Dated 18th May, 2010

The Chairman
Telecom Regulatory Authority of India
Mahanagar Door Sanchar Bhawan
Jawahar Lal Nehru Marg
New Delhi 110002.

Subject Consultation paper on Inter Connection Charges.

Dear Sir,

We take this opportunity to compliment you on bringing out this, much awaited consultation paper on review on Inter connection Usage Charges.

During the last three years the subscriber base has grown three times, from 250 Mln in Dec 2007 to 750 Mln in Dec 2010, and hopefully we would be crossing the billion mark in the next three years.

The recent trends in the tariffs show that, the Mobile Termination Charge as a percentage of total tariffs has risen over the period from 2004 to 2010. Today Termination Charge is the largest component of the total tariff both for local and NLD calls. There is a definitive case for downward review of the termination charges.

As it has been seen in the past, lower termination cost leads to greater choice of selection of network, which the customer wishes to call. In 2008, when the termination charges were 0.30 Ps/ per minute, off net calls were 38%, and in 2010, when the termination charge is 0.20 Ps / Per Minute, the off net call is 48.5%. (TRAI performance indicator Sept, 2008 & Sept, 2010). Therefore from a customer prospective keeping termination charges to minimum level offers greater flexibility.

We strongly think that India has over grown for the cost based IUC regime. The cost based model should keep into consideration, spectrum allocation (900 or 1800 Mhz), technological advancement like SDH, Dynamic Channel allocation, femto cells etc, business model like active or passive sharing,

additional revenues from the same network elements, growth in traffic, etc. These are quite complex, and termination cost would vary vastly from one operator to another operator who might have similar subscriber base. The cost of termination charges for a 900 Mhz operator and an 1800 Mhz Operator would vastly vary. This shows that asymmetrical regime would be required to adjust for the cost differences between two sets of operators.

This leads us to Bill and Keep regime. This is superior over the cost based regime, as this reduces the cost of service, Easy to implement, takes care of traffic distortions, uniformly applicable to all set of operators / technologies, and has least impact on customers. With the advent of IP based calls, the complexity is likely to increase in the future. Even today services like SMS, MMS, Video calling and other VAS services are operating under the bill and keep regime.

Please find enclosed herewith our response to "Consultation Paper on Review of Interconnection Usage Charges". Further we take this opportunity to summarize our reply:

- Bill and keep regime for Voice, SMS & Video terminations. For SMS TRAI should mention in its regulation Bill and keep and not leave this to forbearance as these favors only incumbent operators.
- If Bill and Keep is not possible for some reason, then gliding Asymmetric Termination rates should be applicable.
- If SMS termination is fixed higher than zero, then TRAI should fix SMS origination also to be based on cost.

Thanking you and assuring you of our best cooperation.

Yours faithfully
For **Sistema Shyam TeleServices Ltd.**

T. Narasimhan
Dy. Chief Executive Officer

Encl ; Our reply to " Consultation paper on Review of Interconnection Usage Charges

Reply to Consultation Paper on "Review of Interconnection Usage Charges"

3.1 Do you agree that the IUC regime determined through this consultative process should be applicable for 3 years? If not please indicate your preferred time period with justification.

There has been three times growth of subscribers during the last three years. Such large growth in subscriber base is likely to be accompanied by change in the industry structure, by way of varying subscriber shares of various operators, as well as significant improvements and advancements in technology like WiMax, LTE etc.. These are also expected to have a cascading impact on the cost structures within the industry, leading to lower costs. The current IUC regime was framed in 2003 and since then amendments have been made regularly on a 3 yearly basis. In case the review period is longer than three years, due to the dynamic nature of the Indian Telecom industry, the changes in the industry may not be captured and the applicability of the charges could lose relevance. In fact this would lend stability to the industry and allow the operators to take a longer-term view while making any capital investment decisions. An optimal balance between the twin objectives, of providing regulatory stability to the industry and capturing cost efficiencies into the policy, can be achieved if the regulator prescribes the IUC policy for a three year period and incorporates a gliding path for decreasing the cost year on year over this three year period. Notwithstanding the fact that in case of any major change in technology or regulation, TRAI should intervene suo motto and review the IUC charges.

To summarize: IUC regime should be for three years with a forward looking gliding path, and in case of any major change in technology or regulation, TRAI should intervene Suo motto and review the IUC charges.

3.2 Keeping in view the time period indicated by you in question 1, which of the following approaches would be most appropriate for the Indian telecom sector?

(a) Cost oriented or cost based;

(b) Bill and Keep;

Please provide justification in support of your answer. In case you feel that the approach should vary according to service, please explain why?

In the interest of all round growth of this sector, the regulator should adopt the Bill and Keep regime with regard to wholesale billing for terminating traffic coming from other carriers. This would allow the regulator to meet twin objectives of lowering prices to subscribers and increasing the usage, and giving the flexibility to the customers to call any network.

The approach requires the terminating network to forego payments for any calls transferred to it by the originating network.

The Bill and Keep (BAK) regime is superior to the cost based regime for the following reasons:

a) Reduces Cost of service
b) Least Impact on subscribers
c) Uniformly Applicable to all technologies
d) Traffic distortions between networks
e) Ease of implementation

The above issues are examined in detail below.

a) Cost of Service: BAK transfers the cost of termination from the regulated space to the retail market. Thus it becomes subject of competitive forces and is likely to achieve the most efficient levels, leading to lower cost of service. In addition, since the cost of termination would no longer be subject to changes based on amendments to regulations, there would be greater certainty for all operators. This would ease capital allocation decisions, resulting in greater efficiency.

b) Under a BAK regime, the differential pricing between on-net and off-net calls, which currently results in complexity for the subscriber in undertaking cost comparison between service providers, would be removed. This would result in simplification of tariff plans and remove any confusion in minds of the subscriber. This is especially relevant in the context of the MNP regime, which has already been successfully implemented. This implies that there would be a net benefit to subscribers on adoption of a BAK regime.

c) The current network framework in India is quite complex on account of divergent network technologies and multiple network providers. In this light, the calculation of any termination charges may become extremely intricate. It may also require calculation of separate charges for different technologies, making any regulations unwieldy and difficult to implement.

With the advent of IP based calls, the complexity is likely to increase in the future. In such a scenario, a typical subscriber would have an option of utilizing telephony that is based on one or more of VoIP, 2G, 3G, femto-cells, WiFi hotspots, BWA and fixed-mobile converged calling. The BAK regime continues to be applicable under various future technologies and is therefore more suitable from a long term perspective.

Further, with the expectation that various networks would converge towards a multi-service network in the future, in order to ensure a level playing field, the regulator may deem it necessary to prevent the possibility of arbitrage between regulated and unregulated services. This could be achieved through a BAK regime that is agnostic to the type of technology used.

d) Under the termination charge regime, there is a resultant differential in cost between on-net calls and off-net calls. This often results in operators offering cheaper on-net packages to subscribers in order to drive growth and MoUs. The reduction in termination charges has been accompanied by a rise in the proportion of off-net calls. Thus it can be construed that with the reduction in termination charges, the subscribers may have a greater choice in selecting

the network which they wish to call.

e) There is much greater ease of implementation for the BAK regime as operators are not required to account for calls transferred to and from their networks, across different and increasingly complex technologies. Therefore the risks from data unavailability or ambiguity are much lower under this regime.

Thus the regulator may find it prudent to implement the BAK regime in lieu of the existing cost based termination charge regime.

The termination cost could be determined by taking the ratio of the total cost to the total volume of off net incoming calls. In order to determine the termination charge under this condition, two scenarios have to be considered to account for the asymmetry in cost faced by different operators for providing similar services.

1) Operator with primarily 900MHz spectrum
2) Operator with 1800MHz spectrum

There is a significant difference in the termination costs between the operators with primarily 900 MHz spectrum and that with 1800 MHz spectrum. There is expected to be a year on year decline in the termination costs as a result of improved efficiencies. Thus the regulator can recommend a year on year reduction (glide path) in termination costs when specifying the new level of charges.

Further termination costs also depends on spectrum available with the particular operator. Operators like SSTL, who have meager 2.5 MHz of spectrum can in no way compete in cost with operators having higher spectrum, since we have to put additional BTSs for serving the similar number of customers.

In case for reasons known to TRAI Bill and Keep cannot be implemented then, Asymmetric charges with a gliding path approach may be looked at. This has been adopted in number of countries including UK, France, Germany, Italy, Greece & Netherlands to name a few. The regulator may therefore prescribe asymmetric termination charges along with a glide path having year on year reductions in termination cost for the period of applicability of the IUC regime. Further in any case fore determining Asymmetric termination charges, TRAI needs to take cognizance of the technological advancements and associated cost efficiencies etc. However, services like SMS, MMS, video calls and other VAS should continue under the Bill and Keep regime.

Basis for inputs for determining the termination costs.

Only those costs, which are incurred for servicing incoming off-net calls, have been factored, since the same network is also used for servicing other types of calls and therefore the entire cost cannot be loaded onto the termination charge.

Even in the case where the capital expenditure is considered, the value of the termination charge is much below that which TRAI has currently specified, and ii) the termination charges are different for operators with primarily 900 MHz spectrum compared to those with 1800 MHz spectrum.

This capital expenditure can then be allocated on the basis of the proportion of the total minutes carried on the network that are the result of off-net incoming calls. The depreciation chargeable on the capital expenditure can be determined using the straight-line method and considering the network life to be ten years. The weighted average cost of capital in conjunction with the depreciation charged can then allow for the calculation of the return that would be required for the capital investment incurred.

The network operating expenditure can be determined by considering the O&M expenditure for each type of network element. Further, other common costs indirectly related to the maintenance of the network elements can be added. This must however, be adjusted to account for the VAS related opex.

To Summarize: Bill and keep is the best option as it avoids the complexities arising out of computing cost based termination charges, in the light of different spectrum bands, constraints of spectrum, Operators entering at various stages, and working at various levels of competition & costs, technology challenges, etc. In case market situation does not permit this, then the termination cost may be "Cost based asymmetric gliding path approach" to take care of technological advancements and costs efficiencies. However services like SMS, MMS, video calls and other VAS should continue to be under the bill and keep regime.

3.3 In case your answer to question 2 above favors the cost oriented approach, would it be appropriate to permit Bill and Keep between service providers who have symmetric traffic?

NO. This will encourage cartelization. To promote healthy competition and level playing field, TRAI should come up with one approach for all players.

3.4 If the cost-oriented or cost based approach is used for Interconnection Usage Charges, do you agree that fully allocated cost can be used with historical cost data submitted by various service providers in their audited Accounting Separation reports, published documents or any other information submitted to TRAI? If not, please give your alternate solution with explanation, required data and proper Justification.

International regulators such as the European Commission have recommended a pure LRIC model. Under this model, the total network cost to carry all traffic is first calculated, followed by calculation of the cost, without considering the minutes of traffic terminating from other networks. The cost of terminating traffic is held to be the difference between the two results. This cost is then divided by the number of minutes to estimate the MTR.

Applying the pure LRIC method ensures that only the cost related to proving additional network capacity to handle the incoming interconnecting traffic is taken into account while estimating the termination cost. The non-incremental common and joint cost is not allocated to termination, resulting in lower levels of termination charges compared to other LRIC methodologies.

While there are a large number of methodologies available for calculating the termination charge, the regulator may deem it necessary to ensure that the termination charge so calculated allows for recovery of costs. Therefore current and expected future cost is to be taken in to consideration rather than historic costs while determining the IUC. The ASR"s should not be used for the purpose since they incorporate historic costs and are not reflective of the changes in business and operating conditions.

Further for calculation of IUC the following additional new developments should also be taken into cognizance.

1. Spectrum band allocated to the operator - different frequency bands. This has direct impact on the number of coverage sites required by the operator. An operator with 1800 MHz spectrum would require 2.8 times the number of sites (on a pan India basis) to provide similar coverage as a primarily 900 MHz operator.
2. Technological advancements - synchronized network, dynamic frequency and channel allocation, 6 sector BTS, deployment of femto cells.
3. Cost efficiencies - reduction in network element costs, around 40 - 50% reduction in critical network elements has been witnessed in the past 3-4 years.
4. Changes in business models - active / passive sharing have resulted in significant reduction in capex and opex for operators.
5. Growth in traffic - reduction in unit cost of service.
6. Additional revenue generation options - Same network elements is used to provide VAS giving additional revenues to the operator

To Summarize, we do not agree with the proposal of fully allocating historical costs data submitted to by various operators in there Accounting Separation reports, since these are historical datas. TRAI should consider pure LRIC model and further taking into cognizance the technological advancements, spectrum band, cost efficiencies, growth in traffic and additional VAS and other revenues.

3.5 Should CAPEX be included in calculating/ estimating termination charge? If so, which network elements from the ASR data should be included in the cost base?

The methodology adopted by TRAI should ensure that the terminating operators are able to recover the costs incurred in enabling termination from the originating operator, while at the same time ensuring that supernormal returns do not accrue to any operator. The following issues may be considered while examining the inclusion of capital expenditure in the termination charges calculations:

1) TRAI has been historically calculating the termination charges by excluding capital expenditure. Continuing to do so would emphasize consistency in policies and would provide greater certainty to the operators considering capital allocation decisions.

2) TRAI is dependent upon the data provided by the operators in the Accounting Separation Reports for determining the level at which the termination charge is to be set. However, comprehensive information on the network elements involved in call termination deployed by each operator may not be available. In this scenario any analysis on the capex involved is likely to contain significant data gaps, making accurate calculations difficult

3) There are multiple sources of revenues besides termination charges to which an operator has access, namely Value Added Services, roaming charges, ISD charges, rentals and fixed / administrative charges. The operator is free to set the tariffs of these services, without any directions from the regulator. Therefore, operators are not functioning under a regime of regulated return. In such a scenario, any calculation of termination charges cannot preclude the presence of these unregulated revenues. It would therefore be incorrect to calculate the termination charge with the principle of providing the operators with a regulated return on investment against costs incurred in setting up network elements, when those network elements are also being used for other non-regulated purposes.

5) Operators presently offer subscribers much lower rates for on net calls than for off-net calls. This is despite the greater use of the network in on-net calls, implying that cost recovery would be possible even with lower termination charges. This indicates that at current termination rates, there is significant over recovery of costs. In such a scenario if capex is also included, it would add to the surplus.

Maintaining consistency	TRAI has consistently excluded capital expenditure to estimate termination charges in earlier calculations. Thus, non-inclusion of capex would be in-line with existing policies.
Non-availability of data	It has been observed that the comprehensive information on the network elements involved in call termination deployed by each operator may not be available. Thus, inclusion of capex may lead to data gaps
Low level of MTCs	The prevailing termination charges (based on non-inclusion of capex) have been set much below those prescribed by TRAI by the operators
Lower tariffs for on-net calls	The mobile operators are able to offer lower rates for on net calls than for off-net calls despite higher network usage in case of on-net calls implying that cost recovery would be possible even with lower termination charges
Alternate Revenue streams	Many of the revenue streams such as Value Added Services, roaming charges, ISD charges, rentals and fixed / administrative charges , which use the same network elements, are non-regulated and result in cost recovery

Notwithstanding the TDSAT judgment dated 29th September 2010, based on the issues raised above, and to prevent any further rise in the termination charges, capex should continue to be excluded from termination charge calculations.

To Summarize, In consistence with the previous recommendations, keeping the Capex away while calculating the terminating charges would be the right approach. Further non-availability of correct data, and lower on net tariffs, and falling of call charges, further strengthens our argument.

3.6 Do you agree that with inclusion of CAPEX in the calculation of termination charges, rental/ administrative or any other fixed charge component should be removed from the retail tariff by regulatory intervention? If not, please give reasons.

Termination charges should be based on incremental capital and operating expenses, which are required to provide termination. Since no other costs are being loaded in the termination charges, operators to be left free under forbearance to collect the rental/ administrative and other fixed charges.

3.7 Should TRAI continue with the existing rate of return of around 15% in the form of pre tax W A C C as adopted in other regulations? If you do not agree withthe above, please state what should be the rate of pretax WACC, along with justification for your proposed rate.

The WACC depends up on the cost of equity and the cost of debt for a company along with the relative proportion of equity and debt. For Telecom Business the percentage of equity is around 70%, and debt being around 30%. The cost of equity is around 13-14%, with the cost of debt being around 11%. As such, the WACC would determine the return on capital assets for the operators. Setting the WACC at a higher than necessary value may result in supernormal returns accruing to the operators, and imposing an unnecessary burden on subscribers. If one were to analyze the listed telecom entities in India, WACC for Bharati Airtel is close to 12.7%, Reliance Communications-13.3% and IDEA Cellular is close to 13.1%. Therefore it is prudent to assume the industry average of 13% WACC.

3.8 Would it be appropriate to adopt Straight Line Method with an average life of 10 years for all network elements for taking into account depreciation? If you do not agree with this proposal, please give your alternative method with justification.

Since the telecommunications industry is capital intensive, requiring significant investments to be made into network assets, accounting for depreciation assumes a very significant role. The straight-line method (SLM) is a commonly used method that divides depreciation expenses evenly over the life of the asset on a nominal and uniform basis.

SLM is a prescribed method for determining depreciation in the Companies Act, 1956. SLM is also used internationally.

With regard to the average life of network elements to be taken in the SLM depreciation calculation, it varies from 15 years for equipment like GBT, RTT to 8 years for equipment like BTS, BSC, MSC. Hence, an average life of 10 years may be adopted for all network elements.

Further, since TRAI has made use of the straight line method with a ten year average life in previous regulations, it may be prudent to continue with the same method.

3.9 Do you agree with the proposal for treatment of the cost items as indicated in Table 3.2? If not, please give your proposal with justification.

SSTL does not agree with this proposal. There should be no double counting of individual costs items, and only the costs associated with the setting up and maintenance of the network may be loaded onto the termination charges. The total resultant cost may then be suitably adjusted to account for the fact that incoming off net calls form only a small proportion of the overall calls on the network. This adjustment needs to be undertaken for all the individual cost items have been outlined below:

With regard to the license fee and spectrum charge, it is calculated as a percentage of the adjusted gross revenues (AGR). For calculating the AGR,

any interconnection charges payable to other service providers are to be reduced from the gross revenues. Therefore it may be prudent to exclude the license fee and spectrum charge in the calculation of the termination charges.

With regard to employee cost, a call originating from another network requires involvement of only a limited set of employees that are associated with the setting up and maintenance of the network. No additional sales effort is required by the terminating network operator to generate incoming off-net calls. As such, only the presence and correct functioning of the network elements is required. In such a state, only the costs related to these employees, and not the total employee cost, should be factored into the termination charges.

With regard to administration cost, only the proportion of administration costs which are associated with the setting up and maintenance of the network should be factored into the termination charges.
Similarly, the maintenance cost that pertains to the network may be included in the calculation of the termination charges. The network operating cost on the other hand, may be included in its entirety in the calculation of the termination charges.

In the light of the above, we suggest that that following cost may be considered.

Cost Head	Suggested treatment
License Fee & Spectrum Charges	Not to be included, as this is already covered in the AGR Calculation.
Sales & Marketing Costs	Not to be included as no sales & marketing effort is required towards call termination
Employee Costs	Proportionate to the off net incoming call
Administration Costs	Proportionate to the off net incoming call
Maintenance Costs	Proportionate to the off net incoming call
Network Operating Cost	Proportionate to the off net incoming call

3.10 Do you agree that revenue can be used as a driver for segregating the cost pertaining to VAS services from the total cost indicated in the ASRs? If not, please provide a template with appropriate method for separating the cost items for value added services from the cost data provided in the ASR.

Since the ASR data does not contain the costs breakup pertaining to various VAS services, analysis of costs is not possible.

Also, ascertaining costs on the basis of assets used to provide VAS may not be practical due to the difficulty faced by operators in separating common assets being used to provide multiple services.

Therefore, in absence of a detailed split of costs, the proportion of revenues from these VAS services can be used as a driver to segregate VAS related costs. Revenues from Value Added Services (VAS) currently form around 12% of total revenues and are likely to rise to 18% by CY14. This indicates that a significant proportion of the operator's network resources are being utilized for the purpose of delivery of VAS to subscribers. The regulator may therefore deem it necessary to account for the cost of these services and exclude them from any calculation of the termination charges.

3.11 Should termination charges be asymmetric in respect of existing operators and new entrants or between different types of networks? What should be the criteria to distinguish between an existing operator and a new entrant? Please justify your answer.

The termination charges should be closely linked to the cost being incurred to serve the calls to the end subscriber. The costs vary between Service Providers because of :

1. Frequency bands at which the service is being provided, as a greater number of coverage sites are required for the same area for operators using higher frequencies vis-à-vis operators using lower frequencies.
2. Quantity of spectrum available with an operator,
3. The economies of scale at which each service provider is operating
4. Established Operator and the new entrant. The traffic pattern could be considered as the criteria for distinguishing existing and new operator.

This creates an asymmetry in the costs being incurred by different operators. Asymmetric model has been followed in number of countries like UK, France, Germany, Italy, Greece, and Netherlands etc.

TRAI has highlighted this issue in its recommendation on "Spectrum management & Licensing Framework" dated 11th May, 2010

An excerpt from the same is reproduced below:
"It is well known that in free space the lower frequencies cover larger distances due to lower path loss. The coverage quadruples by halving the frequency. Therefore, for free space, coverage in 900 MHz band is 4 times that of 1800 MHz. However, in realistic scenarios like in dense urban areas, the coverage does not quadruple by halving the frequency. Many practical models used in the mobile communication industry typically show that the area of coverage roughly doubles if the frequency is halved. This means coverage at 900 MHz will be roughly double that of 1800 MHz in dense urban setting. In rural and semi-urban environments this will be even higher. Moreover, reach into the buildings is far better with 900 MHz spectrum than with 1800 MHz ."

The number of base stations required at 900 MHz and 1800 MHz spectrum band to obtain similar operating conditions with respect to the type of area covered and the quality of service experienced (for a similar set of applications) by the end user is vastly different.

In India, based on population statistics, demographic composition, operator rollout pattern etc approx. 20% of all base stations deployed are in urban areas and approx. 40% each are deployed in semi-urban and rural areas.

In a Pan-India coverage scenario, for every base station deployed in the 900 MHz band by Operator A, another Operator B having deployments in the 1800 MHz band would require 2*20% + 2.5*40% + 3.5*40% or 2.8 base stations to provide similar coverage on a pan-India basis.

To summarize, the relative number of base stations required for pan-India coverage to provide a similar QoS experience to an end customer may drastically vary because of the frequency band allocation, quantity of spectrum, new entrant Vs Incumbent. Therefore termination charges should be Asymmetric with a gliding path.

3.12 Should the TRAI treat the work done in origination and termination of a call as identical for the purpose of determining termination charges? If not, please provide justification in support of your answer.

The costs involved in originating and terminating calls are different. Though the network elements involved in origination and termination are similar, other elements vary. For example, a significant amount of sales and marketing effort can be linked to the origination of calls, as a potential customer must be encouraged to firstly subscribe to the service, and secondly to use the service. In such a state, the costs of employees, administration linked to the sales and marketing effort can also be attributed to the origination of a call. With regard to termination however, no sales and marketing effort is required as the originating operator undertakes the same.

Also, the origination charge is usually calculated by taking the residual amount of tariff retained by the originating network, after paying off the transit, carriage and termination charges. Therefore, market forces determine the origination charges as the level of the origination charge depends on the tariff being charged by the operator, whereas termination charges are wholesale, being set by the regulator.

Thus the origination charge is subject to market competition and has reduced significantly in recent years, whereas the termination charge has remained almost constant.

Also it needs to be noted that the origination charge is largely dependent on market forces. This is also reflected in the consistent fall in the origination charges over the last 7-8 years. Also, the operators having autonomy in setting origination tariffs has resulted in several innovative tariffs being introduced in the market, e.g. lifetime validity plan, per second billing plan,

etc. Some of these innovative plans have shown high uptake by subscribers and has resulted in overall benefit to the telecom market by way of increased teledensity, greater choice to the subscriber in choosing plans resulting in lower outflow, etc. Given the large number of players and competitiveness, there is no need for any price regulations as this would curb innovation in tariff plans and may prove to be a hindrance in the growth.

To Summarize: As the costs involved in the origination and termination are different, therefore TRAI should not treat the work done in the origination and termination of calls as identical for the purpose of determining the termination charges.

3.13 What should be the criteria to estimate the traffic minutes for the fixed line network as actual traffic minutes for the fixed network are not available with TRAI? Please provide justification in support of your answer.

The regulator may take the actual data available with fixed line operators, as that would be the most appropriate approach to compute the traffic minutes being carried by the fixed line network. Alternate approach may be considered based on tariffs offered by fixed line operators and determining termination cost through the prevailing tariffs.

3.14 Do you agree with the policy that origination charge should be under forbearance? Please provide justification in support of your view.

The origination charge is usually calculated by taking the residual amount of tariff retained by the originating network, after paying off the transit, carriage and termination charges. Therefore, the origination charges are subject to retail competition as the level of the origination charge depends on the tariff being charged by the operator.

As you are aware that he tariff charged by operators has significantly declined over the period 2004-2010. Also the Hirschman Herfindahl Index (HHI), an indicator of relative market competition, for various telecom circles in India is in the range of 0.16 -0.23 (as per TRAI's consultation paper on Overall Spectrum management and review of license terms and conditions.) This level of HHI indicates high level of competition across different circles.

Given the large number of players and competitiveness, there is no need for any price regulations as this would curb innovation in tariff plans and may prove to be a hindrance in the growth.

Thus, despite widespread pervasiveness of cellular connections in India, the operators are coming up with newer pricing innovations in order to cater to different customer segments.

Summarize: To aid the growth of this sector, it is important to continue with the policy of having the origination charges under forbearance.

3.15 Which of the following is the best option for International Termination Charge?
(a) Left for mutual negotiation between access providers and ILDO
(b) Reciprocal arrangements with other countries
(c) Higher than the domestic termination charge
(d) Same as domestic termination charge

For International Termination, the same network elements as that of a domestic call is utilized, therefore the same costs are incurred.

Although as there is no extra cost involved in terminating an international call as compared to a domestic call, the international termination charges can be kept higher than the domestic termination charges.

India is following a policy of making ICT affordable as enumerated in NTP 99 . International termination calls, does not affect the pocket of most Indians residing in India, since more than 80% of these calls are for business purposes. Therefore SSTL strongly feels that, International termination charges should be higher than the domestic termination charges in spite of the work done may be identical.

3.16 Is there a need to specify separate ceilings for carriage charges for remote and hilly areas? If yes, how should the costs corresponding to remote/ hilly areas be segregated for carriage charges to/ from remote/ hilly areas, as the Accounting Separation Reports of the NLD operators provide only a consolidated cost for pan India operations?

Currently the ceiling for carriage charges is INR 0.65/min. The ceiling was dropped in the 2006 review from the previous ceiling value of INR 1.10/min. Since then, there have been significant changes pertaining to technological advancements, reduction in network element costs, changes in network architecture, growth in traffic and increase in market competition, resulting in changes in the overall cost structures. This is reflected in the prevalent market rates, which are significantly lower than the ceiling

The benefit of connecting the rural goes well beyond basic telecommunications. Greater broadband connectivity to the Internet promotes distance learning, E-Learning, E- Governance, E-Health applications - all of which prove to be significant economic multipliers in a spread out rural population.

In terms of telecom connectivity, the urban teledensity across all metros has crossed 100 percent and the market for voice services is tending towards saturation. However, the rural teledensity is ~30 percent and the rural market is expected to drive the next round of aggressive growth. The government has set a target for 40 percent teledensity by May 2014 for this market. This rural teledensity target seems achievable but a lot more needs to be done to reduce the widening urban-rural telecom divide. A key impediment to the growth of telecom services in the rural market is the cost to serve and any regulatory intervention which further increases the service cost is likely to increase the telecom divide as exists in the rural and urban India.

In case the regulator chooses to move to a separate ceiling tariff for remote and hilly areas, this may lead to an increase in cost to the operator, acting as a deterrent for improvement in penetration levels and quality of service. This may also lead to an increase in charges for the existing subscribers, and may

act as a hindrance in the uptake of services by new subscribers.

In order to incentivise carriers, the regulator may consider offering subsidies for laying and operating networks in remote and hilly areas, through the USO fund which has the amongst its objectives the creation of infrastructure for provision of Mobile Services in rural and remote areas.

3.17 Do you feel that TRAI should intervene in the matter of International Settlement Rates? If so, what should be the basis to determine International Settlement Rates?

SSTL is generally in the favor of International Settlement Rates be under forbearance. However on a case-to-case basis, wherein there is a uneven settlement rates, we would welcome intervention of TRAI for setting the floor prices.

3.18 How can the cost of providing transit carriage be segregated from the cost data in the ASR? Please provide a method and costing details to separately calculate this charge.

3.19 If the cost of all relevant network elements is taken into account in the calculation of the fixed line termination charge, is there any further justification to have a separate transit carriage charge? Please give reasons for your answer.

3.20 Is there a need to regulate the TAX transit charges or should it be left for mutual negotiations? In the event transit charge is to be regulated, please provide complete data and methodology to calculate T A X transit charges.

Response to questions 3.18, 3.19 and 3.20

The cost of providing transit carriage cannot be segregated in the ASR since the distance-based data is not captured in the ASR. Such calls can be of two types,

1. Calls originating from a mobile phone and terminating on another mobile phone, transiting through BSNL's L1 Tax, in case of emergency breakdown or network congestion on the direct link.
2. Calls originating from a mobile phone and terminating on a BSNL fixed line transiting through BSNL's L1 TAX in case of emergency breakdown or network congestion on the direct link

The current charge of INR 0.15/min is based on dated cost data and the charge from LDCA to SDCA may be reviewed to reflect the actual cost incurred. Most operators continue to handover their traffic at a transit charge of INR 0.15/min. The transit charge can be separately calculated by considering the network elements involved in carrying transit calls. It has been assumed that only 10% of the off-net incoming calls go through the transit route. For the mobile operator, only the core network elements and transmission links have been assumed to be relevant for the calculation.

Using the network equipment details, the capital expenditure incurred by the operator can be determined. This capital expenditure can then be allocated on the basis of the proportion of the total transit minutes carried on the network (10% of the off-net incoming call minutes). The depreciation chargeable on the capital expenditure can be determined using the straight line method and considering the network life to be ten years. The weighted average cost of capital in conjunction with the depreciation charged can then allow for the calculation of the return that would be required for the capital investment incurred.

The network operating expenditure can be determined by considering the O&M expenditure for each type of network element. Further, other common costs indirectly related to the maintenance of the network elements can be added.The transit charge can thus be determined by taking the ratio of the total cost as calculated above to the total volume of transit call minutes.

The actual transit charges should be lower than the current transit charge of INR 0.15 per minute further there is expected to be a year on year decline in the transit charges as a result of improved efficiencies. The regulator may therefore prescribe a glide path with year on year reductions in transit cost for the period of applicability of the IUC regime.

Summarize: Regulator may regulate the transit charges to reflect the actual cost to provide transit services and prescribe a gliding path with year on year reduction in transit charges.

3.21 Is there any need to prescribe separate termination charges/ carriage

charges for video calls? If yes, how should this charge be calculated in the absence of cost data? Please provide the methodology and data to be used.

The termination charges for video calls can be set under the Bill and Keep regime. The Bill and Keep methodology requires the setting of the termination charge at zero and is the most suitable for video calls as detailed below:

1. Currently, video calls are technologically feasible only on the 3G or BWA networks. At present the number of players is limited to 4 per circle for 3G and 3 per circle for BWA (including BSNL / MTNL). Thus the level of competition is expected to be lower than in the 2G space, which features 10-12 players in each circle. Further in most circles the players having the highest market shares in 2G have won the 3G license. Under this condition, it is expected that the operators are likely to have similar market shares, leading to symmetry across operators with respect to video calling.

2. Video calls can be undertaken across different technologies. A subscriber at present has the option of utilizing video calling based on one or more of 3G, femto-cells, WiFi hotspots, and BWA. For example, smart-phones currently permit video calling over 3G and Wifi using proprietary applications such as Facetime as well as publicly available applications such as Skype and Fring. The Bill and Keep regime is platform / technology independent and would therefore not require any changes under the introduction of a converged multi service network.

As the factors pertaining to the nature of the market and the applicability to new technologies are addressed through the Bill and Keep regime, the regulator may extend the same to video calls.

3.22. Do you agree that a deterrent termination charge should be imposed for commercial SMS? In your view, what would be the most appropriate level of

termination charge for commercial SMS?

This issue can be examined along three dimensions:

a) Cost to operators

b) Impact on subscribers

c) Minimizing unwarranted messages

From a cost perspective, in a typical GSM environment a commercial SMS or Application to Peer (A2P) SMS is carried on the SS7 signaling channel and does not require incurring of a large capex for setting up an SMS center. There is no requirement of any incoming airtime, as such messages are delivered over IP. Also, billing, authentication and cash balance checks are not required. This results in the low cost of less than 1 paisa for each A2P SMS. However in a CDMA Environment, the messages are stored and then forwarded therefore there is an additional cost involvement compared to GSM network.

Thus the current regulation of Bill and Keep wherein the originating operator retains the revenues should be continued as the cost to carry traffic for any operator is minimal. This should be regulated and TRAI should not fix the termination as forbearance.

The impact on subscribers of any termination charge imposed is likely to be adverse as A2P SMS are likely to be utilized for not only commercial applications, but also in the regular operation of other industries e.g. meeting regulatory requirements in the financial industry (currently consumers are sent SMSs for securing electronic commerce transactions and notifying stock holders of account details, as well as in the future for operationalsing m-commerce transactions). In such a scenario, the telecom regulator may find it prudent to ensure that the charges for such SMSs remain as low as possible, such that consumers in other associated industries are not adversely impacted.

With regard to the sending of A2P SMS to subscribers enrolled in the Do Not

Call registry, TRAI is already preparing to implement rules, which will address the issue of unwarranted messages. Thus the need for any prohibitive charges to discourage such messages is obviated.

Further, in other countries such as USA, SINGAPORE, Finland, Lithuania and Pakistan, the respective regulators have not specified the termination charges for SMS. These examples could be used as factors in shaping the policy in this country.

Summarize : TRAI should keep this as bill and keep not to leave this under forbearance. This only favors incumbent large operators. If SMS termination is fixed higher than zero, then TRAI should fix SMS origination also to be based on cost.

3.23. Do you agree that Bill and Keep regime should be put in place for other types of SMS (non-commercial SMS)? Please provide justification for your response.

This issue can be examined along two dimensions:

a) Cost to operators

b) Impact on subscribers

From a cost perspective, a Peer to Peer (P2P) SMS cost only a few paisa, due to very little additional capex required for an SMS centre.

The incremental cost to serve subscribers is nominal. Further, the cost associated with accounting and settlement of SMS related interconnect charges may exceed the actual inter operator payout.

The impact on subscribers of any move away from the Bill and Keep methodology is likely to result in greater costs for subscribers. Currently each subscriber sends approximately 40 messages per month by SMS, with a greater than 15% p.a. growth trend exhibited over the past two years. This indicates the degree of reliance on SMS messaging for a typical subscriber.

Summarize : TRAI should keep this as bill and keep not to leave this under forbearance. This only favors incumbent large operators. If SMS termination is

fixed higher than zero, then TRAI should fix SMS origination also to be based on cost.

3.24. Is there any need to prescribe SMS carriage charges or should it be left for mutual negotiation? If SMS carriage charges are to be calculated, what methodology should be used to calculate these charges? Please provide all cost details and methodology.

As enumerated in the earlier response, that carriage cost for SMS are very negligible and therefore not to be tampered with. Further TRAI should mandate as done in the earlier recommendation termination for SMSs should be Bill and keep, and not leave this under forbearance.

3.25 Do you agree that with the inclusion of all costs in the calculation of Interconnection of Usage Charges the item " incremental cost for roaming services" should be excluded from the computation of tariff ceiling for national roaming? If not, please give reasons.

Roaming occurs when a subscriber moves from the home network to a different circle. Under this situation, the only incremental change is that the number of the subscribers is updated in the Visitor Location Register at the MSC of the same operator in the roaming are no external network elements involved in the delivery of these services. There is no interconnection with any other operator and thus the issue of an interconnection charge does not arise. This is also reflected in the some of the existing tariff plans.

Since there are no additional costs incurred for providing roaming services to subscribers, therefore the item ***" incremental cost for roaming services"*** may be excluded from the computation of tariff ceiling for national roaming.