

Technology denials, their future, and 'dual-use' in the Future of our Space Programme

by

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A presentation made to
The future of our space programme
at the
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Bangalore

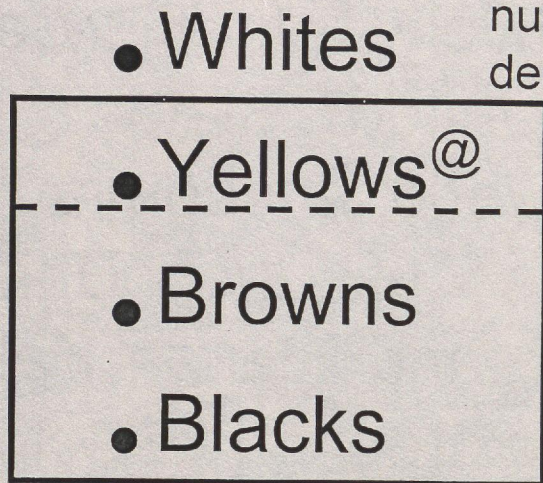
October 8, 1999

Dedicated to the memory of
S. Srinivasan (1941-1999),
launch vehicle designer
who established the
capabilities that have made
India a space-faring nation

The New Hegemony: I

Establishing the International Varnā Order (IVO)

~5 billion people;
numbers rising



~1 billion people;
numbers starting to
decline

@ Japanese, Koreans,
Taiwanese are honorary
Whites

The New Hegemony: II

Operating the International Varnā Order

"Global political and security issues are effectively settled by a directorate of the United States, Britain and France; world economic issues by a directorate of the United States, Germany and Japan, all of which maintain extraordinarily close relations with each other..... The West in effect is using international institutions, military power and economic resources to run the world in ways that will maintain Western predominance, protect Western economic interests and promote Western political and economic values."

Samuel P. Huntington, "A Clash of Civilisations?"
Foreign Affairs, vol. 72, no. 3, Summer 1993, pp.
39-40.

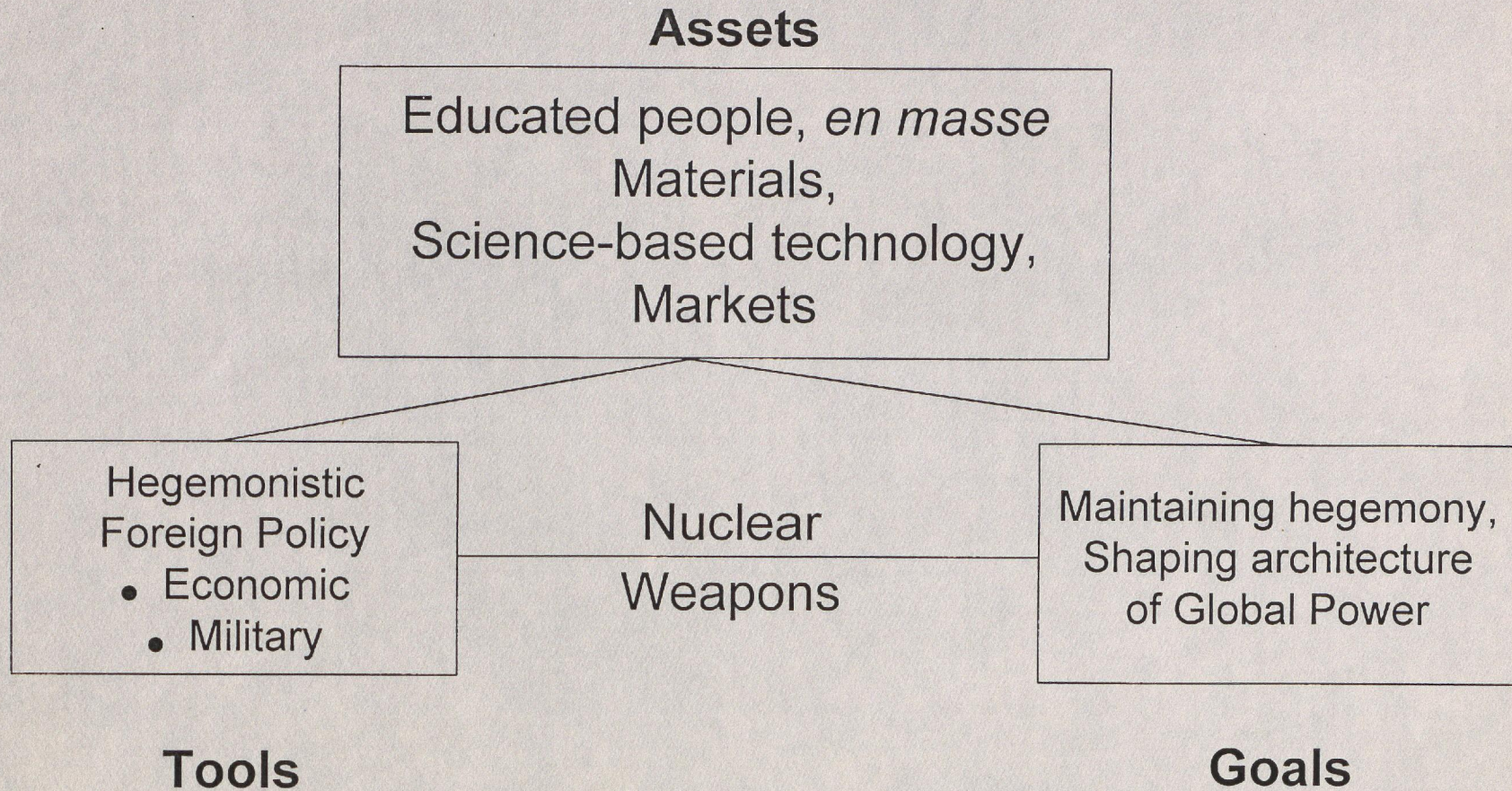
We, the threat

...And as the power of the West ebbs, "the rest" will become more and more assertive. ***For the West to survive...it must...close ranks.*** Its future depends on its unity. The people of the West must hang together, or they will hang separately.

- Samuel P. Huntington*

* *Foreign Affairs*, November/December, 1996

Hanging Together Their Assets, Tools and Goals



The New Hegemony: III

Maintaining the Gap

After the cold war, the WTO has become a tool in the hands of industrial, military powers for imposing certain ways of doing things on the rest of the world. Tell me, if these policies were not advantageous to the US, would they be pursued? Very clearly not. Self-interest is emerging in the garb of developmental models and new economic ideologies.

— Xerxes Sapur Desai, Vice Chairman & Managing Director, Titan Industries Ltd., April 1999

Epochs of denial

WW I to WW II

- Fear of entanglement in other's wars, and fear of domestic (US) food and material shortages dominate export controls (e.g. Trading With the Enemy Act, 1917 ; Neutrality Act, 1935).

WW II to end of Cold War

- From end of WW II to end of Cold War, fear of communist 'expansion' caused Western allies & Japan to practice (variably) moderate to severe 'dual-use' technology denial on FSU and Warsaw Pact countries. COCOM formed in 1949 as secret organisation.

End-of-Cold War to Now

- End of Cold War has rotated axis of West-East technology-denial regimes 90 degrees towards South. All-White North fears economic and military rise of Brown-Black South. (Full-scope safeguards for nuclear; MTCR for Missiles/Space; 'dual-use' for other.)

Fear is the key

Membership of technology cartels and denial regimes is almost wholly White

[As of April 1998]

Nuclear Suppliers Group (1978)	32
	+ Argentina
	+ Japan
	+ Russia
	+ South Africa
Australia Group (Mid-1985)	28
	+ Argentina
	+ Japan
	+ South Korea
MTCR (1987)	29
	+ Argentina
	+ Brazil
	+ South Africa
Wassenaar Arrangement (1996)	31
	+ Russia
	+ Turkey

Indian programmes have 'leveraged' denial regimes

Space/Missiles

Mid-to Late 1970's	'Space' profile evolved. Indo-Soviet, Indo-French and Indo-German collaborative arrangements	Missile and 'space' item transfers placed on agenda of East- West conventional arms limitation talks of 1970's
July 1980	SLV-3 Launch	US ACDA Annual Report for 1980 summarises "dual-use missile technology proliferation problem"
April 1983	RS-D2/SLV-3	Mid-1983: Negotiations towards MTCR begin amongst G7
Mid- 1980's	Integrated Guided Missile Development Programme (IGMDP) becomes public knowledge	MTCR negotiations speeded-up
March 1987	ASLV Launch	April 1987: MTCR promulgated
May 1989	First 'AGNI' launch	

August 1990 Kalam's Brahm Prakash Memorial lecture reveals SLV-3 basis of AGNI; Space-DRDO links and academia-industry networking

Nov. 1990: US enacts PL:101-510, "Missile Technology Controls", and promulgates the Enhanced Proliferation Control Initiative (EPCI)

Feb.- Aug. 1991 Prithvi 03-05 tests

Nov. 1991: MTCR revised

August 1992 Extended range (250 km) Prithvi test

Jan. '93: Tightening of MTCR (Range-Payload trade-off)

Nuclear

May 1974	Pokharan	Sept '74: Select NPT-Members Committee promulgates Zangger 'Trigger' List.
1975+	Heavy-water Plants construction begun with imported equipment from France & West Germany	'London Club' formed to control nuclear- related exports. Later, 'London Club' expands into Nuclear Suppliers Group (NSG) to include France and East Bloc countries.
1977	Power Reactor Plutonium Recovery Plant (PREFRE) at Tarapur commissioned	1978 : Nuclear Technology export conditionalities made more stringent. IAEA safe-guards requirement added.
Late 70's	Heavy-water Plants start to come on stream	1978: NSG adds heavy-water production items to Zangger Trigger list.

Through 1980's	Fuel reprocess- ing plant expan- ded at Tarapur; new one at Kalpakkam.	1990: Uranium reprocessing equipment added to expanded Zangger Trigger List.
	Fast Breeder Test Reactor commissioned.	Japan and Germany require full-scope safeguards on nuclear exports.
1990-91	Indian Uranium enrichment capability reliably reported.	1992 Nuclear-related 'dual-use' transfers restricted by NSG.
	Post-Soviet revival with Russia of negotiations on Kudankulam reactors.	1993: NSG requires full- scope safeguards on all nuclear transfers. @

@

These were 'leveraged'
also by Iraq's (i.e. non-
White country) activities
just prior to 1993.

The New Hegemony: IV

Enlarging the Gap

Maintaining military superiority means maintaining the gap in capabilities between ourselves and our adversaries, and that gap is maintained ***and enlarged*** both through policies that retard our adversaries' progress, such as export control, and through those that help us run faster — increased research, development and acquisition of advanced technologies here at home.

— US Bureau of Export Administration
Official, February 1999

The future of Technology Denials in the IVO

- Denial Regime members have got the net message from Pokhran II and Agni-II; namely: Through technology denials India can at most be delayed, but cannot be stopped, from eventually 'catching up'.
- And so, some (non-US) MTCR members want India to become a full MTCR member, without restrictions on the scope of its domestic missile and space programmes (unlike the treatment meted out to Argentina, Brazil and South Africa) thus enabling member countries to exercise full (favourable) national discretion on export of MTCR items to India;
- While the US BXA final rule listing denied Indian entities has been promulgated (May '99, Post-Agni II) without being added to, as earlier apprehended.

Thus, in the immediate future:

- G7 (White) will have to show China (Yellow) that India (Brown) is hamstrung. However, this will not be so tight as to threaten seriously G8 market(s) in India, nor so loose as will provide China a pretext to 'mis-behave' (e.g. by over-proliferating to Pakistan/Iran/North Korea).

Space in the IVO: The hegemon's coveted' High-Ground'

- Military-nuclear status has been the *de facto* criterion for a place at the the world's hegemonic governing top-table: namely, the P5 of the UN Security Council.
- Expanded permanent membership (P5 to P7/9) will be on combination nuclear-military-economic power criteria, ***judged by the P5, led by the US.***

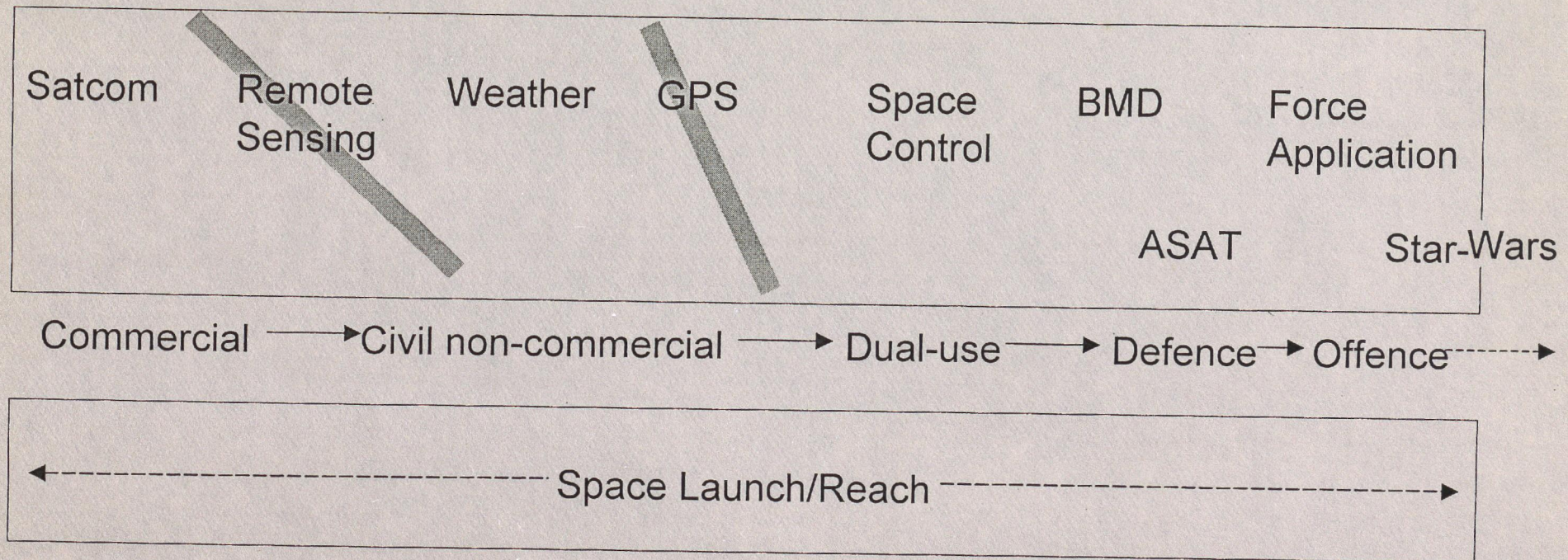
BUT

- Because other nuclear-missile-economic-challengers are not far behind, India cannot hope to raise permanently its caste status in the IVO, merely by an emulatory process of "technological sanskritisation".

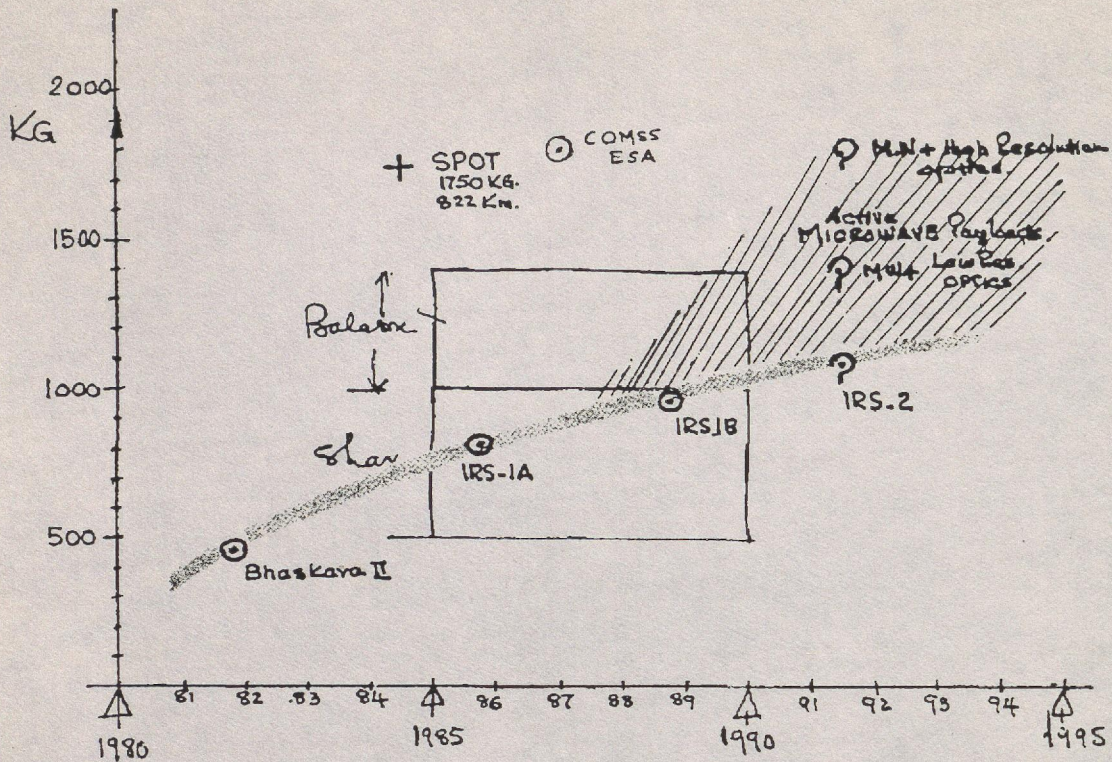
THEREFORE,

- India has to co-occupy militarily the hegemon's last remaining 'High Ground' — ***Space.*** And establish an active (i.e. not merely reconnaissance) military presence there.

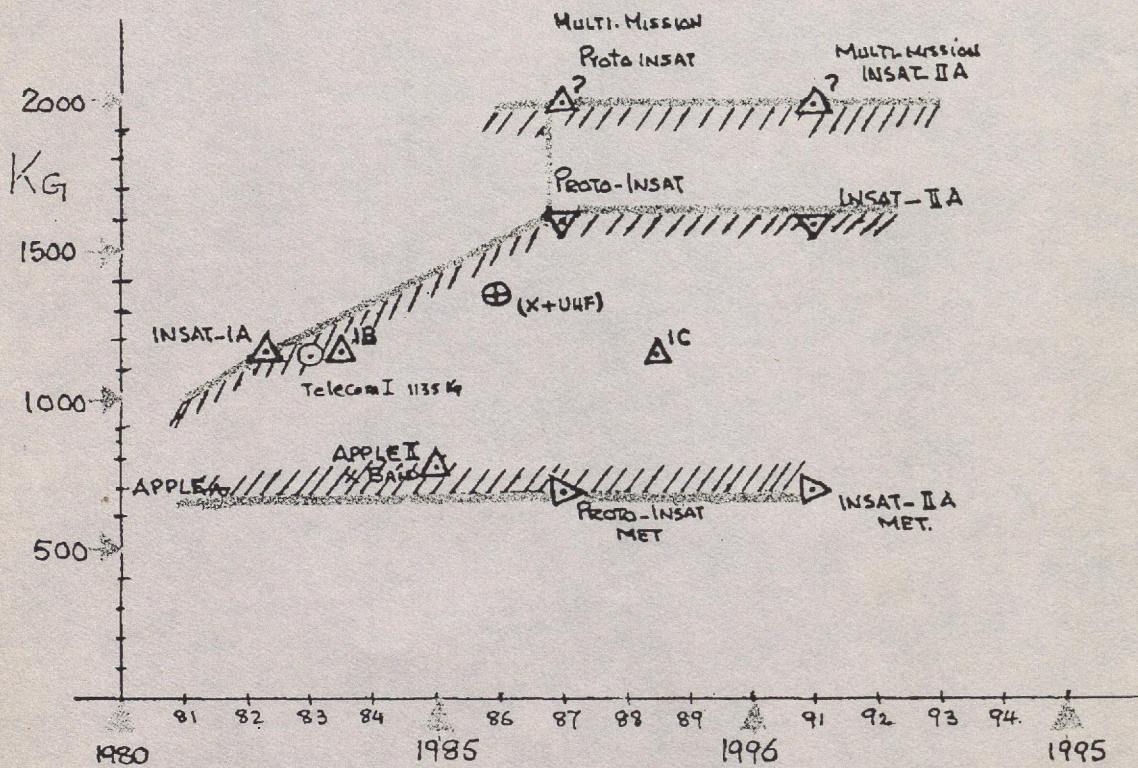
Spread-spectrum of Spin-in Military Returns from Investments in Space



Modified and extended from: RAND PM-433-JS, May 1995



EARTH OBSERVATION MISSIONS ~ SPACECRAFT WEIGHT

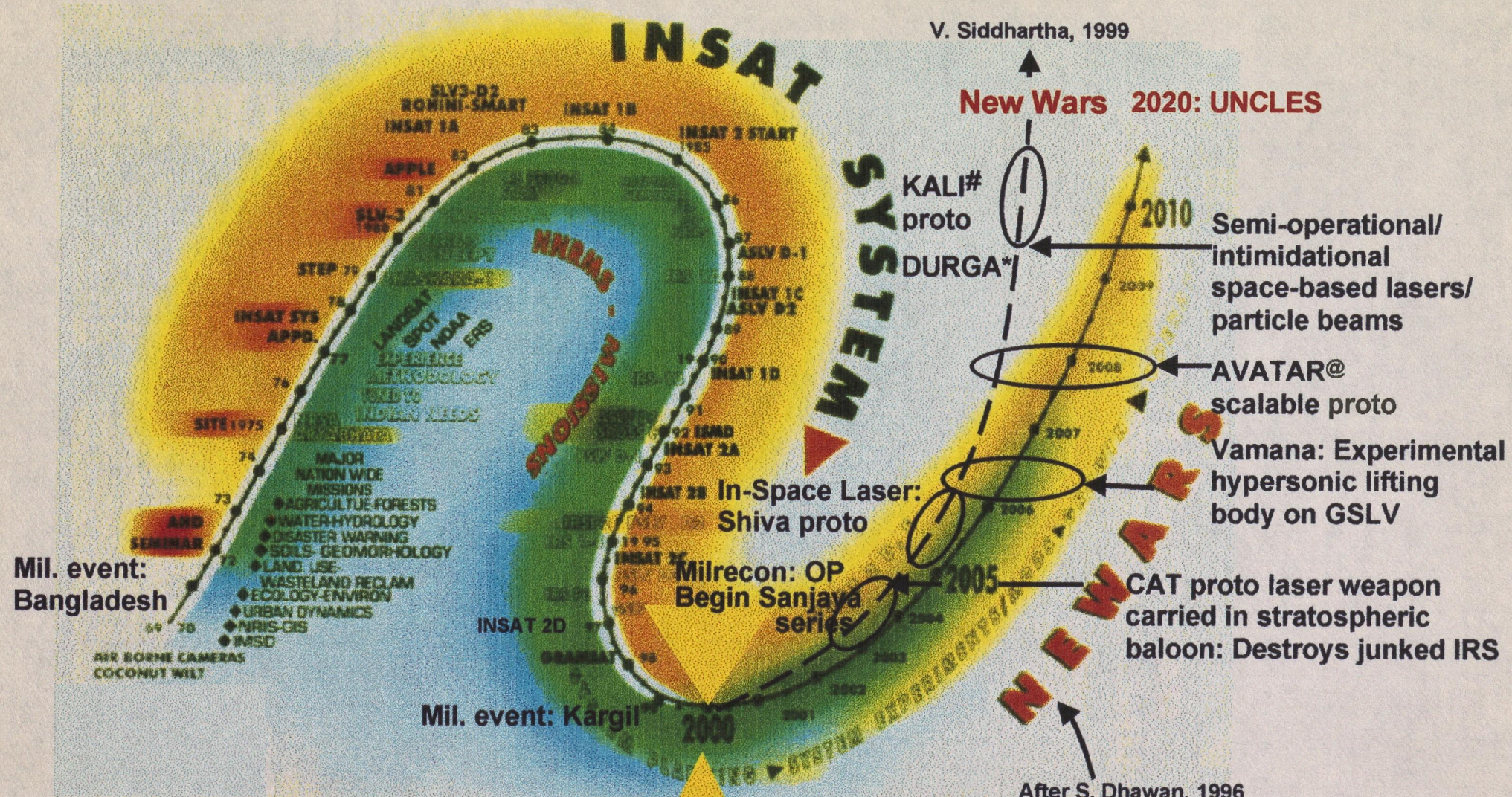


COMMUNICATIONS/Geo SYN MISSIONS ~ SPACECRAFT WEIGHTS

Dhawan Diagrams, Cauvery Bhavan, May 31, 1982
(Reference 7)

V. Siddhartha, 1999

New Wars 2020: UNCLES



Mil. event: Bangladesh

Mil. event: Kargil

Milospace dual-use crossover

GSLV-D1

KALI# proto

DURGA*

In-Space Laser: Shiva proto

Milrecon: OP Begin Sanjaya series

CAT proto laser weapon carried in stratospheric balloon: Destroys junked IRS

AVATAR@ scalable proto

Vamana: Experimental hypersonic lifting body on GSLV

Semi-operational/intimidational space-based lasers/particle beams

After S. Dhawan, 1996

#KALI : Kinetic Attack Loitering Interceptor
 *DURGA : Directionally Unrestricted Ray-Gun Array
 @AVATAR : Aerobic Vehicle for Advanced Trans-Atmospheric Research

Space Dominance: Next century's geo-military doctrine

- "With regard to space dominance, we have it, we like it, and we're going to keep it."

...Keith Hall, US Assistant Secretary of the Air Force and Director, US National Reconnaissance Office, 1998

- "...just as by the year 1500 it was apparent that the European experience of power would be its domination of the global seas, it does not take much to see that the American experience of power will rest on the domination of space..."
- Just as Europe shaped the world for half a millennium...and expanded war and its power to the global oceans, the United States is expanding war and its power into space and to the planets."

...After George and Meredith Friedman, 1998

United Nations Command for Law Enforcement in Space (UNCLES)

- Established 2020 by P7 of UN Security Council; ratified by majority vote of UN General Assembly. India, Bhutan oppose (India's Representative to UN says: "Although India has proven 'Star Wars' capability, we believe 'Space' is common heritage of all beings in the Universe — 'Brahmand' pre-dates our galaxy."); Pakistan votes in favour in return for Chinese assurance of location of UNCLES Northern Hemisphere Command HQ in Gilgit. Black Africa votes in favour, in return for location of Southern Hemisphere Command HQ in South Africa; as does Latin America in return for Supreme HQ location in Ecuador, satisfying technical requirement for SHQ (SHUNCLES) to be on the Equator.
- Each P7 retains veto through cyber-locks on all UNCLES ops. P7 rotate Chairmanship of Joint Chiefs at SHUNCLES, outside Quito.
- UNCLES allotted exclusive rights in orbital band between 900 and 1,100 km altitude. The United Nations Security Council establishes the following rules in UNCLES zone: 1) No foreign (i.e. non-UNCLES) spacecraft may transit the zone without prearrangement; 2) All transiting vehicles must remain at least 1000 km from all UNCLES battle stations, passing through only "safe-passage holes" in the constellation; 3) Foreign spacecraft failing to obey these rules will be declared hostile and may be destroyed by the UNCLES lasers without notice or compensation.
(Pace Carter, 1984)

Far fetched? Remember Northern Iraq aircraft 'No Fly' zone enforced by NATO under 'UN-auspices' is **currently operational**.

"...tonight we're launching an effort which holds the promise of changing the course of human history."

— Concluding paragraph of US President Ronald Reagan's March 23, 1983 Speech launching the Strategic Defence Initiative (SDI).

The "course of human history" was changed under a decade later by the collapse of the Soviet Union, caused in part by its attempts to counter SDI *using its existing politico - economic - technological system.*

— Cf: MccGwire, 1991

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