

BIOGRAPHY

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DECLARATION: *This paper DEALING WITH THE DANGER OF BALLISTIC MISSILES IN SOUTH ASIA is my original work and conforms to the research ethics.*

DEALING WITH THE DANGER OF BALLISTIC MISSILES IN SOUTH ASIA*

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Abstract

The massing of troops by India and Pakistan along their border has raised the fear of another war in South Asia. Of serious concern, however, is the deployment of several deadly missiles by the two countries whose use would not only widen the scope of an India-Pakistan conflict but also significantly raise the costs of that conflict. Therefore, there is an urgent need for both India and Pakistan to reduce the danger of ballistic missiles they possess which are the main delivery vehicles for nuclear weapons. This paper suggests a number of simple and unintrusive proposals for missile control in South Asia. Key problems include : India-Pakistan dispute over Kashmir, Islamabad's cross-border terrorism against New Delhi, and the status of China .The prospect for missile control depends upon how we address the above three problems.

Following the December terrorist attack on the Indian Parliament, both India and Pakistan have deployed nearly two-thirds of their troops along their border – the biggest ever mobilisation and one of the greatest anywhere since the Second World War¹. This has led to intense speculation that there could be a war between the two old adversaries. But what has generated worldwide concern is the deployment of their missile assets for action, which could result in a nuclear exchange in the region. A nuclear war in South Asia will not only have extremely dire consequences for both India and Pakistan but also for the South Asian region as a whole. Therefore, there is an urgent need to prevent this crisis from flaring into an armed conflict and stabilise the nuclear relationships between India and Pakistan. One way to stabilise their relationship is to reduce the danger of ballistic missiles they possess. Ballistic missiles are of primary concern because of their potential use as delivery vehicles for nuclear weapons. The short flight time and lack of recall ability make them more destabilising than aircraft delivered weapons².

This paper is divided into four parts. While the first part explains the ballistic missile capabilities of India and Pakistan, the second part analyses the need for reducing the danger of ballistic missiles in

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South Asia. The third part suggests measures for missile control between India and Pakistan while the fourth part looks at the problems and prospects.

A. BALLISTIC MISSILE CAPABILITIES

INDIA

India began its missile programme known as the Integrated Guided Missile Development Programme (IGMDP) in 1983. With an initial budget of Rs.380 crore, the programme envisaged "to take up simultaneously the design and development of five missiles which would provide the nation a comprehensive missile -based defence umbrella within ten years"³. The five missiles include: the short range surface-to-air missile Trishul, the surface-to-air missile Akash, the smokeless high energy anti-tank guided missile Nag, the surface-to-surface missile Prithvi and the intermediate range missile Agni. Of the five missiles, only Prithvi and Agni are ballistic missiles and nuclear capable.

Prithvi⁴, meaning "Earth", is a single stage, road mobile, and liquid fuel battlefield support missile. This 8.5 meter short-range ballistic missile costing Rs.5 crore a piece, was first test-fired in February 1988⁵. Several variants of Prithvi have been developed. Prithvi -I or the Army version has the maximum range of 150 kms, and a payload capacity of 1000 kg. This missile has been produced and inducted into the Army. Prithvi -II or the Air-Force version has a range of 250 kms. with a warhead weight of 500 to 700 kg. The development work on this missile has already been completed. The Prithvi -III is meant for the Navy. This missile, also called Dhanush, has a range of 350 kms. and a warhead weight of 1000 kg. The Dhanush is now under development.

Agni⁶, meaning "Fire", is India's second ballistic missile which is available in three versions: Agni, Agni -I and Agni -II. The short-range Agni has a range of 700 km. and a payload capacity of one tonne⁷. This 15 metre tall, 12 tonne, single stage solid propellant surface-to-surface missile was first test-fired on January 25,2002⁸. Agni -I is a two stage IRBM with a length of 18.4 meters and 1.3 body diameter. It has a range of 1000 kms. and a payload capacity of 1000 kg. It is based on first stage solid and second stage liquid fuel configuration. This missile has been thrice test-fired from the ITR, Orissa in May 1989, May 1992, and Feb. 1994⁹.

Agni -II is the extended version of Agni -I. First test fired on April 11, 1999, this IRBM has a range "in excess of 2000 kms." which it can cover in only 11 minutes¹⁰. This 20 meter long and sixteen tonne missile was last test-fired in Jan. 2001. Adding to India's missile strength in the near future will be Agni-III. It will have a range of 3,000 km.and its first flight may take place in a few months¹¹

Table I
India's Nuclear Capable Ballistic Missiles

Type	Launchers	First Tested	Range Kms.	Payload Kg.	Technical Details	Comments
Prithvi I	20-50?	Feb. 1988	150	1,000	Single stage liquid fuel	Deployed by Army's 333 rd regiment in Secundrabad
Prithvi II	25 ordered?	Feb. 1996	250	500	Single stage liquid fuel	Undergoing user trials for Air Force
Prithvi III or Dhanush	–	Apr. 2000	350	1,000	Single stage solid fuel?	Ship launched variant in development.
Agni	–	Jan.2002	700	1,000	Single stage solid fuel	Fills the gap between SRBM Prithvi-III and IRBM Agni-I.
Agni I	–	May 1989	1,500-2,000	1,000	Two stages: First uses SLV-3(solid fuel), Second Prithvi-I(liquid)	Shelved in favour of Agni-II? Tested to a range of 1400 kms.
Agni II	20 ordered. India says missile is ready for induction	April 1999	2,000-2,500	1,000	Two stage solid fuel.	Tested to a range of 2000 kms.
Agni III	Development?	–	3,500	1,000	–	Design may draw heavily from PSLVs

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PAKISTAN

Pakistan is perceived to have acquired missile capability in the late 1980's. Three major factors namely the easy availability of Chinese missiles and missile related technologies, its inability to obtain the delivery of all its F -16 fighters from the USA and the success of India's missile development programme proved to be the main reasons for Pakistan's missile acquisitions¹².

Today, Pakistan's missile arsenal¹³ consists of: the Hatf - I, II ,III, IV, V,VI etc. The Hatf -I is a single stage solid propellant missile with a range of 60-80 kms. and a payload capacity of 500 kg¹⁴. It was first flight tested in 1989 and a larger 100 kms range variant was test-fired in Feb. 2000¹⁵. It is believed to be in service in limited numbers. The Hatf-II is a solid-propellant ballistic missile with a range of 300 kms. and a 500 kg. payload capacity¹⁶. However, not much has been heard about this missile since its initial test-firing in Feb. 1989 and apparently this project has been over-taken by other more advanced and more successful missile systems.

The Hatf -III is a solid fuel short -range ballistic missile with a range of 600 kms. and a payload capacity of 500 kg¹⁷. This missile which closely resembles the Chinese M -9 missile, was first test-fired in 1997. The Hatf-IV, also called Shaheen -I, has a range of 750 kms. and a payload of 700 kgs¹⁸. This solid fuel missile which is based on the Chinese M -11 missile design, was first flight tested in April 1999. Shaheen-I is reported to have entered serial production in mid- 1998¹⁹.

Hatf -V, also named Ghauri is a single stage liquid fuel IRBM with a range of 1000 kms. and a payload capacity of 700 kgs²⁰. This missile was first test-fired in April 1998. The Ghauri has another version called Ghauri -II. This is a liquid fuel, two stage IRBM with a claimed range of 2300 kms²¹. The Ghauri - II was first flight tested in April 1999. The Ghauris are believed to be derived from the North Korean Nodong missile. A longer range two stage solid fuel missile Hatf -VI, also called Shaheen -II, was unveiled during the Pakistan Day Parade on 23rd March 2000²². This missile, which is yet to be test-fired, is likely to have a range of 2500 kms. with a 1000 kg. payload. Beside the Hatf series, longer range missiles named Tipu, Ghaznavi and Haider have also been reported.

Table II
Pakistan's Nuclear Capable Ballistic Missiles

Type	Launchers	First Tested	Range Kms.	Payload Kg.	Technical Details	Comments
M-11 or Hatf-II	30-84?	Mid 1990 (Chinese Test)	280	500-800	Two stage solid fuel	30+ stored in Sargodha Air Force Base near Lahore.
M-9 or Hatf-III	–	July 1997	600-800	500	Two stage solid fuel	Many consider Hatf-III and Shaheen-I are one and the same missile.
Shaheen-I or Hatf-IV	–	April 1999	600-750	1,000	Solid fuel	Reported to be based on No Dong.
Shaheen-II or Hatf-VI	In development	Demonstrated in Pakistan Day Parade on 23rd March 2000	2,000	1,000	Two stage solid fuel, road mobile missile	–
Ghauri or Hatf-V	–	April 1998	1,300	700	Single stage, liquid fuel, and road mobile missile.	Reported to be based on No Dong. Tested to 1,100 kms.
Ghauri-II	In development	April 1999	1,500-2,000	700	Liquid fuel	Tested to 1,165 kms.
Tipu	–	–	4,500?	–	–	–
Ghaznavi	–	–	?000	–	–	–

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B. NEED FOR REDUCING THE DANGER OF BALLISTIC MISSILES

Besides the current military stand-off between India and Pakistan, there are other reasons why it is imperative to reduce the danger of ballistic missiles in South Asia. The first reason is the geographical closeness between India and Pakistan. Missiles armed with nuclear weapons will have very short-flight times. For example, India's Agni-II can cover a range of over 2,000 kms. in just 11 minutes²³. Similarly, the Pakistani Ghauri-II can reach a distance of 1,165 kms in only 12 minutes²⁴. The use of even short-range missiles like the Indian Prithvi or the Pakistani short-range Hatfs make it possible for attacks on national capitals to be carried out in less than 5 minutes. Therefore, it is highly unlikely that any warning can be given in the event of an accidental or unauthorised launch that will enable the targeted country to have any kind of preventive action. The time taken for judging the genuineness of an alarm will also be extremely short, enhancing the danger of retaliatory action. Second, neither India nor Pakistan has reliable, redundant early warning systems. Due to this each country will be substantially in the dark regarding the others capabilities resulting in potentially dangerous situations in times of tension or conflict²⁵. It will also render the two countries vulnerable to misinformation from third party sources. Third, Pakistan with its small land area, has limited strategic depth compared with the much larger India. Moreover, Islamabad believes that its nuclear weapons are essentially an instrument to countervail a manifest conventional inferiority vis-a-vis the Indian military force. Presumably, Pakistan feels or will feel compelled to enlarge and disperse its nuclear arsenal so as to increase the nuclear options and make the threat of nuclear retaliation more credible²⁶. This enlargement and dispersal will move Pakistan away from a doomsday scenario and increase the danger of accidental, unauthorised and inadvertent nuclear use. Fourth, South Asia remains a well-recognised accident-prone region. Accidents involving fires and explosions in armed depots, including missile-manufacturing units are not uncommon²⁷. Last but not the least, there are currently no effective anti-missile defence systems in South Asia. This increases the potential for devastation in the event of accidental or unauthorised launch of a missile since such systems cannot be defended against²⁸.

C. SUGGESTED MEASURES FOR MISSILE CONTROL

In view of the multiple risks, there is an urgent need for placing high priority on reducing the missile dangers in South Asia. Given the suspicion, mistrust and animosity between India and Pakistan, ambitious measures are certain to prove non-starters. Therefore, missile control measures, on the basis of their feasibility, are divided into two main categories: (a) High Feasibility Measures, and (b) Low Feasibility Measures.

(a) *High Feasibility Measures*: - These are measures that are relatively easy to implement because their implementation does not produce any significant change in the Indo-Pakistan security policies. On the contrary, if implemented, they would certainly lay the foundation for more significant measures at a later stage.

Reliable and Dedicated Communication: - Given the short-flight time involved, and the high potential for misinterpretation of data, it is vital for both India and Pakistan to have a reliable, secure, dedicated and timely communication system with each other. Although both the countries have acknowledged the importance of communication in their Memorandum of Understanding (MoU) signed by their Foreign Secretaries as part of the Lahore Agreement 1999²⁹ and hotlines exist between the two Heads of Indian and Pakistani Governments and between their Director Generals of Military Operations, yet these have been seldom used during crises. India and Pakistan should, therefore, not only revive their existing hotline communication systems but also pledge that whatever be the circumstances, they would use this link in a crisis, as the present one, to avert disasters and accidents and to avoid ambiguous situations that might lead to a strategic crisis. Moreover, they should extend this hotline to their Air Forces and Nuclear Establishments.

Advance Notification of Missile and Space Launch: - Although both India and Pakistan agreed at Lahore to “provide each other with advance notification in respect of ballistic missiles flight test³⁰” and both sides now issue such notifications, there has been no formal treaty between New Delhi and Islamabad to this effect. India and Pakistan should convert this agreement into a treaty based upon the 1988 Ballistic Missile Launch Notification Agreement between the USA and Soviet Union³⁰. The treaty should provide information about the planned date, launch area and area of impact of any launch. Any postponement or cancellation of the launch should also be notified. Moreover, India and Pakistan should also notify on

their space launch vehicles. This is necessary, due to the overlap in the technology and physical characteristics between ballistic missiles and space launch vehicles. The objective of these two agreements is to reduce the risk of nuclear war, especially as a consequence of misinterpretation, miscalculation or accident.

Notifying the Movement of Missile Forces: - India and Pakistan should sign an agreement to notify each other about the movement or repositioning of missile forces. Such an agreement may add to confidence building and minimise misinterpretation of motives.

(b) **Low Feasibility Measures** :- These are measures whose implementation requires significant change in the security behaviour of India and Pakistan which is not possible unless the core issues (these are discussed in the next section) that affect their bilateral relationship are addressed. Moreover, these measures also require Chinese participation whose actions strongly influence South Asian security. They are discussed as under:

The first is about ensuring the non-deployment of delivery systems. Such a peace -time ban against deployment would have to apply to all missiles beyond battlefield range, as it could be difficult to distinguish conventional armed delivery systems from strategic missiles³². Second, India and Pakistan may also formally agree to notify to each other their respective missile-alert status during times of crises. Doing this will help to prevent unintentional crises that could lead to a nuclear war. Third, India and Pakistan could seriously consider the non- weaponisation option of missiles, i.e., keep their nuclear weapons physically separated from the nuclear capable ballistic missiles/aircrafts, by a distance of at least 50 kms. Besides preventing a hair-trigger situation, it would reduce the financial and logistical burden of ensuring the safety and security of nuclear weapons. It would also greatly reduce the risk of accidents as well as lighten the burden on their command and control systems. Fourth, India and Pakistan should formulate modest nuclear doctrines. While India should seek to reinforce its no first use pledge with restraint in the development of nuclear/missile capabilities, Pakistan needs to minimise reliance on nuclear deterrence for its security to the fullest extent possible³³. Finally, India and Pakistan should accept the reality of nuclear asymmetry in South Asia. Pakistan needs to accept the fact that India's nuclear capability has to be designed against Pakistan and China. Similarly India is required to accept

that China's nuclear capability must take into account the USA and Russia³⁴. Strict priority would be unrealistic in the light of different security perceptions resulting to an unrestrained armed race in the region.

D. Problems and Prospects :- As already cited, there are three major problems which come in the way of reducing missile dangers in South Asia. These are: the unresolved nature of Jammu and Kashmir dispute, Pakistan's cross-border terrorism against India and the status of China.

Jammu and Kashmir Dispute: - Jammu and Kashmir is an issue of profound disagreement between India and Pakistan. Pakistan's claim on Kashmir, the only Muslim majority state in the Indian Union, is solely based on religion and it considers Kashmir as the "unfinished agenda of partition"³⁵. On the other hand, India's claim on Kashmir is based upon the defence of its status as a secular state with Muslim population larger than in Pakistan. Besides, its claim is also reinforced by the accession of Jammu and Kashmir to India by the Maharaja of Kashmir in 1947, as "final and irrevocable"³⁶.

Although each side firmly maintains a 'total claim', the current situation appears more acceptable to India, which controls roughly two-thirds of the state than Pakistan which has occupied one-third of the province through war in 1947-48^{36A}. This asymmetry has led Pakistan to challenge the status-quo in Kashmir in 1965 and 1999. Despite attempts by both sides to resolve their differences over this region, Kashmir remains a flash-point that could potentially lead to another conflict.

Cross-Border Terrorism: - Pakistan's use of cross border terrorism as an instrument of state policy against India has become another source of tension between the two countries. Since the late eighties, when Pakistan acquired nuclear capability, it has pursued a proxy war in Kashmir without fear of Indian retaliation. This proxy war is part of its long-term strategy to bleed India in Kashmir and keep New Delhi perpetually destabilised (or probably in the long term), directed to change the status quo in Kashmir³⁷. Over the years, the character of militancy in the state has undergone a radical transformation³⁸. Earlier, it was initiated and waged by the local Kashmiri militants. In the mid-nineties, it was taken over by foreign mercenaries with recruitment from as many as 14 Islamic nations, believed to be under the guidance of Pakistan³⁹. Throughout this period, the Pakistani army was not directly involved in operations against India and relied on the militant outfits. However, the Kargil war in 1999 indicated that it was not averse

to raising the stakes through its direct intervention in support of the militants in order to change the status quo in Kashmir. Similarly, earlier Pakistan had supported terrorism and arson only in the state of Jammu and Kashmir. But now its support to terrorist activities have spread to all parts of India, particularly India's North-East and the capital city of New Delhi⁴⁰. However, the threshold of India's tolerance breached when some of the allegedly Pak-based terrorist outfits attacked the Indian Parliament on 13th December 2001. Having realised that it could no longer live with the proxy-war, India has massed its troops on the Indo-Pakistani border. So, until Pakistan completely stops cross-border terrorism against India, there is unlikely to be any meaningful dialogue between the two countries, let alone discussion on missile control or Kashmir.

The Status of China: - A final problem is the status of China, which is the key to the success of any substantive missile control in South Asia⁴¹. If Beijing will not participate, even at the margins, it will be highly difficult for India to participate in any discussion on missile control with Pakistan. There are two important reasons for this. First, China is India's largest neighbour and is central to India's strategic military thinking. India suffered a major military defeat in the 1962 border war with China and fears Chinese intransigence based upon other Chinese territorial claims. It is worth mentioning here that China still occupies 38,000 sq.kms. of Indian territory of Kashmir and claims another 90,000 sq.kms. in the Indian state of Arunachal Pradesh⁴². While quickly resolving territorial disputes with Russian and the newly independent Central Asian States, Beijing has shown little or no interest in resolving the Sino-Indian territorial disputes, ostensibly to keep India under pressure⁴³. Moreover, India cannot ignore the fact that China's expansion of its nuclear and missile capabilities is the largest in the world. Since India shares its longest borders with China, Beijing's drive to expand its Weapons of Mass Destruction (WMD) capabilities can only frighten its neighbours like India.

The second reason for the necessity of Chinese participation in South Asian missile control discussion is due to the fact that China has been the principal provider of nuclear and missile technologies to Pakistan⁴⁴. It has actively helped Pakistan's WMD capabilities by providing Islamabad "a tested design of a nuclear warhead, M-9 and M-11 ballistic missiles and missile components, fissile material, nuclear plants and ring magnets for enriching weapons-grade uranium⁴⁵ in violation of all

known proliferation rules and pledges. This led to the imposition of US sanctions against China twice, in 1991 and 1993. There are two reasons why Beijing has stepped up its nuclear missile transfers to Pakistan. First, to build-up Pakistan as a military counter-weight to India. Second, as a bargaining chip in its attempts to curb US arms transfers to Taiwan. Thus, since Chinese actions directly threaten India's security, New Delhi will not participate in any credible missile control discussion unless China participates.

Is there any prospect for missile control in South Asia? The answer to this question actually depends upon the manner in which we address the above three problems. India should shed its unrealistic hope that the problem of Kashmir will disappear if it just ignores it. Similarly, Pakistan should realise that cross-border terrorism, as an instrument of political blackmail is no longer acceptable to India. The present crisis provides an opportunity to both India and Pakistan to rethink the premises that have governed their relationship for the last 55 years. Two things are particularly important in this context. First, almost any settled resolution of Kashmir would be better for both countries than continuing the security risks, and the massive costs of the present situation⁴⁶. Second, no resolution is possible without both countries reassessing elements of their positions, which they have hitherto regarded as non-negotiable.

The introduction of China as a key player in the South Asian security matrix makes it extremely difficult to come up with simple proposals. Two other factors further complicate the matters: first, China is an established nuclear weapon state and will be most reluctant to accept any conditions that would constrain its options in any way; second, China not only refuses to acknowledge India as a de-facto Nuclear Weapon State but still insists that India abandon its nuclear and missile programmes and sign the Nuclear Non-Proliferation Treaty and Comprehensive Test Ban Treaty unconditionally and immediately. However, Chinese participation in some manner is important to make a missile control discussion in South Asia more credible. It would be worthwhile for other nuclear weapon states to engage China in a discussion to seek its agreement to formalise the practice of storing (its) warheads separately from ground-based missiles and ensure it to cease supplying advanced missile and nuclear technology to Pakistan⁴⁷. All this will address India's security concerns to some extent. It remains to be seen whether

other nuclear powers, especially the US, would be willing to persuade China to enter into such an undertaking. The United States has also other important roles. It should pressurise Pakistan to dismantle the infrastructure of terrorism, which it has used against India, and encourage both India and Pakistan to accept a fair and reasonable solution to the Kashmir dispute that has destabilised the sub-continent for years.

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