Presentation

by

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on

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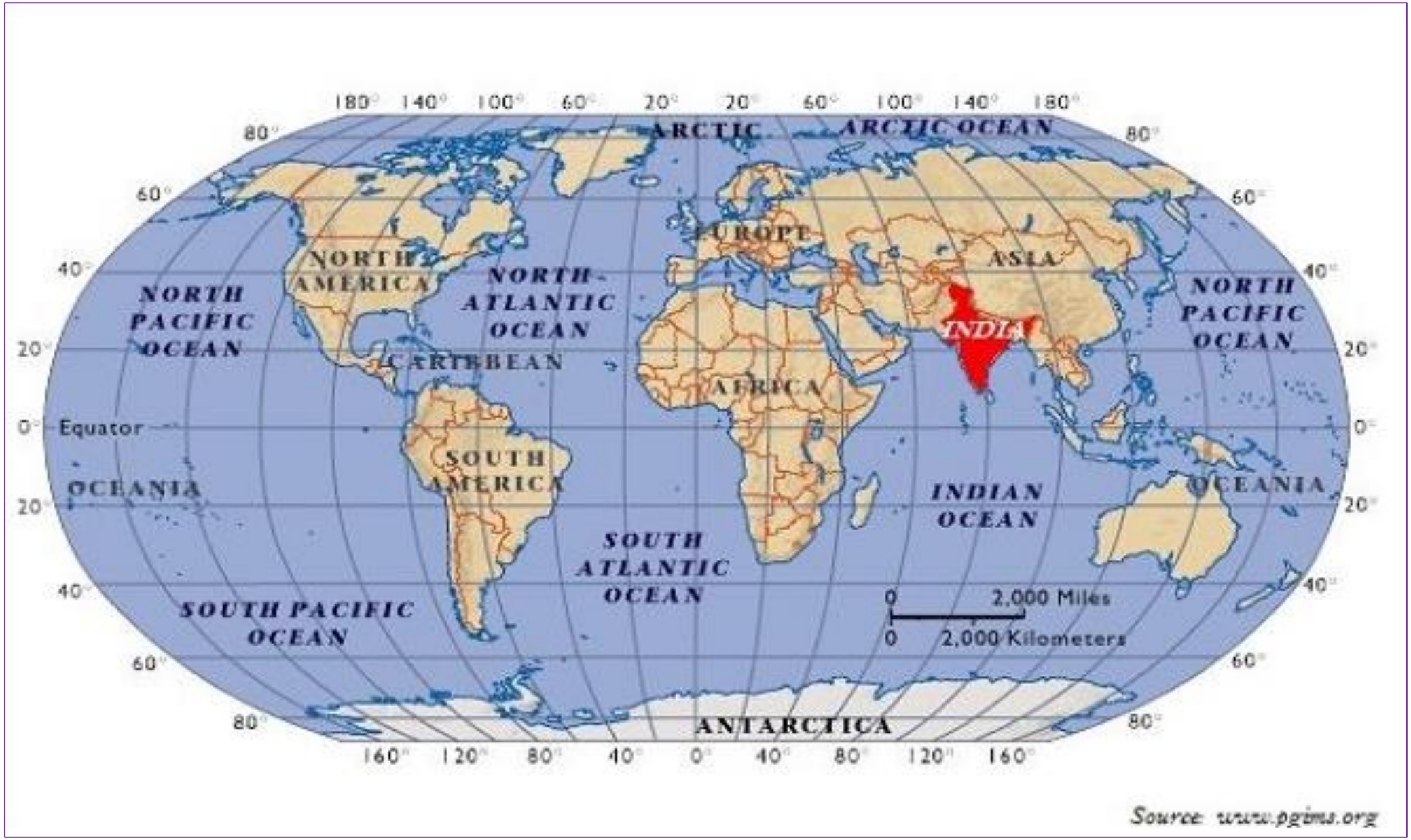
India & Space Security

Format……

- Geography and History
- Space Programme
- National Security Challenges
- Military investments in Space: Needs and Concerns
- Soft Options
- Way Forward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INDIAN OCEAN
SOUTH ATLANTIC OCEAN
SOUTH PACIFIC OCEAN
0 2,000 Miles
0 2,000 Kilometers
ANTARCTICA
Source: www.pgms.org

India….a part of Asian Continent

- India covers 2,973,193 sq km of land and 314,070 sq km of water

- Is the 7th largest nation in the world

- Surrounded by

❖Bhutan, Nepal, & Bangladesh to the North East

❖China to the North

❖Pakistan to the North West

❖Sri Lanka on the South East coast


70°
80°
90°
30°
20°
10°
AFGHANISTAN
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Srinagar
Amritsar
Chandigarh
Nanda Devi
Brahmaputra
NEW DELHI
Ganges
Kangchenjunga
Itanagar
Jaisalmer
Jaipur
Agra
Lucknow
Darjeeling
Kohima
Kanpur
Patna
Imphal
Udaipur
Varanasi
Aizawl
Ahmadabad
Bhopal
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Vishakhapatnam
Panaji
Bay of Bengal
Bangalore
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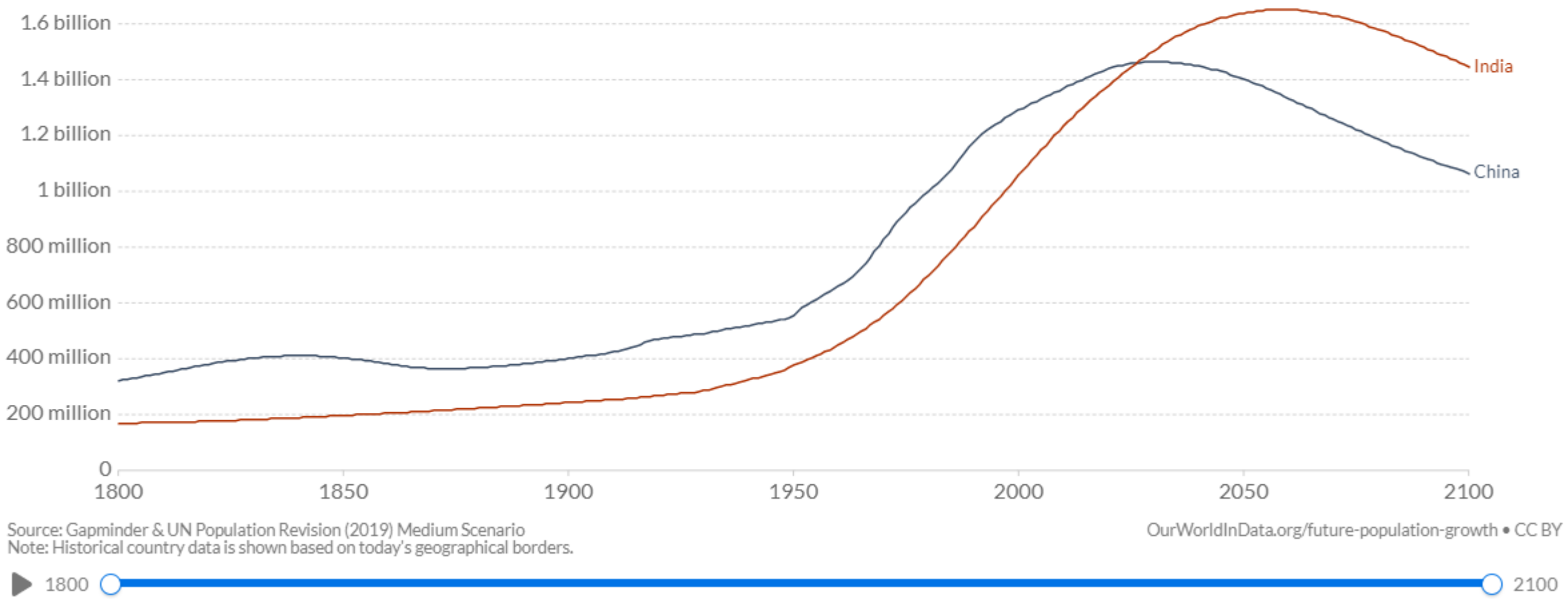
India's History….

- India is a land of ancient civilizations
- First traces of human culture and punctuated by invasions
- The Europeans came to trade in India, it was the British who ruled, making the Subcontinent the "jewel in the crown" of their empire
- Successive campaigns finally led to Indian independence in 1947

Population, 1800 to 2100

Historical estimates of population, combined with the projected population to 2100 based on the UN's medium variant scenario.

Our World in Data



Source: Gapminder & UN Population Revision (2019) Medium Scenario
Note: Historical country data is shown based on today's geographical borders.

OurWorldInData.org/future-population-growth • CC BY

Rank	Country (or dependent territory)	% of Asia's population
1	**China**	31.35
2	**India**	29.72
3	Indonesia	5.84
4	**Pakistan**	4.39

TOP TEN COUNTRIES WITH THE HIGHEST POPULATION

#	Country	2000 Population	2021 Population	2050 Expected Pop.	Pop Growth % 2000 - 2021
1	China	1,268,301,605	1,444,216,107	1,329,570,095	13.8 %
2	India	1,006,300,297	1,393,409,038	1,623,588,384	38.5 %
3	United States	282,162,411	332,129,757	388,922,201	17.7 %
4	Indonesia	214,090,575	276,361,783	318,393,046	29.1 %
5	Pakistan	152,429,036	225,199,937	290,847,790	47.7 %
6	Brazil	174,315,386	213,993,437	236,030,311	22.7 %
7	Nigeria	123,945,463	211,400,708	391,296,754	70.5 %
8	Bangladesh	128,734,672	166,303,498	193,092,763	29.2 %
9	Russia	147,053,966	145,912,025	129,908,086	- 0.8 %
10	Mexico	99,775,434	130,262,216	150,567,503	30.5 %

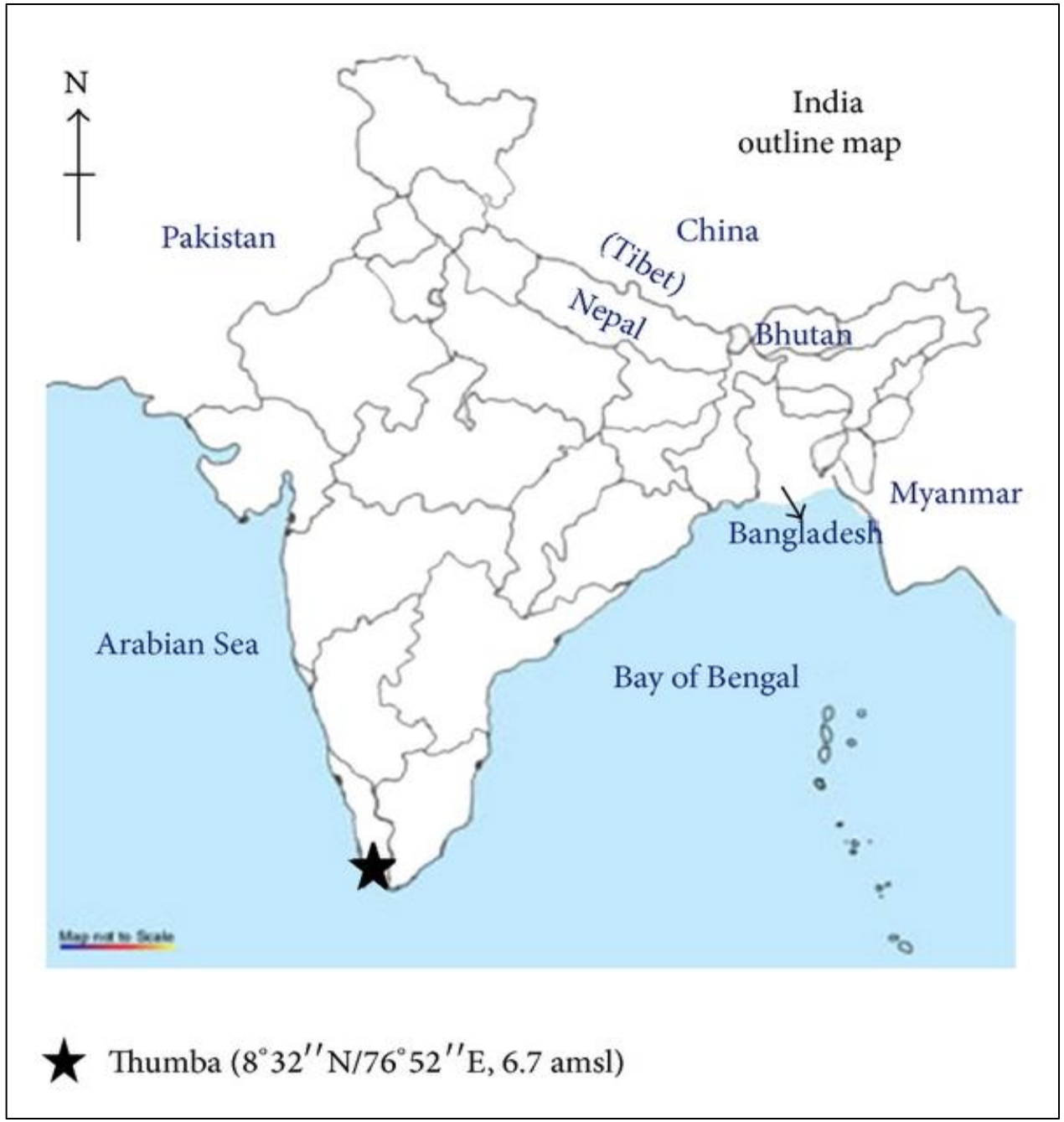
Science and Asia

- The impression that science started only in Europe is incorrect
- Evidences of important developments in Arab state and India & China
- Historically, major focus on Mathematics and Astronomy in India
- Post independence (1947), the journey of democratic India…S & T

Albert Einstein and India's Prime Minister Jawaharlal Nehru (1949)

India and Space: the Sarabhai Effect

- India started developing its space programme during 1960s. It was the period of the Cold War, and rocket technology was a closely-guarded secret
- Some international programmes were happening in Indian ocean for better understanding of atmosphere
- There were no equatorial launch sites available for the collection of atmospheric data
- Establishing the Thumba Equatorial Rocket Launching Station (TERLS) began in 1962……master stroke…..allowed international collaboration


N
India
outline map
Pakistan
China
(Tibet)
Nepal
Bhutan
Myanmar
Bangladesh
Arabian Sea
Bay of Bengal
Map not to Scale
Thumba (8°32′′N/76°52′′E, 6.7 amsl)

- Syncom-3, the world's first geostationary satellite in 1964 was launched by the US and was instrumental in providing live television coverage of the 1964 Olympic Games in Tokyo, Japan to US

- Dr Bhabha and Dr Sarabhai and Jawaharlal Nehru were convinced that space can help in education, weather prediction and various other areas which could (directly or indirectly) help to poverty removal and development

- The Indian National Committee for Space Research (INCOSPAR) was set up by Sarabhai in 1962 to formulate the Indian Space Programme

- On 2 February 1968, India's then Prime Minister Indira Gandhi dedicated TERLS to the UN

- During 1960s to 1970s….India’s sounding rocket programme….help from the US, Soviets, France……..
- One of the major advantages of space diplomacy is- Increment in the negotiation power of the country. For example, Soviets launched India’s first satellite and used its port in return…
- Aryabhata was a part of an agreement between India and Soviet Union (1972) under which India allowed Soviets to use Indian ports for tracking ships and in return for launching Indian satellite
- The Indian cosmonaut (astronaut) Rakesh Sharma flew aboard the Soyuz T-11 during April 1984

India's Space Programme

India's Space Strategy

- Why did India invest in space?
- What is the process of evolution of Indian space programme?
- Has the initial (space) vision been fulfilled?
- Is any change in agenda?
- Where the programme stands today?

Why did India Invest in Outer Space?

- India facing problems of poverty; unemployment, over population, lack of shelter, food, water, education, healthcare etc
- India has unique topography and terrain, climatic conditions, skewed distribution of villages & townships and reach & poor
- During 1950s Indian leadership decided to invest in Science and Technology for overall **development of the state** and ***Outer Space*** *is a subset* of this policy initiative

Space Vision

- Articulated by Dr. Vikaram Sarabhi

"A civilian programme with focus on application of space technology as tool for socio economic development of the country"

Process of Evolution of Indian Space Programme

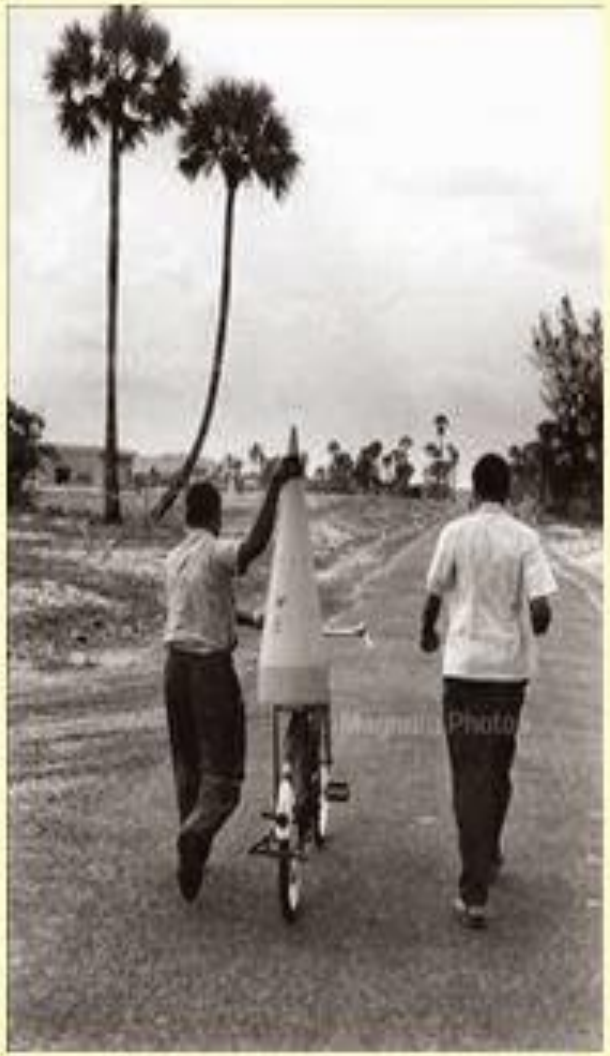
- Under Dept of Atomic Energy (1962)-Creation of Indian National Committee for Space Administration (*INCOSPAR*)
- Under Dept of Atomic Energy (1969)-Indian Space Research Organization (***ISRO***) was formed
- ISRO under Department of Space since 1972

AIM

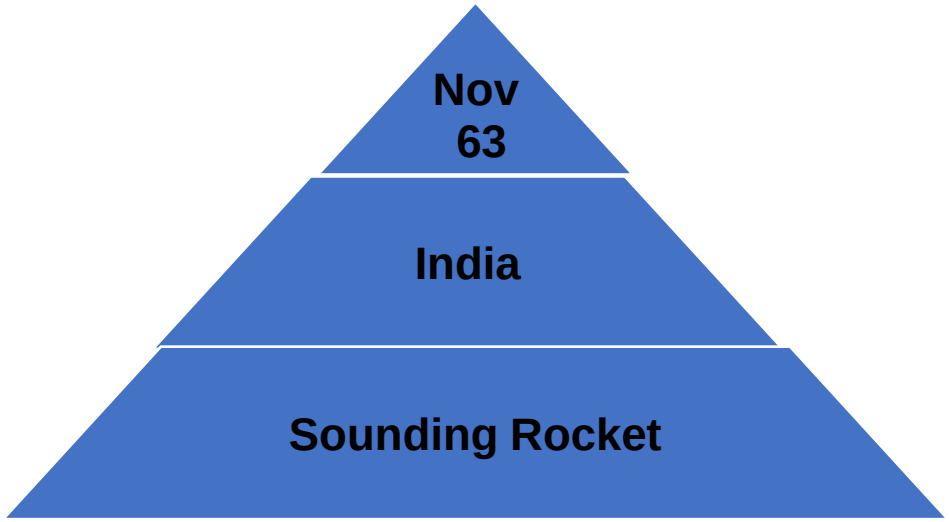
A programme capable of using space technologies for communications, meteorology and natural resource management

A Humble Beginning

- 1962: Thumba Equatorial Rocket Launching Station (TERLS)
- Major focus on experimental and low capability projects
- Aim to gain experience in the construction and operation of satellite and launch vehicles



1975



India became Space-faring State: Rohini satellite launched by SLV-3 during 18 July 1980

Launch Vehicle Programme

- SLV: Satellite Launch Vehicle
- ASLV: Augmented SLV
- PSLV: Polar SLV
- GSLV: Geosynchronous SLV
- SSLV: Small Satellite launch vehicle….first test around mid 2021

SLV-3

Height : 22.7m
Lift-off weight : 17 t
Propulsion : All Solid
Payload mass : 40 kg
Orbit : Low Earth Orbit

ASLV

Height : 23.5m
Lift-off weight : 39 t
Propulsion : All Solid
Payload mass : 150 kg
Orbit : Low Earth Orbit

PSLV-XL

Height : 44m
Lift-off weight : 320 t
Propulsion : Solid & Liquid
Payload mass : 1860 kg
Orbit : 475 km Sun Synchronous Polar Orbit (1300 kg in Geosynchronous Transfer Orbit)

GSLV Mk II

Height : 49m
Lift-off weight : 414 t
Propulsion : Solid, Liquid & Cryogenic
Payload mass : 2200 kg
Orbit : Geosynchronous Transfer Orbit

GSLV Mk III

Height : 43.43 m
Lift-off weight : 640 t
Propulsion : Solid, Liquid & Cryogenic
Payload mass : 4000 kg
Orbit : Geosynchronous Transfer Orbit

First Two Decades….

- Learning phase
- Aryabhata, Bhaskara, Apple
- First indigenous satellite launched July 1980 Rohini 1 with the help of SLV rocket
- Four test flights on SLV-3 1979 to 1983

A Decade of Consolidation

(*Mid 80s to 90s)*

- First-generation **Insat**-1D in June 1990
- Insat-2A, July 1992 & Insat-2B in July 1993
- May 1994 ASLV: Was a 5-stage solid propellant rocket-150 kg satellite into LEO

Gaining Confidence

Decade from 1995 to 2005

- PSLV emerged as a ***most dependable workhorse***

  Developed for IRS. Launching small size satellites into GTO

- GSLV: Developmental flight 2001-success. Consolidation of programme

- A phase of minimal international assistance

Mid-course Correction

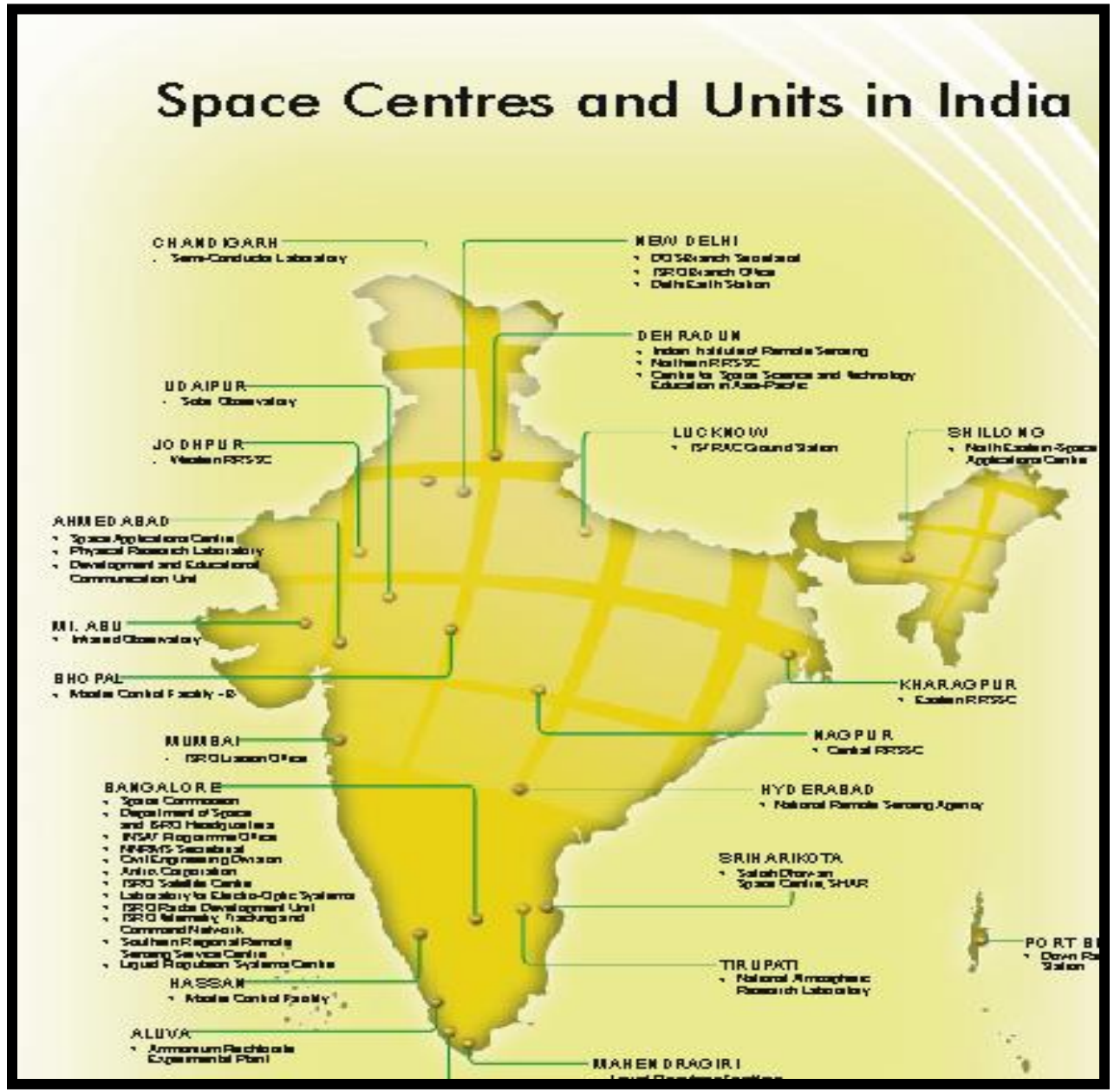
- Brainstorming session: 7th-8th November 2006
- Keep the *soul* safe but also opt for some **shift in focus**
- Time is appropriate for India to undertake manned mission
- ***Is it a shift in policy or natural progression?***

Making a Mark…Globally

From 2005 onwards…..

- Cartosat series….resolution less than 1 meter (≤0.6 meters), SAR
- Biggest remote-sensing network, SRE, Missions to Moon and Mars
- PSLV the trusted workhorse….**GSLV MkIII-D2** ***(Nov 14, 2018)***
- GAGAN, Regional Navigational system/NaVic
- Indigenous cryogenic engine
- Multiorbital satellite launches & 104 satellites in one go…single mission

Space Centres and Units in India



Remote Sensing

- **1**st Gen: 1988-IRS 1A, 1B (Res-72.5m-36m)
- 2nd Gen: 1995-IRS 1C, 1D (Res-70m-5.8m)
- Resourcesat1:2003 (Res- 5m), Resourcesat 2, 2A (2016), RISAT 2, RISAT 1 (2012)
- Cartosat 1,2 & 2A, 2B, 2C, 2D, 2E, 2F and 3: 2005 onwards *(Res-2.5 & <1m),* HysIS
- OCEANSAT-2, Megha-Tropiques, SARAL and SCATSAT-1
- *Four in Geostationary orbit- INSAT-3D, Kalpana & INSAT 3A, INSAT -3DR*

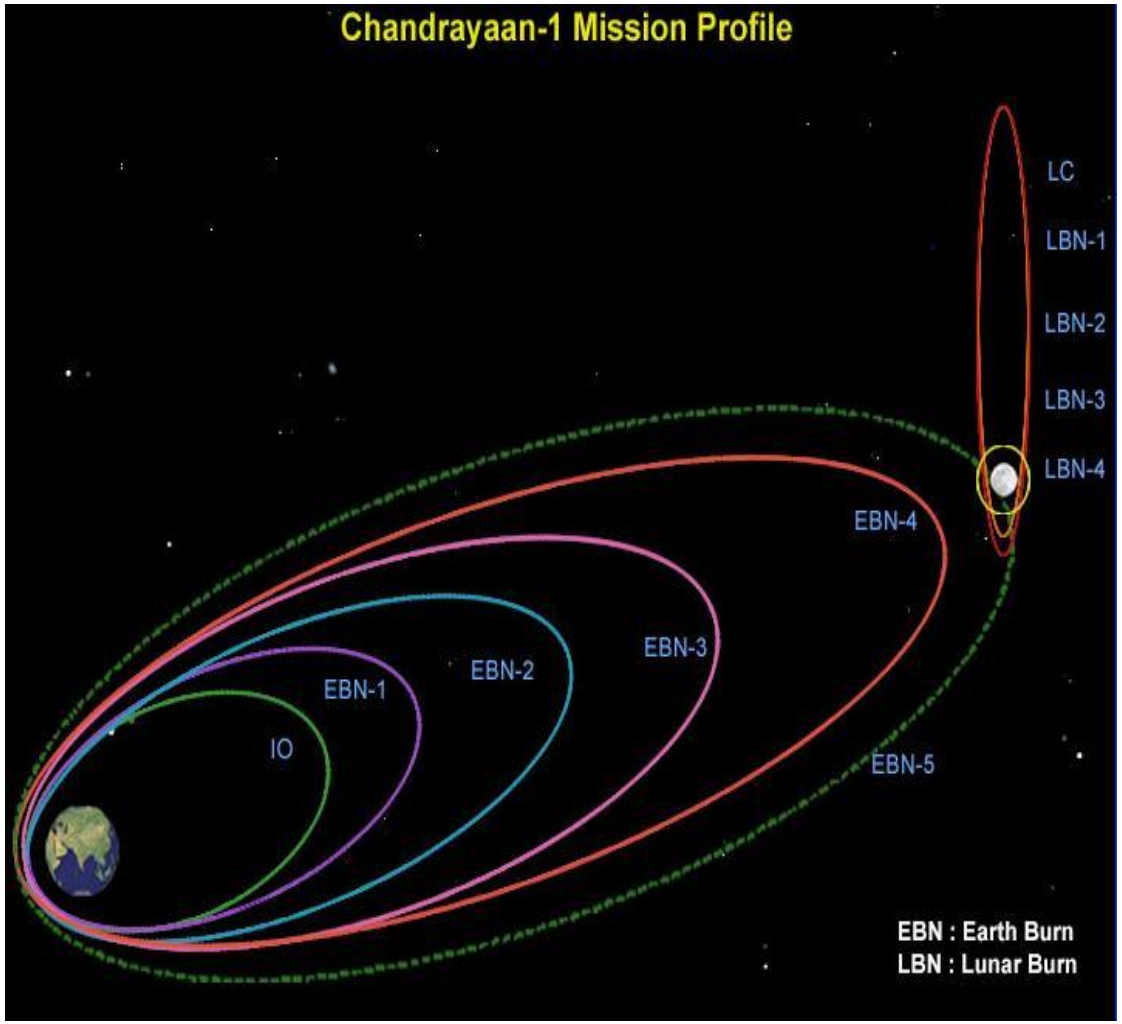
Communication

- INSAT Series: Initially multipurpose payloads (INSAT 1 series). Established in 1983 with commissioning of INSAT-1B
- INSAT 2 Series: M &C, INSAT 3 and 4 series: Communication
- Constellation of INSAT System consisting various operational satellites, namely - INSAT-3A, 3C, 4A, 4B, 4CR and GSAT-6, 7, 8, 9, 10,11, 12, 14, 15, 16, 17 and 18……(Nov 2018-Feb 2019…GSAT 29, 11, 7A, 31). GSAT-30 (Jan 17, 2020)
- More than 250 transponders……Ambition: 500……???

Navigation, Meteorology & Other Missions

- GPS Aided GEO Augmented Navigation (**GAGAN**). The GAGAN Signal-In-Space (SIS) is available through GSAT-8 and GSAT-10
- Indian Regional Navigation Satellite System (IRNSS)/NavIC (Navigation Indian Constellation): Seven satellites, three satellites in GEO and four satellites in GSO orbit
- KALPANA-1 and INSAT-3A satellites, SARAL/AltiKa…weather inputs
- South Asia Satellite (GSAT-9), Astrosat, Student/University Satellites, Microsats

Deep Space Missions



❖Moon Mission

#Chandrayaan 1

#Chandrayaan 2

#Chandrayaan 3…near future

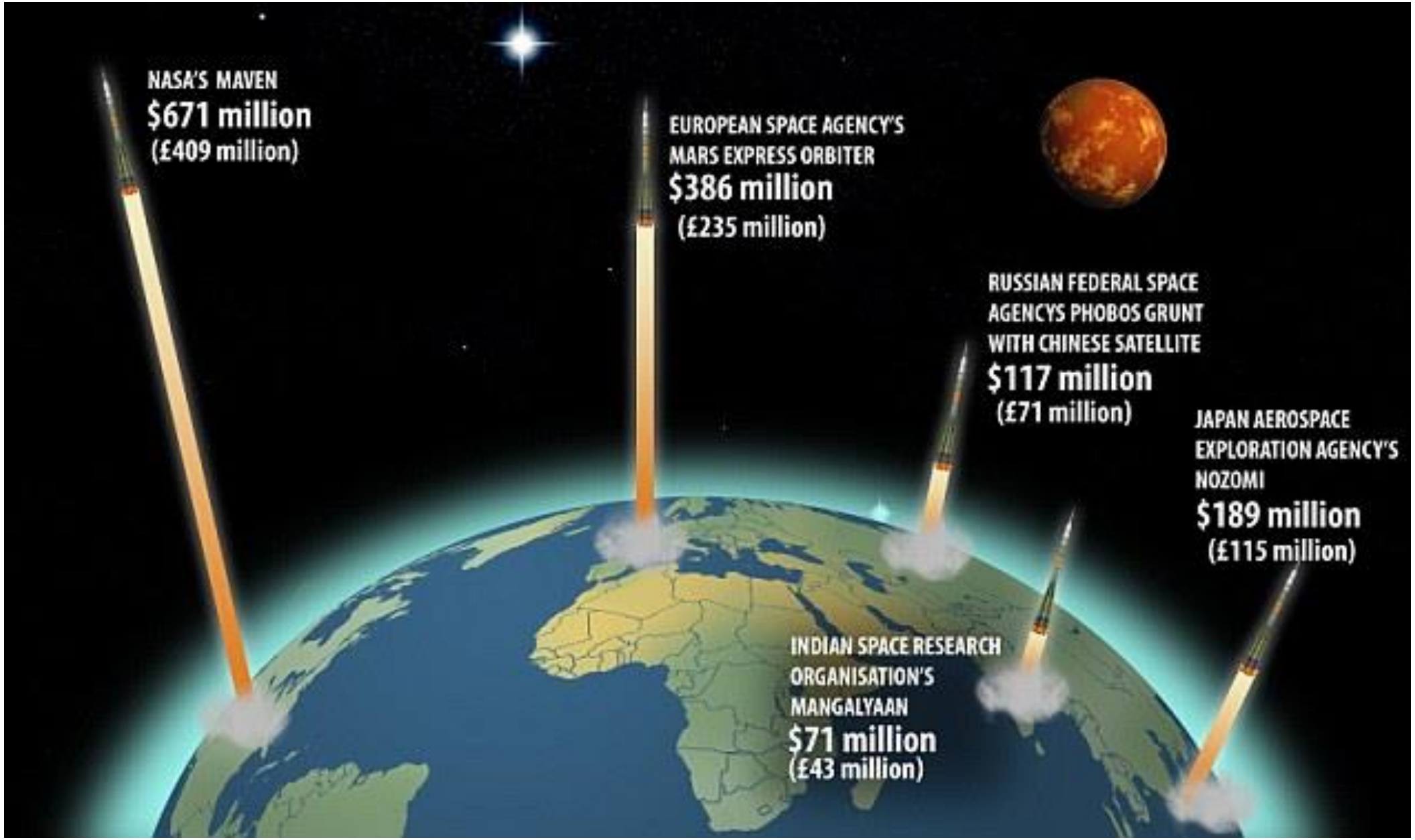
❖Mars Mission

MOM (Mars Orbital Mission)

Second mission may be in 2022

❖*Eyes at* Venous

MARS MISSIONS



Commercial Aspects

- Antrix: 1992 ISRO sets up its commercial outlet. New Space India Limited (NSIL, 2019)
- Focus on Launch business/Approximate earnings:
- **ISRO** has launched **328 satellites** for foreign customers
- Satellite manufacture, establishing ground infrastructure….

Human Space Flight: Gaganyaan

- First unmanned (without astronaut) mission of Gaganyaan, in December 2020. Training at Russia is over
- The second unmanned mission in July 2021
- The first Gaganyaan mission with astronauts will be executed in December 2021/early 2022….altitude 400km…seven days

ISRO’s Global Ground Stations

- Port Louis, Mauritius
- Bear Lakes, Russia
- Biak, Indonesia
- Brunei
- Svalbard, Norway
- Troll, Antarctica
- Vietnam
- Gatun Lake, Panama
- São Tomé and Príncipe, West Africa

Government space budget estimates

as a share of GDP in 2019 (%)

State	Share of GDP %
United States	0.243
Russia	0.179
Saudi Arabia	0.126
France	0.104
Japan	0.077
India	0.064
Italy	0.058
China	0.055 ???

Where the Programme Stands Today?

- Modest investments
- Could be called as second rung space programme, globally
- The Vision: Programme for Socioeconomic Development
- Reasonable plans for future

ISRO's Journey…slow, but steady…

- Process of economic liberalisation began around 1991
- Owing to India's nuclear tests 1976 and 1998….sanctions regime
- Technological Apartheid….helped indigenisation
- Post Indo-US Nuclear deal (2005-2012)…sanctions are off

- Last one decade has been productive
- Global requirements from space have increased and *India appears to be blooming at correct time*
- ***Future is promising…***

India's Security Challenges

- Unresolved border issues since independence

- During 1948 to 1999 have fought five wars….
  - Four with Pakistan
  - One with China

- Situation at both borders is unstable

- China border was dormant for almost four decades but not anymore

INDIA-PAKISTAN HISTORY OF CONFLICT

1940 — 1950 — 1960 — 1970 — 1980 — 1990 — 2000 — 2010 — 2020

Aug. 1947
Indian and Pakistani **independence** from Britain

Oct. 1947
First Kashmir War begins

Aug. 1965
Second Kashmir War begins

Dec. 1971
Indo-Pakistani War, Bangladesh becomes an independent country

May 1974
Indian **Pokhran-I** nuclear test, (operation "Smiling Buddha")

July 1989
Kashmiri Insurgency begins

May 1998
Indian **Pokhran-II** nuclear tests, Pakistan **Chagai** nuclear tests. India adopts a **No First Use Policy**

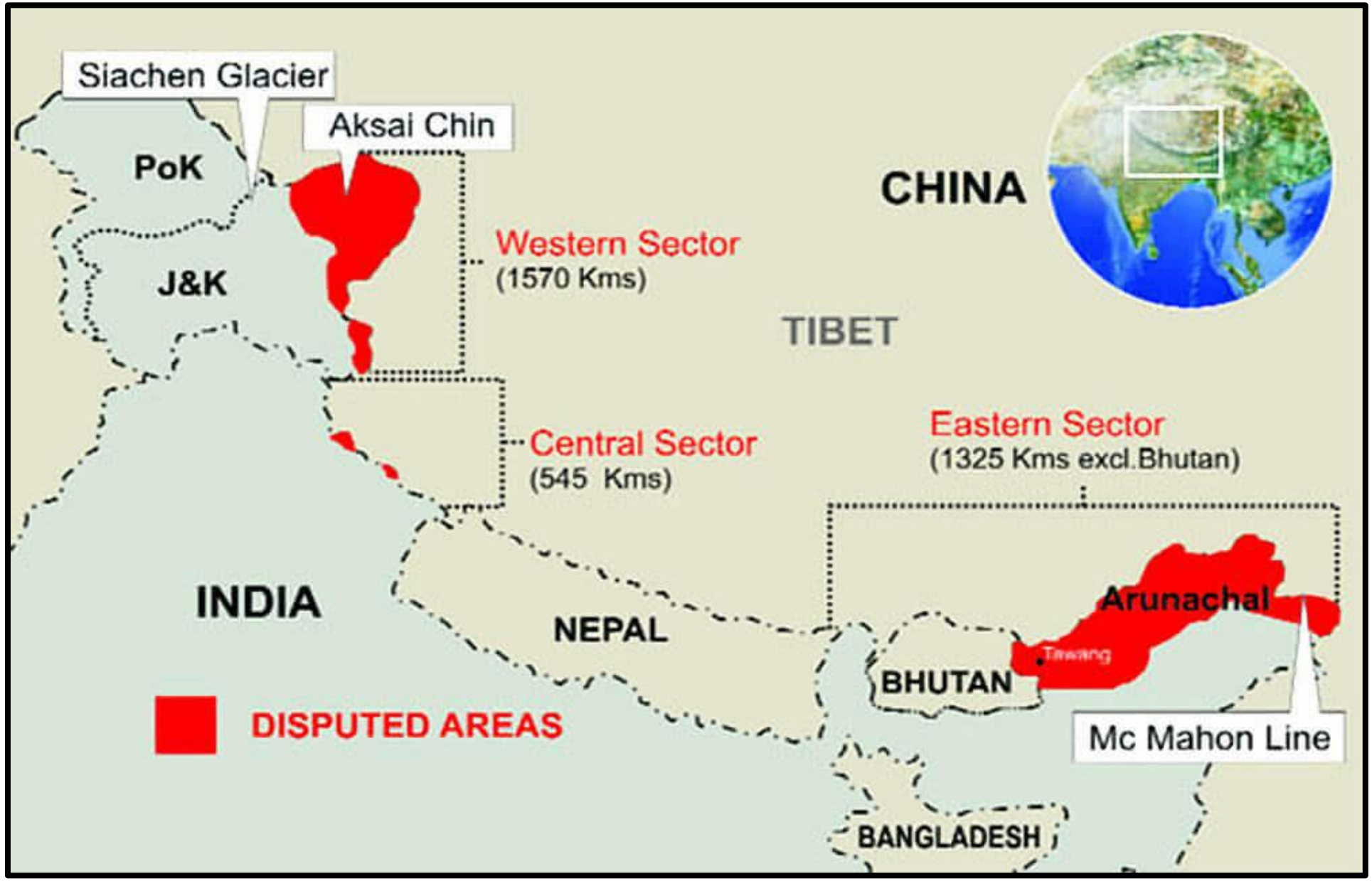
May 1999
Kargil War begins

Dec. 2001
Indian Parliament Attack

Feb. 2007
Samjhauta Express bombings

Nov. 2008
Mumbai Attacks

Feb. 2019
Pulwama Attack


Siachen Glacier
Aksai Chin
PoK
J&K
CHINA
Western Sector
(1570 Kms)
TIBET
Central Sector
(545 Kms)
Eastern Sector
(1325 Kms excl.Bhutan)
INDIA
NEPAL
Arunachal
Tawang
BHUTAN
DISPUTED AREAS
Mc Mahon Line
BANGLADESH

India…Strategic Realities

- With strength of over 1.4 million active personnel, Indian Armed Forces is the world's 3rd largest military force….
- Indian Forces, today are major contributor the UN Peacekeeping Forces……Also, operationalise….Nuclear Triad
- India needs to remain prepared for fighting a two or two & half front wars

Indian Armed Forces

	Active	Governing Body
Indian Army	1,237,117	Ministry of **Defence** (**India**)
Indian Navy	67,228	Ministry of **Defence** (**India**)
Indian Air Force	139,576	Ministry of **Defence** (**India**)


DRDO
MBT ARJUN Mk 1A


Terrific Machine:
IAF's Su-30 loaded with precision guided munitions


INS VIKRAMADITYA
INDIAN NAVY


Moscow
Athens
Tehran
New Delhi
Beijing
Tokyo
Cairo
Hong Kong
INDIA
Manila
Bangkok
Jakarta
The range of the Agni III missile
The projected reach of India's proposed intercontinental ballistic misile
2,000km

India needs to remain prepared for….

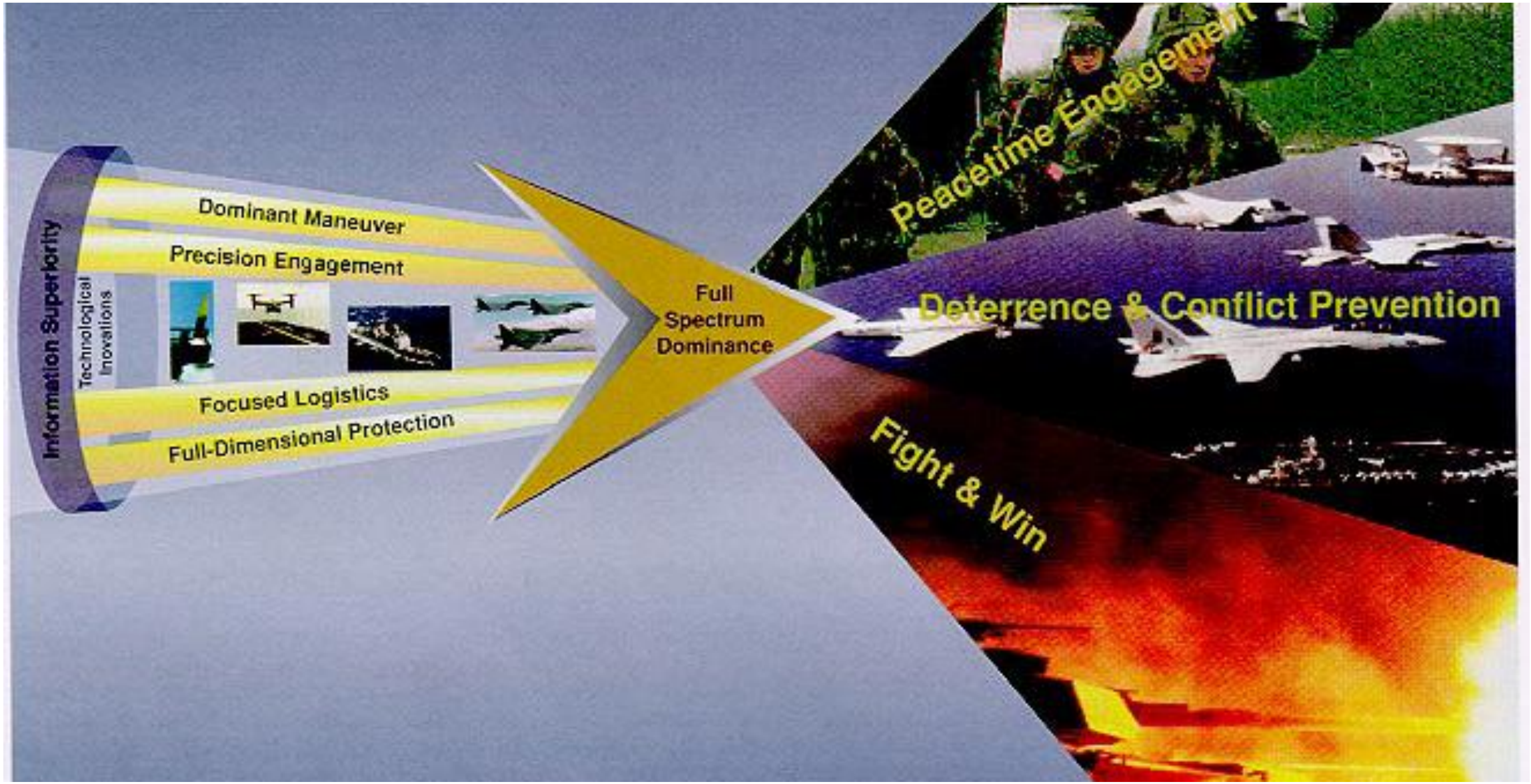
- Conventional Warfare
- Asymmetric Warfare
- Nuclear Warfare
- Cyber Warfare
- Space Warfare

Element of "Space" ….important for all forms of warfare…..

Gulf War
1991

Space for Militaries

- Strategic Relevance of Space….undisputed
- Space is crucial for Tactical Operations
- The first military use of satellites was for Reconnaissance
- Space based Communication and Navigation are central to warfare
- Total dependence of modern militaries on space…. *vulnerability factor*


Information Superiority
Technological Innovations
Dominant Maneuver
Precision Engagement
Focused Logistics
Full-Dimensional Protection
Full Spectrum Dominance
Peacetime Engagement
Deterrence & Conflict Prevention
Fight & Win

Space Militarisation & Weaponization

- Use of space for Military needs (Army, Navy, AF) is only one aspect
- Militaries would be required to secure the (space) critical infrastructure
- Would be an important player…aspects weaponization
- Weapons in Space…..who would handle them?

India does not have a well articulated Military Space Programme……

but

….has some space assets for the Military

Assets in place to exploit Space as an Enabler

India's mil inventory

Satellites with Mil Utility

- **Gsat-7** (Rukmini, 2013). IOR…nearly 2,000 nm 'footprint' and provides real-time inputs to Indian Navy
- **Gsat-7A**, (2018, IAF), to interlink ground radar, airbases and AWACS
- RISAT2 and RISAT1 are in operation. RISAT-2BR1 (Dec 11, 2019)
- Hyper-Spectral Imaging Satellite (**HysIS, 2018**), 645 km, **Microsat R**.. 2019

Communication Sat GSAT-6/ INSAT-4E, 2015

- Geostationary satellite with S-Band antenna. Information over Indian mainland. Very small handheld devices used for data, video or voice transfer
- **GSAT-6 mainly for strategic use**. Owing to topographical challenges, soldiers on many occasions encounter breaks in commutations
- Frees the soldier from carrying bulky communication equipment since very small handheld devices would be put in use

Reconnaissance

- Remote-sensing (sub-metre resolution) as dual-purpose satellites
- Technology Experimental satellite (TES, 2000), no more operational
- Cartographic satellites
- India has also launched (with Israeli assistance) two Synthetic Aperture Radar (SAR) satellites called RISAT II (2009) and RISAT I (2011) essentially to address terrorism related threats

Name of Satellite	Launch Date	Resolution	Remarks
Cartosat-1	5 May 2005	2.5 m	
Cartosat-2	10 Jan 2007	Less than 1 m	
Cartosat-2A	28 Apr 2008	80 cm	
Cartosat-2B	12 Jul 2010	<80cm	
Cartosat-2C	22 Jun 2016	"	Used for weather mapping too
Cartosat-2D	15 Feb 2017	"	
Cartosat-2E	23 Jun 2017	"	
Cartosat-2F Cartosat-3	12 Jan 2018 27 Nov 2019	< 50 cm < 30 cm	mapping, disaster monitoring

First Image of Cartosat-2: Indore city

(Jan 15, 2018)

Navigation (IRNSS/NavIC)

- Indian Regional Navigation Satellite System to provide accurate position information services to civilian and military users
- This seven satellite system is in place. Faced some problems owing to atomic clock….issues related ground based receivers for the users
- A position accuracy of better than 10 metres is expected to be provided to military users

Proposals for Future

- GSAT 7B is expected to be launched for Indian Army in near future
- There are some proposals like GSAT 7D and 7E….
- More E/O satellites…..

Space for Armed forces: Ground Reality….

- It would be unprofessional to call what we have is a rudimentary military architecture in space…..
- However, there is a need for much more….
- Not correct to unnecessarily raise the China boggy….but also incorrect to assume that….all is well….

India Requires…*an assessment*…

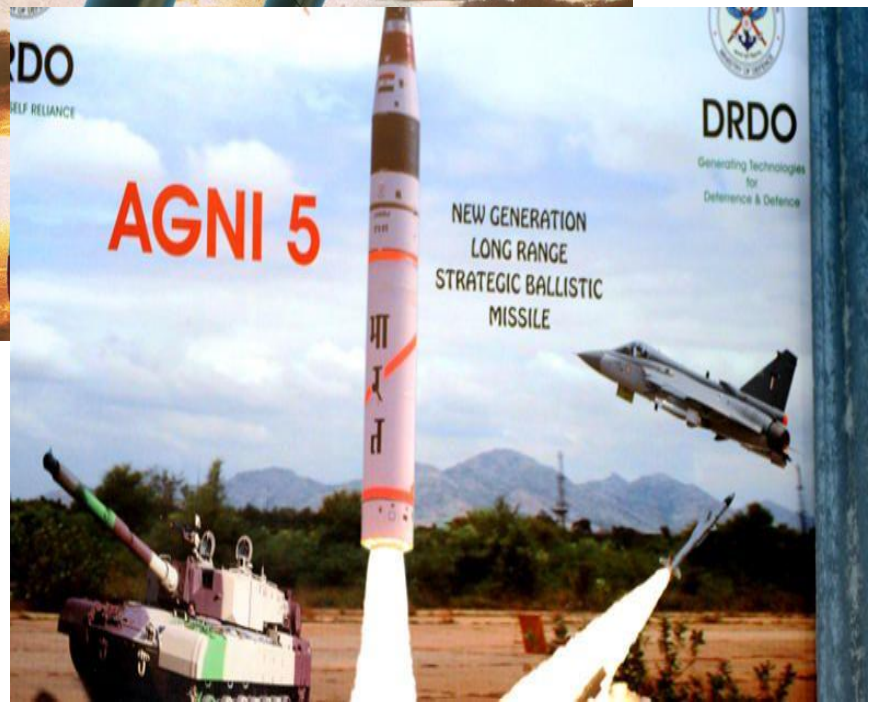
24 sats in LEO + 12 SAR/EO satellites in LEO for ISR

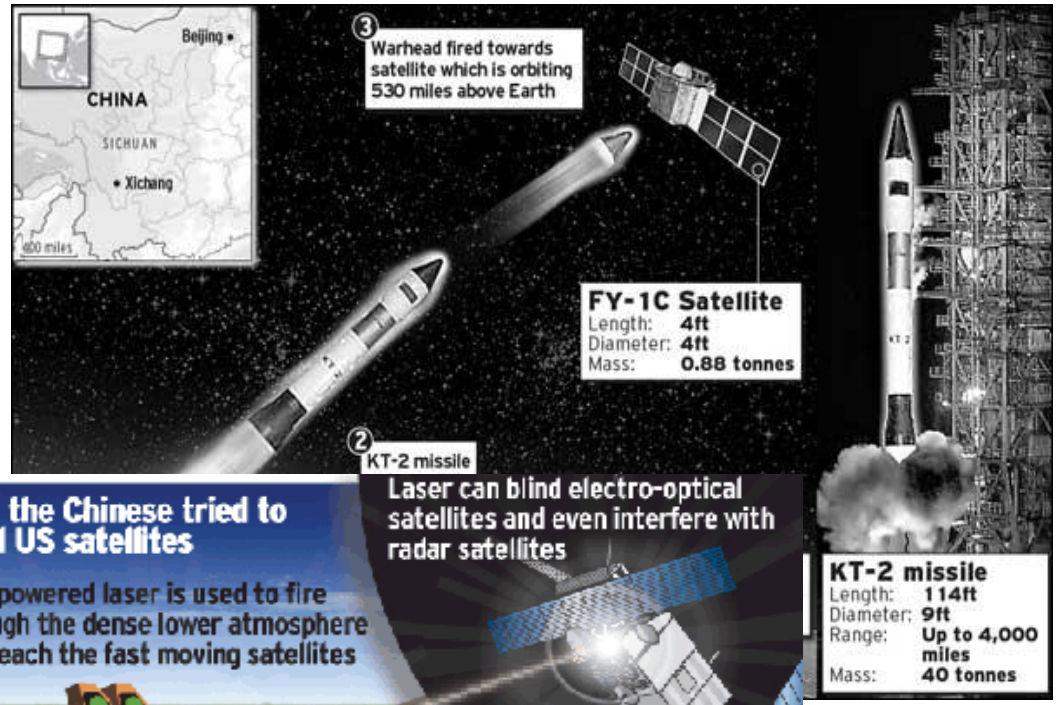
Constellation of 40 satellites in LEO to provide Internet to defence

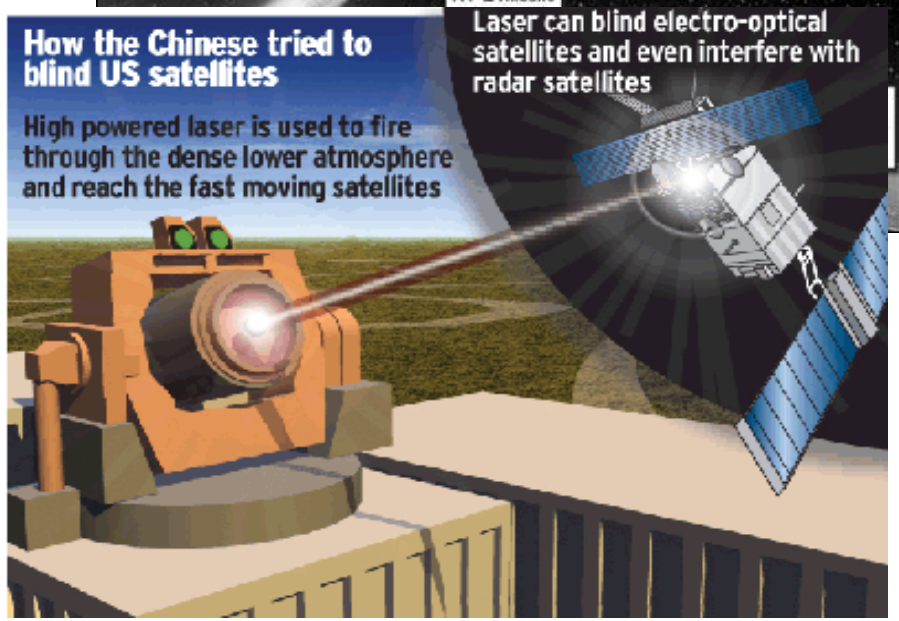
Robust SSA

Number of Communications, ELINT, Weather satellites

Pakistan-India-China







Space Security…Major challenge for India is China

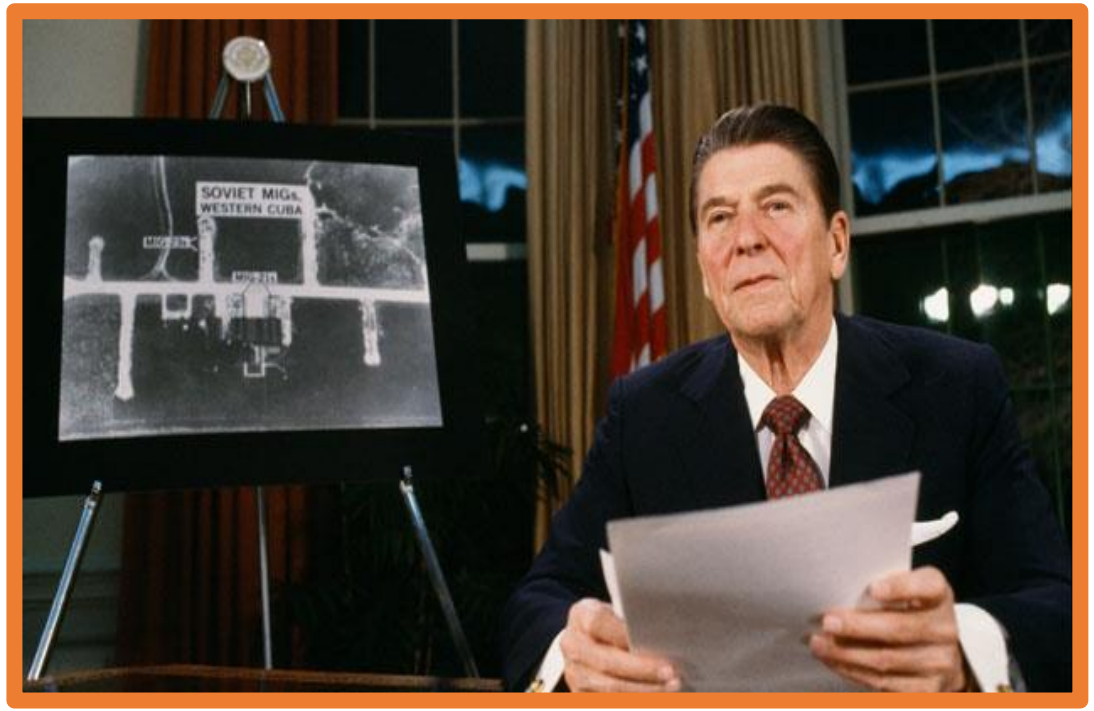
China…..Interest in Space….Long History

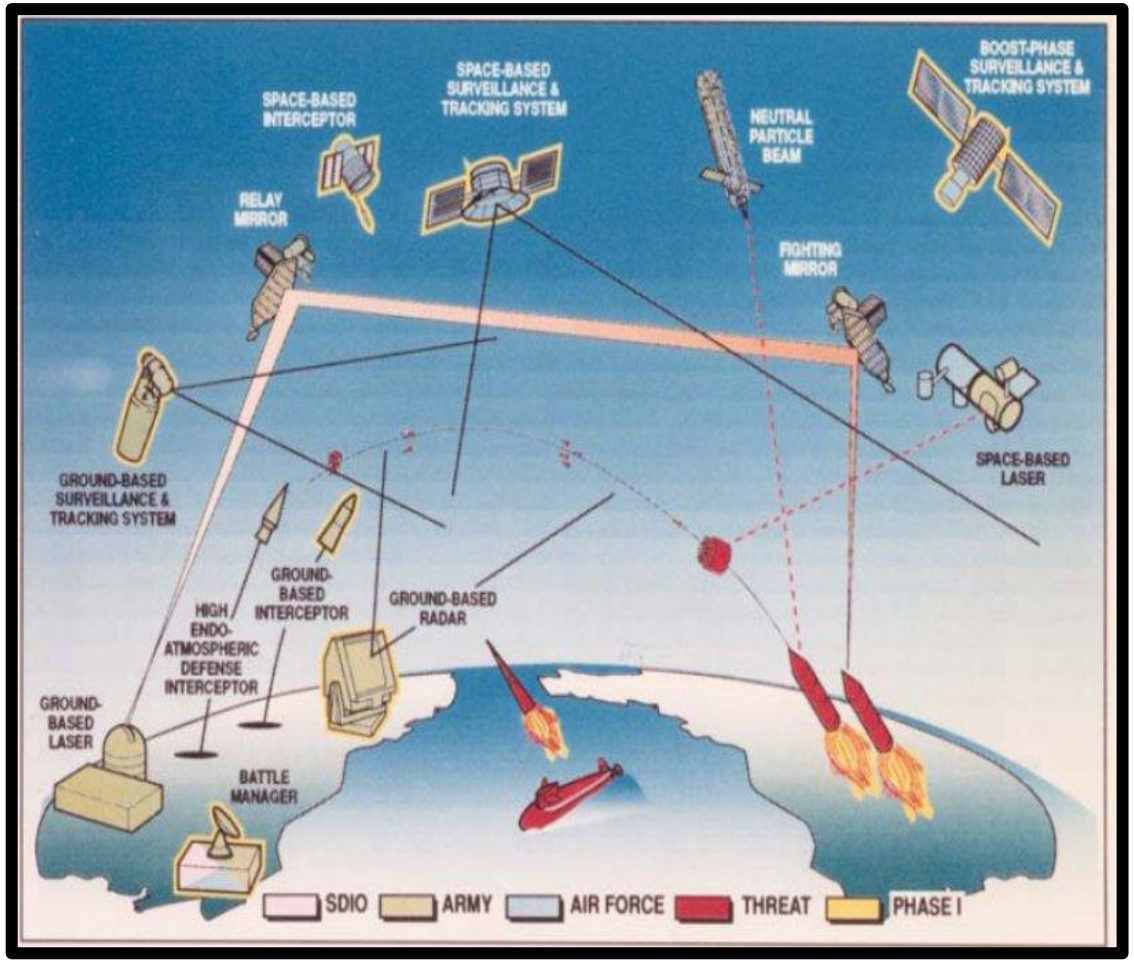
- Chairman Mao….China would have its own satellite during the 8th Party Congress on May 17, 1958
- Chinese Academy of Sciences (CAS) made satellite programme its number one priority for 1958
- China entered into the space exploration field when it launched its first satellite, Dong Fang Hong I, on April 24th, 1970
- Jan 1993 Jiang Zemin expanded of Four Modernisations concept in the context of military modernisation

What provoked China to make major Military Investments in Space

Three events….which impacted China's thinking on utility of space……and made strategic angle more prominent

Star Wars Programme





1991 Gulf War

Accidental (?) Bombing at Belgrade

On May 7, 1999, during the NATO **bombing** of Yugoslavia (Operation Allied Force), five US JADM guided bombs hit the **China embassy** in the **Belgrade**, killing three Chinese reporters and outraging the Chinese public

China's Space Programme

- A mystery within a maze
- Chinese space programme is large, complex, and closed
- Has a long history...mostly a success story…leapfrog
- Caters for both civilian and strategic requirements
- Has significant role in its military modernization programme

China's Military Space Capabilities

- Space launch capabilities….no launch on demand, but…..
- The TT&C network
- Space orbital systems…reconnaissance, communication, navigation…..
- Connectivity to military operations

Important Decisions & Accomplishments

- The launch of China's first satellite in 1970
- The launch of China's first communications satellite in 1984
- China's first human spaceflight in 2003
- ***ASAT test by China during January 2007. Major counterspace program***

Assessment of China's Space Capabilities

- Well developed launcher services….Long March Series
- Communications, remote sensing/reconnaissance, navigation, and meteorological satellites
- Indigenous systems and also access to foreign platforms or services
- SIGINT/ELINT platforms, electro-optical and SAR imagery, radar sat
- ASAT programme
- Manned space programme, space station
- Deep space agenda-Moon and Mars programme

PLA: New Era of hi tech Combat Forces

- New services are the PLA Land Army (PLAA), the PLA Rocket Forces (PLARF) and the PLA **Strategic Support Forces (PLASSF)**

- PLARF is rechristening of the erstwhile Second Artillery of the PLA

- **PLASSF**: High Technology force with its focus on Information Warfare. ***Deal with Space Operations to include Reconnaissance and Navigational Satellites***. Further, it would combat Electronic Warfare and Cyber Warfare

Indian Space Programme *against* Global Backdrop

India in Space…Present Geolocation!

- What are the present assets in space….
- What dictated that need?….
- Possibly, routine requirements…
- Space has become an inseparable part of modern day warfare….

India's Space Policy

- Socioeconomic focus is the key: Satellites for communication, meteorology, education, tele-medicine, disaster management, linking of cities and villages, scientific research, navigation
- Space as tool in foreign policy
- Commercial relevance
- Space for *strategic purposes*

India using Space for Military Needs

- Dual-use nature of space is obvious
- **The focus of Indian space programme has never been military**, the policy remains the same even today….however, ….
- Strategic needs and usage of modern day armament requires space…
- **Remote-sensing, communications and navigation**…in use

Natural Progression

or

Mid-course Correction

Reality is….

good progress…From **Meteorology to Mars….**

but…From **Social to Strategic**???

Military is Central to Space Security

- Indian has app US$ 28 billion of space assets. They are critical to national security
- Outer-space has no national jurisdiction…..challenges….
- Need to articulate …build and develop required capabilities to support high priority military objectives
- **Military has a much wider role than what is there today….**

Sino-US Rivalry in Space: Asymmetrical Deterrence?

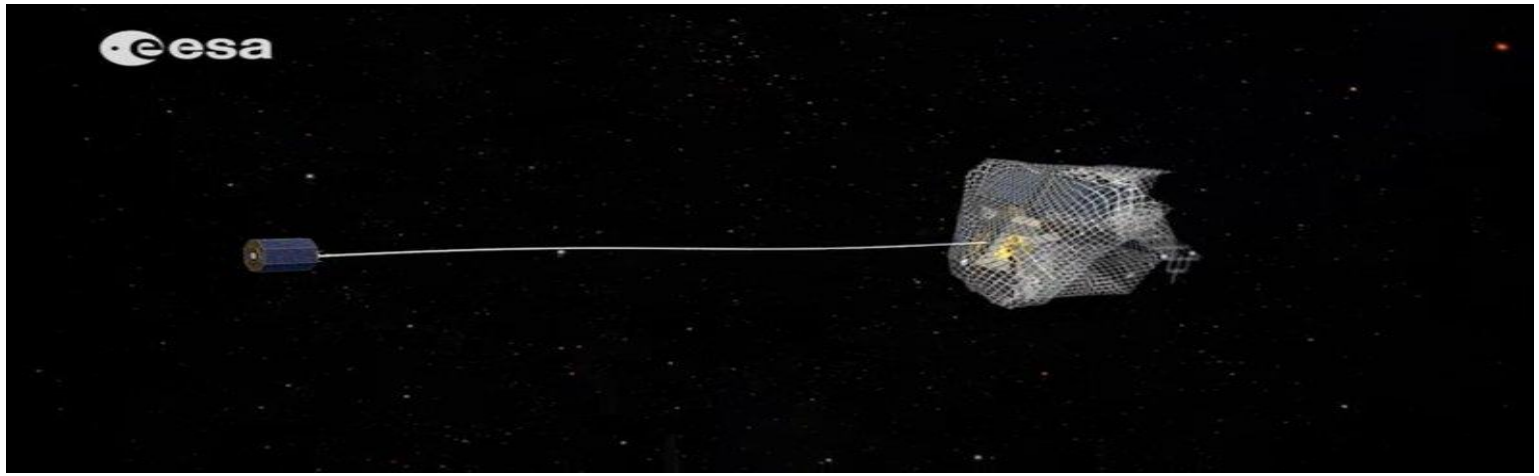
- China cooperates with the EU, but not the US…in space. Feels that…. the US would have advantage for Taiwan, Hong Kong…..
- 2001 Rumsfeld Commission warns of 'Pearl Harbor in space'. The US regards China (*and Russia*) as the most likely threat to its satellites
- The US spends almost 10 times more than China in space
- Counterspace arena…….is China looking for Asymmetric Advantage???

Classification of Space Weapons

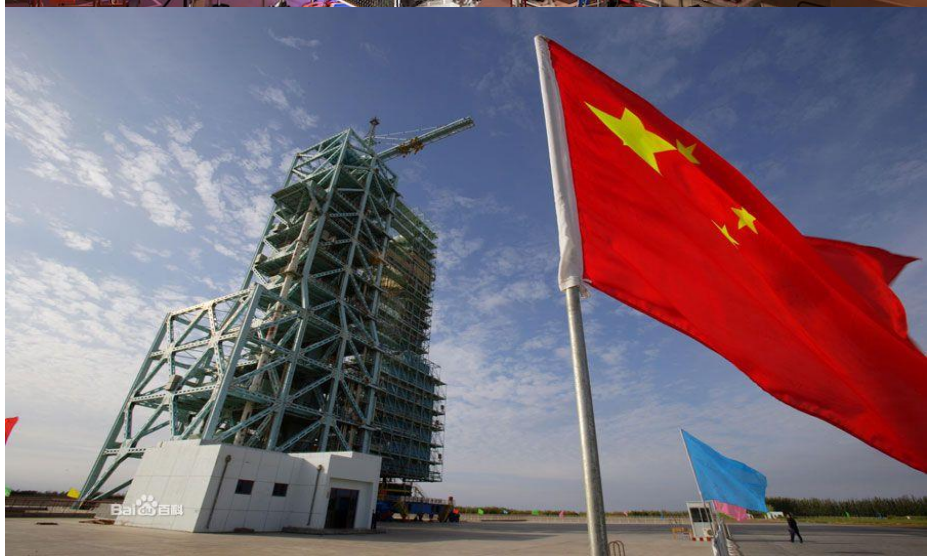
- Directed-energy weapons
- ***Kinetic-energy weapons***
- Conventional warheads delivered to or from space
- Microsatellites

Space Weapons

- Difficult to define
- Extra-Vehicular Activity (EVA)/Debris Removal processes
- Parasitic satellites, Space mines



Military Space Architecture…the US way…



India Needs to Think…

- Is their Space Strategy proactive or reactive?
- Spell the military requirements openly
- ASAT policy…..elephant in the room is China……
- Space could be a future deterrence (*Bows-Arrows-Nuclear Weapons!*)

Space Security is Problematic….

- The problem: Space assets provide substantial economic and national security benefits….but….there are substantial vulnerabilities owing to both natural and man-made threats
- The line between militarisation and weaponization of space blurring
- BMD is the elephant in the room
- Space deterrence…likely to compliment nuclear deterrence, but could non-NWS identify it as *an alternative form of deterrence*?

How the world is addressing Space Security challenges?

How India views the "global doings" on securing the space?

Formal Agreements…

- The 1967 OST
- 1968 Rescue Agreement
- 1972 Labiality convention
- 1974 Registration Convention
- 1979 Moon Agreement

UN Bodies

- 1959: The Committee on the Peaceful Uses of Outer Space (COPUOS)
- The CD not been able to agree on the formation of an Ad Hoc Committee with a mandate for outer space since 1994
- Prevention of an Arms Race in Outer Space (PAROS): On UN agenda since 1982 but…

Recent Initiatives

Russia-China Draft Treaty (PPWT)

- It talks about weapons in space-but the problem could be form weapons fired from the earth…
- Space security treaty allows Russia and China to dominate international public diplomacy and paint the US as the irresponsible driver of a new arms race
- Russian-Chinese draft treaty is a way for Beijing to draw international attention away from its own growing counter-space programme

Limitations

- Chinese & Russian ground-based missiles that can fire into space not covered in this draft
- Less chances of gaining a consensus
- May be intended to put pressure on the US missile defence plans
- ***Have put second draft***.....no takers

International CoC

- In 2008 the EU suggested a more explicit CoC to bring more sagacity in regards to space activities
- This CoC was revised further in 2010, 2012, 2013…
- On Jun 6, 2012 the EU has officially launched a multilateral diplomatic process to discuss and negotiate International CoC for Outer Space
- Negotiations began during Oct 2012 (New York) and …… **UNIDIR is in loop…fourth draft (Sep 2013)…31 Mar 2014…*dormant***

Indian Position….

- India had joined as cosponsor on the UNGA resolution 68/29 on PAROS. India also joined the G21 working paper in CD 1941 submitted to the Conference in 2013
- India was not the part of GGE committee however, is in agreement to use TCBMs mechanisms route to ensure space security
- Constructively looking at ICoC as an interim measure
- Prepared for deliberations on the revised PPWT draft

The Real Test…

- TCBMs could foster cooperation but are no substitute for legally binding norms
- No voluntary measure could entirely reflect the complexities of outer space security
- It is in the best interests of the international community to start negotiations on a legally binding instrument (at some point in time)

In closing

- India has “typical” Space security challenges
- China’s counterspace mechanism….basically….US centric….but…India
- India’s ASAT test a deterrence measure
- India’s focus on space would remain for socioeconomic development

Thanks