

~~06/12/2010~~

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Chapter 12

SECURITY : Strength, Intelligence
and Eternal Vigilance.

Strategic sector and
relates R&D and industries are
close to Dr. Kalam's heart.
His first scientific career starts
with a defence laboratory and
then shifted to making rockets
and ^{satellite} launch vehicles in ISRO; these
are the core elements of a missile.
Later ~~he~~ ~~he~~ in 1982, he moved
on to making India missiles.

→ Stat Strategic

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industries cover the military industries and also other core industries and technologies which support various other security functions of the nation such as intelligence gathering, vital military communications required for military and internal security personnel, etc. Since now the need for security has entered the security cyber security also. Our space assets which provide vital communications, TV channel broadcasts, meteorological data, ~~at~~ and several other space applications.

In addition to the above there many other electronic and optoelectronic devices, special materials etc, which find large scale commercial applications and also form critical elements for national security related equipment and for military applications. For example the optical sensors used for CCTV in many shops and ATM's, in its advanced versions become important for ~~the~~ detection of intrusion in our border or for surveillance

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vital installation. So will be many advanced microelectronics chips with computing capabilities used in our PC's etc. They are generally termed dual use technologies. ~~The~~ Such ^a terminology applies to advanced machine tools, which are the mother machines for most manufacturing sector. The advanced composite materials used in ~~spa~~ aircraft would also be dual use, depending on its performance specifications. All these for a part of

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security of the nation. Enemies also learn and advance; therefore this is a very dynamic area with high level of knowledge intensity, R&D, & advanced production tech. engineering etc.

Dr Kalam's famous ~~etc~~ saying "Strength respects strength" is very valid in this sector. There had been denial of ~~the~~ these critical technologies to India as early as the 1970's when Indian Space Programme started.

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Such ~~denials~~ denials was for the atomic energy programme and defence research. Even the ^{Indian} industries which did ~~contra~~ sub-contracted work for these organisations were denied special machines for their normal commercial work!

Super computer for meteorological work was denied! But when technology development progresses in India, many of the items in the denial lists are taken off!

WHERE DO WE STAND?

In the book India 2020 a road map for the strategic industries has been given. The main thrust had been to move

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from ~~heavy~~ the large import dependence to maximum local production (even with foreign technologies or with foreign partnership) and then to move speedily to increase the India designed, India engineers and India ~~produce~~ manufactured equipment, weapon system ^{etc} ~~and~~ ~~various~~ ~~other~~

During 1998 when Dr. Kalam was ~~of~~ the Scientific Adviser to the Raksha Mantri, ~~and~~ the Defence Minister was George Fernandes, ~~they~~ had convened a meeting of industry leaders, defence services, defence production agencies, DRDO and others, to evolve a

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an ~~very~~ urgent action plan for rapid indigenisation of production (from the then existing imports) and also to induce industries in R & D of future systems. In addition to technical items there were many other administrative and financial management issues. The ^{then} existing ~~procedures~~ procedures need many changes. ~~The~~ CII was instructed to assist the process consultations and ^{generative} reports ~~in~~ to reflect ~~actions~~ action plans. The reports were very good and there was a consensus from all

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the stakeholders. The Defence Minister and Dr Kalam as SA to RM gave a target of changing the then existing 70:30 (Import & Local production) to 30:70 in ten years, that is say by 2008. Earlier when Dr. Kalam ~~was~~ ^{took over} SA to RM, ~~a DP~~ in 1992, ~~an~~ a special self-reliance project was initiated by DRDO with substantial funds.

Dr Kalam is for
In the interim
one major success had been

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the Brah Mos ^{Symbolising} (Brahmaputra
and Moscow ~~river~~ rivers)
a joint ^{venture} ~~project~~ of Russia & India.
Its success had been phenomenal
and the missile, ^{producer} ~~has~~
in India with part of the technology
from Russia and part from India,
has met the user trials of
all the three services Army,
Navy and Air Force and inducted
by them operational service. Brah Mos
is a great demonstration that
Indians can do it, if motivated,
planned and empowered well.

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But in other areas reviewing the situation as of 2014, Dr. Kalam is sad to note that 70:30 ^(import to local products) ~~ratio~~ ~~has not~~ (import to local products ratio) has not reduced, instead India has moved to a top slot of largest importer of the defence equipment and systems!

A ~~not~~ wrong ~~place~~ ^{area} to be the first in the world!!

Such a huge import of defence equipment is not good for the overall concept of national security. It is as bad

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as being dependent of import of food grains, as the country was in the 1950's and 1960's; food ~~independence~~ dependence was achieved through the Green Revolution. We require such a Revolution ~~is~~ for having basic ~~self~~ self-sufficiency in ~~tea~~ defence equipment and systems and also for ~~Int~~ intelligence services and internal security related equipment and systems.

In addition to vital security considerations, such an ~~for~~ import dependence causes very heavy draining of foreign exchange

larger (575)
leading to current account
deficit (CAD)

And above all, by
not having local production
we have lost several lakhs
of good income jobs for Indians
each year. And many more
lakhs of jobs ~~who~~ ~~which~~

(like drivers, cooks, domestic
helpers, hawkers, shop keepers,
restaurant workers, ^(school teachers, staff,) etc etc.) which
would have got created because
of these better income groups of
persons consuming more products or services.

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// Such is the multiplier effect of any good income employment generation within the country. Remember that even the relatively lower income (in international comparisons but high in Indian context)

IT outsourcing jobs during the 1990's triggered the consumption of automobile and ^{house} construction sector and many more jobs.

Gurgaon and Bangalore are classic examples benefiting such a growth. Defence and

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Other strategic sector related industries will create much more deeper penetrative effects on the Indian economy and the job markets

We can still, despite many missed opportunities of the past since 1970's and especially after the opening of the economy post-1991, achieve this revolution. This chapter addresses how to go about it in the newly changed strategic and tactical (very short term actions) security situation for India. We wish to name it DRONA REVOLUTION, drawing

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upon the rich traditions of India.

INDIA'S SECURITY SITUATION

India's security situation is much more complex than what it was during 1990's. The low level "terrorism" exported from outside to India, was serious but its visible impact were not felt by people. ~~The~~ ~~Int~~ The nuclear explosions by India and Pakistan during 1998, changes the strategic equations. Nuclear weapon coupled with missile capability acted as a deterrent. Many sanctions were imposed against India. However

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India could manage them. Also the huge market of India ~~cannot~~ ^{cannot} be easily ~~so~~ ignored easily by the multinational companies and the govt of the developed countries.

Therefore situation vis-a-vis started changing and sanctions/denial regimes ~~were~~ started relaxing.

However the ~~eco~~ ~~to~~ economic growth path of India took a softer route of depending upon the services sector (mostly doing the jobs outsourced by the USA / European companies to India.) The remarkable growth of telecomm sector (ICT) also went by the import route. The

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balanced approach of building technology strengths within Indian industries ~~there~~, as recommended in the Vision 2020 exercises was ignored by the policy makers, administrators, industry leaders and sadly by S&T community also. Technology development and ~~and~~ engineering innovations took a back seat.

A similar easy route approach was taken ~~against~~ in terms of actions against terrorism exported from our borders. The successful completion of Kargil war, led to further complacency

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In the meanwhile the defeat of ~~the~~ Taliban led gov^t in Afghanistan, led to further large scale build up of terrorist modules within India. While lots of statements, media announcements after terrorist attack etc took place regularly, very little was done in using modern technologies and ~~man~~ organisational systems to track down terrorists and punish them. Govt's action should have been to make it more and more difficult for terrorist to operate in India as it is so

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in USA after the 9/11 attack
~~during~~ in 2001. Instead India
has many such dates with
many innocent civilians being
~~a~~ killed. It is indeed the
greatness of Indian civilisation
and tolerance of Indian people
that some of these ^{terrorist} attacks
aimed at disturbing communal
and societal harmony, did not
result in the violence expected
by the terrorists.

Complicating with this externally
driven (now some of them appear
to have been indigenised —
~~a~~ ~~was~~ a wrong indigenisation! — but
guided and funded from abroad)

terrorism, the network of "left-wing terrorism" also referred to as Maoists or Naxalites are also now become more entrenched in some states of India. North-East part of India, appears to be settling down ~~to~~ from the violence ^{of the} underground rebels. Jammu & Kashmir is better than what it was during late eighties, ~~or~~ early 1990's.

In the meanwhile, meticulous development of the strategic sector, manufacturing sector in almost all areas of mechanical engineering, metallurgy, ^{equipment,} and electronics, as well as space, ~~and~~ ^{maritime} ~~navy~~ and aeronautics by China has

has made it an important military power with many modern security systems. Its space surveillance capabilities enables ~~it~~ ~~at~~ China to be able to attack any ~~or~~ ~~enemy~~ ^{enemy} who may use their ~~ship~~ ^{naval para} or air power in the Pacific ocean.

Such capabilities are only at nascent stages in India. China is not only self-sufficient in most military equipment and system but is also a major exporter of military hardware and systems.

Also during the recent

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several years ~~ago~~ it is reported that most of the ^{critical} defence purchases, required for modernisation, are under hold or delayed by several years, due to allegation of scams and other reasons.

Little is known about the plans for equipping police ^{and} para-military forces ~~and~~ for tracking terrorist networks, terrorist movement etc. There are some basic intelligence ~~network~~ infrastructure, but many of them have to be upgraded to keep up with the use of modern technologies by the terrorist ~~and~~ groups. In addition to the ~~vast~~ land borders, the ~~to~~ vast coastal borders also have to be under "eternal vigilance"

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to plug terrorist movements.

In this context, the heavy import of telecomm equipment would require a special watch especially when ^{they are} used for critical govt work relating to security.

Cyber security is an area ~~which~~ was discussed worldwide during the 1990's. But it has now acquired the same level of "Offence" Defence - Protect - Offence" operational ^{importance as is} in advanced countries including in China, as ~~in~~ Army, Navy, & Air Force. Cyber attacks can cripple critical areas of economy, ~~and~~ let alone security systems which

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normally have better build in protection.

Above all for internal security, whole range of police and para-military forces have to be trained, skilled ~~and~~ ^{now} and in repeated intervals ~~as~~ to ~~the advances~~ keep up with the "tricks" of the enemies.

In the cyber security area, such a ~~the~~ human resource development is much more critical, as banks, public service systems etc are involved. With increasing use of computerised services (which is a must to keep up with the demands of modern businesses

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as well as the range and quality of services demanded by the consumers) their protection against cyber attacks, leaks etc are important.

While we do not want a sound alarmist, it is necessary for all Indians to realise that a lot more needs to be done in the area of NATIONAL SECURITY : ⁽ⁱ⁾ ~~defe~~ modernising defence forces, rapidly to make up for the lost time, ⁽ⁱⁱ⁾ indigenisation of defence production, ⁽ⁱⁱⁱ⁾ ~~etc~~ strengthen and skilling in Internal Security ~~for~~ Systems against various forms of terrorism and ^(iv) prepare India and Indians to be cyber secure.

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If citizens demand really 'zero tolerance' against terrorist attacks and be prepared to have some changes in our public life and discourse to meet such a demand, then India will be secure. As India grows economically, socially and $\$$ in knowledge, ~~the~~ enemy attacks in various forms will increase! It is a competitive world, in which we live. Those who march towards leadership position would need to be having "eternal vigilance" in all fronts.

We will discuss in the rest of the sections the action plans for the DRONA REVOLUTION.

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THE ACTION DRONA

First and foremost task to be done is to achieve a lush degree production of defence and internal security equipment in India. Naturally as we have ~~it~~ from the experience of the past ~~to~~ six decades, ~~we~~ ~~we~~ find such a task cannot be done by Public Sector Units (PSU) and Ordinance Factories ^(OF) of the Govt. The door has to be ~~made~~ ^{kept} wide open for private sector and foreign companies. There are serious debates now, as in the past, as to how much should be the limits of ~~the~~ foreign direct investment (FDI).

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Defence technologies are very sophisticated and complex. No one who possesses it will easily let go. Foreign defence businesses will manufacture equipment, systems etc. in India, only when they have a full control on their businesses. Barring a few Indian industries in limited areas, there are no ^{major} technological strengths for defence production in most Indian companies; those who have will find foreign partners. Therefore ~~an~~ ^{Indian} approach should be, at least for 7 to 10 years, to ~~not~~ begin large scale manufacture of defence equipment ^{& systems} in India, without placing unnecessary restrictions

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on the foreign companies or Indian private companies which come forward. Similarly we should encourage our PSU's also (not just defence ~~for~~ PSU's but all PSU's) ~~also~~ to ~~comp~~ come up with innovative partnerships / consortia to begin defence production in India.

Naturally these units cannot ~~be~~ thrust their products on the defence services and internal security services. They have to work with them to take care of the customer needs as they do in any other business. At the same time the political leadership should

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clearly tell the Defence & Security services that they should avoid imports as much as possible and procure from ~~Ind.~~ units ~~of~~ manufacturing in India. A broad plan of guide line for the per centage of indigenous procurement use procurement should be given and monitored. Otherwise the govt should avoid micromanaging either the Defence & Security services or the industries.

The foreign and Indian Companies should be given freedom to decide their manufacturing plan. They may not be able manufacture all items in India; they may procure some critical components/

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assemblies from abroad and later
manufacture in India. Still one
should not resort to the methods
of earlier era of Phases Manufacturing
Program (PMP) which had failed
to indigenise with quality; they
were poor substitution methods.
However a full scale manufacture
with ~~knock~~ Knock Down (KD)
and Semi Knock Down (SKS)
import of all assemblies, are
just to integrate them as kits
in India should not be allowed.

Also since the companies
have to compete ^{to} meet the customer
needs and take risks, to diversify

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their markets, they should
be allowed full freedom to
export, as well ~~of~~ at all,
a small export denial list
can be given for select items,
for select products. Most of
the foreign companies will already
have such a list from ~~these~~ the
countries of their origin - USA,
Europe. ~~They may~~ These
countries may allow production
in India because of its huge
size of markets (in defence
and commercial areas) as well
as for Strategic Partnership with

P.T.O.
X.S.16
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India for various geopolitical ~~reas~~ and geo-commercial reasons.

Let ~~the~~ Indian gov^t's goal be to start major defence industry in India operated by Indian companies and/or foreign companies. Such a speedy beginning will have tremendous impact on ~~the~~ rest of Indian industry. In addition ^{engineering} our colleges & will start orienting themselves to supply suitably skilled human resources. That

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will be ~~import~~ impact beneficially
the knowledge creating sectors
in India including S & T institutions.

This Big-Bang start
should be the first important
and essential step of DRONA
REVOLUTION.

~~Second~~ The target should
be to have 80% local production
and 20% import (80:20) ~~try~~
in a decade; ~~on or~~ ~~on~~ ~~or~~ before
2025.

Second step of DRONA ACTION,
would be to identify the critical

(P.T.O)

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elements of such local production including spare parts which are closely held by the foreign companies (whether they produce in India ~~or~~ or they supply to Indian private/public sector company which is producing in India). Without being paranoid about the denial by the outside govts, parallel to the first step should be an Indian design and development (DD) of a few critical items with full

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respect for the Intellectual Property Rights (IPR's) of others — in letter and spirit. This activity should not be left to a national laboratory or a DRDO or academic institutions like IIT, IISc's. This should be done by a consortium of Industries, ~~can~~ suitably compensated by Govt. They may be able to sell their inventors ^{production} to the main companies operating in India or abroad. They will also be a RESERVE BACK UP in case of any denials. This consortium

(P.T.O)

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also should have the freedom to export. Exporting not only give money and earnings, but also is a good check about the competitiveness of the product/ services.

DRONA revolution will get stuck and stagnate ~~as~~ or only slowly expand, as it happened to ~~our~~ Green Revolution efforts during 1980's ~~our~~ expansion, unless then as the Indian ^{Defence Security} systems faces newer and greater challenges.

Therefore, the THIRD and yet another parallel step to FIRST & SECOND steps given above, will be to continually improve

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the existing systems totally imported from abroad or locally supplied as per STEP-1 above, through small incremental improvements, to meet ^{the} ~~the~~ ^{Internal} new needs of Defence & Security ~~Services~~ ^{Services}. The needs may be to fill a gap in performance of existing systems or new demands based on operational situations. Hundreds of such incremental improvements will make India's Defence & Internal Security Systems, much more agile, alert and advanced than others. These give really the competitive

(P.T.O)

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advantages and surprise benefits.

While experts from DRDO, national labs and academic institutions, may be drawn, this effort should be led by industries (alone or in consortium) in close association with the actual customers (not ministries) ~~or~~, namely Defence Services and Intelligence Services and Internal Security Services (there are many under this umbrella from police to para-military to coast guards).

FOURTH finger of the DRONA ACTION, will be to decide upon and define the details of

of India specific Security system with a geopolitical view, just as China has done for its own protection from the Pacific Ocean based attacks. For India it may be: ~~the border~~ ^(from infiltration) the ~~land~~ Border Protection / East Coast Protection; or Action against ~~the~~ pirates in western regions when Indian ships enter Gulf region; or vigil on Indian Ocean etc. The decision on which are the priorities may be determined by the political leaders and defence / security services and other arms of Govt like Commerce, External Affairs etc. (P.T.O)

In such designs DRDO, S&T systems ~~are~~ may have to take a lead but with very close association with Operational Services and other stakeholders.

It cannot be a mere academic or scientific / technological exercise.

Defence industries ^{in India} may also have a role to play. How much to involve fully foreign industry operating in India, is a decision to be taken ~~on~~ basis on the ~~the~~ actual situations; security considerations; specialised expertise of the companies concerned etc.

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Fifth finger of the DRONA
ACTION PLAN (though may be
small like the little finger) would
be to work on an Innovative
India conceives and designs
system for Defence and/or Internal
Security services. This need
not be a mega-system or
a full system. May be one
subsystem added to the existing
system can be the GAME CHANGER.
Such special IPR's ~~will~~ should
not be easily shared; WE HAVE
TO DENY TO OTHERS! (for
some period at least till others

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~~catch~~ Catch up!! The lead
for ~~the~~ such items ^(not just DRDO) have to
be from national labs / academic
institutions ^{Indian} ~~and~~ Industry's
R&D institutions. These items
need to be closely guarded. But
there has to be ~~a close~~ a
very close cooperation with
users (Defence & Internal
Security services) right from
the beginning; some of their
personnel have to work ~~also~~
closely with R&D teams. The
participation level should not
be only at reviews. ~~as~~

If all the five fingers
~~are~~ (or steps) are initiated simultaneously

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and sincerely, we can easily achieve the DRONA REVOLUTIONS in about a decade. The first results of Ringa Five will come by 2030. (Others earlier by 2025).

We should be bold to give leadership to young persons between 45 to 50 years of age. The existing hierarchical systems in most of the national ~~lab~~ laboratories / academic institutions will require a drastic change. The administrative, financial and auditing systems will require some fine tuning. Political leadership

(P.T.)

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Should ~~encore~~ be with the teams during successes and failures.

In addition there has to be a massive skilling programmes for the Industry / S&T systems / Academic systems. It has to be not only on scientific / technical / manufacturing related items but ~~on~~ also on many managerial items. There has to be a lot of unlearning (of the past practices and precedents.) and also lots of new learning.

The above given ~~DRO~~
five finger approach for DROVA
REVOLUTION will transform India.

CYBER SECURITY

That is not enough. We should go ~~for~~ fast forward from the present BABY STEPS we are taking on ~~CYBER~~ SECURITY with all its dimensions of protection, security, and offensive attacks.

This cannot be confined to Defence, Internal Security and Governance systems alone. As we have pointed out earlier, Cyber security ~~affe~~ is needed by all citizens: a railway booking system to banking operation to

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mass ~~ent~~ entertainment TV channels
to electricity distribution
control systems to stock exchanges
to educational channels to
every thing ^{affecting} ~~the~~ ordinary
Citizen's lives (not just
business persons).

India should leave
its BABY STEPS behind
and become an athletic
runner: Sprint ^{and} marathon!


This field of cyber security
is so fast changing it requires
the agility of a sprint runner
and the tenacity of a marathon runner.

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If Indians have to
enjoy a good life and feel safe,
the DRONA FIVE FINGER
ACTION Plan (Drona Revolution)
and deeper speed action for
CYBER SECURITY are critical.

Funds are not the
problem. ~~OR~~ The Collective
Will of Indians, as reflected
in the Political Will, is the
crucial element.

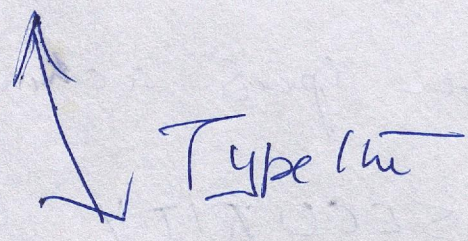
May Indians ~~be~~ AWAKE!


We will end this chapter with
a ~~brief~~ brief quote from the address
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When he was President: (6/6)

by Dr. Kalam's Address to
the Nation on the Eve of 60th
Independence Day 14th Aug 2006
~~At~~ titled "National Awakening"



attached portions