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Chapter - 6

Blood, Bones and Muscles of the Economy: Infrastructure.

So We have so far ~~now~~ covered in some detail, the core sectors of the economy: the vital parts of ~~a~~ nature given agriculture and mineral ores and human ingenuity of manufacturing, which is to convert and shape the primary products ~~to~~ into many useful products. Manufacturing also

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Covers making of machines themselves!

These alone would not ~~grow~~ grow in isolated pockets. When Indian villages were in total isolation, the people lived with subsistence agriculture and ~~artisanal~~ ^{artingal} manufacturing. The rudimentary roads of the past and the bullock carts were a great boon to the trade, increasing the wealth of the villagers. The two way traffic got them medicines and some metallic ~~for~~

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products. Rivers helped through
boats. Now, fast forward to
the British era. The rail
roads they ~~brought~~ in built
with its steam engine pulling
many carriages, ~~it~~ was
of great help to movement
of goods and people. Some
cynics may say that they did
so to loot India's wealth. But
without massive movements
through railways and later from
the ports to other global
destinations, Indian production
and productive world have ~~been~~ ^{remained} at

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at the stagnant ~~and~~ levels of the past. Rail roads gave a fillip to the ^{modern} manufacturing in India. J.N. Tata could think of building a steel plant in India. Electricity generating units could be set up with hydro - and ~~at these~~ thermal (coal) power.

Then came some better roads and lorries (~~the~~ trucks).

The body of the Indian economy (for that matter economy of any country) is supported by the bones, muscles and bloods of infrastructure to

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Carry ~~many~~ millions of tonnes of goods and millions of passengers. In fact the rapid economic growth of India post-liberalisation of 1991, has placed huge demands on the ~~surface~~ transport of goods and passengers. Internal domestic tourism has multiplied many fold, for pilgrimage, sight seeing, seeing relatives and friends etc. In addition business related passenger travel

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is also high. Also ^{rapid} urbanisation
and ~~As~~ ultra-rapid
growth of metro cities and
other big cities also places
heavy load on traffic.

As it happens more
often in India, the policy makers,
administrators, and the intelligentsia
do not like to think big. After
several discussions and inactions,
we tend to postpone decisions.
There are also now activists and
perpetual litigants who like
to put hurdles to any major

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major expansion. We struggle to solve problems accumulated over the earlier two decades, that too partially! Net result is that we do not resolve put away our infrastructure inadequacies behind us.

TIFAC's Technology Vision 2020 exercise had address the road transport, ~~air~~ railways waterways etc in great detail.

The only major decision taken by the then Prime Minister ~~is~~ Vajapayee was to have

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Golden Quadrilateral, connecting
the ~~are~~ four metropolises and
a North South East West Corridor
connecting Kanyakumari to
Srinagar; ~~to~~ Silchar in the
East to Porbandar in the West.
In addition ~~he~~ dec his govt
decided to ramp up the Prime
Minister's Village Roads. As
we will see in the later sections,
the progress after a good start
has slowed down.

Delhi Metro is an excellent

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achievement and other metros are yet to replicate it.

Let us quickly survey the different segments of the Infrastructure in India.

ROADS

India has the second largest road network in the world. Total as of now is about 4.7^{million} kilometers. ~~But~~ not all of them are ^{of} the same size and quality.

o National Highways (NH) form about 1.7% of the total

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that is about 79,116 Km

o State Highway ^(SH) form about
3.3% of the total, which
is about 155,716 Km

o District and Rural Roads
(DRH)

form the bulk 95% with
about 44,45,010

(Source: IBEF March 2014)

As the readers can guess,
most of the rural and district
road and major part of State
Highways are in very bad shape.
Some States have done better than
than other (P.T.O)

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Others. If only we had them in good shape, food inflation would not have been, as bad as it is. There will be a supply ~~side~~ movement; as we have ~~be~~ seen earlier, ^{good percentage} ~~many~~ farm products especially vegetables and fruits don't reach markets at all. In some places it is close to 30%. The consumer suffers; farmer is badly hit.

State and National Highways are crucial bones and muscles for the mining and manufacturing sector.

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Though railways carry traffic, still they have not kept pace with the growing demands of economy and society. Therefore the brunt of it is faced by the Road Transport. They carry about 85% of the passenger traffic and 60% of the freight traffic.

In terms of environmental considerations, railways and waterways consume less energy per unit freight carried.

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But railways are slow to catch up
and ~~water~~ development of
waterways has been stagnant for
years. Not much progress
has been made since Technology
Vision 2020 report of 1996!

Road traffic has grown
because of many private carriers
using the new the not-so-good-
quality road. The NH has helped
them a great deal. In addition,
road transport is flexible in
terms of the ~~routes~~ place of
origin, routes and destination.

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As per the ^{report of the} ICRA
Research Services (ICRA is
an Associate of Moody's Investors
Service www.icra.in) on the

Indian road sector (June 2013),

^a After awarding 6,491 km of
road in FY 12 (ie financial
Year 2012-13), the road

sector witnessed a slump in
award of projects with only
1,156 km road projects being
bid by NHAI in FY 13 (^{FY} ~~20~~ 2013-14),

which is about 17% of the
target of 7000 km ~~set~~ for the financial year.

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This lower project awards have been on account of weak interest from private sector participants due to difficulty in raising funds, stressed financial position of many developers, delays in getting the right of way and clearances, relatively less lucrative stretches in the offering, as well as the economic slow down...."

This pretty much summarises

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Status of the ~~total~~ VITAL
BONES AND MUSCLE AND
ARTERIES. Though a small
per centage ~~into~~ measured
in terms of total length,
NH are vital to the economy.

The above position is terms
of AWARD of contracts.
The actual progress, as
is always ~~is~~ so in most
Indian projects, would be
much less.

The new Minister
of Roads, Sh Venkaiah
Naidu has stated that

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He would NH road
construction to reach a level
completion of about 23 km per day
from the current ^{level of} 12 km per day.
Then he desires to speed up
further.

The ICRA report lists
many problems that have
led to poor and waning interest
from the investors. In view
of the shortage of Govt funds
mainly derived from taxes,
it is vital to have Public
Private Partnerships (PPP).
But investors are no longer

interested in these. This is not a good sign.

Before going into the details of corrective actions, it is necessary for all of us who are interested in the future of India and the well-being of ~~all~~ ALL Indians, to ponder over some crucial issues. We find that in the middle-class-media-activism, there is a general belief that all private parties are corrupt, make excessive profits ("fleece") and don't do quality work ~~at~~ ^{at} all ("cheat"). There are activists and parties demanding abolition of tolls in hush ways. Middle

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They also assume that all these are due to profiteering and corruption.

Class "loves" this free-everything!
Let us look at the situation of the investor. Besides ~~some~~ ^{the own money} of the promoters initial funding, she/he has to raise funds for the project from banks. Banks charge interest and they have to be paid. Then for various purchase orders for laying the roads, for the machinery etc money has to be spent. Payment has to be done for the labour and several other govt. approvals/taxes. It is expenditure and lot of hardwork. At a number of places, the ugly heads of corruption also come up. They need to be fed \$ too. ~~They~~ The ~~cannot~~ builders and investors cannot afford to be activists or whistle blowers.

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They have a task at hand;

the project to be completed.
Over and above these there are persons who organise

agitations to
stop
the work!
There are
at times
stay orders
by courts!

Even under normal circumstances
completing such projects on time
is a challenge. In India doing
business is very ~~the~~ difficult.

We rank very low in the
comity of nations ~~in~~ "in the
environment to doing business".

For all these ^{items} & after
the various expenditures, the
investor has to get ~~proj~~ profit,
so that he/she can take up
other projects. For those who
take up the task of ^{operating} ~~running~~
the roads to recover the

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the expenditure through "tolls" and other such user ~~fees~~ fees, it is also another major operation.

Some how the mind-set of our intelligensia and middle class has been set against all investors. The corrupt and those who ~~do~~ do not ^{build} ~~produce~~ the necessary roads need to be punished as per law. But a super-over cautious approach has come about in govt officials who are honest. Why get into audit questions

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which are unrelated to ground realities at the time of award of contract and get a label of a scamster in media trial?

~~So~~ We have explained this in some detail because the delays in NH and SH are primarily due to administrative and financial procedures becoming overly defensive. ~~and~~

It is not that the problems ~~posed~~ ^{given} in ICRA report for the investors are unknown to the amb officials.

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The readers who have some time at ~~hand~~ hand and are inclined to see some details beyond newspaper headlines or ~~met~~ TV discussions, may look into report of the Govt of India, Ministry of Road Transport and Highways, Outcome Budget 2013-14, which is downloadable from ~~the~~ a internet search or their website.

We quote from ~~there~~ the Chapter III of the report which summarises the problems of underperformance:

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" A comprehensive review reveals that there has been shortfall in the achievements of the targets due to delay in land ~~of~~ acquisition, environmental clearances, road over bridge clearances, law and order problems, rehabilitation and settlement issues, and in some cases due to poor performance by the contractors. The Govt has taken several steps for speedy implementation. . . . "

The steps are listed in a great detail. They are

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comprehensive and having clarity.
But ~~things~~ ~~that~~ many of them
require a political will from
the top to create confidence
in the honest officials to
work without "fear or favour".

In addition, ~~at~~ many of
them require a good, healthy
inter-ministerial coordination
at the Centre and State Govt
levels; also a good Central -
State Govt coordination (means
understanding the greater purpose
of ~~some~~ connecting India

with a robust ~~etc~~ road network).
Also one requires ^{innovative ways of attracting the}
private investors, who are afraid of PPP projects!

The State and National
~~highways are~~

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priorities. // But Rural Roads are equally important. It is not enough if the arteries and ~~the~~ ~~veins~~ veins (big blood vessels) work well. If capillary distribution is not good most part of the bodies (including vital organs like lungs) will not receive blood & or evacuate the ~~toxins~~ wastes back for cleaning. Rural roads are like capillary blood vessels. It is in this context the PURA concept ~~is~~ being advocated by Dr. Kalam for over one-and-half decades

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becomes essential. The ²core
of PURA (Providing Urban
Facilities in Rural Areas)
is the physical connectivity.

Rural roads connecting
to nearby State or National
Highways or a Railway Station.

Let us not forget
Rural Roads for the "big
ticket items" involving
crosses of rupees, which are
equally important.

NOVEL SUGGESTIONS FOR
ROAD PROJECTS

While most of items listed

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listed by Govt documents like the one quoted above are very good, none of them clearly address the need for human resources.

They are ~~st~~ focussed on the narrow targets of Five Year Plan ^(FYP) targets or Financial

Year (FY) targets, which are ~~very~~ not fully geared to meet India's and Indian people's needs speedily. If

they approach in the same way, they will just finish the accumulated underperformance of the past. ~~Indians~~ Aspirations of Indians are much higher

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as evidenced in the recent elections. They want India to ~~one~~ move at jet speed, ~~and~~ actually move with rocket speed. They are impatient of hearing excuses ~~or~~ for underperformance and also with the promises of future performance.

They want: "Aaj Karey Tho Ab" ~~dit~~ (taking from Kabir (if it is today, just now)).

In fact we need to ~~double~~ increase the targets

National Highway	NH	50 ^{km} per day
State Highway	SH	100 ^{km} per day
Rural Roads	RR	1000 km per day

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Are they doable? Yes, if
we jettison the usual way of
having only 2 ^{persons from} Central / State
Govt ~~persons~~ to ~~run~~ agencies
to supervise, or to survey or
to measure, ~~etc~~ to test
before acceptance etc

Why don't we use
the young undergraduate and
graduate students in 40,000 -
odd colleges spread around
all over India and especially
the 10,000 engineering and
professional colleges / polytechnics.
They can be easily trained
including to do the paper work

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required. Give them small stipends
and ^{importantly} certificate of work.

Similarly, make the Govt.
subsidy projects on employment
or poverty or food security etc
~~ties~~ ^{tried} to Road Projects; in fact
subsidies will not be required. They
will all get productive jobs
if they get ~~ties~~ to deployed
in Road Making and Road
Repair project. Let us not
waste time in ~~some~~ debating on
single minimum ^{daily} wage for India.
Even now there are different
rules in different States. Let
these be ~~dis~~ decided locally
depending upon the local conditions

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of standards of living.

Also since the average age of Indians have gone up, we can utilise many of the retired persons (be they from Govt or from ^{private} Contractors), to supervise, test and to do much of the paper work. They will also feel engaged. They are all over India.

Some cynics may say that ~~they~~ these steps may lead to favouritism, nepotism etc.

Frank 1

Let us remember

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that we have about three ~~th~~ decades of backlog in road construction. Also several old roads and bridges needing repair and maintenance.

We need all the human resources we can muster: unskilled, semi-skilled, students, old persons in addition to the usual persons we deploy now from gov't and private contractors.

For independent monitoring of the progress of work, it is possible

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to use Space Technology:

high resolution satellite imagery
for monitoring along with
use of mobiles to send pictures
of start and completion with
GPS ~~marks~~ data.

TECHNOLOGY

In most of the documents on Roadways including the Govt of very little is addresses about technology. One can understand as all the worries are about severe slow down in construction, award of contracts, ~~and waste of~~

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waning interest of investors and the travails of those who have undertaken projects due to lack of various clearances.

Even the Ministry document only makes a cursory reference to R&D, with ~~a~~ budgets around a princely sum of ~~Rs.~~ about Rs. 2 Crores!

Each But technologies should not be neglected too long.

While it is difficult to get into Capex Eqm the technologies of ~~big~~ equipment and machinery required for road construction, it may be useful to concentrate

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on equipment for ^{regular} maintenance,
small scale repairs of rural
roads.

On a longer term Indian
manufacturing industry has to
graduate to full scale manufacturing
of road making equipment and
machinery in India.

RAILWAYS

Historically speaking
railways built by ^{the} British,
albeit for their own purposes,
brought the idea of ONE INDIA
nearer to many Indians

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Post British many earlier ~~narrow~~ ~~on~~ meter gauge train tracks have been made broad gauge. Steam engines replaced by diesel engines, some parts electrified. Still many there are a number of regions in India still uncovered by train. Example north-east; Kashmir, ~~etc~~ and number of ~~in~~ interior India. It is the roads which are giving them access.

Some ^{recent} vital statistics

- o Total route network 64,600 ~~km~~ kilometres.
- o 29.98% of it is double-track or multi-track.

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- o Total 7,146 ~~A~~ railway stations.
- o Operates 19,000 trains every day
- o ~~Own~~ Indian Railways (IR) (the govt undertaking) owns 239,321 wagons, 61,899 coaches and 9549 locomotives.
- o IR's total assets in 2012-13 US Dollar 53.8 Billion.
- o Passenger traffic: About 12,355 passenger train operates daily FY 2012-13 carrying about 30 million passengers on a DAILY basis

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- o About 975.2 million tonnes of freight was transported via train in 2012-13 (The freight includes mineral ores, iron and steel, fertilizers, petrochemicals, and agricultural products)
- o ~~73%~~ About 73% of railways revenues are from the freight traffic (2013-14)
Profits from the freight traffic subsidises passenger traffic.
- o While noting the above, we should also be aware that

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Font that major freight railways
abroad such as in USA,
China and Russia have
one - fourth the freight rate
compared to India.

(Source : IBEF, Railway
March 2014)

Delhi Metro has been a
great success story. It is an
excellent example of project management
and also for regular operation. The
credit goes to the firm
handling by E. Sreedharan, who
manages to keep away the
usual "disturbances" of the public (govt)
sector). But we should also remember

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that Indian technological, industrial and manufacturing capabilities are such that most of the metro systems have to be imported. The Indian Railways had ~~made~~ ^{designed and built} a mostly indigenous Metro in ^{then} Calcutta ~~about~~ (Kolkata) about three decades ago. None tries to improve upon it to come to the level of world standards which is what Delhi Metro is. This is so in many areas unfortunately! Had we had ~~an~~ such indigenous industrial capability to build ~~the~~ such modern Metro, ~~to~~ even ~~with~~ as

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a joint venture ~~is~~ in India, we could have Metro spread to more cities! It is perhaps too late now. At least we should attempt to have a foreign manufacturer to set up a shop in ~~the~~ India, for the local manufacture of many parts. That will reduce costs.

Govt has taken a number of new initiatives in

During December 2012 Cabinet has approved a new policy for "participative models for rail-connectivity and capacity augmentations"

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projects". This policy addresses the concerns of private investors. Govt is hoping more PPP. ^{March} Since: IBEF 2014)

In addition, Govt has set up a ~~dedicated~~ Special Purpose Vehicle (SPV) for ~~Dedicated~~ ^{Freight} ~~Freight~~ Corridor project.

Western Corridor: Uttar Pradesh - Delhi - Haryana - Rajasthan - Gujarat - Maharashtra.

Eastern Corridor: Punjab - Haryana - Uttar Pradesh - Bihar - West Bengal.

The plan is to construct dedicated freight lines of about 3300 km.

In addition Govt has approved the "Automobile Freight Train Operator

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Scheme" to encourage automobile
transportation ~~through~~ through ^{railways} ^{Mass}
(Source: IBEF 2014)

These are in the positive
direction. But again ^{Indian} Railways (Law
Ministry) should learn from the experiences
of ~~operating~~ executing NHAI
projects and try not to create
the same hurdles for the
private sector participation. Then
a decade will be lost. India
and Indians ~~at one~~ need
faster and faster action. Modernisation
is the current mantra of the
Indian Railways. They took positive steps
back ~~to~~ in 1980's to ~~give e-ti~~
computerise ticketing; now they

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have introduced limited Mobile Booking services. ~~But the~~ Along with these the physical assets like Platforms, Carriages etc need modernisation. The traffic safety is another area of concern with many accidents being reported.

While the bottom^{of} people need to be taken^h care for some time till the country creates good -income^{-job-} opportunities, there is a need to move away from subsidy culture. Then private money will be attracted. Let us do all that is innovative ~~to~~ to make Railways

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Freight → carry more freight traffic
~~speed~~ speedily and safely
and also passenger traffic.

The presently uncovered ~~one~~ ^{areas}
should have ~~fast~~ rail
connections, say in about a decade.

WATERWAYS

// Inland Waterways can carry
lots of freights and passenger
traffic. We had outlined
it in the TIFAC's Technology Vision 2020
report in detail. & Actually
the recommendation there in
had been conservation. It
was mostly to modernise

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traditionally used ~~the~~ Inland
Water Ways by proper ~~the~~ dredging,
providing lighting facilities
en-route, and also some
navigation facilities like radar.

Since ~~then~~ then communication
coverage of India is lot better.

But still little has been
done since 1996 when the
reports was released and the
book India came out in 1998.

Also it needs to be noted that
energy - consumption - per - unit -
freight is much lesser in
Water Ways than Railways & Roads.

PORTS

• ~~Port~~ The ancient India was known for its world trade.

Even upto 1850 CE, India had ~~constituted~~ about a share of about 30% of world trade, next only to China. World trade involves imports and exports.

While India is endowed with excellent coastlines with over 7500 km long, interspersed with ~~about~~ more than 200 ports, (of which 13 are major ports) ~~we have~~ India has not made full use of it. As in other fields

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have not kept up with modernisation.

Singapore is one of the great model of ports, thus has become ~~a great~~ a top trade centre.

India has a unique advantage that most cargo ships ~~that~~ between East Asia and America, Europe and Africa, pass through Indian territorial waters. This is due to the geographical location. ^{About 176 non-major ports are in strategic locations.} But our ports are slow in operation.

~~During~~ As per IBEF report on ports Cargo Traffic in 2012-13 (FY12) was about 911.5 Million Metric Tonnes (MME). The target for ~~the~~ FY 17 is 1756 MMT's

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A lot more can be achieved through aggressive privatisations & since funds and technology will be brought in by those investors. No doubt they will profit too. But ~~our~~ govt agencies have not done ~~as~~ well during the past six decades not always due to those who administered them. We have learnt to complicate life for public ~~sect~~ (govt) sector executives by too many unrealistic and micro-managing procedures and rules!

As per IBEF March 2014

report:

- o The govt. of India has initiated National Maritime Development Policy (NMDP) to develop the maritime

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sector with a plan outlay of about US Dollar 11.8 billion.

o In addition Govt allows Foreign Direct Investment (FDI) under the ~~cut~~ automatic route and a ten year tax holiday for enterprises engaged in port.

These are positive measures. But business-as-usual after policy pronouncements won't suffice.

Full
full time team had to be made responsible at the Centre

to attract & Projects and exceed

the targets. The team should

also ~~to~~ help in getting

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necessary ^{govt} clearances like environmental clearances and many other local ones.

If maritime infrastructure in the ports develop well, not only will they help the overall economy but many local persons in the coastal areas will get better paying employment.

The new State of Seemandhra may perhaps try to speed up its overall economy as it is now a predominantly coastal State with many good ports.

AIRPORTS

✈ Air traffic, that is the aviation industry, in India

has done remarkably well ~~during~~ post our Vision 2020 reports and books. The growth is remarkable. One example: ~~a~~ number of operational airports in 2000 was 50; by 2012 it has grown to 125. The low cost air ~~carriers~~ carriers created a revolution of expectations.

Many middle class families are using air travel for domestic tourism; also they are easy to book.

Many airports are getting modernised with ^{six airports in} PPP

model, which are working reasonably well, though 60% airport traffic being handled in PPP mode and some there are

occasional "grumbles" against

⊗ with the rest for 40% by Airport Authority of India (AAI)

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user fee in user development fees, the services ~~are~~ in the PPP mode are ~~very~~ good.

The big public sector Air India ~~has been in~~ ^{has been in} continuous loss over several years now and is continuing on subsidies by Govt, that is, on tax money. That money can be spent better for improving other critical parts of infrastructure. There is a case for liberalising ~~air~~ aviation sector further starting with privatisation of Air India, with adequate but reasonable safety clauses, and

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and allowing more foreign investment in India, both in airports and air services. That will accelerate a crucial part of infrastructure and help economy grow.

Tourism (foreign persons coming to India and Indian domestic tourism) will grow faster

giving more job opportunities for Indian people in different parts of India. Correspondingly

these tourists' places need to be made easily accessible with good and safe staying places, ~~hotels~~ (hotels, guest houses,

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hostels etc) Let those infrastructure not be just for 5 star classes alone but also ~~carry~~ have inexpensive tourist infrastructure and medical facilities. All these can be had ~~with~~ by attracting private investments.

It is also important to improve safety and security of the tourists by increasing the police services and by special vigils.

CONCLUSION

On the whole there is a lot that needs to be done ~~in the~~ for the Infrastructure.

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Let us have "Infrastructure
Decades" 2015 - 2025, at
the end of which the
current terrible conditions
of roads, trains etc will
be a thing of the PAST India.

Let the media focus
on the stories of positive
progress in Infrastructure -
monitor closely the promised
performance. A Media needs
to take special effort to
make Indian people PORT Conscious.

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Let them cover ~~each~~ ~~poor~~
about 4 parts in a week
thus covering all 200 ~~tr~~ in
a year, in all channels.
Let problems be raised to
get national attention, not
by "media trials" but by
good suggestions and reasonable
citizen vigils.

If India does not
banish its ~~poor~~ current
problems in Infrastructure
speedily, the body and
the soul of Indian Economy
cannot flourish
