Ref: TRAI Consultation on National Broadband Plan (NBP)

15 July 2010

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Dear Shri Gupta,

Thank you for offering us the opportunity to provide a formal input to the consultation paper on a National Broadband Plan for India. The GSMA agree broadband access is critically important for social and economic development and believe wireless and in particular mobile, will play a significant role in delivering broadband access in India.

The GSMA contends that it will take a mix of technologies and delivery mechanisms to meet government ICT goals (20M by 2010 is now unachievable) but 100M by 2014 could be, if government looks to a complete and inclusive structure. The USA[1], Germany[2] and Australia have all recently concluded and made recommendations on National Broadband strategies for their countries with wireless and spectrum availability as a cornerstone of their NBPs. The GSMA would like to focus on wireless as a key component in any National Broadband strategy and specifically would like to offer suggestions for allocation of adequate spectrum to facilitate broadband roll out where the fixed network infrastructure is either not available or where it is prohibitively expensive to deploy.

Introduction

The GSM family of technologies including GSM, GPRS, EDGE and UMTS/HSPA accounts for more than 4.5Bn subscriptions, translating to a global market share in excess of 90%. Founded on open standards and with competition at every level, the well-established GSM ecosystem has delivered unrivalled economies of scale and cost performance, including sub $20 handsets. GSM technologies are now transforming data markets by providing high speed data access. Given the right investment environment and market conditions, wireless technologies and mobile in particular will be a key component of any broadband plan. The GSMA believe getting the right environment means that wireless technologies can carry an

[1] http://www.broadband.gov/plan/5-spectrum/

[2] The Bundesnetzagentur is auctioning off overall spectrum of 360 megahertz -- three times as much - in bands of 1.8 GHz, 2 GHz, 2.6 GHz and 800 MHz

equal weight in any broadband plan taking it's place alongside plans for fixed infrastructure, especially where populations are largely rural and existing infrastructure limited, then the priority for mobile is even greater.

As noted by Larry Summers on the US spectrum initiative[3] "To support this engine of economic growth, the United States must nurture an advanced, competitive, and vibrant wireless infrastructure. That means freeing up spectrum and avoiding a spectrum crunch that threatens economic growth"

There have been many studies outlining the strong correlation between economic growth, jobs and roll out of ICT infrastructure including national broadband networks. It is our contention that Mobile broadband is uniquely positioned to stimulate economic growth and welfare in areas that lack adequate fixed-line broadband infrastructures. In a study we commissioned in 2009 by McKinsey entitled: Mobile Broadband for the Masses[4] the report estimated that bringing broadband penetration levels in emerging markets to today's Western European levels could potentially add USD 300-420 billion in GDP and generate 10-14 million jobs

Mobile Broadband – A Key Driver for Broadband Connectivity

The GSM ecosystem is now deploying Mobile Broadband services, using High Speed Packet Access (HSPA)[5] technology, faster than any other mobile technology ever deployed. There were more than 300 networks live, more than 2000 devices from 150 different suppliers and more than 280M connections across 124 countries/territories worldwide at the beginning of 2010. The next generation of mobile broadband namely LTE is being deployed in the US, Japan, Asia and Nordic Countries and those countries considering refarming of 900 MHz & 1800 MHz are allowing LTE to be deployed in a 'technology neutral' approach to spectrum allocation. In total over 100 operators are committed to deploying LTE.

At the time of writing this response India has successfully completed the process of auctioning 3G & BWA spectrum kick starting the process of providing ubiquitous wireless broadband connectivity throughout India.

Mobile Broadband does much more than just provide faster access to online services, it can also bridge the "digital divide" and bring broadband to the billions of people worldwide who

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[3] **"**Technological Opportunities, Job Creation, and Economic Growth**"** Remarks at the New America Foundation on the President's Spectrum Initiative. Lawrence H. Summers. June 28, 2010

[4] http://www.gsmworld.com/documents/McKinsey_Mobile_Broadband_for_the_Masses.pdf

[5] HSPA refers to High Speed Packet Access and encompasses HSDPA, HSUPA and HSPA+ (also referred to as HSPA Evolution)

have no access to cable or DSL services and are unlikely ever to do so. There are more than 4.5 billion mobile users, covered by GSM, compared with 1.1 billion fixed-line users.

Widespread Mobile Broadband coverage, coupled with innovative new devices, such as net/notebooks with integrated radio cards or dongles, advanced handheld smartphones such as the iPhone, Blackberry Bold, Android and fixed wireless terminals connecting multiple devices etc, has resulted in exponential growth in data traffic. The continued development of the GSM family of technologies is designed to ensure that the mobile industry can continue to meet this fast-growing demand for secure, always-available and easy-to-use broadband services.

1. Strategies to Ensure Availability of Spectrum For Mobile Broadband

In mature markets we have already seen significant growth in mobile traffic stemming from uptake of mobile broadband services. This simply means that increased bandwidth for mobile is required. The ITU has estimated that mobile traffic growth means bandwidth requirements by 2020 will be in the range of 1280-1720 MHz of bandwidth per market whilst the current situation provides between 450-600 MHz of bandwidth per market (expressed in unpaired bandwidth).

The introduction of 3G and 4G data services will be key to the growth of mobile broadband, and this will most likely be the main delivery mechanism for universal broadband across India due to the lack of fixed line infrastructure. A number of clear steps are required to ensure that India can introduce such services at the earliest opportunity, namely:

- Ensuring that internationally harmonised spectrum bands are made available in good time to allow operators to deploy such services,
- The method of spectrum allocation to operators is done through large contiguous blocks for the good of Indian consumers and the wider economy,
- Operators should be free to buy and sell spectrum between themselves, provided there is no significant interference problems (such as change of use from FDD to TDD in adjacent blocks necessitating guard bands),
- That the spectrum blocks assigned per operator must be commensurate with the technology and efficient spectrum utilisation requirements set by the TRAI; and
- Ensuring that suitable amounts of spectrum in line with recent international activity such as the US (500MHz) and Germany (360MHz) are offered to operators to support new mobile broadband offerings.

1.1. Spectrum Co-ordination and Harmonisation

The continued success of GSM and its related technologies has been driven by the use of a common underlying technology and coordinated spectrum planning across markets worldwide. GSM and WCDMA deployments use specific ranges in the radio spectrum, so that the radio interfaces developed by chip manufacturers are applicable across many different markets and, as far as possible, are not fragmented into national or regional variants. This harmonisation drives down costs in the chip market and enables customers of one network operator, to roam on to networks of other operators without a discernable difference in service.

For LTE to drive benefits, co-ordinated and co-operative deployment is needed. Mobile network operators will fulfil part of this by mass adoption of LTE as a unifying technology across the global market, but realising the full potential of Mobile Broadband services depends upon the use of common spectrum bands for LTE, particularly in the low frequencies below 1 GHz

For deployment of LTE to be successful globally, spectrum co-ordination needs to take place. This is a difficult task to achieve since spectrum availability becomes increasingly limited as more and more radio technologies are deployed both in mobile networks and other applications, such as broadcast television and government bodies. Unlike previous technologies, LTE has been designed to be able to use a range of spectrum bandwidths, from a few MHz up to 20 MHz wide, meaning that LTE can be deployed in parts of the spectrum that could not be used for HSPA.

However, flexibility alone is not enough. Spectrum for deployment of LTE will be available in high frequency ranges – 2.5 GHz and 3.5 GHz – but as the frequency increases, cell size decreases and the ability of radio waves to penetrate walls is reduced, making in-building coverage difficult.

1.2. Digital Dividend

Using lower-frequency spectrum, such as that freed up by the ‘Digital Dividend’ and under consideration by JTG – India would reduce or remove some of these problems. At the point when analogue television signals are turned off, a portion of the spectrum in the range 470-862 MHz range becomes free. This spectrum represents a sweet spot for mobile services, offering the best coverage. While the majority of this spectrum will be needed to provide digital television services, it is important that governments worldwide allocate at least 100 MHz for mobile services, enabling operators to provide coverage with fewer base stations and at much lower cost. This, in turn, would mean that rural communities that are currently not reached by existing broadband networks – both wired and wireless – could be covered. Use of this low-frequency spectrum would also further improve coverage in rural and sub urban areas and within buildings, enabling people to remain continuously connected to

mobile broadband, bridging the digital divide and supporting the policy objectives of the National Broadband Plan as outlined in the TRAI consultation; e-government, e-health and education via broadband.

It is also important that other governments in the region and their regulators, at least at a national level, allocate as much of 698– 806 MHz band of Digital Dividend spectrum for mobile services (in a harmonised way) enabling equipment suppliers to sell the same network units and devices across many different markets and achieve economies of scale, thus lowering the cost to end-users.

We believe that the TRAI and GSMA share a common interest in the successful development of the 700 MHz band in India. The GSMA have ongoing work and activity on the Digital Dividend with ITU-R Study Group 5, we have worked with US operators on the development of a common plan for Region 2, ongoing activity in Region 1 with CEPT, the European Commission and the African Telecoms Union, and are active in Region 3 through APT and with operators and administrations. In addition, the GSMA is working closely with key manufacturers to optimise band plans which reflect regional requirements whilst supporting the need for harmonisation.

Fragmentation creates unnecessary costs. GSMA analysis[6] of economies of scale at the handset level showed that fragmentation would significantly increase handset costs whilst also reducing radio frequency efficiency. These costs have the biggest negative consequences for consumers that are most sensitive to price, hence the need for India to choose a band plan arrangement that will deliver the highest benefits to the Indian consumers in terms of economies of scale.

India has limited bandwidth available in other internationally harmonised mobile bands such as the 900, 1800 and 2100 MHz bands where economies of scale have allowed for lowest possible handset cost (and most efficient roaming opportunities). This limited bandwidth combined with the rapid roll-out of mobile networks and extensive subscriber growth in the Indian market, leads to a situation where making maximum spectrum available in the UHF band and utilizing the same in the most efficient manner is of utmost importance.

As already outlined in a previous submission to TRAI pre consultation on 4G & JTG-India on 700 MHz a 2x45 MHz band plan option (with the conventional duplex between 698 and 806 MHz is slightly preferable from technical point of view), may be the preferred option for India(note 6) because it will:

- Maximize the use of the limited spectrum available in India
- Deliver large contiguous blocks of spectrum for mobile broadband
- Avoid potential fragmentation of the band and possible in-band interference issues

[6] http://gsmworld.com/documents/Advantages_of_Common_Frequency_Bands.pdf

- Is technically the most efficient design of the band

By allocating spectrum in the most efficient way and in a manner that reflects the domestic needs of India and also it's desire to integrate into the international community, the JTG will facilitate the possibility of India's businesses and consumers realising the greatest potential for social and economic benefits from the UHF spectrum.

The GSMA believe that there is an opportunity for India to demonstrate regional leadership in the AWF, in participating in the ongoing debate on the duplex direction, as well as helping to promote a consensus that an AWF decision should be developed and approved for the next meeting in September. Such an APT decision, whilst not being binding, would be a significant indicator of the administrations' willingness to pursue an Asia specific band plan to benefit Asian consumers and economies. The wider the foot-print of the adoption of a 2 x 45 MHz band plan, the greater the economies of scale that will accrue.

The Key Spectrum Bands for India

For India the key spectrum bands (licensed on the basis of technology neutrality) to be made available to support the aims and objectives of the NBP which should be considered for use in the next few years is outlined below:

UHF digital dividend 698-806MHz (using the band plan that will be agreed in AWF) – which GSMA hope will become the Asia Pacific coverage band for LTE

India is in a strong position to lead the regional process in the APT/AWF and must continue to push for a solution that suits India's needs and the needs of Asia Pacific more widely. It would be good for the NBP consultation to explore these issues. This band is vital for ensuring mobile broadband coverage in rural and sub urban areas. This is even more important in India as there seems little prospect of UMTS 900 being made available anytime soon through refarming. We have seen it takes vendors a couple of years to make a band available once it is clearly identified and planned so India must ensure a rapid conclusion on this band, particularly as Doordarshan is not using or planning on using this band for broadcasting.

2.6 GHz which is rapidly being seen as the international capacity band for LTE (ITU Option 1, 3G Expansion band)

This band is needed to provide the capacity that will be needed to make mobile broadband a mass market proposition. If the Indian market is forced to have small cells to provide coverage then the data limits per subscriber will inevitably be less than they otherwise could have been, not to mention the underlying cost to build the infrastructure being much higher.

As is noted in the TRAI consultation document, some awards have already taken place (Sweden) and more will follow in the next year or so in Europe (Germany 2010). This probably means that India needs to start preparing plans to migrate services from those bands (if it wants high speed mobile broadband) in the near future, so it can be awarded in the next two years.

C band 3.4-3.8 GHz and up to 4.2 GHz

India being such a large densely populated country with limited fixed telecommunications infrastructure needs to look to the future in terms of capacity. It seems likely that as economic growth continues in India, and the middle class expands, the ability of even 2.6 GHz to meet the data rates needs of commerce and citizens may be a problem. There is the need for thinking about what capacity bands might be needed beyond the year 2016. It is possible for a new WRC agenda item to be proposed at WRC 2012 for discussion at the next WRC 2016 for more spectrum for IMT. It may be useful for the TRAI or WPC to consider consulting on this band supporting the NBP objectives and reflect over this longer time frame, if things have changed or if any other bands might provide the capacity that may be required beyond the year 2016.

Noting the general comments above we provide specific answers to the questions raised in the consultation in the section 2 below, focussing on wireless as a key component of India's National Broadband Plan.

2. GSMA Responses to Specific Consultation Questions on India National Broadband Plan

Para 3.22 What network topology do you perceive to support high speed broadband using evolving wireless technologies

Technology – Long Term Evolution (LTE)

Mounting evidence suggests most existing mobile operators will favour LTE above other technologies for the UHF band, thanks to the huge installed base of networks in the mobile ecosystem and the value of maintaining operational compatibility across succeeding generations of networks.[7] Compatibility benefits customers and underpins sustainable rates of investment in new facilities. Operators can offer services with the widest possible national and international coverage while they are building and rolling out next-generation networks in parallel with operating existing networks.

Deploying LTE in the UHF band will perfectly complement deployment of LTE in the 2600 MHz band (2500-2690 MHz). Making the 700 MHz band available in a manner which promotes LTE deployment will make for cost-efficient rural coverage and cost efficient initial urban area roll-out with excellent indoor coverage for mobile broadband. The 2600 MHz band constitutes the perfect complement to 700MHz allocation, making it possible to achieve the capacity needed for handling greater traffic volume in urban areas.[8]

The GSMA notes that the complementary nature of mobile coverage bands such as the700 MHz band and mobile capacity bands such as the 2600 MHz band have led to spectrum managers in mature markets in Europe starting to consider and actually implementing the auctioning of several mobile bands simultaneously. India may wish to consider the advantages of such an approach once determinations of these bands have been finalised.

LTE for the UHF band is standardised using frequency duplex division (FDD) and consequently the band plan for the 700 band must be designed for FDD to accommodate what is becoming the mobile technology of choice in the UHF band.

Where fixed network infrastructure does not exist to support the required network backhaul, Mobile operators can use fixed microwave point to point links where spectrum licences are available, to provide the necessary backhaul capabilities ensuring that even rural areas can be covered in accordance with NBP objectives.

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[7] According to the GSMA, Wireless Intelligence there are around 100 LTE network commitments in over 50 countries. Major non-GSM operators, notably Verizon Wireless, have also chosen LTE for their next generation system.

[8] Please see recent GSMA press release about this band **"2.6 GHz Band Vital for the Growth of LTE According to GSMA Backed Research"**: http://www.gsmworld.com/newsroom/press-releases/2010/4551.htm

Conclusion: *LTE is emerging as the preferred mobile technology in the UHF band and this means confirming a band plan for mobile in the UHF band is a key step once the digital dividend spectrum is determined.*

Structuring the 2.5-2.69GHz band

The GSMA have the view that the rapidly growing and evolving HSPA ecosystem must be taken into account in the planning of future spectrum assignments in the 2.5-2.6GHz extension bands to ensure that these benefits to national economies are maximised. The 3G evolution from WCDMA to HSPA+ to LTE (Long Term Evolution/3GPP Release 8) is already well-established, with FDD mode focussing on the 2.5-2.69GHz band. The demand for paired spectrum is increasing. All major forecasts predict GSM-HSPA-LTE to continue to dominate the market with lower costs of equipment and devices and overwhelming leadership in number of subscribers. Our approach is that all technologies should have access to this band, either in FDD or TDD mode.

Therefore, the GSMA is taking a global leadership role on promoting the structuring of the 2.5-2.69GHz band around the globe for both FDD and TDD deployment, in line with the International Telecommunications Union's (ITU) Option 1 band plan of the ITU-R recommendation M.1036-3. This option recommends allocating 2x70MHz for FDD and 50MHz for TDD use.

Among the three options considered by the ITU, Option 1 and option 2 are being considered by most countries for implementation of broadband IMT technologies, while option 3 has been considered by administrations with legacy assignments so as to allow some flexibility when trying to implement only part of an IMT frequency arrangement.

The GSMA supports ITU option 1, which guarantees maximum efficiency in spectrum usage, while maintaining minimum interference between the technologies with minimal costs for operators. It also allows for technology neutrality because both FDD and TDD technologies could be developed, allowing 14 blocks for FDD uplink and another 14 blocks of FDD downlink. This is the most reasonable relative share between FDD and TDD blocks because it provides enough space for existing carriers to develop 4G technologies (most likely in the FDD space) like LTE that needs at least 2x20MHz to work at optimal levels.

Finally, it is worth noticing this band is common for all ITU regions, therefore, it would enjoy enormous benefits through economies of scale for those countries that make harmonised decisions on its structure. Countries choosing this same structure would enjoy the lowest equipment price, which is a critical aspect for businesses, government and individuals to extend reach to them all and exploit its full potential.

4.18 Is there a need to define fixed and mobile broadband separately? If yes, what should be important considerations for finalizing new definitions?

As a general point the emergence of mobile broadband requires an upgrade of the current "third screen" (i.e., a mobile handset, after TV and PC), to enable viable browsing[9]. The growth in the mobile-voice market has led to the development of a strong ecosystem surrounding this technology, with both multinationals and local companies establishing their presence.

Going forward, while iPads may remain niche products, similar high-resolution, highly portable handhelds with Local language GUIs at much lower prices are crucial if mobile browsing is to become more attractive to Indian Rural consumers. Operators In India are busy working to reduce their operating costs, which would not only address the affordability issue for consumers but also establish rational market principles, establishing a stable foundation for growth in the sector.

It is the GSMA view that Mobile Broadband should be defined as any network capable of delivering to devices download speeds >1Mbps. This definition applies equally to fixed and mobile networks.

The value selected of 1Mbps is thought to be realistic for a number of reasons if this value is highlighted as the data rate an end user actually experiences. Mobile operators and equipment suppliers sometimes talk about the "peak" download and upload speeds provided by a Mobile Broadband or HSPA connection. These peak rates are the maximum capability of the radio connection between the customer's mobile device (be that a mobile phone, laptop or other device) and the radio mast that they are communicating with. Network speeds of 3.6Mbps, 7.2Mbps, 14.4 and higher are quoted but as peak rates, the actual speed an end user experiences is slightly less due to a number of factors:

1. Technology overheads

The extra information that has to be transported about who the end user is, where the data that is being sent came from and how the data being received should be handled by the customer's phone or computer. Some software applications have additional signalling requirements that take a further portion of the available bandwidth or they have not been

[9] Booz & Co, Bringing Mass Broadband to India Roles for Government and Industry

developed with the ‘small mobile screen’ in mind. These elements can reduce the amount of bandwidth available to carry content that is visible to the mobile user.

2. Simultaneous connections

Each radio mast in a mobile operator’s network can only support a finite amount of traffic (depending on the radio technology in use) at any one time. This means that each radio mast can only provide a limited number of mobile users with the peak rate of bandwidth simultaneously.

3. Network coverage

Mobile Broadband coverage adheres to the laws of physics and that the further a user is from the radio mast providing the mobile connection, the lower the bandwidth that will be available, hence the data rate may fall from the peak rate advertised.

4. Unexpected changes in demand

Usage patterns rise and fall unexpectedly (an example of this is the growing popularity of video streaming), then the network designer’s assumptions on data demand may prove to be conservative and the connections between the radio mast and the network become overloaded. Such effects are likely to be observed at times of peak usage.

5. The Internet & Fixed Networks

Many of the services transmitted via a Mobile Broadband connection are based somewhere in the Internet. The Internet itself is often subject to congestion that simply results in traffic arriving slowly, so even if the mobile connection is delivering the maximum possible bandwidth, the content requested by the end user is not necessarily delivered at that speed.

Fixed networks also vary in performance some of these issues noted above affect other broadband technologies. The fixed-line broadband technology used by many households (ADSL) is also affected by factors 1, 4 and 5 to a greater or lesser extent. For example, conservative traffic assumptions are creating bottlenecks in DSL networks as usage rises dramatically with the advent of applications that stream video-on-demand. DSL is also impacted by something similar to factor 3, since the distance between the customers’ premises and the telephone exchange determines the amount of bandwidth available to the customer. However, as this distance is fixed the peak data rate offered to an individual is usually adjusted to take this factor into account, through xDSL training and rate negotiation at installation.

The most important consideration when defining broadband is that the definition is (1) simple to understand and (2) reflects the intended user experience in terms of supporting applications and services. It is also important to set a definition that is realistic and meets the requirements to deliver the desired social and economic goals and reflect the likely for citizens. We believe the above definition of networks capable of delivering >1Mbps meets

these high level considerations. We do not believe 'always on' is critical to the definition. For broadband always on is not the most important criteria, rather that it should be on when you want it this more closely meets consumer's expectations.

There can be complexities in the definition of broadband. Fixed and wireless networks handle data differently and the use of the networks varies in terms of content consumption and creation. However there is also a difference between fibre, DSL , cable networks and satellite. As noted above networks have different peak capacities and potential, behave differently when utilised and are dependent on 'the lowest common denominator' when delivering traffic. These differences don't necessitate a different definition for broadband, only that the definition should reflect the threshold for network capability. In service, networks prioritise and manage traffic to ensure the best possible quality of service and the best user experience.

3.39 Is non-availability of optical fibre from districts/cities to villages one of the bottlenecks for effective backhaul connectivity and impacts the rollout of broadband services in rural areas?

Backhaul can be an issue and can be a challenge and a bottleneck impacting rollout but is not the only bottleneck and may even not be on the critical path for rural communities. There is a question of how far it is appropriate to extend fibre networks and how cost effective it is to extend these networks. There is also a question of when it is appropriate to extend the fibre network in relation to the access network.

The biggest bottleneck to achieving rollout into rural areas today is availability of the access network and not backhaul. Wireless networks, both mobile and BWA with suitable microwave based backhaul, provide rapid and relative low cost solutions to directly address the access issues. Globally, governments, operators and NGO's have implemented a variety of shared access solutions and shared data centres to provide public access as well as providing access to schools and other public facilities.

A number of alternative solutions for backhaul in rural areas can be deployed to carry traffic back into the core network. These include microwave, and in very rural areas satellite. Over time as the business case for fibre becomes more viable, extending the fibre network to provide increased, cost effective, backhaul capacity will increase capacity and remove potential bottlenecks. To meet the medium term government goals for broadband however, facilitating wireless broadband access and encouraging wireless investment should be the priority.

4.42 – Does the broadband sector lack competition? If so. How can competition be enhanced in the broadband sector.

The GSMA is not qualified to speak for the broadband sector generally. In mobile and mobile broadband the market is hyper competitive in India. Competition for the 2.1GHz spectrum in the recent auctions clearly demonstrates a desire of the mobile industry to compete aggressively for their share of the mobile broadband market. Within the broadband market the mobile broadband sector, although nascent, is already highly competitive.

With regard to question on pricing. Intervention on retail pricing is highly interventionist and is contrary to allowing the market to innovate and compete. In the view of the GSMA it is inappropriate for governments to intervene in tariff plans or structures. In a competitive market companies will develop price plans to meet the needs of their customers and to attract new customers. The key role for government is to create the environment that allows for fair, transparent, competition for all competitors.

4.64 – What measures do you propose to make Customer Premises Equipment affordable for common masses?

For mobile broadband CPE global harmonisation will be critical to drive down cost. The cost of mobile devices is directly linked to the ability to leverage the economies of scale realised by global harmonisation of spectrum bands. This harmonisation allows Indian consumers to take advantage of the research and development amortisation and the production economies of scale from other markets. Indian CPE volumes also contribute to the further reduction of CPE costs globally, a virtuous circle.

Spectrum harmonisation is the critical enabler of this virtuous circle. Alignment regionally and with global band plans where appropriate is essential to drive down CPE cost and to take advantage of the global economies of scale.

Conclusion

The GSMA contends that it will take a mix of technologies and delivery mechanisms to meet the Indian government's ICT goals for Broadband, 100M connections by 2014 could be achievable if the government looks to a complete and inclusive structure. The USA, Germany and Australia have all recently concluded and made recommendations on National Broadband strategies for their countries with wireless and corresponding spectrum availability as a cornerstone of their National Broadband Plans, in both Urban and Rural areas.

Further, mobile broadband is uniquely positioned to stimulate economic growth and welfare in areas that lack adequate fixed-line broadband infrastructures. The GSMA's focus is on wireless as a key component in any national broadband strategy and specifically would like to offer suggestions for allocation of adequate spectrum to facilitate broadband roll out where the fixed network infrastructure is either not available, or where it is prohibitively expensive to deploy

The 2.6 GHz Spectrum Band provides over 190MHz of spectrum and provides a unique opportunity to realize global mobile broadband in high traffic areas, a GSMA commissioned report [10] released in January 2010 shows that it allows operators to have wider bandwidths which improves efficiency for mobile broadband deployment and is an ideal complement to the UHF digital dividend spectrum.

India is in a strong position to lead the regional process in the APT/AWF for UHF digital dividend spectrum and we would appreciate the opportunity to work together to push for a solution that suits India's needs and the needs of Asia Pacific more widely. It would be good for the national broadband plan and any consultation activity to explore these issues. This band is vital for ensuring mobile broadband coverage in rural and sub urban areas. Countries such as France, United Kingdom, Germany, United States and Canada, among others, have already reserved spectrum in the Digital Dividend band (700/800MHz) for mobile broadband. The US (in March 2008) and Germany (in May 2010) have successfully allocated this spectrum through auctions to mobile Broadband.

The GSMA welcome the opportunity to engage with TRAI in the consultation phase on NBP and together with COAI look forward to continuing dialogue and interaction in building a successful wireless ecosystem supporting the NBP objectives including universal broadband coverage, innovation and growth.

Yours sincerely,

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[10] www.gsmworld.com/gvp_report.