMR). As development for Hydrogen clean energy technology is emerging new challenge, it requires Indian R&D in the public and private sector, to prevent a situation of being left behind.<sup>49</sup> ###

### C. Building Capacities for advanced technology export competitiveness, processes and structures

Among the questions the policy makers have to answer are: What should be India's Long-term objectives of advanced technology capacity building and why those objectives have been chosen? How should the integration of advanced technologies for military applications converge with those of export markets? China's technology development is in competition with the U.S., Japan, and other advanced technology global supply chains. China's export competitiveness and domestic consumption in these 25 key advanced technologies, seeks markets for both military and commercial applications. India needs to understand China's pursuit of advanced technology R&D, and how does it plan to stay competitive?

Described below are 16 advanced technologies, that were identified on the basis of global investments in their military applications. However, considering the costs of development, a low scale of military demands and rapid obsolescence in military applications, these technologies were found to have wider applications in sectors such as: communications, health, transport, energy, precision manufacture and information technology. Ubiquitous usage of advanced technologies for commercial applications needs to be developed so as to reduce costs and risks of R&D. To enable economies of scale, sustain competitive and innovative technology standards, and global marketability, an advance technology R&D exports capacity

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47 "Who Controls the Solar Panel Supply Chain," Virtual Capitalist <https://elements.visualcapitalist.com/chinas-dominance-solar-panel-supply-chain/>) August 30, 2022.

48 How China Plans to Win the Future of Energy <https://youtu.be/b1LQSezKxnA>

49 Hydrogen: Energy Security and Energy Transition Integrator | WGS2022 <https://youtu.be/GX5-TXYi1zY>

building strategy is required to be facilitated by entrepreneurial finance to invest in R&D applications for both the domestic and export markets. These advance technology fields include:<sup>50</sup>

- Air-Breathing Propulsion: Aerospace, UAVs, aircraft power generation.
- Rapid Prototyping and 3D printing: manufacturing, industrial design, housing and construction applications, and health sectors;
- Semiconductors and Microelectronic Circuits: Automobiles, telecommunications, computer industries, and industrial robotics.
- Passive Sensors Fire fighting; health care; pollution control; engine diagnostic tools; mining; industrial and chemical safety monitoring and satellite-based imaging, communications, weather forecasting and environment measurements.
- Composites and Nanotechnology Materials Aerospace, wind power, development of environment friendly materials, fisheries, transport, and construction.
- Signal Processing Neural network applications, security surveillance, medical diagnostics, and automatic machine tools.
- Simulation and Modelling Undersea geophysics and prospecting, petroleum exploration, virtual prototyping, and simultaneous design and manufacturing-phase engineering. ecological sensitivity measurements.
- Advanced Software Air traffic control, ship design and construction, deep-sea mining, health care, computer security and cryptography, electrical power generation, and surface transport. Radar
- Artificial Intelligence and Robotics: automated manufacturing, health management, traffic safety, and remote detection of chemical effluents, financial and banking sectors, smart cities; Industrial robotics: hazardous material handling, automated manufacturing, deep-sea exploration.
- Parallel Computer Architecture Computer-aided design, engineering simulation, weather forecasting, petroleum and electronics research.
- Quantum Communications & Photonics Encryption in Financial sector, Banking, E commerce, medical diagnostics, high-speed computing, laser detectors, local area networks, and transoceanic cabling.
- Computational Fluid Dynamics Aerospace; welding and soldering; and production of silicon wafers, circuit boards, machine tools, and gas turbine parts.

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50 For a detailed discussion of these technological fields and their applications, see “Preparing for our Future: Developing a Common Strategy for Key Enabling Technologies,” EU Commission Staff Working Document SEC(2009) 1257, September 30, 2009; and Ravinder Pal Singh, “Identifying Key Technologies in Major Weapon Systems,” in *The Transfer of Sensitive Technologies and the Future of Control Regimes*, (New York and Geneva: United Nations Institute for Disarmament Research, 1997). Ravinder Pal Singh, *Building Advanced Defence technology Capacities in Carnegie Study “Getting India Back on Track”* Random Publishers, 2014

- Data Fusion Public Administration, Urban planning; pollution control monitoring; climate, crop, and geological analysis.
- Weapon System Environment Pollution control; weather forecasting; and oceanographic, space, and geological research.
- Pulsed Power Electricity production and advanced medical equipment.
- Hypervelocity Projectiles Commercial space launch vehicles.
- Superconductivity Energy distribution, non-invasive diagnostic surgery, magnetic resonance imaging, and high-performance computing.

Among the major limitations of building up national advanced technology R&D capacities are :

- First, a shortage of trained and experienced manpower for carrying out advanced R&D projects from the stages of concept definition, development, production and validation;
- Second, lack of advanced technology infrastructure of international quality control standards for R&D testing, trials and market incubation and;
- Third, limited access to entrepreneurial finance to support R&D with their attendant costs and risks of failure.
- Fourth, limitations in technology innovation standards to access to competitive international markets in the OECD countries.

If India were to compete with China in terms of R&Ds in advanced technology sector, then instead of making rhetorical claims on a few products, there is a need to carry out a comparative assessment across wider fields such as: scale of manpower availability in advanced technology; scale of patent applications and value of technology exports in OECD markets; identify policy reasons and capability gaps that has enabled China's comparative success.

For example, if policy needs a focus on ways to develop high quality of manpower training for advanced technology R&D, both in terms of scale and standards required, China has not only increased research outputs from its own universities but launched initiatives for 'brain gain'. It has been able to motivate highly qualified, talented, and experienced engineers researching in the US and West Europe from diverse specialisations by offering R&D facilities that match international standards. A Chinese Returnees (CR) programme for was launched to attract competent overseas Chinese working in the fields of information technology, telecommunications, aerospace and biotechnology through research grants and R&D support. Increasing number of CRs are now making significant contributions to China's academic and R&D sectors, researching in the Chinese Academy of Sciences; Chinese Engineering Academy, and at over 110 R&D Entrepreneurial Parks and at 8000 start-ups. China's Silicon Valley has set up 4500 Technological ventures.

Chinese students with U.S. Ph.D. degrees had been inclined to stay back resulting in long-term brain drain. However, in the past decade, policy changes led to increase in the proportion of Chinese researchers

are coming back from developed countries. This has boosted China's scientific efforts and global knowledge exchange. For every 10 Chinese students studying abroad, there are 9 students returning home.<sup>51</sup> To understand the policy differences, comparable schemes in India need to be investigated to identify and select advanced technology fields, their standards, and the scale.<sup>52</sup>

### What could be done?

The Consortium should focus on advanced technology R&D and manufacturing capacities for products or components for spin-on to be used for India's technology requirements.

To create Eco system of the aforementioned 25 advanced technologies, create a Consortium of 25 clusters for R&D in selected advanced technologies, integrated with R&D manpower streams from the IITs and engineering research colleges. These clusters should be connected with 25 Centres for Excellence (CoE) for testing and quality control: with access to defence and commercial products for international and domestic markets through R&D spin ons and spin offs integrated with manufacturing hubs of precision engineering units, start-ups, incubation labs, Intellectual Property Rights (IPR) firms. The CoE should build institutionalised access to entrepreneurial finance for venture capital (VC), private equity (PE), Angel investors and banks with technology focus; and offsets obligations, to support R&D and development costs and risks.

A country's technological resilience is reflected in its technology export earnings and innovations in the emerging technology fields to adapt for both industrial and military applications. In the Global Technology Innovation Index rankings, China is among the top 25 ranking countries, while India holds 66<sup>th</sup> rank.<sup>53</sup> In this regard, Indian policy makers could take the following initiatives:

- In the Consortiums of Advance Technologies, in each field of create the CoE should have Technology Innovation Centres (TIC) to build collaborations with countries with higher innovation standards.<sup>54</sup> These TICs should be contact points for international and local technology innovations practices and experiences, to spread innovation practices, among the members of the Consortium and defence industries in the country.
- Political bi-partisan support is required for long term advanced technology policies and plans based on market principles for convergence of commercial and military export markets. An independent performance audit should regularly assess commercial sustainability and international competitiveness

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51 Ritesh Jain op cit.

52 Rup Narayan Das, 'Engaging the Diaspora: Experiences of India and China' IIC Quarterly Autumn 2021 pp. 123-124. Ramalingaswami Re-entry Fellowship offered by Ministry of S&T for disciplines like biotechnology, agriculture, health sciences, energy, and environment, etc

53 Wipo INSEAD Cornell Global Innovation Index.pdf Box 4 pp. 19, 20, 21.

54 Technology Innovation Centers should develop policy and decision-making training programmes for political leaders, Government and business executives in areas such as: tertiary education development for advanced R&D; technology business regulatory environment; technology knowledge creation and diffusion and innovation; sustainability of financial credit, investments for technology trade and competition; business and market sophistication; industrial design standards for High technology exports; Creating technology goods and services for international markets, etc.

of India's advanced technology eco-system; assess barriers and limitations in exporting to technology markets in the OECD countries; and opportunities to build joint R&D collaborations between the international developers and Indian start-ups?

- It is time that India takes serious initiatives to broaden the scale of its research output from the academia in the 25 aforementioned fields to increase its R&D manpower base. It would require annual output of several hundreds of scientists and engineers trained to research in these 25 advanced technology fields. It is important to attract highly qualified and experienced overseas Indians, as well as international experts specialising in R&D engineering or academic research in these fields.
- In the current India's R&D system, foreign companies holding propriety R&D rights, seek Joint Ventures in India to access the large-sized Indian market. Unless India-based R&D enterprises, develop partnerships with global R&D companies for market access, Indian R&D will not come of age to sustain competitive defence technologies.
- India's public sector technology R&D labs have to overcome limitations of state monopoly and control on combat systems R&D, such as: 'Triple Hatted' control of R&D projects and funds, that limits competition and innovation. Monopoly control exercised by the DRDO's DG, Secretary R&D and Scientific Advisor (SA) being one and the same person. The current DRDO system creates uneven playing field by controlling allocation of MoDs R&D funds. It deters private enterprise; reduces oversight, monitoring and scrutiny of technology outcomes; reduces incentives for creating leapfrog technologies; preference of the MoDs R&D bureaucracy to work with the assured Indian military market. This model undermines competitive alternatives; lacks in long term financial plans to converge military's threat assessment with technology development plans. As the model does not provide a predictable funding model for the R&D projects, it is difficult to develop commercial investment opportunities, that inhibits barriers VC or Angel investors in military R&D labs.<sup>55</sup>

## **Concluding Comments**

While states can purchase advanced technologies from the other states, only developed economies with higher Per Capita Income and high-quality engineering R&D skills will be able develop benefits from on-going investments required in advanced technologies. This requires a large and well- skilled workforce necessary to innovate and adapt to the requirements of the military.

If current allocations to military expenditures as share of India's GDP is seen as an indicator of military power. India's security analysts are primarily focussed on buying more carriers, submarines, or multi-role 5<sup>th</sup> generation aircraft, assuming these systems provide power to the military. In a limited sense they do, but not in the sense of sustainability of power. India's strategic community needs to understand implications of

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55 These are among the reasons for lack of investments in DRDO by the private sector. Discussions with former Defence Secretary at the PPF presentation 14th June 2022.

large imbalance between India's per capita income and its military expenditures.<sup>56</sup> which does not allow India to sustain a conflict. Hence it is compelled to seek politico-security dependency with a major power, thus depriving itself from strategic autonomy, that it seeks.

To develop a country's strategic autonomy, it is important to understand the dynamics of per capita income capacities and National Security Resilience. It will be erroneous to get fixated by simple metrics of military expenditures of GDP allocations to defence sector, but create a multi-dimensional composite index that is based score of the following factors:

- A) Using size of the GDP to understand the scale of economy and form there assuming the country's potential military power is a serious misconception. As GDP is calculated on basis of aggregating of goods and services in one year, economists have recommended that each country to have a dashboard—a set of numbers that would convey essential priorities of its society and economy to help Policy makers and economist thinks tanks to pay attention not only to material wealth, but to accurate needs of health, education, environment, welfare, social equity, governance, internal and economic security, and other indicators of the quality of life.<sup>57</sup> This requires Security experts, economists and sociologists in India to design and develop a customised dashboard based on assessment of the country's socio-economic priorities, costs and threats, and their management through military and/or diplomatic means to arrive at scientific assessment of defence budget needs.
- B) Per capita income is an indicator of wealth or poverty in any society. As poverty in India effects over 45% of its population, this remains a constant constraint on discretionary expenditures of arms acquisitions. Therefore, India's public discourse and security policy makers need to seriously re-think on identifying ways to advance resilience through poverty eradication, a national security imperative. The focus of this approach should prioritize selected sectors to enhance PCI, that have: wide-scale impact; open to technology innovation; and enable efficient input-output ratios.
- C) Increasing female work force participation rate for NSR will require stringent application of gender safety laws, women workplace equality and empowerment initiatives.
- D) Should the country be unable to find a solution for its education deficit, it will hobble productivity in all sectors of India's economy in decades to come.
  - i) Teaching and financial resources for rural sector secondary level school education need to be developed through innovative special purpose implementation vehicle (SPIV). It could hire college graduates, as interns to teach up to Class 10th students for one year. If every year fresh graduates from the same college, a cost-efficient teaching resource is feasible to have in the Village schools.

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56 Chart on Defence Budgets and Per Capita Income, Page 8 .

57 Stiglitz, Joseph op. cit.. Amartya Sen, Jean-Paul Fitoussi, Joseph E. Stiglitz, "Mis-measuring Our Lives: Why GDP Doesn't Add Up," New Press, 2010.

- ii) Tertiary level educational standards in STEM subjects will build capabilities to meet the future needs of skilled work force in its manufacturing sectors, as well as deploy trained manpower to operate and maintain sophisticated weapons and logistic systems.
- E) Growth in per capita energy consumption and revenue competitive costs of energy production will add value to the manufacturing sector, which can help growth in industrial production that is convertible resilience in military's operational logistics.
- F) For advanced technology R&D to be commercially exported to OECD countries will improve sophistication and quality standards of domestic R&D. That will provide potential to India's domestic industrial R&D and commercial industries to convert for military applications.

Critical political decisions are defining moments in rise and fall of states. Political failure to address our country's primary weaknesses of poverty eradication and low education standards as basic barriers that undermine building our national security resilience. We had faltered in this regard during 1960s to 2000. If we falter again in 2022, then it shows that has India's recurrent handicaps in its political history. If India were to change its destiny vis a vis the threats in the 21st century, then it has to implement policies and processes that will enhance its national security resilience.

From the 1950s to 2000s, a power asymmetry between China and India was manageable. For the past 20 years, China has revealed its capabilities and a yawning gap with India. We could either continue with our traditional gradualist approach, as seen during the 25 years period from 1950-75: China PCI grew from 113 USD to 320 USD with average growth rate of 4.2% in its global economic ranking went up from 62 to 47. In the same period India's PCI grew from 95 USD to 139 USD with average growth rate of 1.5%, and its global economic ranking remained the same at 66. The past 30 years China's economic performance has gone up by well over five times.<sup>58</sup>

However, India's focus is on wealth generation, rather than building per capita income of the lower 50% of India's population. If Indian leaders keep to our conventional desires of trumpeting high wealth achievers, sooner than later, our growth limitations and security handicaps would show up. If India's security situation and NSR gets vulnerable, by retaining our attention on conventional and gradualist policy, would reveal that the failure was based on false optimism in our policy and decision-making processes.

Alternatively, we could take a pro-active national security resilience capacity building path, that will enable for India to become economically stable and provide the country with strategic autonomy in the next two-three decades.

## **Recommendations**

If it is assumed that growth in PCI has a significant influence NSR capacity building, then evidence of past three decades per capita income in India is its growth roughly linear from just over 350 USD to over 2,000.

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58 David Morawetz, *Twenty Five years of Economic Development, 1950-1975*, International Bank for Reconstruction and Development/ The World Bank , Washington DC 1977 p. 15



On the other hand, China's PCI has grown almost exponentially, from the same level to more than 10,000 USD.

1. There is a need to accelerate rate of growth in selected high impact sectors to raise competitive outcomes in NSR sectors: i) Poverty eradication; ii) FLFPR; iii) Education; iv) Renewable energy generation; and v) Advanced tech export competitiveness. These sectors should be identified as imperative for NSR capacity building. Special Purpose Implementation Vehicles (SPIV) will need to be created to plan and implement outcomes with specified time frames.
2. The policy planning and implementation for these five sectors, cannot it be left to the usual policy methods of generalist cadre of civil servants with demonstrated inefficiency of 60 years. Capacity building in NSR sectors must be responsibility of professionals with public service passion. It will require four professional stages: a) forecasting, validation, and implementation of NSR policies, and b) verifiable processes for implementation of NSRs in time-bound objectives which includes: verified assessment of input resources; scrutiny of outcomes and standards; c) monitoring policy milestones; d) policy review and method recalibration to meet those time-bound objectives.
3. In comparison with China, India has been historically timorous in making bold economic reforms that impact the larger segments of its population. Unless special budget provisions for enhancing per capita income, development initiatives are taken up, India will not be able to strengthen its NSR. India will soon become the world largest population among the lowest per capita income countries. As there is clear convergence and coherence in the objectives of NSR and those of the socio-economic development, the method of implementation and innovation in delivery process, requires provisions for strengthening SPIV to progress NSR outcomes.

# Building National Security Resilience (NSR) through Military Readiness

**Harinder Singh**

## **Backdrop**

Military readiness is perhaps one of the least studied and understood concepts in the field of strategic studies. In absence of any significant literature in the public domain, the defence policy makers and practitioners tend to define military readiness in several different ways. This frequently results in readiness assessments that are either too narrow or too broad. An analytical framework to assess the levels of military readiness against a well-defined criterion is therefore a critical policy imperative. One of the traditional explanations on military readiness is to characterise it as a subset of military capability. For instance, the US armed forces define military capability as comprising of four distinct pillars of force structures, military modernisation, operational readiness, and force sustainability. The constructs of “readiness” and “sustainability” collectively define the construct of military readiness and, in more specific terms, the ability to delivery combat potential on the battlefield. Time is of essence here. In practise, the US military interventions in Iraq and Afghanistan were reflective of their ability to undertake large scale military operations several thousand miles away from the US homeland. Such large-scale expeditionary operations demand high levels of combat readiness and above all, the ability of the country’s armed forces to logistically deploy, maintain and sustain troops over time. In the context of India, the national security challenge is somewhat different, and it is more about securing our national interests in a difficult neighbourhood. As a rising regional power in Asia and the Indo-Pacific region, the future has in store many more challenges and security concerns beyond our immediate neighbourhood. It is therefore pertinent to assess these critical national security challenges and threats with exactness and explain the precise demands on India’s armed forces to deliver on readiness needs in the immediate and foreseeable future.

## **The Problem of Military Readiness**

Maintaining India’s territorial integrity, resisting overt or covert acts of terror and its socio-economic well-being has been the country’s prime national security concerns. Securing these vital national interests require safeguards and protection against myriad external and internal threats. Besides this, India’s rising international and regional stature and, in particular, its growing economic clout will continue to make huge demands on the military components. It is, therefore, not surprising that India’s resolve and commitment to maintain high levels of defence preparedness has become more focussed in recent times. The Indian armed forces have to therefore suitably organise, equip, train and prepare themselves to tackle a wide range of national security

challenges and threats. Accordingly, the country has embarked upon a major modernisation programme with special emphasis on indigenisation for increasing the shape, size, and capability of its armed forces. The scale of defence funding reflects both its desire to make up for the lost time, in particular with regard to its capability development, as well as its deployment in the changing global and regional security environment. Being one of the largest military spenders in the world, the Indian armed forces are expected to spend several hundred billion dollars on its long-term defence acquisition plans, to include substantial procurement of land, air and naval war fighting systems, in order to field a highly mobile, lethal, and networked conventional forces. Consequently, it could also be argued that the qualitative changes currently underway in the field of India's military doctrine, technology and organisational culture should transform India's war-fighting capabilities, and in turn the military's structural and operational readiness to deal with emerging threat scenarios, over the next decade or so.

India's leaders have often emphasised that our troops should be trained to fight anywhere, anytime and under any conditions and that their ability to deal with non-traditional threats must receive greater attention. The emphasis on fighting "anywhere, anytime and under any conditions" is notable as India's military readiness concerns have never been so forcefully articulated in the past. At the national level, the scrutiny of defence preparedness is undertaken by the Lok Sabha Standing Committee on Defence (SCD) periodically, however their reports, despite the tremendous effort involved, lack precision in terms of the broader approach to be adopted to significantly correct or address the country's military readiness needs and concerns. The annual reports issued by the Ministry of Defence (MoD) also present a generic picture of the same and do not sufficiently explain the combat worthiness of the country's war fighting proficiencies against a laid down military readiness criteria, its measurement, metrics, or scale. At yet another level, the three services within the armed forces look at aspects of readiness in a somewhat disaggregated form, and their ability to present an integrated picture on country's defence preparedness is rather limited. Though one can argue that with raising of HQ IDS, the situation might have improved, however it appears that there is still considerable ground to be covered in this regard. Furthermore, in the absence of a promulgated national security strategy, and in turn a holistic national defence strategy, there are bound to be gaps in the understanding and articulation of the broader concept of military readiness and its precise components and metrics amongst the political leadership, policy makers and practitioners.

### **Locating the Readiness Debate**

Given the nature of emerging threats and challenges, there is a need to build greater theoretical rigour among the national security policy makers and practitioners on the subject issue. This brief attempts to address the lacunae by flagging the broader readiness worries and concerns in the Indian context. It attempts to present a fundamental approach to the readiness debate, largely exploratory and conceptual, however it can be developed by the policy makers and practitioners to fashion a cogent military readiness strategy, measurement mechanisms and matrix for future threats and challenges. It is therefore argued that there is a need for a shift in the country's approach towards the desired levels of operational and structural preparedness in the Indian armed forces. Regrettably, India has since long pursued a policy of "defence preparedness", which now

needs to give way to a policy of “military readiness” to meet the future challenges and threats. The construct of “military readiness” as commonly articulated in the modern militaries is much distinct and different from the idea of “defence preparedness” pursued in the Indian context. The former postulates the importance of being “ready and relevant” at all times in order to deal with a wide range of operational situations, as against the latter which echoes an attitude of “satisficing” the operational readiness levels (i.e., fighting with what is at disposal of the armed forces). India’s armed forces need to graduate to a more nuanced policy expression to explain the country’s defence preparedness in the short to long term, and thus convincingly deal with immediate and unforeseeable long-term threats.

Military readiness and not defence preparedness has to be the mantra for the future, and that the policy makers and practitioners will have to take a considerate view on the structural and systemic issues in this regard. The issue is proposed to be discussed in three sub sections. The first sub section titled, ‘Concept and Expression’ discusses the existing theory and practise on the construct of military readiness; the second sub section titled, ‘Military Readiness Concerns’ establishes the myriad readiness challenges and concerns in the Indian context; and the third titled, ‘Military Readiness Strategy’ postulates India’s military readiness approach and strategy in the conventional, sub-conventional and non- traditional context. The research is however constrained by lack of policy documents in public domain. Also, in absence of India specific literature on the subject issue, the argument has been based on the study of available publications, reports and testimonies rendered in respect of militaries in the West, and in more recently those available in the Chinese context.

Concept and Expression: As discussed earlier, a clear theoretical understanding on the construct of “military readiness” among India’s defence policy makers and practitioners is a must to appreciate the country’s military readiness needs and develop a sound readiness strategy in the short to medium term.

Three aspects assume importance here.

- First, the construct of “military readiness” differs in theory and practise from the commonly articulated concepts of “military capability” and “military effectiveness”. The fine argument being that any “military capability” has to be kept “ready and relevant” to be “effective” in battle. While this is well theorised and articulated among major militaries and armies in the west, there is often a tendency to lump “military readiness” with “military capability” in the domestic context. This is evident from the several surveys and interactions undertaken by the author on the definition and understanding of military readiness among India’s defence policy makers and practitioners. India’s policy makers and practitioners therefore need to draw greater clarity on the theory and practise of military readiness in order to formulate and prioritise its legitimate operational capability needs for the future.
- Second, the theory and practise of India’s military readiness can be examined at three inter-related levels: the concept, contending approaches, and constraints in its articulation. As mentioned earlier in the paper, the concept of military readiness can be expressed in several different ways. But what is important for us to understand is the precise “demand”, “availability” and “shortfall” in the levels of military readiness at any given point of time or situation. The ability of a nation state to convert

available raw material and resources in terms of money, manpower and material (3Ms) into a viable military capability to meet the demands of a crisis situation explains the concept of military readiness. Any shortfall in capability will be indicative of the lack of readiness on part of a military component tasked to deal with the crisis situation. At yet another level, the concept can also be expressed as “operational” or “structural” readiness. Operational readiness will imply immediate delivery of military capability as might be the case with regard to internal security situations or a sudden and grave provocation by an adversary, while structural readiness might entail preparing military capability for situations that might occur in the medium to long term.

- And third, the militaries in the west have invested a great deal of expertise and effort at the legislative, bureaucratic, and operational level to ensure that the country’s military readiness needs are actually met. For instance, the HASC, GAO, CBO, DoD and QDR reports, SORTS and C-ratings in case of United States, and the MoD and HAO reports, RO-R11 and B1-B3 ratings in the case of United Kingdom reflect the theoretical and procedural rigour in their case. China too, and true to its strategic acumen, explains the concept of military readiness through phrases such as mechanisation and informational-isation. In the Indian context, this is clearly lacking and therefore calls for attention towards building the concept, standards, and measures to analyse the military readiness levels. To begin with, the Lok Sabha Standing Committee on Defence could invest in appropriate research and analytical capacities that enable them to examine issues of military readiness with far greater purpose and clarity. This would assist the Indian defence establishment in enabling a top-down understanding of our readiness needs and priorities. In due course, the three services too should define the metrics, standards, and mechanisms to address the readiness related issues in Indian armed forces.

**Military Readiness Concerns:** The prevailing geo-strategic environment, the security challenges, and threats that the Indian armed forces face, the imperatives and implications of a future military conflict or border confrontation are some of the key concerns that will define the military readiness needs of the future.

Three aspects are relevant.

- First, India is faced with a wide range of conventional and sub-conventional military threats and challenges – some of which are simply not discernible or foreseeable – which would place tremendous demand on the defence planners and practitioners to deliver operational readiness in times of crisis, or conflict. Military readiness is all about recognising these myriad security challenges and threats so that the available national resources in terms of money, manpower and material could be optimally utilised during peace time to fashion and deliver the military instruments of force, as and when required.
- Second, the much talked about gaps and deficiencies in the doctrinal and capability development of the Indian armed forces severely impact the deliverability of the country’s military preparedness in times of crises. These discrepancies in India’s military readiness can be explained at three levels.

- One, there seems to be a disconnect between the doctrinal aspirations of each uniformed service, and the country's ability to individually or collectively deliver on the much-needed joint war fighting capability. The aspect of medium to long term capability development particularly stands out in the case of the army and the air force, while the navy has been somewhat better organised in recent years.
- Two, the envisaged military doctrines must nest within the overall politico-military framework of the country. An overreach in doctrinal aspirations might place an undesirable demand on the country's scarce resources to produce the desired military capabilities. This does not imply that the current articulations are inconsistent, but that these need to be harmonised among the three services.
- And three, the inability of the national security structures to iron out the military readiness inconsistencies in order to field a more "ready and relevant" military in the future. A new vision needs to be articulated, which harmonises both the doctrinal articulation and capability development in tune with the larger national interests and aspirations.
- And third, there are several limitations and hurdles that impinge upon the readiness levels of the Indian armed forces. These can be examined at three levels: the national security policy and planning structures; the systemic and procedural hurdles in capability development; and the limitations of organisational culture, military education, and training. The particular aspect of capability development demands a substantial change in the role and functioning of the budgeting agencies, the scientific community, the production agencies, the bureaucracy, and the military. The defence acquisition plans need to be articulated and directed to enable wider participation of public, private and other national enterprises. In terms of institutional culture, the persisting disconnect in civil-military relations, the inability to undertake organisational reforms and lack of focus on professional military education assume importance. These lacunae combine to produce an effect that is not conducive towards enhancing the operational preparedness levels and efficacy of the Indian armed forces in crises situations.

**Military Readiness Strategy:** Given the myriad threats and challenges that India faces, there is a need to formulate a comprehensive military readiness strategy to meet the unforeseen operational contingencies of today and tomorrow.

Three issues assume importance.

- First, there is need to examine the problem of shaping India's hard power in the twenty first century. India's capacity to master the creation, structuring, deployment, and use of military instruments despite six decades of independence is still not quite certain at this point in time. It will depend on how the country's leadership both political and military manages to reconcile between the strategic opportunities, threats and challenges that have been identified in the regional and global context.

India armed forces still remain a conservative entity that has focused much on “satisficing” hard power rather than “maximizing” it. In other words, the reluctance to use force to secure operational outcomes might limit India to be content with remaining a traditionalist military power for some time to come. And if this is to be altered, then the defence “transformational strategies” that are often spoken about these days will have to be vigorously pursued for building a strong Indian military capability and its structural prowess.

- Second, there is a need to formulate India’s military readiness strategy in the years ahead. India’s economic rise and access to technology seem to be changing perspectives within the country, and the increased resource allocation to military modernisation can be usefully utilised towards the growth of the Indian armed forces. However, a technocratic or an acquisition oriented or a manpower intensive approach alone might not deliver the readiness needs of the country. There is a need to strategize India’s military readiness concerns in the framework of possible security threats and challenges (i.e., readiness for what?), the military capabilities required to meet these threats and challenges (i.e., readiness of what?) and likely time frames by which these capabilities are required (i.e., readiness for when?). This three- tiered approach can possibly help the policy makers and practitioners to decide on the nature and levels of military readiness, both operational and structural, required during peace time and war. Simplistically speaking, India needs “operational readiness” when it comes to dealing with Pakistan, and both “structural and operational readiness” to ward off the long-term military threats and challenges from China.
- Third, there will be a need to synchronise the military readiness strategy in terms of the money, manpower and material (3Ms) that is made available, and whether this readiness building approach has to be linear or cyclic in the medium to long term. Each factor plays a crucial role in the operational and structural readiness of the armed forces but importantly in concert with each other. However, there is often a tendency to evaluate them in isolation and draw conclusions that might not be holistic and appropriate for addressing our readiness deficiencies. Effective management of the 3Ms alone can ensure the deliverability of military readiness both operational and structural in the Indian armed forces. A few issues are of import here. First, is the need to introduce the study of military readiness as an important component of strategic and military studies within the country. Second, there is a case to train select military officers in the readiness practices commonly pursued by militaries in the West. This training could facilitate better management of money, manpower and material for achieving the desired military readiness levels. Third, there will be a need to create appropriate civilian and military structures to measure and oversee the readiness levels of the several components of the armed forces. Fourth, the military readiness measurement and reporting structures so created should become the principal agencies that ultimately testify to the designated legislative bodies about the operational or the structural health of the armed forces on a periodic basis. Significantly, the Lok Sabha Standing Committee on Defence and the various departments of the Ministry of Defence and Service Headquarters would stand benefited by the creation of such agencies or structures.

## Ready for What?

Most importantly, the argument developed by Richard K. Betts, an American scholar, who utilises the aforementioned three-tiered analytical framework namely, “Readiness for What?”, “Readiness of What?”, and “Readiness for When?” to explain military readiness needs and concerns is pertinent. Based on these distinct lines of investigation, a comprehensive military readiness strategy contributing to national security resilience can be evolved in the Indian context. This analytical framework assists in investigating the readiness concerns in terms of the likely “threat(s)”, “capability” and “time” dimension respectively. These questions can be examined against a wide range of military scenarios stemming from the continental, sub-conventional, maritime, asymmetric, non-traditional threats, and including out of area contingencies. In effect, this three-tiered analytical framework developed by Betts brings richness and rigour to our overall understanding on military readiness needs. In absence of a clear theoretical understanding, this aspect of readiness is lacking in the Indian context. And for a country that is characteristically defensive in its strategic-military behaviour, this understanding assumes even greater significance lest the excessive emphasis on military readiness detracts the country’s policy makers from the primary national objective of socio-economic development. Simply put the framework provides the basis to formulate the policy choices by explicating the complex trade-offs that are integral to the military readiness debate.

### **A brief explanation might be relevant here.**

- First, the expression “readiness for what?” explains which adversaries should the Indian armed forces be ready to fight against, and under what operational conditions, and according to what military doctrine or strategy. In fact, this line of analysis can enable us to throw significant light at how much military capability might be required to deter, or dissuade, or if necessary, defeat the potential adversaries’ threat or front wise posture and counter actions.
- Second, the phrase “readiness of what?” explains the military capabilities that might be required to marshal and deploy in times of crises, or confrontations, big or small. This will include land, naval and air warfare capabilities both in the conventional and sub-conventional realm, their inter-se priorities, and how would boosting of one service affect the operational efficacy of the other two services. Maintaining the inter-service balance with relation to the emerging national security challenges and military threats would perhaps form the essence of this three-tiered analytical exercise.
- And third, “readiness by when” should the potential capability latent in a military force (which includes the country’s economic capacity) can be brought up to actual combat needs or in times of crisis. In other words, what should be the readiness status of the armed forces during peace and wartime.

The foregoing frame of analysis establishes the military readiness demand which might be placed on the Indian armed forces in the short, medium, and long term. It further clarifies that the defence preparedness needs of the country have to be seen at two distinct levels: structural and/or operational level. A brief explanation follows here.



Western borders: In simple terms, the military readiness needs have to be “operational” in case of our western adversary, whereas it might have to be “structural and operational” in the case of our northern adversary. Consequently, conventional, and sub-conventional threats emanating from the west demand an immediately deliverable military readiness in terms of the “ready and relevant” combat potential of the land, air, and naval forces. It should be prepared to deal with incidents and episodes of cross border terrorism in the state of Jammu and Kashmir and elsewhere, and military intrusions in the hilly terrain, and possibly any misadventure in the plains or the desert sectors. Though, the latter might be least likely to occur in the future. In other words, the importance of short term or “operational” readiness is far more significant than the long term or “structural” readiness in context of our western adversary, although the importance of structural readiness cannot be ignored. Since the military structure and strategy is broadly in place, the operational focus of the Indian armed forces will be on maintaining, upgrading, or sustaining the existing war fighting capability. Besides, it will also involve ensuring the overall preparedness of the counter insurgency forces such as the RASHTRIYA RIFLES and ASSAM RIFLES to fight insurgencies beyond the capability and capacity of the paramilitary forces, if required. Fighting long drawn insurgencies or terrorist activities are again a function of operational readiness and day to day counter insurgent/terrorist strategy.

Northern borders and maritime interests: The threat along our northern borders being medium to long term requires a focus on “structural readiness” in terms of the mountain warfare, maritime and strategic force structures, consistency in military modernisation programmes such as unmanned warfare and cyberwarfare, development of strategic infrastructure and wherewithal, and creation and fielding of niche asymmetric war fighting capabilities. There is therefore a vital necessity to evolve a strategic view on India’s prime security concerns along its northern borders with China, and in the maritime and strategic war fighting domains. The country’s 4000 kilometres plus long border with China spans a variety of difficult mountain terrain, different revenue jurisdictions, and the involvement of several security agencies and operational control mechanisms. Furthermore, the punctuation of this frontier by the sovereign states of Nepal and Bhutan technically complicates the overall security management of the border areas. As such, it can be argued that the Sino-Indian frontier possess a structural problem in terms of its management, the development of road and rail infrastructure, the overall availability and deployment of security forces, and their command-and-control. Several decades of inattention both at the macro and micro level today places a heavy demand on the preparedness of this important frontier. China’s brisk military modernisation and infrastructural development seems to be increasingly accentuating the capability gap between the two countries. The Chinese technological strides in the development and fielding of strategic weapon systems and disruptive war fighting capabilities pose an added military challenge to us. It might therefore be prudent to designate India’s military readiness needs vis-à-vis China in “structural” terms and not simply as “operational” in nature.

## **Conclusion**

The brief argues that the process of assessing and reporting military readiness in the Indian armed forces is still in its infancy because of lack of military readiness metrics, measurement standards, and institutional oversight. More importantly, India’s exaggerated reliance on achieving its military readiness through defence

funding and equipment acquisitions alone inhibits us from addressing these concerns objectively. Consequently, there is a need to view the issue of military readiness through the overlapping frames of national security, foreign and defence policy, doctrines and strategies, funding and technology, structures and capability, training, and culture. A comprehensive understanding on the subject issue therefore becomes important. There is also an urgent need to establish a deeper theoretical rigour on factors that explain the Indian military's readiness needs, concerns, and strategy. Simplistically speaking, India military needs to maintain certain levels of "operational" or short-term readiness against the western adversary, while its military focus along the northern borders, and in pursuit of maritime interests in the Indian Ocean Region (IOR), will have to be more "structural" and long term in nature. To conclude, India's strategic dilemma lies in balancing the "structural" and "operational" aspects of military readiness required among the three services over diverse terrain and myriad threats.

### **Note**

*This paper is a revised and updated version of the argument developed by the author in a monograph titled, "Establishing India's Military Readiness Concerns and Strategy" published at Mohan Parrikar Institute of Defence Studies and Analyses (MP-IDS), New Delhi in November 2011.*

**Note**

## About the Authors

### **Gautam Sen**

Author of this monograph, Professor Sen is an acclaimed expert on strategic issues and national security, is currently associated with several educational institutions and think tanks. Between 2017 & 2022, he has authored several books, his latest being “Cyber Security & Cyberspace in International Relations: A Roadmap For India’s Cyber Security Policy”, “National Interest and National Security Policymaking Prism for India”, “The Purpose of India’s Security Strategy: Defence, Deterrence and Global Involvement and “ “National Security Perspectives: A Critical Anthology of Writings by Gautam Sen( Ed by Gurmeet Kanwal)”. Apart from this there have been innumerable Research Monographs, Occasional Papers, Manekshaw Papers etc. in the same period.

Presently Sen is Professor Emeritus Policy Perspectives Foundation (PPF), Distinguished Visiting fellow, Centre For Land Warfare Studies (CLAWS), Delhi, Adjunct Professor National Institute of Advanced Studies, Bangalore, Founder Member, Centre For Advance Strategic Studies. Pune. He has been a Member of Standing Committees of the UGC, Member of High- Power Committee of the UGC to evaluate the Status of the Discipline of Defence and Strategic Studies taught in Indian Universities, Member of UGC Task force on Five Year Plans and Perspectives and many other memberships of committees set up by various bodies like the Indian Council for Social Science Research etc. Prof Sen has been consulted by members of the Parliamentary Committee on Defence from time to time and been Member of Search Committees for the selection of Vice Chancellors.

Briefly Professor Gautam Sen was Commissioned in the 2<sup>nd</sup> Battalion of the 3<sup>rd</sup> Gorkha Rifles (1962-74) of the Indian Army. Sen was Sawarkar Professor of Strategic Studies (1981-2007), Head Department of Defence & Strategic Studies (1981-2001), Director Board of Colleges & University Development (2001-2004) Director National Centre of International Security and Defence Analysis (2002-2007) at the University of Pune. He was Director General and Member Board of Trustees, Indian Institute of Education, Pune (2006-2011), Research Professor National Security Council Secretariat, GoI, Delhi (2015-16).

He has been a Visiting Professor at Madras University, Gujrat Vidyapith, Goa University, Institute of Social and Economic Change and UGC Visiting Professor at Gorakhpur University. Air Marshal Subroto Mukherjee Chair of Excellence, United Services Institution, Delhi (2018-21). Sen has also been a FORD FOUNDATION International Fellow at Harvard and Massachusetts Institute of Technology and Twice Fellow at the International Institute of Strategic Studies (IISS), London. Jean Monnet Fellow, European University Institute, Florence, Italy.

## **Ravinder Pal Singh**

Holds an MPhil in International Relations from Jawahar Lal Nehru University, New Delhi. Formerly, a Senior Fellow at the Institute for Defence Studies & Analyses, New Delhi and Ford Fellow at the School of Public Affairs, University of Maryland.

In the 1990s, he headed the Arms Procurement Decision-Making project at Stockholm International Peace Research Institute (SIPRI) in China, India, Israel, Japan, South Korea and Thailand (published by Oxford University Press, UK, 1998). Subsequently, the research conducted in Chile, Greece, Malaysia, Poland, South Africa and Taiwan was published by Oxford University Press, UK. He has been a non-governmental expert in developing the UN Arms Register on Transparency 1994.

As Senior Fellow at the Geneva Centre for Democratic Control of the Armed Forces (DCAF), he worked on NATO Parliamentary Assembly's project on security sector reforms in former Warsaw Pact countries and contributed to the DCAF-IPU publication on legislative oversight of the security sector.

Ravinder Pal Singh led the UNDP Mission on Security Sector Reforms in the Former Republics of Yugoslavia in 2002. Thereafter, he was Senior Fellow at Stockholm University. He has lectured, researched, written and worked across 30 countries on security sector reforms; arms transfer acquisitions accountability; women safety and empowerment; and defence budgets alternatives. These include presentations at the UN Dept. of Disarmament Affairs; New York; United Nations Institute for Disarmament Research (UNIDIR); Geneva; American Association for the Advancement of Sciences;

Washington D.C; Transparency International London, on Corruption in Arms Trade, Pugwash Conferences on CSBMs in South Asia; Bonn International Conversion Centre Survey; and Defence & Development workshops at African Union conferences on in Ethiopia, Ghana and South Africa.

At the Arms Trade Treaty (ATTs) CSP5 Conference in August 2019, Ravinder Pal Singh made presentations: one on Universalization and the other on Implementation of the ATT. In the past two years, he has been advising the Inter-Parliamentary Union (IPU) Geneva for the conduct of parliamentary oversight projects.

## **Harinder Singh**

An alumnus of the National Defence Academy Khadakwasla, Lt Gen Harinder Singh was commissioned into infantry, in 1983. In a career spanning four decades, the Officer has seen extensive service in field and on staff at Army Headquarters. He commanded a Rashtriya Rifles Battalion in Jammu and Kashmir, has the distinction of commanding two brigades, the Dera Baba Nanak (DBN) Brigade along the western sector and the United Nations Multinational Brigade in the Democratic Republic of Congo, an infantry division along the Line of Control in Jammu and Kashmir and, very recently, a corps in Eastern Ladakh, where he led the formation during the India-China stand-off along the LAC and Corps Cdr level talks, in 2020. He has also

had the privilege of holding the coveted appointment of the Director General of Military Intelligence (DGMI), prior to assuming command of the corps in Eastern Ladakh.

A graduate of the Defence Services Staff College Wellington and National Defence College New Delhi, he carries an abiding interest in strategic– military affairs and has published several monographs, papers and articles in international and national journals/publications. He has also held research fellowships at the Manohar Parrikar Institute of Defence Studies and Analysis (IDSA) New Delhi, S Rajaratnam School of International Studies (RSIS) at Singapore and Asia Pacific Centre of Security Studies (APCSS) Hawaii, USA.

He recently superannuated as Commandant from Indian Military Academy, Dehradun.

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