

Services

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Despite a spurt in the fourth quarter that registered an year- on- year (Y-o-Y) growth of 9.3 per cent (Table S.1), overall sector growth in 2004-05 was a shade lower (8.9 per cent) than in the last fiscal (9.1 per cent). Relative to other sectors, however, the share of services in GDP grew by almost one full percentage point, from 51.43 per cent in 2003-04 to 52.4 per cent in 2004-05. This increase was registered at the expense of Agriculture, the share of which declined from 21.71 per cent to 20.54 per cent over the same period. Industry's share increased marginally, from 26.86 per cent to 27.05 per cent.

Within the services sector, trade, hotel, transport and communication grew most (11.4 per cent) but also accounted for the deceleration in growth compared to 2003-04 (11.8 per cent). The growth rate of financing, insurance, real estate and business services

remained unchanged (7.1 per cent) while that of community, social and personal services inched up from 5.8 per cent in 2003-04 to 5.9 per cent in 2004-05.

All segments of the 'Trade, hotel, transport and communication' sub-sector, barring telephone connections, registered Y-o-Y improvements in growth rate over the previous year (Fig S.1). The doubling of the growth rate in the civil aviation segment is the most notable and is discussed in detail later in this section. With these growth rates, civil aviation is poised to emerge as a key component in the services sector in the coming years. A milestone was crossed in 2003-04 itself when the total passengers carried (50.4 million) overtook the upper class long distance passenger numbers of railways (46.4 million). A further growth of nearly 22 per cent has been registered in 2004-05. With higher growth rates

Civil aviation is poised to emerge as a key component in the services sector in the coming years

Table S.1 : Growth of Service Sector (% Change, Y-o-Y)

Year	Quarter	Trade, Hotel, Transport & Communication	Financing, Insurance, Real Estate	Community, Social & Personal Services	Services	Total GDP at Factor Cost
2003-04	Q1	8.0	6.4	9.0	7.8	5.5
2003-04	Q2	10.4	7.2	14.9	10.7	8.8
2003-04	Q3	13.5	7.3	5.2	9.8	11.0
2003-04	Q4	14.6	7.6	-2.9	8.0	8.4
2003-04	Total	11.8	7.1	5.8	9.1	8.5
2004-05	Q1	11.5	7.0	8.2	9.5	7.6
2004-05	Q2	12.3	5.5	3.0	8.1	6.7
2004-05	Q3	10.8	8.2	5.6	8.9	6.4
2004-05	Q4	11.1	7.7	7.2	9.3	7.0
2004-05	Total	11.4	7.1	5.9	8.9	6.9

being posted in the domestic segment and the entry of several 'budget' airlines catering to the medium cities and towns, the number of domestic air passengers is set to catch up with number of upper class rail passengers in the next two to three years.

Growth in the number of telephone lines has slowed in percentage terms, from 40.5 in 2003-04 to 28.6 per cent in 2004-05. In absolute numbers however, lines added in the year (21.88 million) were about the same as in the previous year (22.05 million). About 85 per cent of the additions (18.53 million) were accounted for by mobile connections, which in total numbers have now overtaken fixed lines in the country.

Increase in tourist arrivals at 23.1 per cent Y-o-Y (April to February) matched the growth in air passenger traffic. Commensurate with increasing economic activity, cargo movement through ports as well as freight loading on railways registered higher growth rates over the previous year.

Turning to community, social and personal services, vigorous growth in government spending in the last quarter (up 13.2 per cent over the corresponding quarter in 2003-04) arrested and reversed the slowing down observed earlier in the year.

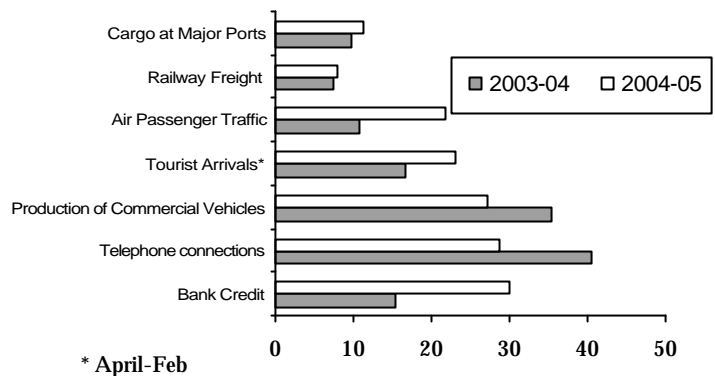
The growth of IT-enabled services provided a boost to business services in 2004-05. Services export, major foreign exchange earners, grew phenomenally. According to a NASSCOM estimate, software and services exports at US\$ 17.2 billion grew 34 per cent this fiscal.

Overall, the picture is one of sustained, across-the-board growth in the sector. It is a hopeful sign that sub-sectors that were lagging behind until recently, like civil aviation and railways, are now posting healthy rates of growth.

Railways

Fresh ideas are brewing in the Railways. Or more accurately, ideas, strewn around for long are being picked up for serious examination.

Fig S.1: Growth in some performance indicators for services (% Change, Y-o-Y)



Through newspaper advertisements in mid-June 2005, the Indian Railways (IR) announced a series of high-level meetings with prominent user groups and industries. The object: to discuss innovations in freight policy such as differential peak/ non-peak pricing and concessional tariffs that would utilize slack capacity. The ads also announced that IR was fully geared to place "Goods Trains (Rakes) on demand in the lean season from June-September 2005". This offer was qualified, though, with the proviso that loading would be "subject to handling capacity constraints of Railways/ Ports".

The IR has long been perceived as dismissive of user concerns. This move to interface with major rail users, before innovating freight policy, thus marks a welcome change. What brought about the shift? And how realistic are plans to mop up demand in the lean season?

The latest operating results provide one explanation for IR's attitudinal shift. They had a highly successful financial year (FY) 2004-05. Revenue earning freight loading notched up eight per cent growth (Table S.2), the highest year-on-year (Y-o-Y) increase in two decades. Qualitatively, the year marked IR contributing to and gaining from high export growth, evidenced by the large volume increase in 'iron ore for export' and container traffic. Firm financial results are not yet available, but given that freight fetches close to two-thirds of IR earnings, annual financial performance is

Given that freight fetches close to two-thirds of earnings, the annual financial performance is certain to be better than budgeted

Table S. 2: Trends in Railway Freight (Revenue earning - Tonnes originating) (million)

Commodity	2002-03	2003-04	Change (%)	2004-05	Change (%)
Coal	235.72	251.66	6.76	271.06	7.71
Raw material for teel lants (excl. coal)	41.01	43.94	7.14	44.11	0.39
Pig iron and finished steel	13.14	14.34	9.13	14.86	3.63
Iron ore for exports	16.66	26.66	60.02	36.33	36.27
Cement	46.22	49.52	7.14	54.23	9.51
Foodgrains	45.55	45.43	-0.26	46.19	1.67
Fertilizers	26.30	25.83	-1.79	28.36	9.79
Mineral Oils	34.00	32.02	-5.82	32.40	1.19
Other goods	59.88	67.99	13.54	74.35	9.35
Total	518.48	557.39	7.50	601.89	7.98

certain to be better than budgeted and much improved over that of immediately preceding years.

Increased fuel costs would have made a dent on operating expenses, but this would have been largely neutralised by buoyant earnings. We may recall here that in November 2004 IR carried out a commodity-selective freight adjustment exercise (to meet cost escalations) that would bring in additional earnings from coal and iron ore for export — two commodities that registered large volume growth in the year. Having scaled a peak in freight traffic, IR now seems to have acquired the confidence to try out new ideas that could take it a greater distance than before.

Capacity Constraints

Secondly, with the exceptional traffic growth, capacity constraints are building up in the system, making further increase harder to achieve. An expected year of high economic growth holds out the prospect of increased demand for commodities that are captive to IR — like 'thermal coal', the largest IR commodity by volume and earnings, which rose by 7.7 per cent in FY 2004-05 — as well as for those shared with other modes. Barring the selective freight adjustments of November 2004, freight tariffs have not been scaled up for three years and some particularly user-unfriendly provisions (like 'minimum chargeable distance') have been moderated. This has helped to a degree to staunch the loss of traffic to roads in categories where IR faces

competition. A notable feature is the sharp rise in movement of manufactured goods to and from ports in rail containers, which is part of the IR's fast growing 'other goods' commodity segment (up 9.4 per cent in FY 2004-05). While bulk coal movement puts the Delhi-Kolkata trunk route, already operating to saturation levels, under further strain, the pressure of container movement is also severe on the heavily congested Mumbai-Delhi route.

Railways coped with the sharp increase in loading in FY 2004-05 through incremental operating solutions (e.g., loading coal and iron ore wagons in excess of rated wagon capacity). There are limits up to which such solutions can be tried. The attempt to harness user industry support to shift part of the demand to the 'lean season' is sensible in addressing the problem commercially.

Such new ideas are also influenced, no doubt, by recent innovations in other sectors like telecommunications and civil aviation — a hopeful sign of IR shedding its insularity and adjusting to changes in the economy.

Long Term Plans

Two years ago IR set up Rail Vikas Nigam Limited (RVNL), a corporatised undertaking mandated to develop and implement plans for adding capacity to IR's 'Golden Quadrilateral'. According to reports, preliminary plans developed by this agency have led to a formal expression of interest by Japan in possible financing.

The attempt to harness user industry support to shift a part of the demand to the 'lean season' is sensible

Capacity-related problems addressed by these plans, which will take six to eight years to implement, are as we just noted, knocking at IR's door already. Blame it on a lost decade of hopelessly distorted investment priorities, with generous assistance from the outdated Railway budget format. The new plans deserve note, nevertheless, for some new concepts incorporated, including potential private participation in railway expansion.

In essence, the plans envisage new dedicated freight corridors in the Delhi-Kolkata and Mumbai-Delhi trunk routes to start with. A dedicated freight corridor can allow for construction to higher technical standards (e.g., heavier permissible axle-loads) in turn generating higher throughput and optimal utilisation of IR assets. As a specific example, over 200 state-of-the-art 6000 HP electric locomotives (turned out by the locomotive manufacturing unit at Chittaranjan in the last five years) are operating sub-optimally because of technical constraints of the sections and because wagon stock that can operate to matching speeds is not yet available. In a dedicated freight corridor, goods trains need not yield priority to passenger trains and stations can be spaced over longer stretches, allowing for higher speeds; tariff setting could also be independent of the main system, which will open the way to public-private partnerships.

Plans for the Mumbai-Delhi corridor have some added features. This corridor will not be electrified, so as to permit 'double-decked' container movement as well as possible 'roll on - roll off' (RoRo) transport of loaded trucks, in integration with road operators. The savings in fuel and transit time could be very significant. Big shipping lines, container operating companies and ports are potential partners in the scheme, which could give them significant control over the clearance of cargo from ports and may also facilitate running of trains to schedules matching the berthing schedules of ships. At an average of four crore rupees per km, the two corridors could cost Rs. 8000 crore.

Staff strength: a correction

In our last review of IR (QRE April 2005) we commented on the lack of progress in reducing the bloated staff strength of that organisation. From the statistical data for 2003-04 that has now become available, we observe that a correction is in order. (Apart from running trains that link all corners of the country to a reasonable daily schedule, IR deserves credit for the very detailed statistical compilations that it brings out annually). The total workforce has been reducing at an average annual rate of around 30,000 (approximately two per cent of the total) in the last five years and the total numbers, as at end of March 2004, are down by 1.75 lakhs (11.2 per cent) compared to ten years earlier. Staff numbers and related expenses hold the key to overall financial performance; if maintained, this trend could raise IR manpower productivity levels to the standards of advanced systems.

Ports and Aviation

Port and aviation are dynamic sectors that have provided a boost to both trade intensity and economic openness; as a result India is emerging as one of the fastest - growing markets in the world. However, the provision of facilities to these important sectors has so far failed to match the growing economic activities. Serious attention needs to be paid to the removal of impediments to expand the base of infrastructure comprehensively.

Ports

Major ports in India have shown impressive growth of cargo traffic - the average growth of cargo during 2002-03 to 2003-04 went up from 9.2 per cent to 10 per cent, and further to 11.3 per cent during 2004-05. The growth of cargo traffic clearly reflects higher trade intensity between India and the rest of the world. During first two months of this fiscal cargo handled at ports grew by 17.2 per cent as compared to 8.0 per cent last fiscal.

Among ports, Vishakapatnam had the highest share (13.2%) in April-May 2005

At an average of 4 crore rupees per km, the Delhi-Kolkata and Delhi-Mumbai corridors could cost Rs 8,000 crore

The total workforce of the Railways has been reducing at an average annual rate of around 30,000 in the last five years

while Kolkata had the lowest (1.5%). Kandla, Chennai, Haldia, Mormugao, Mumbai, Jawaharlal Nehru Port Trust (JNPT), New Mangalore, Paradip, Tuticorin, Ennore, Cochin and Kolkata had a cargo share of nearly 10 per cent or more.

About 70 per cent of the cargo traffic consists of dry and liquid bulk, while the remaining 30 per cent is general cargo, including containers. It is to be noted, however, that though there has been a continuous growth of container traffic over the past few years, its share has dipped mildly - from 19 per cent in April-May 2004 to 15 per cent in April-May 2005. Given that JNPT is considered an important terminal for container cargo, the lack of road and container evacuation facilities increase both the pre-berthing and average turnaround time. In order to enhance capacity, JNPT has signed an agreement with Gateway Terminals India Pvt. Ltd. for development of a third container terminal.

Mumbai Port Trust, on the other hand, in a bid to induct mechanisation and increase productivity is planning to privatise its four cargo terminals. Privatisation would not only result in better infrastructure and higher productivity, but is also expected to promote healthy intra-port competition. In this context, it may be noted that the major ports are governed by both the Indian Ports Act 1908 and the Major Port Trusts Act 1963. These Acts have enough flexibility to permit private investment in the creation and operation of port facilities. The government has recently delegated greater administrative and financial powers to ports and increased private sector participation implies a gradual change in the role of port authorities towards modernisation and mechanisation.

The following areas have been identified for participation/investment by the private sector.

- Leasing out existing assets of the port.
- Construction, creation of additional assets.

Fig S.2: Average Growth of Cargo Traffic at Major Ports (April-May Comparison)

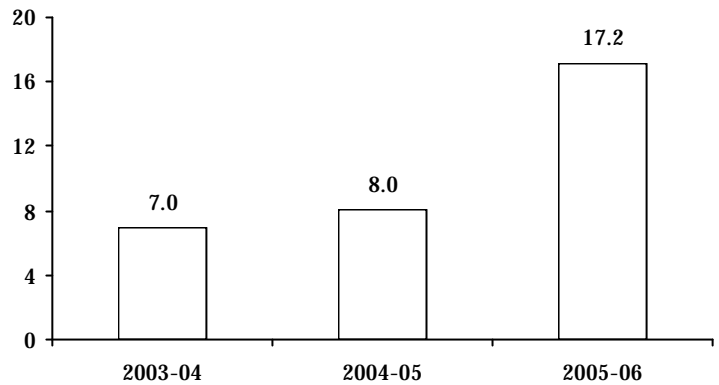
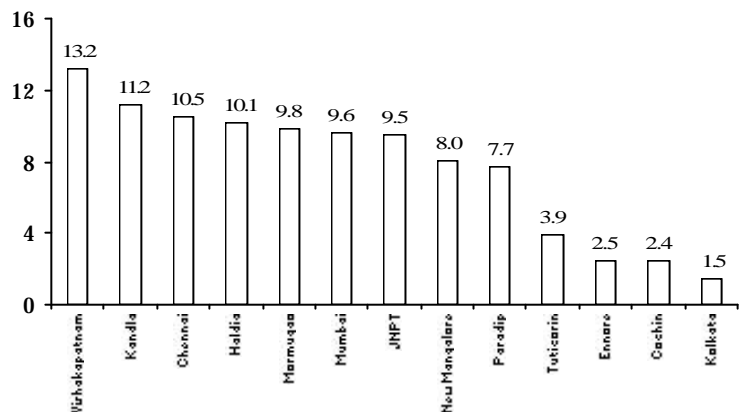


Fig S.3: Port-wise Share of Cargo Traffic: April-May 2005



- Leasing of equipment for port handling and leasing of floating crafts from the private sector.
- Pilotage.
- Captive facilities for port-based industries.

These are indicative in nature and individual ports can expand the scope of activities after prior consultation with the central government.

With greater privatisation in place, policy direction in the port sector is definitely towards enhancing intra-port and inter-port competition. The policy shift is specifically in favour of a landlord ownership of ports with multiple operators to compete within the system. It may be noted that private ports like

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Ennore, formed under Companies Act, compete intensely with other ports. Competition between major and minor ports and different operators shows that India is learning from past experiences. At the same time, the importance of multi-modal transportation system is recognised as a vital link between hinterland and the port terminals for faster evacuation and termination of cargo.

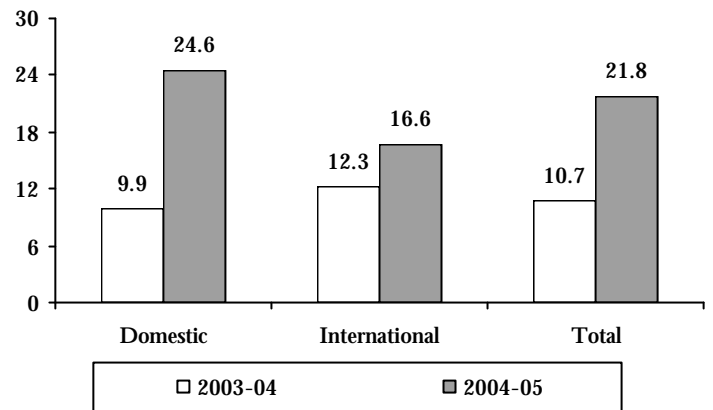
Aviation

Given the impressive performance of both the passenger and cargo growth, the aviation sector is now refurbishing for further growth. During 2004-05, total passenger traffic grew by around 22 per cent, which is double the growth rate (10.7 per cent) posted during the same period the previous year. Within total passenger traffic, the domestic segment grew more than the international segment, registering a growth of 24.6 per cent in 2004-05 compared to nearly 10 per cent growth recorded in 2003-04. International passenger traffic grew 16.6 per cent in 2004-05, compared with 12.3 per cent growth in 2003-04.

The robust growth in the domestic passenger segment is accredited mainly to the significant spurt of low cost airlines in India. Indian companies were among the biggest spenders at the Paris air show, indicating a dramatic expansion in the Indian aviation industry fuelled by the budget travel boom. Indian companies spent a total of USD13 billion on 150 new aircraft at Le Bourget. All the planes on order are intended for the fleets of new or future low-cost carriers. State-owned Indian Airlines and private operators Jet Airways and Sahara command the lion's share of the domestic market but will face increasing competition from low-cost carriers like Air Decan, Kingfisher Airlines, SpiceJet and Magic Air. SpiceJet, which has blue-chip investors including Goldman Sachs and Citibank, has two leased Boeing 737-800 planes and has ordered 20 more from the US aircraft manufacturer.

Low cost airlines are already changing the shape of travel and tourism in Asia. They

Fig S.4: Y-o-Y Growth of Passenger Traffic in the Aviation sector



are driving new airport developments and opportunities, and forcing change on existing airlines. It is not just that low cost airlines operate under lower costs to offer lower fares than do their full service counterparts. They are also proving to be far more efficient in the way they run their business. Their adoption of new technology and innovative management practices is now being imitated by established airlines wanting to reduce their own costs. Consumers and the economy as a whole benefit from the substantial productivity gains that result. In this perspective development of minimum infrastructure in the country's second tier-cities is urgently needed to give a huge boost to internal travel, especially for the well-heeled class. The resulting boom in domestic tourism would further and hugely boost local infrastructure and employment.

It is already clear that both Delhi and Mumbai are now facing capacity constraints and there is a crying need to move traffic to other centres to ensure the 25 per cent annual compounded growth rate. Given that at least 10 new airlines are going to commence services by the end of the ongoing fiscal, there is a need for more runways, exit ways and parking bays. Facing extreme jams and congestion in Mumbai, some important airlines are now shifting base to other non-metro cities. Therefore, the Open Skies policy and various other initiatives for developing infrastructure may be treated as part of the government's plan to

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Both the Delhi and Mumbai airports are now facing capacity constraints

develop more national and international routes. The connectivity between different cities needs to be strengthened providing them with the connectivity abroad. There are new investment opportunities in airline start-ups and while older airlines are restructuring. The opportunities also extended to include new supply chain conditions and prospects for suppliers to airlines and travellers, new needs on airports (and prospects in a market which is moving towards privatisation) and, especially, investment opportunities in the tourism and accommodation sector.

Opening up of the aviation sector and growth of private airlines not only led to a high growth rate due to growing competition in the sector, but also benefited people, as connectivity has remarkably improved coupled with a sharp fall in air fares. There were a number of cities that had only one flight a day, but in reality the demand was for more and therefore competition had been brought in to fill the gap. In this context, Kingfisher Airlines has entered into a comprehensive agreement with Indian Airlines to meet the obligations of flying largely on uneconomic routes. All this development also pertains to growing demand of skilled manpower, especially pilots. Pilot poaching is a new and increasing problem, in which skilled pilots are lured for higher pay by newly formed airlines, thanks to a large demand-supply gap in trained pilots. The major aircraft manufacturer Boeing estimates that India would have to add at least 150 pilots annually to fly the new Boeing aircraft.

Telecom: Broadband Policy and Unified Telecom Tariffs

The Minister of Telecom and IT, on June 14, 2005 stated that national long distance and local call telecom tariff rates would soon be made uniform across the country. Distance-based tariff settings were primarily a feature of analog telecom network technologies, which have now largely

been replaced by digital technology. Digital communication networks do not have a proportionate relationship between network costs and distance, yet the current rates reflect such a relationship. Given the present structure of the telecom services industry in India, charging uniform tariff rates for both local and long distance calls requires major changes.

Indian Telecom Industry Structure

Licenses to provide telecom services were issued for different territorial service areas (contiguous with states) and licensees allowed to provide services and carry long distance traffic within the licensed service area only. Interconnectivity was allowed among different licensees of the same service area, but not across service areas except through the long distance operator. Though many service providers have obtained licenses to operate in more than one service area, interconnection of their networks across different service areas has not been permitted.

The definition of a 'local call' has been progressively enlarged and now covers whole service areas in several circles. Inter-circle calls, however, remain long distance (Subscriber Trunk Dialing). In the case of inter-circle calls, there needs to be interconnection of networks of different service areas. For this purpose separate licensees, National Long Distance Operators (NLDOs), were created. The NLDOs provide backbone networks to interconnect different service areas. Thus inter-circle calls essentially pass through the NLDO network besides that of the service providers. There are commercial and technical arrangements in the form of interconnection usage charge (IUC) regulations, which govern the interconnection of networks of different operators and NLDOs.

In India, there are four NLDOs - Videsh Sanchar Nigam Limited (VSNL), Bharat Sanchar Nigam Limited (BSNL), Bharti Infotel Ltd, and Reliance Infocomm Ltd. The amount of traffic allowed to pass

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on the network of NLDOs depends on the capacity (configuration) and price of domestic leased circuits. In the NLDO segment, BSNL enjoys a near monopoly because it has the optical fibre based system in place, while other NLDOs have mainly wireless systems. Wireless based transmission systems have low capacities as compared to optical fibre based system. Tariffs for domestic leased circuits charged by NLDOs are provided in Table S.3.

capacities/speeds of 64 Kilo bits per second, E1 (two Mega bits per second-Mbps), DS3 (45 Mbps), and STM-1 (155 Mbps). In trunk routes, where the demand is greater, the system uses higher capacity trunks. Prices of higher capacity circuits increase a lot slower than the proportionate increase in their capacities. TRAI has considered a price ratio of E1: DS3: STM1:: 1:8:23, implying the cost of a circuit on average is calculated giving 73 per cent

Table S.3: Annual Tariff of Domestic Leased Line (Rs. Lakh)

Operator	Capacity of Circuit			
	64Kbps	2Mbps	DS3	STM1
BSNL	0.96	8.8	185	554
VSNL	0.48	11	231	693
Reliance Infocomm. Ltd	0.96	8.8	185	554
Bharti Infotel Ltd.	0.77	12.8	248	617

Source: TRAI

Components of Telecom Tariffs

Tariffs of long distance calls have three cost components - the origination charge, carriage charge, and termination charge. Besides these three charges, long distance tariffs contain access deficit charges (ADC) that arise due to (a) the shortfall of the prevailing (affordable) monthly rental to the cost based monthly rental, (b) financing of free calls and (c) local tariffs charged below the cost of their provision, in the case of fixed telephone services. The ADC was imposed on all long distance calls that involved a fixed line either on one side or both sides. Among these four cost elements, it is the carriage charge that has been mainly responsible for comparatively higher tariffs of long distance calls. In order to understand the issues involved with carriage charges the methodology of fixing this and different factors associated with it are discussed below.

Methodology of Fixing Carriage Charges

Telecom Service Providers take broadband circuits on lease from NLDOs in order to facilitate long distance calls. Leased circuits ensure a dedicated channel/line for voice and data transmission across the connected point of presence. These are of various

weightage to the cost of STM1, 25 per cent to the price of DS3, and three per cent to the price of E1 circuits.

In addition to the four NLDOs, there are seven licensed Category II Infrastructure Providers, who have circuits that can be used for providing end-to-end bandwidth, which help voice and data communications. These are Gas Authority of India Ltd (GAIL), Power Grid Corporation of India Ltd., Hughes Escorts Communications Ltd., The Tata Power Company Ltd., Rail Tel Corporation of India Ltd., Tata Power Broadband Company Ltd., and Delhi Metro Rail Corporation. However, they are not permitted to use leased circuits directly to provide telecom services to the end users as per their license conditions. They can provide leased circuits to telecom service providers, however. Therefore, telecom service providers have the option of making use of network of IP-II instead of NLDOs.

There are three categories of costs associated with the telecom networks that comprise circuits: a) cost items that vary with the distance covered, b) costs that are independent of distance (fixed costs), and c) costs that change after a specified distance is covered (e.g. 50 km. for a wireless based system) and remain unchanged within the distance interval. For instance, the cost of a repeater station is

considered a semi-variable cost as it is both a fixed cost as well as variable cost (a repeater station is generally provided for every 50 km of distance covered). On the whole, distance related costs are the most significant cost factors in building and operating terrestrial networks. The important cost items that are relevant in this regard are: the cost of the equipment with STM-1 capacity, the cost of cable, the cost of laying the cable, the cost on account of termination of cables, repeater stations, and other supporting equipment. Operating and maintenance (O&M) expenditure is also an important cost element. The O&M costs are more sensitive to the state of physical infrastructure of network than the amount of traffic that passes through it. However, O&M costs per unit of capacity drop substantially as capacities increase. TRAI considers O&M cost of 10 per cent of CAPEX.

Besides the cost of equipment, two other factors that decide the cost of leased circuits and, in turn, carriage charges, are (a) an allowance for redundancy, and (b) capacity utilization rates.

With regard to the redundancy cost, in order to ensure a smooth and trouble free carriage of the traffic, an alternative line/circuit is provisioned that can be used if the performance of the primary line is down. Overall redundancy factor of 25 per cent has been considered by TRAI at present, as the scope for diverting the traffic through different routes has increasingly been facilitated. Capacity utilization rates of NLDOs also influence the cost of carriage. However, considering that circuits are installed with the anticipation of use over time and ever-increasing demand, TRAI considered a capacity utilisation rate of 80 per cent for NLDOs.

Bottlenecks in Achieving Unified Tariffs

The TRAI has identified high prices of domestic leased circuits and international

circuits as one of the major hurdles preventing growth of telecom services in India. It has also stated that the lack of effective competition in both NLDO and International private leased circuits (IPLC) is the main reason for it. Besides this, the artificial barriers that were created by the licensing system seem to have contributed to the limited competition in this segment. As stated by the India Infrastructure Report (1996) the government's approach towards the telecommunications sector initially was to maximise resource mobilisation through its licensing and taxation policies and not as one of the prime movers of the modern economy. Therefore, the solution lies mainly in the following factors:

- Revamping the existing licensing system which will result in higher costs and inefficient use of networks. However, this could involve a long-drawn legal arbitration process between the government and the present licensees. In fact, the downward revision of ceiling tariffs for leased circuits by TRAI in April 2005 was contested by BSNL in Telecom Disputes Settlement Appellate Tribunal (TDSAT). So, a determined effort by the government to correct the structure of telecom services market is a necessary condition for bringing down the STD tariffs.
- Increasing the capacity of long distance circuits in order to enable them to carry higher volumes of traffic at negligible incremental costs. This would enable NLDOs to adopt the strategy of reducing the carriage charges significantly in order to promote volumes of long distance traffic, which in turn would more than compensate the revenue loss due to reduced tariffs.

These two strategies could thus bridge the gap between local and STD tariffs.

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Focus: Power supply shortages—No respite in sight

Acute power shortages in urban areas of Maharashtra caught national attention recently when they caused civil disturbance in parts of the State. The protests were provoked by daily blackouts lasting several hours in towns and cities across the state, including industrial/commercial hubs like Pune and Nagpur.

Apart from the inconvenience to the population, the shortages have also caused huge loss to the economy. According to one estimate, the loss of industrial output in FY 2004-05 in Pune alone was of the order of Rs. 11,000 to Rs. 12,000 crore .

Lagging capacity addition

Not only Maharashtra, but all other states as well are plagued by electricity shortages to varying degrees. Because the capacity additions in the current Tenth Plan are late in yielding benefits, the position has especially worsened in those regions - the Western Region among them - where planned new capacity has lagged in implementation. Out of the total of 13,373 MW of capacity added so far all-India in the Tenth Plan (till end of May 2005), the share of the states making up this region (Maharashtra, Gujarat, Madhya Pradesh, Chhattisgarh and Goa), was only 1960 MW. This marked the lowest increase in percentage terms (6.5% over March 2002, the end-Ninth Plan capacity) among all five regions. The plan envisages an addition of 11,436 MW in the Western Region, but as we note later, there could be slippages.

Both energy and peak power shortages were the highest in the Western Region in 2004-05. Within the region, however, Gujarat's position in regard to peak power was even more acute in last fiscal. But the flash point seems to have been reached in Maharashtra because of a sharp worsening in the months of April and May 2005. In these two months, peak power shortage in the Western Region touched 27.1 per cent and the shortfall in Maharashtra was an unprecedented 31 per cent. The state's energy shortage also increased in this period from 12.1 per cent in 2004-05 to 17.9 per cent. The main factors contributing to this are discussed below.

Capacity: Demand Mismatch

Power Shortages by Region and Select States during 2004-05 (%)

State / Region	Energy Shortage	Peak Power Shortage
Punjab	9.0	21.9
Total Northern Region	9.2	10.1
Gujarat	11.7	25.4
Maharashtra	12.1	16.8
Total Western Region	11.3	22.4
Andhra Pradesh	0.7	2.3
Karnataka	4.2	5.3
Kerala	1.2	1.3
Tamil Nadu	0.6	1.2
Total Southern Region	1.5	3.1
Total Eastern Region	2.4	3.2
Total North-Eastern Region	6.3	11.3
All India	7.3	11.7

The basic cause of shortages is a mismatch between capacity and demand. Barring temporary inter-region transfers to meet emergency needs or contracted long-term arrangements between 'surplus' and 'deficit' regions, peak demand has to be met with the available capacity of the system. Because some plants may need to be shut down for scheduled maintenance or 'forced outages', sufficient margin is necessary between the installed capacity and the maximum recorded demand. This margin should also be adequate to cater to sudden spikes in demand.

The exact margin needed would vary from system to system according to characteristics like the capacity mix, type of peak demand etc. Here we offer a broad region-wise comparison of installed capacity and maximum recorded peak demand. The figures show that the Western Region has been operating with the barest margin.

Installed Capacity and Peak Demand — Electricity (Region -wise)

Region	Northern	Western	Southern	Eastern	North-Eastern
Installed capacity (MW)	31,788	32,729	30,819	17,842	2,374
Peak demand (MW)	26,834	31,085	23,075	8,816	1,272
Margin (MW)	4,954	1,644	7,744	9,026	1,102
Margin (Per cent)	15.58	5.02	25.13	50.59	46.42

Note: Installed capacity shown here is the mean of capacity as on 31.3.2004 and on 31.3.2005; peak demand is for the year 2004-05

One reason advanced to explain away the crisis in Maharashtra is that further capacity additions were put on hold in the last few years in view of the large Enron facility that awaited re-commissioning. (The first phase of the Dabhol power plant in Maharashtra, 740 MW, is shut down and its second phase, 1444 MW, has not been commissioned). But even if these units were made operational, the margin available for the Western Region to meet peak demand would still be a low 11.0 per cent. So this explanation does not quite hold.

Another factor specific to Maharashtra is that Mumbai gets differential treatment because the supply here is in the hands of private companies (BSES and Tata Power) and B.E.S.T. As the capacity of these undertakings is thus earmarked for Mumbai, the margin available for supply to the rest of the state gets even thinner.

Galloping demand

It would appear that the problem was foreseeable on the basis of demand trends and the failure to anticipate the crisis at the level of the MSEB and also the political level is intriguing. Over the last three years itself, Maharashtra's peak demand has increased sharply by 15 per cent; the increase in the first two months of 2005-06 over the peak demand recorded in 2004-05 is itself five per cent.

Growth in industrial activity and increased consumption on the agricultural side (because of the introduction of

Peak Power Demand in Maharashtra (MW)

2002-03	2003-04	2004-05	April - May 2005
13,692	14,506	14,986	15,741

free supply to agriculture) are factors that could have contributed to the 'energy' demand. But 'peak power' demand is caused by the 'domestic' and 'commercial' categories that consume more power during the 'peak' hours. The following Table compares the position of Maharashtra with other select states in respect of consumer category-wise 'per capita' power consumption.

Within Western region, state is a leader in power consumption in the 'domestic' as well as 'commercial' segments. It is pertinent that Maharashtra's share of urban population increased from 38.7 per cent in 1991 to 42.4 per cent in 2001. Even excluding the Greater Mumbai area, the percentage shares were still among the highest in the country at 29.9 per cent in 1991 and 34.3 per cent in 2001.

Meeting the Crisis

Responses to a capacity shortfall of this order need to address both the capacity and the demand sides. Demand-side management through tariff signals is an important tool to address the issue. The state power sector seems to be in paralysis as indicated by the power shortage situation and may have to wait for its restructuring to tackle tariff rationalisation issues in earnest.

Per Capita Consumption of Power by Category in 2003-04 (in KWH)

State/ Region	Domestic	Commercial	Industrial	Public lighting	Traction	Agriculture	Total
Punjab	204	49	341	4	3	248	903
Northern Region	92	30	81	3	4	66	337
Gujarat	95	35	289	3	8	272	918
Maharashtra	124	49	198	6	17	105	559
Western Region	93	32	187	4	17	129	563
Andhra Pradesh	96	21	116	13	14	172	495
Karnataka	82	30	111	10	0	165	482
Tamil Nadu	155	42	239	6	7	147	677
Southern Region	114	32	151	9	7	140	519
Eastern Region	42	13	73	2	9	9	207
North-Eastern	33	8	30	1	0	3	117
All India	84	26	116	4	9	81	390

Capacity additions involve long gestation periods as well as heavy investments. According to reports, the state has approached the centre for assistance in allocation of power from central sources outside the region. Even this temporary solution may provide only limited relief. Ministry of Power has just (June 30, 2005) scaled down the anticipated capacity addition in the Tenth Plan by 10 per cent (from 41110 MW to 36,926 MW). Further scaling down cannot be ruled out. This review thus concludes on the observation that for Maharashtra and the Western electricity Region, things will get worse before they get better.