

Nuclear Weapons and Grand Strategy: The Indian Case

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Disclosure statement: *There are no competing interests to declare.*

Abstract

Even after India's overt nuclearization in 1998, the precise fit of nuclear weapons in India's comprehensive power, security, and interests has remained unclear. The paper investigates the role played by nuclear weapons in India's grand strategy; analyses the military-political mix of tools that India deploys as a consequence of nuclearization; asks if nuclearization has presented new challenges to Indian grand strategy and if so, how they have been handled; and seeks to draw out broader lessons about nuclearization and grand strategy from the Indian case. The paper differentiates grand strategy from security algorithm, a newly coined concept about the specific procedures that states adopt to ensure their security. India's nuclear deterrent, driven into existence by a symbolic desire for 'strategic autonomy', has definitely bolstered India's security vis-à-vis China, had an ambiguous and perhaps adverse security impact vis-à-vis Pakistan but, paradoxically, *not* significantly enhanced India's position in the interstate system. India's emergence as a future great power rests on other factors and capabilities, not overt nuclearization. Thus, states that go nuclear for reasons of prestige seem less able to fit their capability into their grand strategy, unlike states that have acquired nuclear weapons for purely existential survival reasons.

Keywords

India, nuclear weapons, grand strategy, security algorithm

A grand strategy is not a rule book; rather, it is a set of concepts and arguments that need to be revisited regularly.... Grand strategies are good for democracy.

Barry R. Posen (2008: 84)

In the quarter century since it acquired an overt nuclear weapons capability, India has found – like several other states with nuclear weapons – that possession of nuclear weapons poses more challenges than it provides opportunities. Since the late 1980s, when India embarked on the path that led to its overt nuclearization in 1998, it has not been clear where nuclear weapons fit in India’s calculi of power, security and interests. In order to investigate this vital issue, this paper is structured around the following four questions: (1) What role have nuclear weapons played in Indian grand strategy? (2) Has there been any evolution in the military-political mix of tools that India deploys as a consequence of nuclearization? (3) What role does India’s nuclear capability have in confronting the new challenges that have appeared for Indian grand strategy since overt nuclearization? (4) Can any broader lessons be drawn about nuclearization and grand strategy from the Indian case? Each of these questions is analyzed sequentially in a separate section of the paper. But first the next section defines grand strategy and explains the sense in which the concept is being used here.

Grand Strategy as process and outcome

A useful (i.e., usable) definition of grand strategy tends to be elusive. Krishnappa Venkatshamy (2012) observes that the term ‘grand strategy’ could by its multiple usages connote a wide variety of abstractions: a vision, a guide, a capacity, a paradigm, a model, or a culture. For instance, John R. Boyd provides a particularly expansive conceptualisation of grand strategy:

A grand ideal, overarching theme, or noble philosophy that represents a coherent paradigm within which individuals as well as societies can shape and adapt to unfolding circumstances — yet offers a way to expose flaws of competing or adversary systems. (Boyd 1986: 144)

Such a unifying vision should be so compelling that it acts as a catalyst or beacon around which to evolve those qualities that permit a collective entity or organic whole to improve its stature in the scheme of things. (Boyd 1986: 143)

This expansive summation by an outstanding strategic thinker of the Cold War challenge faced by the United States is not particularly helpful in terms of the subject matter of the paper.

Definitions of grand strategy fall into two categories: outcome-focused and process-focused. The outcome-focused definitions of grand strategy can be further subdivided into two groups. The first set of outcome-focused definitions privilege the problems relating to fighting and winning wars. As Barry Posen (2008: 84) remarks, 'Grand strategy is ultimately about fighting, a costly and bloody business.' Sir Basil Liddell Hart (1967: 322) suggests that the role of grand strategy or 'higher strategy' is to 'co-ordinate and direct all the resources of a nation, or band of nations, towards the attainment of the political object of the war – the goal defined by fundamental policy.' Since nuclear weapons are meant to be 'political' weapons aimed at deterring war rather than 'military' weapons for war fighting, this understanding of grand strategy is not particularly useful in the nuclear context.

The second set of outcome-focused definitions are about enhancing power, advancing interests, and guaranteeing security. For instance, Posen (2008: 84) defines grand strategy as 'a nation-state's theory about how to produce security for itself.' According to Thomas J. Christensen (1996: 7), grand strategy is 'the full package of domestic and international policies designed to increase power and national security.' When viewed as outcome, Kanti Bajpai and Varun Sahni suggest that grand strategy is about 'the more or less coherent plans of states to ensure their survival and their position in relation to other states.' (Bajpai and Sahni 2008: 93) In the words of Paul Kennedy (1991: 5), grand strategy is 'the capacity of the nation's leaders to bring together all of the elements [of power] both military and nonmilitary, for the preservation and enhancement of the nation's long-term (that is, in wartime and peacetime) best interests.' Nuclear weapons certainly fit more comfortably in a power/interest understanding of grand strategy.

The second broad category of definitions of grand strategy focuses on process more than outcomes. In this category too Posen contributes a definition: 'A grand strategy enumerates and prioritizes threats and potential political and military remedies to threats. A grand strategy contains explanations for why threats enjoy a certain priority, and why and how the proposed remedies would work.' (Posen 2008: 84) According to John Lewis Gaddis (1982: 8), grand

strategy is ‘the process by which ends are related to means, intentions to capabilities, objectives to resources.’ Kanti Bajpai and Varun Sahni define grand strategy, viewed in process terms, as ‘the intellectual basis for the most efficient and synoptic husbanding and deployment of national resources in defence of core values.’ (Bajpai and Sahni 1994: 43)

Posen (2008: 84) enumerates the four important ways in which grand strategy plays a role in the policy process of modern democratic great powers:

First, resources are invariably scarce. If a grand strategy includes clearly stated priorities, it provides a guide for the allocation of these scarce resources. Second, in modern great powers, several large and complex organizations must cooperate to achieve a state’s security goals. Micro-management of this cooperation is difficult. A clearly stated grand strategy helps these organizations to coordinate their activities. Third, insofar as grand strategies pursue interests abroad, deterrence and persuasion of potential adversaries and reassurance of allies and friends is preferable to the actual use of force. Grand strategies communicate interests. Finally, clearly stated grand strategies assist internal accountability. They permit criticism and correction when they are proposed; they organize public discourse when new projects are suggested; and they allow for evaluation of such policies after the fact.

To summarize this section, both outcome- and process-based understandings of grand strategy are useful, but the latter are more so in the nuclear weapon context. A grand strategy helps to answer the following four questions: (1) What are a country’s most important threats and challenges? (2) What is the optimum combination of resources with which to meet them? (3) Which threats and challenges are not particularly salient? (4) Can the country afford to ignore or postpone dealing with them? These questions are all about fixing priorities. To decide what is important *is* important.

Indian Grand Strategy and the Role of Nuclear Weapons

The genesis and trajectory of India’s nuclear weapons programme raise problems in terms of locating it within Indian grand strategy. Scott Sagan (1996: 55) famously proposes three models about ‘why states decide to build or refrain from building nuclear weapons’: the ‘security model’ suggests that states build nuclear weapons to increase national security against foreign threats, especially nuclear threats; the ‘domestic politics model’ views nuclear weapons as ‘political tools used to advance parochial domestic and bureaucratic interests’; and the

‘norms model’ proposes that ‘nuclear weapons decisions are made because weapons acquisition, or restraint in weapons development, provides an important normative symbol of a state’s modernity and identity’. Sagan (1996: 68) further argues that a particular set of domestic politics – the existential political crisis faced by Indira Gandhi in 1974 – provides a much better explanation than national security compulsions for ‘the very puzzling occurrence’ of India not developing a bomb in the 10 years after China tested a nuclear weapon in 1964, and then developing and testing just such a weapon in 1974, less than three years after it dismembered Pakistan. In the case of India’s nuclear tests of May 1998, all three models provide partial explanations of India’s decision: Indian decision-makers were incensed by the increasingly blatant nuclear and missile cooperation between China and Pakistan; the fragile coalition headed by the Bharatiya Janata Party (BJP) was on the verge of collapse; and the idea that nuclear weapons would allow India ‘to walk tall in the world’ found a particularly receptive audience among the BJP’s leadership and cadres. William Walker (1998: 512) suggests that ‘India’s nuclear weapon programme has always been deeply motivated by the thirst for prestige’, but Deepa Ollapally (2001: 925) is closer to the mark with her assertion that ‘India’s motivations to go nuclear are a mix of reason and passion, long-term planning, and short-term pressures’. Nuclear weapons fit uneasily within India’s grand strategy because there was more than the security motivation to ‘go nuclear’; symbolic (normative) and domestic political motivations were also important in making the crucial decision to overtly cross the nuclear Rubicon. To put this differently, there was no *a priori* gap in Indian grand strategy that nuclear weapons were meant to cover, other than a symbolic/normative desire for ‘strategic autonomy’.

If nuclear weapons must be fitted into India’s grand strategy *a posteriori*, a series of important questions arise. What is India’s grand strategy? Are there a set of national interests that can be deduced from India’s internal and external attributes? What do India’s internal characteristics and its location in the global order tell us about the country’s core interests in world politics? Three questions are salient here: (1) What are the attributes or essential features of India, especially those that affect its security? (2) What are the interests that flow out of these attributes? (3) Finally, has nuclearization advanced and promoted these interests or not?

In the first place, India is self-evidently a large country. Even after the partition of India at independence, it has remained a large country, demographically and territorially. In 1947, only China was larger in terms of population, only the Soviet Union, Canada, USA, China, Brazil, and Australia in terms of land mass. The consciousness of being big drives India’s perpetual quest for strategic autonomy. The fabled foreign policy posture of non-alignment was the

attempt of a large but weak postcolonial state to maintain policy autonomy in a bipolar world. However, by 1971, and for two decades after that, India enjoyed a quasi-alliance relationship with the Soviet Union that provided it with a sense of security backup. Since the collapse of the Soviet Union in 1991, India has been essentially ‘friendless’ in the international system in the sense of mutual support in security matters. India discovered that it was friendless in the early 1990s, at the precise moment when its external environment was increasingly fraught, even as it was beset with every type of domestic problem imaginable. However, India’s quest for strategic autonomy is by now also the product of deliberate choice: India is already *far too big* to lie under the security umbrella of any other power, a condition that will only accentuate over time as India’s power increases in both absolute and relative terms. While India could well become a strategic partner of the US in the future, especially in the face of manifest Chinese misbehaviour in the Indo-Pacific region, an India-US alliance relationship is highly unlikely to fructify for precisely the reasons already enunciated. India’s nuclear choices are best understood in the context of this primal and compelling interest: Overt nuclearization, if only symbolically, helps India in its quest for strategic autonomy.

India’s size links up to its second attribute: its place in world affairs. Even when India was a weak state, its size ensured that it was a middle power, one among the special category of states that lack the system-shaping capabilities of the great powers, but whose size, resources and role, nonetheless, precludes them from being ignored by the great powers, as Carsten Holbraad (1984: 67-75) defines them. Now, with India’s power increasing, it is a middle power on the ascendant, or an emerging power. India’s foreign policy has for many years exhibited a dichotomy between principle and practice: An ideological opposition to formal institutionalized discrimination in the international system – such as United Nations Security Council (UNSC) permanent membership and nuclear weapon state (NWS) status in the Nuclear Non-Proliferation Treaty (NPT) – goes hand-in-hand with a pragmatic willingness to seek the best possible deal for India within the international system. While the policy remains unchanged, the attribute driving the policy has changed drastically. In the early decades of independence, this Indian policy response could be ascribed to the country’s essential weakness and postcolonial condition: India distrusted and disdained international hierarchy for ideological reasons, but also because it was itself excluded from the high table. Indian pragmatism regarding international hierarchy is even more pronounced today than in the past, but it flows now not from India’s relative weakness but rather its ever-increasing strength. As an emerging power, India now possesses both the capability and the willingness to manoeuvre

its way into great power status. India's emergence is directly and causally linked to an aspect of Indian foreign policy that is palpable even to casual observers of India, viz. its desire for status transformation in the international political system. This desire manifests itself most obviously in India's overt bid to acquire a permanent UNSC seat with veto rights. While overt nuclearization does not help India in attaining this interest, there is nothing to indicate that it hinders it either.

India's third attribute is an obvious but problematic one. In South Asia, India clearly is the regional power: its population, GDP and military expenditure are all more than three times larger than those of all its neighbours *combined*. Military power in South Asia is also acutely concentrated in India's favour so it is unsurprisingly a *status quo* power at the regional level. However, South Asia is neither at peace internally nor cohesive externally. India's regional dominance is contested, which poses a serious challenge for India's emergence at the global level. Why have India's neighbours been so dogged in their contestation of India's regional dominance? In the case of Pakistan, the reason surely lies in issues of ideology and identity. However, we could also explain India's regional predicament in terms that Indian policymakers have rarely understood: While regional power, based on the distribution of military capabilities, is inherently divisive, regional leadership attracts neighbours to a cohesive regional project (Sahni 2011). India, self-evidently the regional power in South Asia, obviously does not have regional leadership because it does not have an attractive and practical regional project. India's socioeconomic under-performance over several decades, both in absolute and relative terms, could be one explanation of why this is so. Another explanation for India's regional quagmire could be China, which by building strong political and economic links with nearly all of India's neighbours has provided them with an alternate incentive structure that does not require cohering with India. Frustrated with the lack of progress in the South Asian Association for Regional Cooperation (SAARC), India has sought to break out of the SAARC region and invent a new regional framework for itself. This involves a new emphasis on sub-regional as well as super-regional (i.e., pan-Asian) cooperation. India could be expected to play the regional game at multiple levels in the coming years. Within South Asia, nuclearization has enhanced Pakistan's capacity to defy India, thereby impeding regional cohesion well into the foreseeable future.

The attribute most relevant to the topic of this paper is that India is a state with nuclear weapons. Set in motion in the late 1940s, tantalizingly revealed in the mid 1970s, finally set in motion in the mid-1980s, this attribute came out into the open only in the late 1990s, half a century after

the process began. While it is clearly wrong to believe that India is an emerging power *because* it possesses nuclear weapons, it is nevertheless true that many countries, notably China, began to take India seriously in world and regional affairs only after 1998. Nuclearization poses four distinct challenges for Indian interests. The first, and certainly the most important, pertains to building a nuclear deterrence relationship with Pakistan, with which dangerous instabilities persist due to the Pakistani policy of leveraging its nuclear capability to ‘internationalize’ Kashmir and force a settlement upon India. Both India and Pakistan are on a steep learning curve when it comes to building a robust deterrence relationship, which is based on the notion of partnership with the adversary to prevent and manage conflict. With China, the current challenge for India is not inadequate doctrine, but rather insufficient capabilities: Until the *Agni-5* missiles enter serial production and are inducted into India’s strategic forces, perhaps in the 2025-28 timeframe,¹ China is not deterred by India. In the coming years, a third Indian interest in the nuclear realm would be to have India recognized as a *de jure* nuclear weapon state (NWS). As long as the NPT is in force, it is inconceivable that India would be recognized as a *de jure* NWS. If, however, the NPT were to collapse in the coming years, which some seasoned analysts have suggested as a possibility (Thakur, Boulden, and Weiss 2008), it would be in India’s interest to have its strategic nuclear capabilities legally recognized. Finally, it would be in India’s interest to consolidate its role as positive force in global nuclear issues especially those pertaining to arms control. In every sense, overt nuclearization has made India a more credible actor in the nuclear issue area.

The fifth attribute of India is that it is a country with disputed borders. India’s land borders are of four fundamentally different types. First of all are India’s international borders, over which there is agreement between the countries that share them: India’s borders with Bhutan, Bangladesh and Myanmar, as well as the international border (IB) part of the India-Pakistan border, fall into this category. In the second category comes the 740 km Line of Control (LoC) with Pakistan, which is a *de facto* demarcation of effective control: while both countries maintain *de jure* claims over territory on the other side of the line, the LoC itself was extremely carefully demarcated after the 1971 India-Pakistan war by the two armies and is accepted by the two governments. In the third place, India has land borders that are un-demarcated and

¹ *Agni-5* is a three-stage solid fuelled intercontinental ballistic missile (ICBM) with composite motor casing in the second and third stage which is transported by a truck and launched via a canister. Although the exact range of *Agni-5* remains classified, it is estimated to be between 5,500 and 9,000 kilometres; it is expected to cover all of China’s territory. The last test launch, as part of a user trial, was successfully conducted on October 27, 2021.

disputed, notably the 4,057 km long Line of Actual Control (LAC) with China, but also the 110 km long Actual Ground Position Line (AGPL) with Pakistan on the Saltoro range, west of the disputed Siachen glacier. Finally, India's border with Nepal is one of the few 'open borders' in the world. Unsettled borders accentuate India's myriad security dilemmas. Thus, securing its borders is of inescapable interest for India. Broadly, there are two thorny decisions that Indian policymakers would be required to take in the coming decade. The first decision would be about the identification of those borders that need to be further hardened and those which, to the contrary, need to be softened for more effective monitoring. The second challenge would be to try to settle those border disputes that can be settled, and to shift – whenever feasible – from human to technical monitoring of those borders that are impervious to settlement. A shift from territorial defence – the idea that every bit of national territory, no matter how remote and unproductive, is as important as the strategic heartland – to a form of extended defence, involving for instance economic integration with some of India's neighbours, would also be beneficial. Overt nuclearization has so far not had a significant impact on India's border challenges, although it might in the future vis-à-vis China.

India's sixth attribute – that it is an arms buyer – is because it lives in a tough neighbourhood. India faced military defeat in the Himalayas in 1962 not because its soldiers were lacking in courage or ability – although the conduct of its generals in that war is another matter – but rather because its arms and ammunition were inexcusably inferior and in short supply. Ensuring the supply of the latest weaponry for India's fighting forces remains a core concern of the Indian government. However, there are many liabilities of excessive dependence on imported arms: for instance, financing the seller's military research and development (R&D) programme instead of your own. The problem for India is that its military industry has been inadequate to its needs, and its military R&D programmes have been plagued with delays and deficiencies of all sorts. One can reasonably expect that indigenously produced combat aircraft, tanks and submarines – the weapon platforms that distinguish the strong from the weak – will not enter regular service in adequate numbers any earlier than 2030. In the meantime, India has no option but to buy costly and sophisticated foreign weapon systems in order to maintain a certain pace of military modernization, particularly given its tense external security environment. India's constant search for security *today* does not permit it the luxury of spending the next 25 years building a technologically competitive and commercially viable defence industry. India is the largest developing country arms buyer, surpassing even China, and it is therefore patently in India's interest to promote the international sales of its own military products. It is also in

India's interest to develop international collaboration in military R&D and production; a pertinent example is the supersonic Indo-Russian *BrahMos* cruise missile. India's final interest in the arms acquisition arena is to keep multiple, reliable arms supply lines open. Even while expanding its presence in the global arms bazaar, India cannot eschew indigenous defence production, since security autonomy is an interest worth striving for. Despite occasional dual use concerns, overt nuclearization has had no impact in this area, apart from making more public funding available for India's weapon programmes.

The seventh attribute is perhaps the most visible: India is a target of terrorism. According to the data sets maintained in the South Asian Terrorism Portal (<http://www.satp.org/>), between 1994 and 2005, i.e., over a period of 11 years, 11 people were on average killed *every single day* in India due to terrorism or counterterrorism. These data include fatalities, not casualties, and include neither left wing extremist (LWE) violence nor other forms of terrorism. Pakistan's Inter-Services Intelligence Directorate (ISI) is not just a covert intelligence agency; it is the sword arm of the Pakistan military, charged with the responsibility of conducting asymmetric warfare while other arms of the Pakistan military, whether conventional or nuclear, play defensive or deterrence roles. What does Pakistan expect to gain by waging asymmetric war against India? Minimally, Pakistan fostered insurgency keeps India off balance and forces the much larger Indian military to devote most of its attention to internal security operations. The Pakistan military seeks to make at least some territorial gains in the Kashmir valley, thereby avenging the break-up of Pakistan in 1971 and also attaining a key national and institutional goal. While many analysts assume that Pakistan's actions against India are linked solely to the Kashmir issue, the ultimate goal of Pakistan's asymmetric war is to somehow cut India down to a size that Pakistan could live with a bit more comfortably. Not all terrorism in India is backed by Pakistan; nevertheless, India's terrorism problem is essentially its Pakistan problem.

Much to India's frustration, there is not much that it has been able to do to Pakistan, thanks to the operation of nuclear deterrence. Since 1989, Pakistan has been able to squeeze India between cross-border terrorism (asymmetric warfare) on the one hand and the threat of a nuclear first strike on the other. In response, there seem to be only four options available to Indian military planners. Firstly, India could make its ongoing counterinsurgency/counter-terrorist operations even more effective. Secondly, India could set up an authentic Special Forces capability that would give it the capability to respond offensively to Pakistan's asymmetric warfare by 'upping the ante' to the sub-conventional level. Thirdly, India could initiate asymmetric warfare against Pakistan in a sustained manner, thereby abandoning its

traditional defensive, status quo orientation and mimicking Pakistan’s revisionist approach. Finally, India could try to create a space for limited war under nuclear conditions. An attempt in this direction was the concept of ‘Cold Start’, the idea being to acquire and hold many small swathes of Pakistani territory in a nuclear environment, territory that would be bartered away in a post-war settlement in exchange for a cessation of Pakistani asymmetric warfare. One thing is clear: overt nuclearization has freed Pakistan’s hand and the way deterrence is currently working in the dyad is inimical to India’s interests.

To summarize this section, Table 1 encapsulates the linkages between India’s attributes, the grand strategic interests that flow out of them, and the impact of overt nuclearization on the attainment of these interests. As can be seen, the impact has been a mixed one.

TABLE 1
India’s Attributes, Grand Strategic Interests, and Overt Nuclearization

	<i>Attribute</i>	<i>Grand Strategic Interest</i>	<i>Has Overt Nuclearization Helped or Hindered?</i>
1	A Large Country	Acquiring Strategic Autonomy	Helps symbolically, perhaps
2	An Emerging Power	Achieving Status Transformation	Does not help, nor does it hinder
3	The Regional Power	Consolidating its Region	Has not helped – has enhanced Pakistan’s capacity to defy India
4	A State with Nuclear Weapons	Developing a Credible Deterrent	An overt capability is definitely more credible
5	A Country with Disputed Borders	Keeping the Borders Secure	No impact yet, but could in the future vis-à-vis China
6	An Arms Buyer	Developing Multiple, Reliable Arms Supply Lines	No impact (occasional dual use concerns); greater funding
7	A Target of Terrorism	Weakening Pakistan’s Asymmetric War Capabilities	The working of deterrence has freed Pakistan’s hand

Nuclearization and Evolution of India’s Mix of Military-Political Tools

In some significant ways, security decision making in India has remained unaffected by overt nuclearization. This is especially true in three respects. Firstly, there is no evidence to suggest that overt nuclearization has had a significant impact on either the propensity or the unwillingness of the Indian state to use force, threaten to use force, or even to think in terms of using force. Secondly, there appears to have been no change in the processes and mechanisms of consultation between military decision executors and political decision makers in India after

overt nuclearization. Before 1998, the leadership of India's fighting forces tended to be uninformed about the state of the country's nuclear weapons programme. Now, while the delivery systems are in the hands of the military, specifically Strategic Forces Command, the warheads remain in de-mated form with the nuclear laboratories. Finally, civil-military relations in India also do not seem to have been impacted by overt nuclearization. Civilian oversight and control over the military institutions has perhaps been marginally augmented, but in general the civilian and military establishments continue to function in their respective silos.

On the other hand, overt nuclearization has made a perceptible and tangible difference in some respects. There is an increased salience of national security in Indian public policy and public opinion. For instance, military budgets have been relatively unconstrained since 1998. Secondly, there has been a noticeable increase in the process of external consultation on military security issues, the establishment of the National Security Advisory Board (NSAB) – despite valid questions about its real policy impact – being a concrete manifestation of this trend. Overt nuclearization has also blown away the normative fig leaf of 'peace loving' from official discourse and eliminated any lingering sense of apology, flowing out of the Gandhian legacy, about India's continued investments in its military security. Post-1962, there has been an evolving political consensus (and public common sense) about the need to have a strong military capability. To the credit of its political and military leadership since that traumatic year, India has not forgotten – and probably will never forget – the lessons of the 1962 border war against China. While anti-nuclear activism remains alive in India, it has been episodic and largely invisible, and increasingly focused on civilian nuclear plants rather than nuclear weapons.

What no analysis of civil-military tools or political-military decision making in India can disregard is the continued lack of a security algorithm in the country. Security algorithms are neither strategy ('prudent idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater, national, and/or multinational objectives' [JCS 2015: 229]) nor tactics ('employment and ordered arrangement of forces in relation to each other' [JCS 2015: 237]) nor techniques ('non-prescriptive ways or methods used to perform missions, functions, or tasks' [JCS 2015: 241]); their closest cognate are procedures ('standard, detailed steps that prescribe how to perform specific tasks' [JCS 2015: 193]). An algorithm is a systematic procedure that produces, in a finite number of steps, the answer to a question or the solution of a problem. In other words, it is a detailed sequence of

actions required to perform a specific task. A security algorithm, then, is a procedure by which an emerging security challenge can be rapidly and precisely analyzed and resolved before it becomes a full-blown security threat. It consists of at least four elements: (1) a challenge-assessing procedure that is focused on identifying vulnerabilities that could be exploited, (2) an option-evaluating procedure that lays out possible responses to a challenge, (3) a decision-making procedure that identifies the most appropriate response and orders its execution, and (4) a reaction-monitoring procedure that evaluates the efficacy of the response.

Given the topic of this paper, it is particularly important that the difference between grand strategy and security algorithm is clearly delineated. In terms of their respective scopes, while a grand strategy is a broad articulation of values and challenges, a security algorithm focuses on specific challenges to one's values. In terms of their core purpose, a grand strategy is suggestive while a security algorithm is prescriptive: The former suggests the optimum mix of resources that *could* be used to meet a challenge; the latter prescribes how one's resources *should* be used to eliminate or diminish the challenge. In terms of durability, a grand strategy is enduring in nature: it gives direction and coherence to policy especially in periods of change. A security algorithm, on the other hand, is transitory in nature, since it is meant to deal with new challenges with rapidity and precision. Finally, on the transparency parameter a grand strategy is diametrically opposed to a security algorithm. For it to achieve its full power, a grand strategy should be widely and publically disseminated, not only within the policy community but in the general population and even to one's adversaries. All aspects of a security algorithm, in sharp contrast, should always be treated as a closely held state secret. In order to induce clarity, the distinction between the two concepts is delineated in Table 2.

TABLE 2
Differentiating Grand Strategy and Security Algorithm

	<i>Grand Strategy</i>	<i>Security Algorithm</i>
<i>Scope</i>	Broad articulation of values and challenges	Focus on specific threats to one's values
<i>Purpose</i>	Suggests the optimum mix of resources that <i>could</i> be used to meet a challenge	Indicates how one's resources <i>should</i> be used to eliminate or diminish the threat
<i>Durability</i>	Enduring in nature; is meant to give direction and coherence to policy especially in periods of change	Transitory in nature; is meant to deal with new threats with rapidity and precision
<i>Transparency</i>	Should be widely and publicly disseminated	Should be treated as a closely held state secret

From the above analysis two matters should be clear. Firstly, any discussion about the appropriate mix of military-political tools to deal with grand strategic challenges and national security threats takes us away from grand strategy *per se* and into the domain of security algorithm. Secondly, until a country has designed and built its security algorithm it will not be able to decide what tools it needs to use in the face of specific threats and challenges. Thus, in the absence of a security algorithm it is difficult for us to assess the full impact of overt nuclearization on India's national security.

Nuclearization, New Grand Strategic Challenges, and India's Responses

What are the new grand strategic challenges that India has faced since overt nuclearization and what impact has nuclearization had on them? Since 1998, five new challenges have emerged for India all of which rise to the grand strategic level. The first of these involves India's role in the maintenance of power balances across the Indo-Pacific region and at the global level. The second – as India's trade to GDP ratio reaches 60% and its merchandise trade to GDP ratio touches 35% – is about securing the country's trade and sea lanes of communication (SLOCs). The third, flowing from India's insatiable hunger for energy, involves ensuring the country's access to energy sources and resources more broadly. Fourthly, as India reconnects with its overseas Diaspora after decades of neglect, a new grand strategic challenge of providing security assurances to the Indian Diaspora has emerged. Finally, as a technology driven economy India needs to build sectors of technological and entrepreneurial leadership. Have nuclear weapons had any role to play in each of these emerging grand strategic challenges?

As an Asian and Indian Ocean power, India has benefitted from the shift in the global centre of gravity from the Euro-Atlantic to the Asia Pacific. Asia, unlike Europe, is still living in the era of political modernity, i.e., the principal political driver across the Asian continent remains the sovereign territorial state perfecting its sovereign territoriality. Unless proactive diplomacy succeeds in preventing it, two opposing axes of power in Asia will emerge over time due to the rise of China and American attempts to contain Chinese power. For India, this would not be a welcome scenario either externally or domestically and would raise many troubling policy dilemmas. Externally, choosing between American global hegemony and Chinese continental hegemony would hardly be welcome, while internally any choice between Beijing and Washington would divide Indian public life in a most distressing manner. India would be far too big to hide, so a new round of non-alignment, although the logical outcome of India's

politico-diplomatic dilemma, would also be difficult to pull off. Fortunately, an alternative to choosing between Washington and Beijing exists: India could work actively to bring both the US and China into cooperative security architecture in the Indo-Pacific. Asia lacks continent-wide institutions; therefore, many positive outcomes could emerge from the reconfiguration of Asia over time into a more cooperative structure with the acquiescence, if not the enthusiastic participation, of *both* China and the US. If the process unfolds over a time horizon of 10 to 15 years, during which US capabilities begin to decline in relative terms, it would be opportune for the US to get enmeshed in this cooperative process. Similarly, China is also likely to opt for a cooperative security process if the only other prospect is its containment by the US and some of its Asian allies. By building robust political and economic links with *both* China and the US, India could then become the catalyst in bringing both countries together in a new cooperative Asia. It is important to stress that a cooperatively configured Asia would be in India's interest. Possessing nuclear weapons would strengthen India's hand significantly as it seeks to play its role in maintaining Asian and global balances.

Concerns about guaranteed access to energy supplies have emerged since 2000 as a powerful grand strategic interest. India has an enormous population that is growing and modernizing rapidly from a low socioeconomic base. India's growing hunger for energy is evident: it now has the sixth largest energy consumption in the world, and one of the fastest growth rates of increasing energy consumption. As many as 740 million Indians were still relying on traditional biomass in 2004; this figure is actually estimated to marginally *increase* to 782 million by 2030. Energy scarcity, both in India's burgeoning cities and in its rural hinterland, is emerging as an elemental governance issue that could impact on India's internal security. It should therefore come as no surprise energy security has become a grand strategic challenge for India. Indian oil and gas companies now have stakes or exploration activities in the Asia-Pacific (Myanmar and Vietnam), Russia, Latin America (Colombia, Brazil and Cuba), the Middle East and North Africa (Libya, Egypt, Syria, Iran, Yemen, Oman and Qatar) and Africa (Cote d'Ivoire, Nigeria, Equatorial Guinea, Sudan, Congo-Brazzaville and Gabon). India's acquisition of overseas stakes, so-called 'equity oil', raises a fundamental issue for Indian policymakers: Should the oil sector – of which overseas stakes are only a small part – be treated strategically or commercially? Since China seems to be approaching access to oil supplies strategically, there appears to be a policy bias in India in favour of a similar policy. However, this policy issue needs to be systematically examined. Equity oil does imply physical possession of the oil that is pumped out of India's overseas stakes. On the other hand, oil is a

‘global pool’, so oil prices are also globally determined. India needs to diversify its energy basket; thus, all feasible energy options – building gas pipelines, constructing nuclear reactors, diversifying oil supplies, revisiting coal-fired thermal power stations, investing in alternative fuels and renewable energy – will be considered and operationalized in the coming years. The frenetic search for energy worldwide will drive India’s external policy. By enhancing India’s global power image, nuclear weapons could, marginally and tangentially, play a positive role in meeting this grand strategic challenge.

There are four compelling reasons why India’s naval and maritime capabilities will increase significantly over the coming two decades. The first reason, which rises to the level of a grand strategic challenge, is that India is now a trading nation: Since 95% of its merchandise trade by volume and 70% of its merchandise trade by value is seaborne, the time has come to start thinking of protecting India’s SLOCs. As India’s energy dependence grows, and as foreign trade plays an ever-larger part in the Indian economy, India’s dependence on its SLOCs will surely increase. Secondly, India has one of the longest coastlines (7,562 kilometres, including the islands) in the world. As a result, India also has an enormous exclusive economic zone (EEZ) of over two million square kilometres and important insular territories whose security the navy must ensure. Thirdly, as India’s defence doctrine moves from territorial defence to some form of extended defence, India can also be expected to develop a limited (‘one ocean plus’) expeditionary capability. India’s security perimeter is slowly expanding to include the waters that lie between the Strait of Hormuz and the Strait of Malacca. Indian naval vessels already sail routinely through the Strait of Malacca into the South China Sea. Finally, the Indian Navy has in recent years been providing important public goods in the Indian Ocean region and has generally come to be seen as a force for stability in most countries of the littoral. Significant soft power gains accrue to India from its humanitarian and anti-piracy operations at sea. Although India has now set in motion an important naval acquisition plan, India’s naval institution is currently a force in decline, with more capital ships in the process of being decommissioned than there are hulls being laid and new vessels acquired. For the next two decades, it would be in India’s interest to move away from a sea control strategy, for which the aircraft carrier is the preferred platform, to a sea denial strategy that is largely submarine based. India’s seaborne nuclear deterrent will also be on submarines, which makes this shift even more important. Nuclear weapons will play an enormous role as far as this grand strategic challenge is concerned.

In the last two decades, India has launched a proactive Diaspora policy to attract persons of Indian origin to itself. This initiative involved the setting up of a High Level Committee on Indian Diaspora which submitted its report in December 2001. This new policy of extra-territorial incorporation marks a sharp break with the past, when India demonstrated little concern for persons of Indian origin living in other countries. This attitude of neglect has now changed, perhaps diametrically. During the Gulf War of 1991, India airlifted around 300,000 Indians from the region and brought them back to India. In July 2006, at the height of the Israeli offensive in Lebanon, four Indian Navy warships docked in Beirut in order to evacuate 12,000 Indians living in that country. In 2022, following the Russian invasion of Ukraine, India successfully evacuated and repatriated about 16,000 Indian nationals, predominantly medical students studying in Ukraine, in 76 flights. Nevertheless, the politics of extraterritorial incorporation also poses novel challenges for India's foreign policy. So far, the focus of Indian Diaspora policy has been rather one-sided, involving the reaping of political and economic benefit and giving back very little in return apart from a certain degree of symbolic recognition. This government orientation has also led to certain parts of the Diaspora – the well-heeled professionals living in the developed Western countries – being focused upon and feted while others, such as the unskilled and low skilled labour that India sends to the Persian Gulf, being ignored and marginalised. This is, however, changing, with a new focus on the protection of overseas Indians taking root in the India's official policy and body politic. This new interest raises awkward policy issues, such as what India would do if persons of Indian origin were to clash with the government of a country with which India has friendly ties. Despite these concerns, this new interest will rise to the grand strategic level and will gather strength as India itself gains strength in the coming years. The prospect of future Indian military action to prevent government-sponsored persecution of Overseas Indians, as happened in past decades in Uganda and Fiji, is no longer a fanciful idea that can be discounted. Nuclear weapons probably have an important symbolic role here.

The final new grand strategic interest is connected with India becoming a technology driven economy that needs to interact closely with the outside world for access to new technologies. Indian industry – whether manufacture, construction or resource extraction – has historically opted for labour intensive modes of production by leveraging India's large, low skilled and underemployed rural population. However, in recent years technology has emerged as a significant component – and deficiency – of the Indian economy. India is now a technology producing economy in many important sectors, some of which involve frontier technologies

like biotechnology and nanotechnology. Nevertheless, India’s dynamism in these sectors must be balanced against its persistent technology-dependence in many other sectors of the economy, ranging from agriculture to aviation. In a globalized world, technology cannot germinate in any single country in isolation. This poses four distinct challenges to India. The first challenge – to counter global technology denial regimes – is one that India has already met with considerable success. The signing of the India-US civil nuclear cooperation agreement on 3 August 2007, followed by the 1 August 2008 agreement with the IAEA regarding safeguards on India’s civilian nuclear facilities and the ‘clean waiver’ from the NSG on 6 September 2008, signal that this important Indian objective has essentially been achieved. Secondly, it is in India’s interest to participate in international projects involving Big Science – large-scale, heavily funded scientific experiments, often involving basic research – like the International Thermonuclear Experimental Reactor (ITER) project that seeks to demonstrate the scientific and technological feasibility of controlled nuclear fusion as a future source of energy, and the Large Hadron Collider (LHC) project at the European Organization for Nuclear Research (CERN). In the third place, it is extremely important to promote India’s technological capabilities in certain sectors, such as space science. Finally, it is important to build global Indian technology brands such as Biocon, Infosys Technologies, and Suzlon. Thus, accessing and leveraging technology has emerged as a core Indian interest with strong external linkages. Overt nuclearization, far from hindering the development of such linkages, has actually helped India considerably in this respect.

The arguments made regarding the five new grand strategic challenges, and the nuclear weapon dimension to Indian responses, are tabulated in Table 3.

TABLE 3
India’s Responses to New Grand Strategic Challenges: Nuclear Weapon Dimension

	<i>New Grand Strategic Challenges</i>	<i>NW Dimension to Indian Responses?</i>
1	Maintaining Asian and Global Balances	Yes
2	Ensuring Access to Energy and Resources	Perhaps, but only tangentially
3	Securing Trade and SLOCs	Yes
4	Providing Security Assurances to the Indian Diaspora	Perhaps, symbolically
5	Building Sectors of Technological and Entrepreneurial Leadership	Yes, by demonstrating technological prowess

Conclusion: Broader Lessons from the Indian Case

In assessing the role of nuclear weapons in India's grand strategy, three broad lessons stand out that could be relevant to other cases as well. *The first is the need for grand strategy itself.* No matter how potent the military, economic or cultural power of a country might be, it will remain inchoate and diffused unless it is melded together through coherent policy formulation. It is not particularly easy for large countries, embodying competing interests with divergent objectives, to forge coherent policy. For that reason, large countries need a 'Big Game' on which to focus their energies and talents. This paper has highlighted a dozen challenges, some extant and others emergent, all of which arise out of India's essential attributes and all of which rise to the grand strategic level. Yet nowhere in India's official literature do we find any mention of a clearly defined grand strategy. Good statecraft lies in devising the best possible grand strategy to advance a country's interests within the limits posed by its own power resources and its position in the global power matrix. India in its first two decades as a sovereign territorial state had a grand strategy which emphasized non-alignment and anti-colonialism in international relations, democracy and secularism in domestic politics, and state planning and self-reliance in economic development. India no longer has such an integrated conception. In the absence of any official articulation, we propose that India's grand strategy today should be to win time, to give the country two decades of relative peace in which to enhance its comprehensive strength by resolving its internal contradictions, empowering its population, developing its infrastructure, and augmenting its capabilities.

While grand strategy can help a country identify and prioritize its core challenges as also the resources it needs to meet them, it may not be of much use to deal rapidly with new and emerging threats. For this, *a country needs a security algorithm*: a procedure by which an emerging security challenge can be rapidly and precisely analyzed and resolved before it becomes a full-blown security threat. Since a security algorithm would be a closely-held state secret, it is not easy to know whether India, or any other country for that matter, has a security algorithm and what – if it does exist – it is. However, deducing from the way India has responded in its various crises with Pakistan since the mid-1980s, and especially since overt nuclearization in 1998, we can safely assume that India either does not have a security algorithm or has one that is deficient and hesitant. How deterrence will function not in general terms but in specific circumstances will depend less on a country's grand strategy and more on its security algorithm.

Finally, in the Indian case it is clear that nuclear weapons fit uneasily in the country's grand strategy. But what is the reason for the uneasy fit? The answer appears to revert back to India's core motivation to 'go nuclear', viz. prestige. Developments since the mid-1980s suggest that while a nuclear deterrent bolsters India's security, especially vis-à-vis China (the security impact of overt nuclearization vis-à-vis Pakistan has been more ambiguous and most likely adverse), we can be certain that it does *not* significantly enhance India's position in the world system in symbolic or normative terms. It would appear that *the greater the prestige motivation for going nuclear, the more uneasy is the fit between nuclear weapons and a country's grand strategy*. Countries that have acquired nuclear weapons for existential reasons, such as Israel, North Korea and Pakistan, do not appear to face any problem in locating that capability within their respective grand strategies. In India's case, in contrast, the country's emergence as a future great power rests on a number of other factors and capabilities, not overt nuclearization.

Acknowledgements

The author thanks Rajesh Rajagopalan and Happymon Jacob for their invitation to write this paper as a part of their sponsored research project from the Indian Council of Social Science Research (Grant no. RESPRO/23/ICSSR/2012-13/RPS). Amitabh Mattoo and Rajesh Rajagopalan provided useful feedback.

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