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# Information Memorandum 2012

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Mobile Cellular License/  
Spectrum Auction  
(3G/4G/LTE etc.)



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**Pakistan Telecommunication  
Authority**

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## PART I - PREFACE

### 1. INTRODUCTION:

1.1 This Information Memorandum (IM) has been prepared for mobile operators in Pakistan who intend to bid for a spectrum to support Mobile Cellular (3G/4G/LTE etc.) services in Pakistan and new players wishing to establish, maintain and operate telecommunication systems and provide telecommunication services to end users after obtaining license along with winning the spectrum through auction.

1.2 In particular, the IM:

1.2.1 *Summarizes steps that mobile operators in Pakistan and new players may be required to take in order to pre-qualify and take part in the planned Auction for the radio frequency spectrum in 1900/2100 MHz (3G/4G/LTE) band;*

1.2.2 *Summarizes the principles/guidelines and estimated timetable of the Auction; and provides some outline/background information on the regulatory environment in Pakistan.*

1.3 Recipients of the IM who intend to submit Application for participation in the Auction should note that the material contained in the IM is for information purposes only. Any representation or warranty, express or implied, including the accuracy or completeness of the information contained in this IM or any other written or oral information made available to any interested party and any liability in respect of any such information or any inaccuracy in this IM, or omission from this IM, is expressly disclaimed. This IM is not intended to form any part of the basis to make any investment decision or other evaluation or any other decision to participate in the Auction. Recipients must undertake their own detailed investigations and independent assessment of the issues raised in the IM and any other issues they consider relevant in order to determine whether to participate in the Auction. This IM does not constitute an offer or invitation to participate in the Auction, nor does it constitute the basis of any contract which may be concluded in relation to the Auction or in respect of any award of the Mobile Cellular License/Spectrum. Recipients will need to obtain any other information which they consider relevant. All information contained in this IM is subject to updating and amendment. Any such change shall be duly announced and communicated to the applicants through the Q&A process and shall also be notified at PTA web site: [www.pta.gov.pk](http://www.pta.gov.pk)

#### 1.4 LEGAL FRAMEWORK:

1.4.1 The telecom legal framework applicable to all existing Mobile cellular operators and successful bidders is given below:

1.4.1.1 The Pakistan Telecommunication (Re-Organization) Act 1996;

1.4.1.2 All Rules and Regulations made there-under;

1.4.1.3 All Policies of GoP; and

1.4.1.4 All PTA determinations/directives/guidelines.

Note: All documents are available at PTA web site [www.pta.gov.pk](http://www.pta.gov.pk)

#### 1.5 THE LICENSES AND SPECTRUM:

1.5.1 The Government of Pakistan has decided to grant three (03) technology neutral Mobile Cellular (3G/4G/LTE etc.) License/Spectrum through auction:

1.5.1.1 Five operators, who are currently licensed to provide mobile cellular services, are eligible to participate in the auction process;

1.5.1.2 Any new entrant who has been determined as a successful bidder as a result of March 2012 Auction for Mobile Cellular License shall be eligible to participate;

1.5.1.3 All new prospective entrants eligible to bid and agree to start commercial operations after March 2013 may also participate in the auction.

1.5.2 It is further clarified that services can only be offered as per the terms and conditions of the License granted by PTA under the Pakistan Telecommunication (Re-Organization) Act, 1996. Award of spectrum does not confer a right to provide any telecom services, and these are governed by the terms and conditions of the License obtained by the operator. A draft template of Mobile Cellular License (3G/4G/LTE etc.) for new players is attached as Annex-D. ***Mobile Cellular License(s) of existing operator(s), who is/are also Successful Bidder(s) in this auction, shall be modified accordingly.***

1.5.3 Mobile Cellular License/Spectrum will be issued for 15 years. Existing operators will be granted Mobile Cellular (3G/4G/LTE etc.) spectrum on such terms and conditions as contained in the Appendix

annexed to their existing 2G Mobile Cellular License. The Appendix is attached at Annex-D1 of this IM. However, a new player shall be granted Mobile Cellular (3G/4G/LTE etc.) License for its winning spectrum(s) as per Annex-D of this IM.

## **1.6 DURATION:**

### **1.6.1 New Mobile Cellular License(s):**

New License(s) shall be granted for a period of 15 years from the 'License Effective Date'. License(s) shall be renewed for another term on 'Terms & Conditions', as per the Government policy at the time.

### **1.6.2 Existing Mobile Cellular Licensees acquiring additional spectrum (3G/4G/LTE etc) as identified in addendum of their licenses:**

1.6.2.1 The Existing Mobile Cellular License(s) shall be renewed on expiry of its existing term for the remaining duration of assigned spectrum (3G/4G/LTE etc) as identified in the addendum of the existing license as per the Government policy at the time.

*Note: Operators holding multiple bands shall continue to hold all bands of spectrum unless otherwise desired by GoP, or a decision by PTA based on violation of the spectrum obligations by the licensee(s), or if surrendered by the Licensee(s) on terms and conditions agreed by the Authority.*

## **1.7 THE APPLICATION PROCESS:**

1.7.1 In order to qualify for the Auction, Bidders must submit EoI along with Application before the last date for submission of EoI/Applications. Detailed requirements for submission of documents along with the Application are attached in the form of "Check List" annexed to this IM as Annex-F. Furthermore, a deposit of 15% of the Base Price as Bid Earnest Money is required. The amount must be received in PTA bank account number NIDA 11-1 maintained at National Bank of Pakistan, Jinnah Avenue Branch, Blue Area, Islamabad, Pakistan through SWIFT Telegraphic Transfer by the date given in the schedule of events. Further information in this regard will be provided at the time of submission of Application.

*PTA reserves the right not to qualify any applicant without giving any reason whatsoever.*

## **1.8 THE AUCTION PROCESS:**

1.8.1 The Auction will be held in Multiple Rounds through open outcry. Base Price for the Mobile Cellular (3G/4G/LTE etc.) License/Spectrum is **US\$ 210 Million**. During the Auction, the bidders will be required to increase their bids by a minimum of US\$ Two (02) million to a maximum of US\$ Ten (10) Million each time they intend to bid in a round.

## **1.9 TIMETABLE:**

1.9.1 PTA reserves the right to determine the overall timetable of the Auction, taking account of the circumstances prevailing at the time. However, in order to assist potential bidders in the preparation of their bids, table 1.1 below provides an indication of the intended process.

<b>Table 1.1: Indicative Timetable</b>	
Publication of IM	20 <sup>th</sup> January 2012
Begin date for submission of Expression of Interest (EOI) / Application	21 <sup>st</sup> January 2012
Pre-Bid Conference	2 <sup>nd</sup> March 2012
Closure of queries	9 <sup>th</sup> March 2012
End Date for submission of EoI / Application as per Annex-E	9 <sup>th</sup> March 2012
Response of queries from PTA	11 <sup>th</sup> March 2012
Qualification of bidders before auction	12 <sup>th</sup> March 2012
Auction	29 <sup>th</sup> March 2012

## **PART II – INFORMATION ON PAKISTAN TELECOMMUNICATION SECTOR**

### **2. ECONOMY OF PAKISTAN:**

- 2.1 Pakistan is the 6<sup>th</sup> most populous country in the world, with an estimated population of 177.1 million in 2010-11. The annual population growth rate during the recent years (2005 to 2010) has been around 2.0 %;
- 2.2 Pakistan is a democratic country consisting of two houses of the Parliament, the National Assembly and the Senate. The head of the State is the President, and the head of the Government is the Prime Minister. The Supreme Court heads the Judiciary. Administratively, Pakistan is divided into four provinces: Punjab (Capital is Lahore), Sindh (Capital is Karachi), Khyber Pakhtun Khwa (Capital is Peshawar), and Baluchistan (Capital is Quetta);
- 2.3 Pakistan has extraordinarily important strategic endowments and great development potential. Pakistan occupies a strategic location at the crossroads of South Asia, Central Asia, China and the Middle East. It is at the fulcrum of a huge market with a vast population, enormous and diverse resources and huge untapped potential for trade and a huge potential source of demand and growth for Pakistan. Pakistan has a large population; the sixth most populous country in the world and the most urbanized in South Asia;
- 2.4 Approximately 36% of Pakistani population resides in urban areas. The largest urban centers are Karachi (estimated population of 15.3 million), Lahore (estimated population of 8.5 million) Faisalabad (estimated population of 5.8 million) and Rawalpindi/ Islamabad (estimated population of 6.2 million). Islamabad is the capital city of Pakistan with an estimated population of 1.7 million;
- 2.5 The current per capita income of Pakistan in dollar terms is approximately US \$ 1,207;
- 2.6 Pakistan economy grew at 6.4% on average per annum during last decade though recently it went to a dip because of some adverse shock like devastating floods, global financial fallout and instable oil & commodity markets. In the year 2010-11, the economy registered growth of about 2.4%. With some reprieve and continued efforts by the Government of Pakistan, we hope that it would revert to its potential growth trajectory. Pakistani Diasporas is an asset who remitted US\$ 9.1 billion during July-April 2010-11 as against the US\$ 7.3 billion in the same period of last year;

- 2.7 Agriculture is an important sector of the economy as it employs over 45% of the total population and provides essential input for agro-based industries including textile and sugar. Agriculture income has therefore created demand for industrial goods as well as services. Agriculture also accounts for a significant share of foreign exchange earnings. Pakistan is the world's fourth largest producer of cotton and the economy depends primarily on cotton and textile exports as a major source of foreign exchange and employment. Cotton textile production is the single most important industry, accounting for about 46% of overall manufacturing activity in the country. Other important industries are cement, vegetable oil, fertilizer, sugar, steel, machinery, tobacco, paper and paperboard, chemicals, and food processing;
- 2.8 For the year 2010-11, the Agriculture sector grew an estimated 1.2%, against a target of 3.8%, and previous year's growth rate of 0.6%. While the Crops sub-sector declined 4% over the previous year, Livestock posted a healthy rise of 3.7%. Industrial output expanded by 4.9%, with Large Scale Manufacturing (LSM) posting a 1.71% rate of growth. The Services sector grew 4.1%, as compared to 2.9% in 2009-10;
- 2.9 Pakistan emerged from four years of stringent macro-economic adjustments. The government tackled some difficult economic issues, including Pakistan's significant debt payments. Pricing was broadly deregulated, including in the energy sector, import tariffs were rationalized and reduced significantly. Pakistan's central bank was granted unprecedented autonomy and capital market prudential oversight was strengthened. These measures were taken to improve the general investment climate in the country;
- 2.10 A central element of Pakistan's economic reform process has been the effort to reduce persistent government budget deficits. The overall fiscal deficit which averaged almost 7.0% of GDP during the 1990s has been gradually reduced over the years and remained 4.3% during Jul-Mar 2011 despite pressures on public finances due to intensification of war on terror and slow economic growth. There has been a 14.3% increase in tax revenue during FY2010. Total revenue relative to the GDP increased from 13.4% in FY2000-01 to 14.2% in FY2010-11 whereas total expenditures as percent of GDP remained 20.5% in FY2010-11. The government's efforts to introduce wide ranging tax reforms and promote fiscal transparency were also the contributory factors to deficit reduction. As a result, public debt, as a percent of GDP, declined from 78.9% in FY2000-01 to 60.2% in FY 2010-11;

- 2.11 During the last six years (FY2005-6 to FY2010-11), Pakistan has received a Foreign Direct Investment (FDI) inflow of US\$ 21.5 billion. A significant (32%) of these FDI inflows were in the telecommunication sector due to privatization, deregulation and new telecom operators. Historically, the United States, United Kingdom, United Arab Emirates and Saudi Arabia have been Pakistan's major sources of FDI investment. Principal sectors attracting such investment are financial services, oil and gas exploration, power, trade, transport, storage and communications, chemicals, pharmaceuticals, fertilizers, and textiles;
- 2.12 Financial reforms introduced in 1990s have liberalized Pakistan's banking sector, which had long been dominated by state-owned banks. Private Banks are gradually playing a more significant role. Pakistan's financial system has grown in recent years, still there is an enormous potential for growth. The system remains relatively small in relation to the economy, when compared with other emerging countries in Asia and around the world. Private Banks are gradually playing a more significant role. As on December 2010, number of branches of banks stood at 9,339, compared to 9,146 on 30 June 2009. Assets of all banks showed a net expansion of Rs 4,353 billion during the last five years (2006 to 2010) and stood at Rs 7,138 billion. Hence the asset base of the banking system increased by 64% during this period;
- 2.13 Additional information on the state of the economy in Pakistan is available in Pakistan Economic Survey-2010-11 published by the Ministry of Finance. The Survey is available at the website of the Ministry of Finance: <http://www.finance.gov.pk>;
- 2.14 Pakistan is a member of the main international and regional organizations, including the United Nations, (currently Pakistan has been elected as a non-permanent member of the Security Council for a term of two (02) years), the Organization of the Islamic Conference (OIC), Commonwealth, ASEAN Regional Forum (ARF), the Economic Cooperation Organization (ECO), the World Trade Organization (WTO), the South Asian Association for Regional Cooperation (SAARC), the International Telecommunication Union (ITU) and the Asia Pacific Telecommunity (APT). The ECO, whose founding members are Pakistan, Turkey, and Iran, grants a 10- percent tariff preference on statutory rates for some goods. In 1993, ECO membership was expanded and Afghanistan, Azerbaijan, and the five formerly Soviet Central Asian republics were admitted to this organization. The SAARC comprises India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, and the Maldives. SAARC proposed a South Asian Preferential Trading Agreement, which became operational after ratification by the member states in

November 1994. The SAARC Governments have signed an agreement on South Asian Free Trade Area (SAFTA) on 6 January 2004. This agreement shall supersede the SAARC Preferential Trading Agreement (SAPTA). Pakistan is also a member (along with India and Nepal) of the Asian Clearing Union, which was founded in 1976 and aims at facilitating multilateral payments through the use of currencies of participating countries in regional transactions in order to expand intra-regional trade and save convertible foreign exchange;

- 2.15 Pakistan has negotiated Bilateral Investment Treaties with several countries, including the Peoples Republic of China, France, Germany, the United Kingdom, the Republic of Korea, the Netherlands, Romania, Sweden, Spain, Portugal, Kazakhstan, Turkmenistan, Tajikistan, Kyrgyzstan, Uzbekistan, Switzerland, Azerbaijan, Bangladesh, the United Arab Emirates, Iran, Indonesia, Tunisia, Syria, Belarus, Mauritius, Italy, Oman, Sri Lanka, Australia, Japan, Belgium, Denmark, Czech Republic, Thailand, Philippines, Egypt, Lebanon, Morocco Qatar, Turkey, Kuwait, Malaysia, Laos, Cambodia and Singapore. These treaties generally include dispute settlement provisions. If a dispute cannot be settled through mutual consultation, investors can generally take cases to arbitration under rules of the U.N Commission on International Trade Law or to the World Bank's International Center for Settlement of Investment Disputes or to the Court of Arbitration of the International Chamber of Commerce. Pakistan is a member of the Multilateral Investment Guarantee Agency, an arm of the World Bank;
- 2.16 The Protection of Economic Reforms Act, 1992, safeguards local and foreign investments in Pakistan. This statute, inter-alia, guarantees the right to bring, hold, sell, transfer and take out foreign exchange within or out of Pakistan; protects fiscal incentives provided by the government; and protects investors against expropriation of assets;
- 2.17 Companies doing business in Pakistan are subject to the Companies Ordinance, 1984, as amended. This statute sets out the legal regime applicable to the incorporation, operation and termination of companies in Pakistan. The Securities & Exchange Commission of Pakistan (SECP) is the administrative entity responsible for registration of companies under Companies Ordinance 1984, as amended. Applicants should consult their own professional advisors for further information on company law requirements;
- 2.18 The Income Tax Ordinance, 2002 is applicable on the companies conducting business in Pakistan. To obtain more information on Pakistan's taxation regime, visit the website of the Federal Board of Revenue:

<http://www.fbr.gov.pk> Applicants should also consult their own professional taxation advisors for more complete information on Pakistan tax requirements;

- 2.19 Pakistan has one of the most liberal foreign investment regimes in South Asia. One hundred percent foreign equity is permitted in the manufacturing and infrastructure sectors. Ongoing reform of Pakistan's trade regime is reducing tariff barriers. Duty on capital goods, plant and machinery not manufactured locally is now just 5%, having earlier been in a range of 5-25%;
- 2.20 Pakistan has bilateral and/or double taxation treaties or agreements with more than 50 countries, including Austria, Canada, Germany, Indonesia, Italy, Lebanon, Mauritius, Poland, Switzerland, Turkmenistan, Kazakhstan, the United Arab Emirates, Belgium, China, France, Greece, Iran, Japan, Libya, Saudi Arabia, Romania, Sweden, Belarus, Hungary, Jordan, Kenya, Kuwait, Malaysia, Netherlands, Nigeria, Norway, Oman, Philippines, Qatar, South Africa, Syria, Tunisia, Uzbekistan, the United Kingdom, USA, Bangladesh, Denmark, Finland, India, Ireland, South Korea, Malta, Singapore, Sri Lanka, Thailand and Turkey.

### **3. OVERVIEW OF TELECOM SECTOR IN PAKISTAN:**

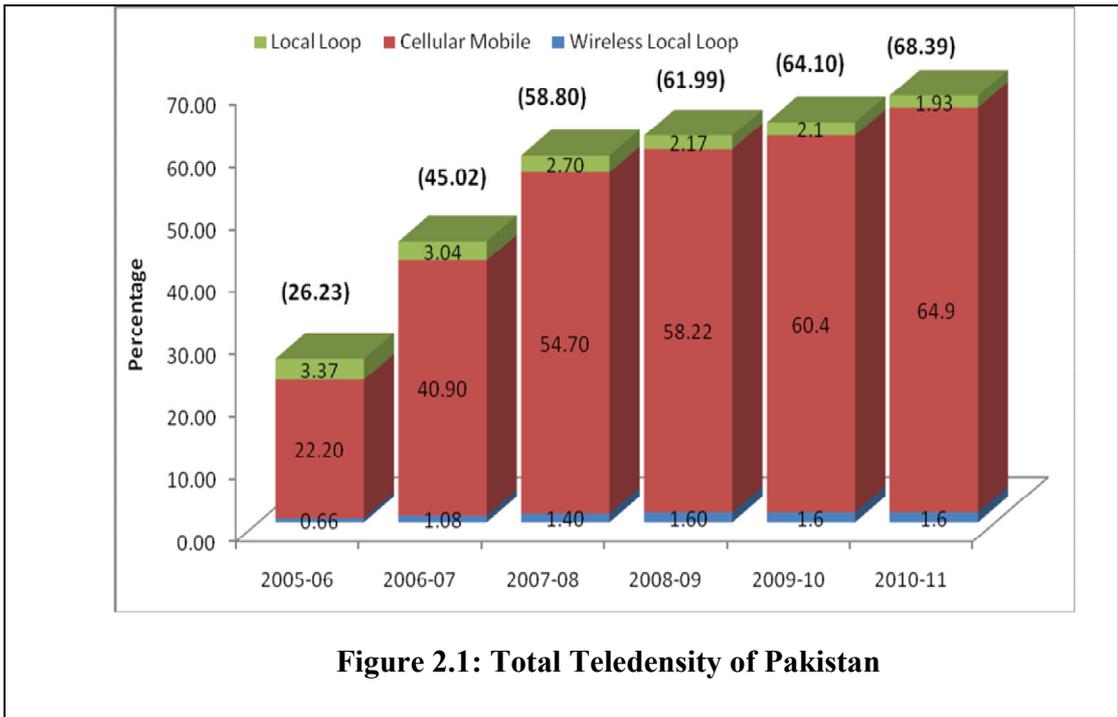
- 3.1 The telecommunication sector in Pakistan has grown rapidly in the past seven years and offers significant opportunities in every segment of the telecommunications market. The Federal Government has granted high priority to developing telecommunications in the country to achieve sustainable growth in all sectors of the economy. Pakistan possesses a very healthy competition in 2G mobile market with some of the world's most successful investors in emerging markets including Orascom (VimpelCom), Telenor, Etisalat, SingTel and China Mobile;
- 3.2 Pakistan has international connectivity with other countries through undersea cables, satellite links and terrestrial cables. Pakistan is linked to Southeast Asia, the Middle East and Western Europe by the SEA-ME-WE-III submarine fiber optic cable system. An older submarine cable also links Pakistan with UAE;
- 3.3 Pakistan has established submarine cable connectivity (SEA-ME-WE-IV) for the international link and improving through IMEWE and SEAMEWE-V. In addition, Transworld Associates have established Pakistan's first ever private sector undersea fibre optic cable system (TW-1) which connects Pakistan with rest of the world. Transworld is a joint venture between Orascom Telecom of Egypt, the Saif Group of Pakistan and the Omzaest Group of Oman and is planning to lay another submarine

cable in near future. With the start of above international links, Pakistan has now established sufficient backbone for international connectivity. The country is also in process of connecting with Iran, India, Afghanistan and China with terrestrial optical fibre for improving the redundant connectivity and providing the hub for international connectivity to central Asian states;

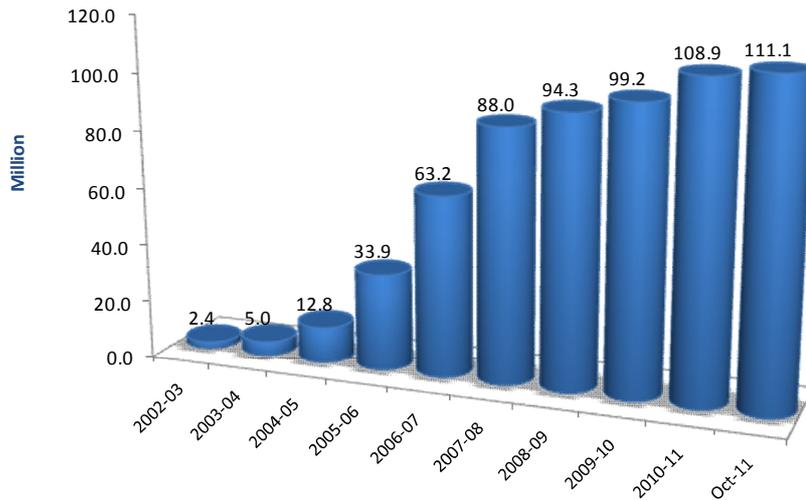
- 3.4 In addition to the international connectivity Optical Fibre connectivity inside the Country have also improved over the years connecting most of the cities and town all across the country. Many companies have established optical fibre networks accumulating to a total 20,500 km of fibre network. The following table summarizes the domestic optical fibre network:

1	PTCL	5,500 Km
2	Wateen	5,500 Km
3	Multinet	4,500 Km
4	Link Direct	5,000 Km
Total		20,500 Km

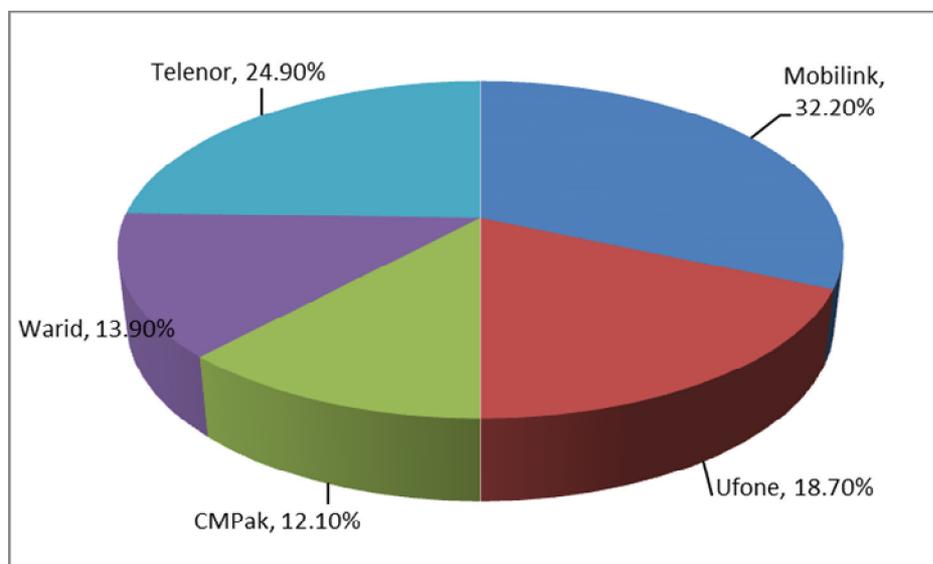
- 3.5 To promote development of affordable telecommunication facilities in un-served areas of Pakistan Universal Service Fund (USF) have been working successfully over the past years since its establishment, because of the same USF Pakistan is one the most successful universal service access story all around the world. So far a total of 4063 Kms of optical fiber has been laid by USF so far in un-served areas and lying of 2460 Kms is in progress. Most of the tehsil headquarters of the country are not connected with optical fiber;
- 3.6 The telecommunication sector in Pakistan has shown significant growth in the recent years, however, it still lags behind many of its comparable economies in terms of fixed line density (number of fixed phones per 100 inhabitants), mobile penetration (number of mobile subscribers per 100 inhabitants) and internet usage. Due to the fact that there is a substantial population that is devoid of telecommunication services, there exists an enormous potential for growth of telecommunications in the country;
- 3.7 The graph below shows Pakistan's total teledensity over the last six years:



3.8 In line with the global trends, the mobile cellular sector of Pakistan has shown stronger growth than the fixed line telephony. Pakistan currently has over 111 million cellular subscribers. The number of subscribers has increased more than fifteen times in the past seven years but there still exists high demand for mobile cellular communication services in the country. The start of operations by U-fone in 2001, and Telenor and Warid in 2005 facilitated growth in number of subscribers as shown below:



- 3.9 The market share of five mobile operators in Pakistan mobile market is indicated in the figure given below. Mobilink being the market leader has 32.20% market share, U-fone 18.70%, CMPak 12.10%, Telenor 24.90% and Warid 13.90%;



**Figure 2.3: Cellular Market Share (2G) 2010-11**

#### **4. LICENSED TELECOMMUNICATION SERVICES PROVIDERS:**

##### **4.1 MOBILE CELLULAR SERVICE PROVIDERS:**

The following paragraphs give brief description of the five existing Mobile Cellular Operators:

###### **4.1.1 Pakistan Mobile Communication Limited-PMCL (MOBILINK):**

4.1.1.1 PMCL (Mobilink) launched its GSM network in 1994. In June 2003, the company became the largest mobile operator in Pakistan. The company has cell sites covering over 1,400 cities, towns and villages. PMCL operates under the consumer brand 'Mobilink'. In the year 2010-11, PMCL had a subscriber base of 33.9 Million with 32.2% share of the whole market.

###### **4.1.2 Telenor:**

4.1.2.1 Telenor acquired the license for providing GSM services in Pakistan in April 2004, and launched its services

commercially in Islamabad, Rawalpindi and Karachi on March 15, 2005. The license terms stipulate that by year 4 Telenor will cover 70% of Pakistan's 297 administrative Tehsil headquarters. Telenor have fulfilled the license requirements and provide superior quality coverage.

4.1.2.2 Currently, the company has over 28 million subscribers with 24.9% of market share. Telenor is providing mobile services in over 750 cities/towns/villages and highways across Pakistan.

#### 4.1.3 **Pakistan Telecom Mobile Limited - PTML (UFONE):**

4.1.3.1 Pak Telecom Mobile Ltd. is Pakistan's fourth mobile operator and second GSM operator. It launched services in January 2001 under the Ufone brand. Till the end of year 2010-11, it has over 21 million subscribers and a market share of 18.7 %. Pak Telecom Mobile Ltd. is a wholly owned subsidiary of PTCL controlled by Eitilat. Ufone is dubbed as the most innovative operator in the market offering innovative value added services to its consumers.

#### 4.1.4 **Warid Telecom:**

4.1.4.1 Warid Telecom, entered along with Telenor, in Pakistan's telecom sector is being backed by the Abu Dhabi Group, one of the largest groups in the Middle East. It launched its services in 23<sup>rd</sup> May 2005 in 28 cities across Pakistan in the 1<sup>st</sup> phase. In year 2010-11, the total number of subscribers has reached 15.6 million. Currently, the company is providing its services in cities and towns all over Pakistan with market share of 13.9%. Warid Telecom has mainly targeted the population residing in urban areas of the country offering superior quality services in these areas.

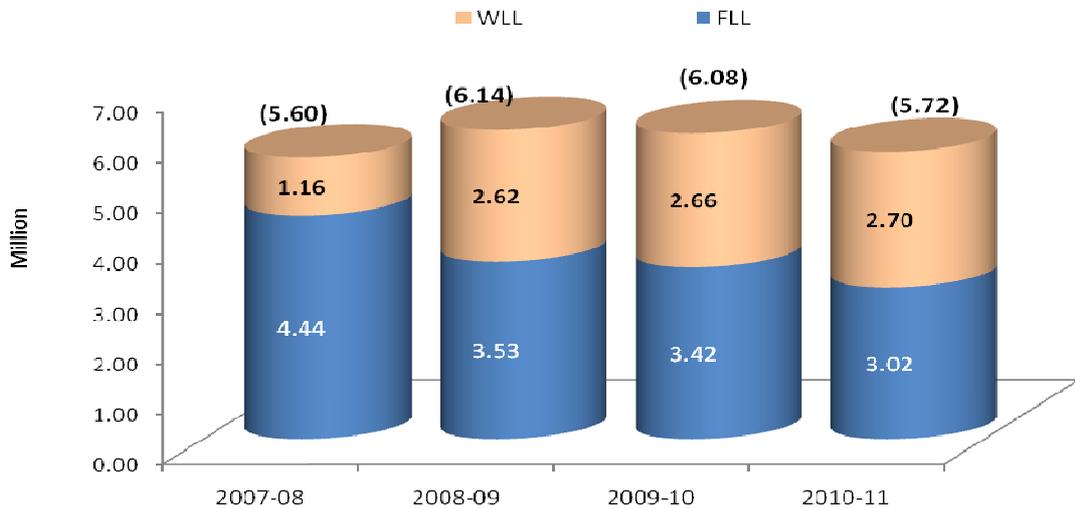
#### 4.1.5 **CMPak Ltd. (ZONG):**

4.1.5.1 CMPak Limited, previously known as Paktel was founded in 1990 and claims coverage, network quality, customer services and value added services. It presently offers cellular services all across the country. CMPak is owned and controlled by China Mobile the biggest cellular mobile operator in China. Presently they have over 13.5 Million Subscriber base and having 12.1 % of the total market share.

## 4.2 LOCAL LOOP SERVICES:

4.2.1 Pakistan has been divided into 14 Telecom regions, a local loop operator has to operate within the telecom region for which the license is awarded. Local Loop operators include both fixed line and Wireless operators and are operating all over the country. So far there are 16 Fixed Local Loop operators who are operating in different areas of the country along with 13 Wireless Local Loop operators in all 14 telecom regions:

4.2.1.1 For the year 2010-11 local loop subscriber's base was 5.72 Million which included both fixed and wireless local loop operators. The figure below shows the growth trend and comparison between fixed and wireless local loop subscriber base.



**Figure 2.4: FLL and WLL Subscribers Share**

## 4.3 LONG DISTANCE AND INTERNATIONAL SERVICES:

4.3.1 Long distance international services is an integral part of the telecom sector which are responsible for carrying international traffic from Pakistan to abroad and terminating international traffic in Pakistan. At the time of de-regulation in 2004 a total of 14 LDI licenses were awarded to various companies, besides PTCL, the incumbent operator. Major players include Link Direct, Wateen, WorldCall and Telegard. Almost all of the LDI operators are providing LDI service using NGN networks.

#### 4.4 CLASS VALUE ADDED SERVICES:

4.4.1 Class value added service licensing started in 2005-06 which comprises three broad categories for licensing. i.e. CVAS Data, CVAS Voice and CVAS Registration for provision of different services such as Vehicle Tracking System, Payphone Services, Premium Rate Services, Video Conferencing etc. So far a total of 353 Licenses have been issued to various companies which are operating in different areas across Pakistan.

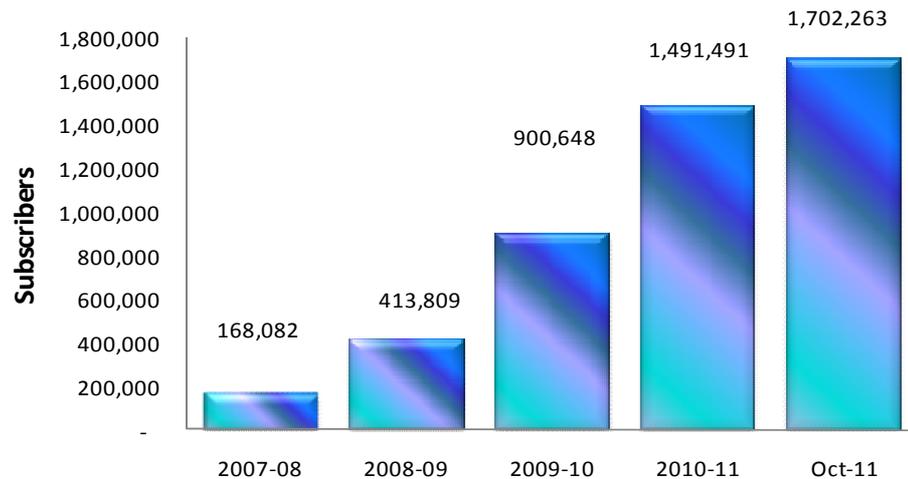
#### 4.5. INTERNET AND BROADBAND SERVICES:

4.5.1 In line with the Federal Government policy of expanding Internet access throughout the country, there is direct digital Internet connectivity in more than 2,389 cities and towns. Customers are able to access internet through legacy dial-up connections as well as DSL services in both fixed and wireless media;

4.5.2 To promote broadband Internet services in Pakistan, PTA directed PTCL to enter into agreements with ISPs for the provision of Digital Subscriber Line (DSL) services under certain conditions. Currently there are many major players providing broadband facilities in the country both fixed and wireless including PTCL, WorldCall, Telecard, Wi-tribe, Link Dot Net, Sharp, NayaTel and Wateen;

4.5.3 Pakistan's Broadband market have got a lot of growth potential as so far the broadband penetration rate is quite low i.e. only 1% but on the other side the growth rate of broadband penetration has been 150% consistently for the last few years which clearly depicts the potential that the market has got. According to ***“Point Topics Global Broadband Report for the 4<sup>th</sup> Quarter 2009” Pakistan stands among the top 10 countries for annual broadband subscription growth;***

4.5.4 The below figure shows the positive growth trend in he broadband subscribers base of Pakistan:



**Figure 2.5: Broadband Subscribers Growth**

## **4.6. TELECOMMUNICATION SECTOR REGULATION IN PAKISTAN:**

### **4.6.1 REGULATORY FRAMEWORK:**

4.6.1.1 Prospective applicants, especially new players, should familiarize themselves with the regulatory and institutional framework for the regulation of telecommunications in Pakistan. The material on the same is available at the Pakistan Telecommunication Authority’s website at [www.pta.gov.pk](http://www.pta.gov.pk).

4.6.1.2 Pakistan modernized its regulatory framework for telecommunications in 1996. PTA was established as the telecom sector regulator, and the Frequency Allocation Board (FAB) was constituted to manage the radio frequency spectrum. Since then, further changes have occurred in the years 2000 and 2004, when the Pakistan Telecommunication Rules and Polices came into force, and more recently in preparation for the liberalization of the sector with the granting of new Licenses.

### **4.6.2 PAKISTAN TELECOMMUNICATIONS (RE-ORGANIZATION) ACT, 1996 (the “Act”):**

4.6.2.1 The Act came into force in 1996, and contains the following:

- a.) Establishes the institutional framework for, and the main principles applicable to, the regulation of telecommunication activities;
- b.) Establishes a licensing regime for telecommunication operators;
- c.) Established the PTA and granted it powers to issue and enforce licenses, regulate tariffs, determine interconnection disputes, and issue regulations in support of its powers and functions;
- d.) Established the FAB, which is responsible for allocating and assigning radio frequency spectrum resources; and
- e.) Authorizes the Federal Government to make rules to implement the Act.

#### **4.6.3 PAKISTAN TELECOMMUNICATION RULES, 2000 AND POLICES:**

4.6.3.1 The Rules, issued by the Federal Government in 2000 and Policies in 2004/05, establish regulatory requirements for licensing, interconnection, PTCL tariffs, procedural matters and appeals.

#### **4.6.4 REGULATIONS:**

4.6.4.1 PTA has the power to issue regulations relating to its powers and performance of its functions under the Act. Regulations have been issued to deal with holding of public hearings on specific matters, license application process, criteria for granting licenses, Quality of voice/data services , complaints against licensees, terminal equipment standards and approval, numbering, universal service, promotion of competition, fees to be charged to licensees, establishment of advisory committees and regional offices of the PTA.

#### **4.6.5 PROPOSED AMENDMENTS IN THE REGULATORY FRAMEWORK:**

4.6.5.1 PTA plans to update the regulatory framework stimulated by the fixed line telecommunications Deregulation Policy and the Mobile Cellular Policy through MoIT.

#### 4.6.6 INSTITUTIONAL FRAMEWORK:

4.6.6.1 The three key organizations of the institutional framework are the Ministry of Information Technology, the Pakistan Telecommunication Authority and the Frequency Allocation Board. These are briefly described below:

**a.) MINISTRY OF INFORMATION TECHNOLOGY:**

i.) The Ministry of Information Technology (Information Technology and Telecommunications Division), is the Federal Government department that oversees the telecommunication sector. Its functions, inter-alia, include:

- Preparation of an overall integrated Plan as well as formulation of policy for the development and improvement of information technology, including infrastructure, in Pakistan;
- Co-ordination with the Provincial Governments, autonomous bodies, private sector, international organizations and foreign countries in respect of information technology;
- Planning and policy making covering all aspects of telecommunications excluding radio and television;
- Representing Pakistan before the International Telecommunication Union and other international bodies in the telecommunications field; and
- All matters relating to PTCL, PTA, FAB, NTC, Telecommunications Foundation and the Special Telecommunications Organization.

**Note:** To obtain more information about the Ministry of Information Technology, please visit its website: [www.moit.gov.pk](http://www.moit.gov.pk)

**b.) PAKISTAN TELECOMMUNICATION AUTHORITY:**

i.) The telecommunication sector is regulated by the Authority, an independent administrative agency governed under the Act and reporting directly to Cabinet Division:

- Regulating the establishment, operation and maintenance of telecommunication systems and the provision of telecommunication services in Pakistan;
- Receiving and disposing of applications for the use of radio frequency spectrum;
- Determining interconnection disputes between operators;
- Investigating and adjudicating on complaints against licensees; and
- Submitting recommendations to the Federal Government on policies with respect to international telecommunications.

**Note:** To obtain more information about the Pakistan Telecommunication Authority, please visit its website: [www.pta.gov.pk](http://www.pta.gov.pk)

**c.) FREQUENCY ALLOCATION BOARD:**

- i.) The FAB allocates and assigns radio frequency spectrum to licensees through PTA;
- ii.) The FAB also coordinates assignment of frequencies with other boards when the frequencies are required for channels working to places outside Pakistan or where interference to channels operated by other authorities is likely to occur;
- iii.) The FAB also investigates all complaints of interference and take appropriate action to effect the clearance thereof.

**PART III – GENERAL INFORMATION REGARDING MOBILE CELLULAR  
(3G/4G/LTE etc.) LICENSE/SPECTRUM AND REGULATIONS**

**5. LICENSE TERMS:**

**5.1 SPECTRUM ALLOCATION:**

5.1.1 The License/Spectrum to be auctioned will permit the licensee to build, own and operate a technology neutral Mobile Cellular (3G/4G/LTE etc.) network, and offer Mobile Cellular (3G/4G/LTE etc.) services to consumers. The License/Spectrum shall be personal to the licensee and shall not be assigned, sub-licensed to, or held on trust for another person, without the prior written consent of the Pakistan Telecommunication Authority. A modification to the substantial ownership interest or control of the Mobile Cellular operator is possible at any time during the term of the License, as per the existing Rules and Regulations, subject to approval of PTA;

5.1.2 The Mobile Cellular (3G/4G/LTE etc.) spectrum is available in blocks of 9.8 + 9.8 MHz each. Auction will be held for three (03) blocks of 9.8 + 9.8 MHz each and the successful bidder will have the option to choose one or maximum two blocks of spectrum, as the case may be, of its liking from the available blocks. The 1<sup>st</sup> runner up will have the option to choose one or maximum two blocks of spectrum, as the case may be, of its liking from the remaining available blocks after matching the highest winning price. The 2<sup>nd</sup> runner up will be allotted the only remaining block, if any, after matching the highest winning price;

***Note : A bidder may bid for a maximum of two blocks, provided such an intent is specifically mentioned in the Application. In that case the bidder shall have to deposit Bid Earnest Money for two blocks of spectrum i.e. 63 Million USD (2 x 15 % of the Base Price)***

**5.2. OUT-OF-BLOCK EMISSIONS:**

5.2.1 The system implemented by a Mobile Cellular (3G/4G/LTE etc.) Operator must conform to the out-of-block emissions limits specified by the relevant International standardization forums such as ETSI, ANSI, ITU, 3G/4G/LTEPP/2, IEC etc. The Mobile

Cellular (3G/4G/LTE etc.) operator shall be solely responsible for meeting all regulatory obligations and any radio frequency interference caused by its network's base stations to other users of the radio frequency spectrum.

**5.3. DURATION OF LICENSE/ SPECTRUM:**

5.3.1 Each License/Spectrum shall have duration of 15 years from its Effective Date. The same may be extended for another term after expiry of the initial 15 year period.

**5.4. COVERAGE OBLIGATION:**

***First Phase: Service in four Provincial Capitals and the Federal Capital***

5.4.1 All new licensees are required to launch Cellular Mobile (3G/4G/LTE etc.) services and complete the first phase as above within 12 months of the Effective date of Mobile Cellular (3G/4G/LTE etc.) License. For existing operators, the first phase as mentioned above is to be completed within 06 months of allocation of spectrum;

***Second Phase: Service in another 10 Major Cities across Pakistan (excluding cities covered in First Phase)***

5.4.2 All new licensees and the existing players will have to complete the second phase of roll out within 18 months from the date the roll out obligation for the first phase is completed;

***Third Phase: Service in 80% of District Headquarters and Tehsil Headquarters***

5.4.3 All new licensees and the existing players will have to complete the third phase of roll out within 3 years in case of District Headquarters and 8 years in case of Tehsil Headquarters from the date the roll out obligation for the second phase is completed;

5.4.4 PTA may direct the operators to extend their services to other major cities/locations of Pakistan where technically and commercially feasible with or without the assistance of USF after negotiation;

5.4.5 Performance Bond in the shape of an irrevocable and continuing Bank Guarantee, acceptable to PTA, of an AAA rated bank for the above-mentioned obligation will be provided by licensees to PTA for an amount of US\$15 Million. In the event of failure by any

licensee of the above-mentioned coverage obligations, the Bank Guarantee of that licensee will be encashed by PTA. The licensee shall be obliged to submit a revised an irrevocable and continuing Bank Guarantee of US \$15 Million within one month of the encashment of old Bank Guarantee.

## **5.5 BANK GUARANTEE FOR PAYMENT OF OUTSTANDING DUES:**

5.5.1 In order to safeguard the regulatory dues of GoP in case of default, as a continuing guarantee for payment of annual regulatory dues, the licensee shall deliver to PTA an irrevocable and continuing Bank Guarantee acceptable to PTA, from a AAA rating bank, for the amount of US \$1,000,000 (One Million US Dollars). If payment of any dues is not made by the licensee by the due date, PTA shall have the right to encash the Bank Guarantee at any time, to the extent of the amount unpaid by the licensee. In the event of encashment of the Bank Guarantee by PTA, the licensee shall be obliged to submit a revised irrevocable and continuing Bank Guarantee of US \$1,000,000 (One Million US Dollars) within one month of the encashment of old Bank Guarantee.

## **5.6 OTHER OBLIGATIONS:**

5.6.1 In addition to the conditions set out in the IM, Cellular Mobile (3G/4G/LTE etc.) operators will be obliged to fulfil the following:

5.6.1.1 Call blocking must not exceed 2% during peak hours, unless a derogation is granted by PTA for technical reasons;

5.6.1.2 Provision of mandatory emergency services as determined by PTA;

5.6.1.3 Cooperation with Law Enforcement Agencies i.e. Lawful Interception compliance;

5.6.1.4 Non-discrimination between end-users, in particular with regard but not limited to, quality, availability and reliability of the service;

5.6.1.5 Obligation with regard to tariffs in accordance with Telecom Consumer Protection Regulations 2009 and other related regulations/determinations;

5.6.1.6 Provision of detailed and precise billing to end-users upon request;

- 5.6.1.7 Obligations with regard to privacy and data protection;
- 5.6.1.8 Obligations with regard to the provision of appropriate technical details to PTA;
- 5.6.1.9 Obligations with regard to the publication of adequate and up to date information regarding network coverage;
- 5.6.1.10 Obligations with regard to interconnection;
- 5.6.1.11 Obligations with regard to supporting the development and growth of mobile handset and telecom equipment manufacturing in Pakistan;
- 5.6.1.12 Obligations with regard to clearance of cell sites as per Standard Operating Procedure of PTA/FAB; and
- 5.6.1.13 Obligations with regard to national security.

**5.7 PAYMENT:**

5.7.1 Licensees will be required to pay various fees, contribution and charges to PTA. The following table summarizes the fee structure. Detailed description is given in the license template.

<b>Table 5.1 Fee Structure</b>	
<b><u>FEE/CHARGES</u></b>	<b><u>AMOUNT</u></b>
Initial License/Spectrum Fee	One time upfront Initial License/Spectrum Fee equivalent to the value of the Auction Winning Price in US\$, or its equivalent in Pak Rupees to be converted at the TT selling rate of National Bank of Pakistan on the day preceding the date of payment prior to award of license/spectrum but within 60 working days of the Auction Date.
Annual License Fee	Calculated on the basis of 0.5% of the licensee's annual gross revenues from Licensed Services minus inter-operator payments and PTA/FAB mandated payments. However, the Initial License/Spectrum Fee shall not be deducted from the gross revenue for the purpose of calculation of Annual License Fee.
USF Contribution	Calculated on the basis of 1.5% of the licensee's annual gross revenues from Licensed Services minus inter-operator payments and PTA/FAB mandated payments. However, the Initial License/Spectrum Fee shall not be deducted from the gross revenue

	for the purpose of calculation of USF Contribution.
R&D Fund Contribution	Calculated on the basis of 0.5% of the licensee's annual gross revenues from Licensed Services minus inter-operator payments and PTA/FAB mandated payments. However, the Initial License/Spectrum Fee shall not be deducted from the gross revenue for the purpose of calculation of R&D Fund Contribution.
Annual Spectrum Administrative Fee	Annual Spectrum Administrative Fee (ASAF) shall be applicable to all Cellular Mobile licensees on the basis of the spectrum allocated to each Cellular Mobile Operator out of the total spectrum allocated to all Cellular Mobile Operators to recover 75 % of FAB's total budgeted expenditure in the light of Appendix B of the Mobile Cellular Policy 2004. The ASAF is payable in advance for next Financial year by 30 <sup>th</sup> June of every year.

## 6. REGULATORY ISSUES:

6.1 This Chapter outlines some of the key regulatory issues concerning Mobile Cellular (3G/4G/LTE etc.) services in Pakistan.

### 6.2 NATIONAL ROAMING:

6.2.1 Operators are free to negotiate national roaming agreements with one or several operators. The national roaming shall be in accordance with clause 6.5 of the Mobile Cellular Policy of January 2004.

### 6.3 INTERNATIONAL ROAMING:

6.3.1 Mobile Cellular operators shall put in their best efforts to enter into the necessary agreements with foreign operators in order to enable and provide international roaming.

### 6.4 INFRASTRUCTURE SHARING:

6.4.1 Infrastructure sharing shall be considered as a matter of first priority by the Mobile Cellular Operators at the time of roll out. The cellular mobile licensees are required to share infrastructure with other operators as per PTA's directives.

### 6.5 NUMBERING:

6.5.1 Where the Mobile Cellular (3G/4G/LTE etc.) spectrum is awarded to existing cellular operators, the numbers already allocated to the

cellular operators could be used for Mobile Cellular (3G/4G/LTE etc.) services as well. This will also enable the operators to upgrade the service of their existing users from 2G to 3G/4G/LTE etc. However, in case an operator wishes to have separate numbers for Mobile Cellular (3G/4G/LTE etc.) services, the numbers shall be allocated to them from the National Numbering plan relating to mobile cellular services. However, new players can request for numbering series as per the procedure/regulations devised by PTA.

## 6.6 INTERNATIONAL MOBILE STATION IDENTITY NUMBERS:

6.6.1 All new Mobile Cellular Operators shall be provided a unique network identity code.

## 6.7 NUMBER PORTABILITY:

6.7.1 The operators shall implement number portability for Mobile Cellular (3G/4G/LTE etc.) subscribers on the first anniversary of their licenses with all Mobile Cellular Operators. For this purpose, all Mobile Cellular operators are required to contribute to Pakistan Mobile Database (PMD) Company in accordance with MNP Regulations.

## 6.8 SPECTRUM ISSUES:

### 6.8.1 Current allocation of 2G spectrum

6.8.1.1 Current allocations of 2G spectrum is summarized as:

<b>Table 6.1: Current allocations of 2G spectrum</b>			
<b>S. No.</b>	<b>Company Name</b>	<b>Assigned Frequencies/BW in Pakistan</b>	
1	<b>CM Pak Limited</b>	882.5 - 890.1 MHz / 927.5 - 935.1 MHz	(7.6 + 7.6) MHz
		1739.7 - 1745.7 MHz / 1834.7 - 1840.7 MHz	(6 + 6) MHz
2	<b>Pakistan Telecom Mobile Limited (PTML) (U Fone)</b>	894.9-902.5MHz / 939.9-947.5MHz	(7.6+7.6) MHz
		1718.9-1724.9 MHz / 1813.9-1819.9 MHz	(6+6) MHz
3	<b>Pakistan Mobile Communication Limited (Mobilink)</b>	907.3-914.9 MHz / 952.3-959.9 MHz	(7.6+7.6) MHz
		1733.7-1739.7 MHz / 1828.7-1834.7 MHz	(6+6) MHz

4	<b>Telenor Pakistan Limited</b>	902.5 - 907.3 MHz / 947.5 - 952.3 MHz	(4.8 + 4.8 ) MHz
		1724.9 - 1733.7 MHz / 1819.9 - 1828.7 MHz	( 8.8 + 8.8 ) MHz
5	<b>Warid Telecom Limited</b>	890 -894.8 MHz / 935 - 939.8 MHz	(4.8 +4.8 ) MHz
		1710 - 1718.8 MHz / 1805 - 1813.8 MHz	(8.8 +8.8 ) MHz

## 6.9 REGULATION OF SMP OPERATORS:

6.9.1 In the light of Rule 17 of the Pakistan Telecommunication Rules 2000, PTA carries out regular market reviews for the purpose of declaring SMP operators and place suitable obligations on SMP operators including tariff regulation, cost-orientated interconnection rates, provision of Reference Interconnect Offer, accounting separation etc.

## 6.10 QOS STANDARD:

6.10.1 All PTA's Regulations on QoS, relevant QoS KPIs, standards/ Recommendations/Globally known operator practices shall be applicable as identified by PTA. Commencement certificate to any operator will not be granted until and unless the quality of service KPIs/standards as set by PTA are met.

## PART IV – BIDDING AND AUCTION PROCESS

### 7. THE AUCTION:

7.1 The Auction will be conducted in accordance with the Mobile Cellular Policy of January 2004 and MoIT Mobile Cellular (3G/4G/LTE etc.) policy for award of Mobile Cellular (3G/4G/LTE etc.) License/Spectrum.

### 7.2 TIMETABLE:

7.2.1 The timetable for the Auction has been set as shown in the table below, however, PTA reserves the right to change the overall timetable of the Auction, taking account of the circumstances prevailing at that time. In order to assist potential Applicants in preparation of their bids, table 7.1 below provides an indication of the process.

<b>Table 7.1: Indicative Timetable</b>	
Publication of IM	20 <sup>th</sup> January 2012
Begin date for submission of Expression of Interest (EoI) / Application	21 <sup>st</sup> January 2012
Pre-Bid Conference	2 <sup>nd</sup> March 2012
Closure of queries	9 <sup>th</sup> March 2012
End Date for submission of EoI / Application	9 <sup>th</sup> March 2012
Response of queries from PTA	11 <sup>th</sup> March 2012
Qualification of bidders before auction	12 <sup>th</sup> March 2012
Receipt of Bid Earnest Money in PTA's Bank account	22 <sup>nd</sup> March 2012
Auction	29 <sup>th</sup> March 2012

### **7.3 SPECTRUM FOR MOBILE CELLULAR (3G/4G/LTE etc.) SERVICES:**

7.3.1 Spectrum for Mobile Cellular (3G/4G/LTE etc.) licenses has been made available in blocks of 9.8 MHz given below. The winner of auction will have choice to select any block of 9.8+9.8 MHz from the available spectrum in 1900/2100 MHz:

<b><u>Block</u></b>	<b><u>Frequency</u></b>
A	1920-1929.8/2110-2119.8 MHz (9.8+9.8MHz)
B	1929.8-1939.6/2119.8-2129.6 MHz (9.8+9.8 MHz)
C	1939.6-1949.4/2129.6-2139.4 MHz (9.8+9.8 MHz)

***Base Price for a block of 9.8+9.8 MHz is US \$ 210 Million***

### **7.4 CONDUCT OF THE AUCTION:**

- 7.4.1 The Bidding Committee shall be announced prior to Auction. The Bidding Committee reserves the right to cancel, postpone or delay the auction at any time during the auction proceedings.
- 7.4.2 Applicants shall nominate maximum of three Authorized Representatives for communication with PTA on matters relating to the Auction, award of license and participation in the Auction.

### **7.5 QUALIFICATION OF BIDDERS:**

- 7.5.1 Applicants may raise questions and queries in writing through letter (courier), fax or email to PTA concerning this IM, by the date mentioned in Table 7.1 above, following the date of publication of this IM. PTA may not respond to questions and queries received after end date of submission of queries as given in Table 7.1.
- 7.5.2 In order to qualify for the Auction process, prospective bidders must submit EoI along with Application before the last date for submission of Applications. Prospective bidders are required to submit all documents (as applicable) contained in the Checklist of materials to be submitted with the Application at Annex-F of this IM.

7.5.3 PTA will notify the “Qualified Applicants” by courier, letter, fax, or e-mail as per the timeline mentioned in Table 7.1 that the Applicant is entitled to participate in the bidding process subject to the submission of Bid Earnest Money.

7.5.4 The bidding procedure and auction process shall be as follows:

7.5.4.1 PTA will send out invitations to Qualified Applicants for submitting Bid Earnest Money of 15% of the Base Price i.e. US\$31.5 million in equivalent Pak Rupees to be converted at the TT selling rate of National Bank of Pakistan on the day preceding the date of the payment available on NBP web site ([www.nbp.gov.pk](http://www.nbp.gov.pk)). If the payment of Bid Earnest Money to PTA is being remitted from abroad, it should be remitted through SWIFT Telegraphic Transfer in PTA’s collection account number NIDA-11-1 being maintained at National Bank of Pakistan, Jinnah Avenue Branch Code 1628, Blue Area, Islamabad, Pakistan (Swift code NBPAPKKA02I Routing No. 026004721 of National Bank of Pakistan, New York favouring NBP Head Office Karachi A/C No. 005640-4607) under intimation to PTA. If the payment of Bid Earnest Money is being made from sources in Pakistan, it should be made only through a Pay Order or Demand Draft or by way of credit in PTA’s collection account No. NIDA-11-1, under intimation to PTA. The payment of Bid Earnest Money to PTA should be credited in PTA’s bank account by the date mentioned in Table 7.1 of this IM;

7.5.4.2 PTA after verification of Bid Earnest Money from NBP will inform the Qualified Applicants of the acceptance of the same but not later than 48 hours before the Auction Day;

7.5.4.3 The Bid Earnest Money of the successful bidder(s) will be adjusted towards the Auction Winning Price (Initial License/Spectrum Fee), while the Bid Earnest Money of the unsuccessful bidders will be returned, on request, within thirty (30) working days<sup>1</sup> of the Auction Date without bearing any liability towards interest, indexation, inflation or deflation;

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<sup>1</sup> “Working Days” means Monday to Friday, excluding public holidays.

***Note: Any delays in transfer of funds should be taken up by the applicants and enough margin should be kept to ensure that all amounts are received in PTA's bank account by the given deadline.***

7.5.4.4 Only three persons including the authorized representative from each applicant shall be allowed to participate in the Bidding process.

## **7.6 AUCTION PROCEDURE:**

7.6.1 The Auction will be held in multiple rounds through open outcry. The following procedure shall be followed:

7.6.1.1 Each Applicant will be issued a card to identify himself during the bidding. The auction shall be based on an open outcry on the date, venue and the time as announced by the Bidding Committee. The Bidding Committee will be announced prior to start of the auction.

7.6.1.2 Each bidder shall cry out his bid and write it on the prescribed form duly signed by the Authorized Representative and hand it over to the Bidding Committee. The bid form is placed at Annex - E to this IM. The Authorized Representative of a Bidder shall not be allowed to participate in any activity on behalf of any other Bidder during the Auction process.

7.6.1.3 Bid will be offered for a block of 9.8 + 9.8 MHz. Base Price for a 9.8 + 9.8 MHz block will be US\$210 Million. The bidding will be made above the Base Price in line with Para 7.6.1.5 below. In case less than four qualified bidders appears on the Auction Date, the matter will be decided by the Bidding Committee accordingly.

7.6.1.4 The Bidding Committee shall continue the open outcry auction until there are no further bids. The time duration between two bids shall be five minutes. Each bidder shall be granted a timeout of fifteen minutes each, on request. The timeout will be allowed to each bidder only twice during the entire auction.

7.6.1.5 Each successive bid(s) shall have to be more than the already quoted bid. Each bid increment shall be in multiples of US\$2,000,000 (US Dollars Two Million only), with a minimum bid increment of US\$2,000,000 (US Dollars Two Million only)

and maximum bid increment of US\$10,000,000 (US Dollars Ten Million only).

- 7.6.1.6 After each bid, the bid amount and bidders' details will be recorded (manually / electronically) and displayed before the next bid.
- 7.6.1.7 When there are no further bids, the Bidding Committee shall announce the Auction Winning Price for a block of 9.8 + 9.8 MHz of Mobile Cellular (3G/4G/LTE etc.) Spectrum and the ranking of all the bidders along with their final bids. After the announcement of the Highest Bidder, no further offer to obtain the License/Spectrum shall be entertained. Thereafter, the Highest Bidder will be asked to select one or two blocks, as the case may be, from the blocks of available Mobile Cellular (3G/4G/LTE etc.) Spectrum. The selection of the Highest Bidder will be recorded.
- 7.6.1.8 The second highest bidder will be asked to match the Auction Winning Price for the block of 9.8 + 9.8 MHz of Mobile Cellular (3G/4G/LTE etc.) Spectrum. If the bidder agrees, the bidder shall be asked to select one or two blocks of 9.8 + 9.8 MHz, as the case may be, from the remaining Mobile Cellular (3G/4G/LTE) Spectrum blocks.
- 7.6.1.9 The third highest bidder will be asked to match the Auction Winning Price for the block of 9.8 + 9.8 MHz of Mobile Cellular (3G/4G/LTE etc.) Spectrum, if needed. If the bidder agrees, the bidder shall get the last block of 9.8 + 9.8 MHz of Mobile Cellular (3G/4G/LTE etc.) Spectrum.
- 7.6.1.10 In case the second or third highest bidder(s) is/are unwilling to match the Auction Winning Price, the Mobile Cellular (3G/4G/LTE etc.) Spectrum blocks shall be offered at the Auction Winning Price to the other bidders in order of their bid amounts i.e. from higher to lower until Auction Winning Price is matched. If no other bidder is ready to match the Auction Winning Price, the bidding shall be closed with award of only one or two blocks of License/Spectrum, as the case may be.
- 7.6.1.11 Each one of the Winning Bidders shall deposit 50% of the Auction Winning Price (Initial License/Spectrum Fee) as Bid Deposit in PTA's designated bank account in US Dollars or its equivalent in Pak Rupees to be converted at the TT selling rate of

National Bank of Pakistan on the day preceding the date of payment for the selected block after adjustment of the Bid Earnest Money within thirty (30) working days from the Auction Result Notification Date.

7.6.1.12 The remaining 50% of the Initial License/Spectrum Fee shall be paid within sixty (60) working days from the Auction Result Notification Date in US Dollars or its equivalent in Pak Rupees to be converted at the TT selling rate of National Bank of Pakistan on the day preceding the date of payment.

7.6.1.13 If any of the Winning Bidder fails to make the payments as referred above within the stipulated time, the next highest bidders in the order of their bids will be offered the License/Spectrum on the Auction Winning Price and on the same terms and conditions subject to submission of written undertaking and Bid Earnest Money of US Dollar 31.5 Million (US Dollar Thirty One Million Five Hundred Thousand only).

7.6.1.14 The Authority shall forfeit the Bid Earnest Money and all other amounts received from the defaulting bidder(s).

7.6.1.15 The License/Spectrum shall only be awarded after payment of 100% of the Auction Winning Price within sixty (60) working days from the date it is offered to the bidder.

## **7.7 DISQUALIFICATION:**

7.7.1 Without prejudice to any other remedy that may be available to it, PTA reserves the right, on the recommendation of the Bidding Committee, to disqualify any Bidder and forfeit its money for any of the reasons set out below:

7.7.1.1 If a Winning Bidder abandons the bid or fails to pay first 50 % of the Auction Winning Price (Initial License/Spectrum Fee) within thirty (30) working days or remaining 50% within sixty (60) working days from the Auction Date;

7.7.1.2 Inaccuracy or misrepresentation of any facts in any part of the EoI/Application;

7.7.1.3 Illegal conduct, disruption during the auction, or indulgence in improper attempts to influence the outcome, or delay the process;

7.7.1.4 Any “corrupt practice” meaning the offering, giving, receiving or soliciting of anything of value to influence a public official in relation to auction process; or

7.7.1.5 Any fraudulent practice or misrepresentation of facts in order to influence the results of the auction process established by the IM.

**7.8 OWNERSHIP DISCLOSURE REQUIREMENTS:**

7.8.1 All bidders must disclose their ownership information in a separate sheet. No two bidders shall have any common directorship on their respective boards.

**7.9 CHANGES IN COMPOSITION OF BIDDERS:**

7.9.1 Any change in the composition of a bidder is not allowed following submission of Expression of Interest/Application and at least up to the date that the license is awarded. New members are also not allowed to join bidder after the date of Application.

**7.10 COLLUSION:**

7.10.1 All bidders are warned not to indulge in collusion. In case there is any evidence of collusion, PTA reserves the right to disqualify that bidder from the Auction process.

**7.11 INFORMATION PROVIDED BY THE AUTHORITY:**

7.11.1 The information contained in this IM and any other information provided to Applicants during the Application process, in writing, is intended to assist Bidders in preparation of their Bids and shall be binding on them in the course of bidding;

7.11.2 PTA has made, and will continue to make, reasonable efforts to include accurate and current information in the IM and in any other documents provided to Applicants. However, neither PTA nor any of its agencies, employees, representatives, advisors or consultants shall have any liability whatsoever to any Applicant or any of its shareholders or members or any other person resulting from use of or reliance on any of the information so provided. Applicants are advised to undertake their own verification of any information supplied by PTA prior to use of or reliance on that information.

**8. CONFIDENTIAL INFORMATION:**

8.1 Confidential Information means any information which, if known to other Bidders, would be likely to affect the price that other Bidders would be prepared to bid in the Auction. Such information would include, but not necessarily be limited to, the Bidder's business case, auction strategy and the highest price it is willing to bid for the License/Spectrum. Any party to whom Confidential Information in relation to a Bidder is disclosed is deemed to be an "Insider" in relation to that Bidder. Bidders and Insiders must not convey Confidential Information to any other Bidder or Insiders. In case of such evidence, PTA reserves the right to exclude these bidders from the bidding process.

**9. OTHER COMMUNICATIONS:**

9.1 All deliveries, notices or other communications made to Applicants in connection with the Application process shall be sent by designated fax or email or letter (courier) to the contact office of the bidder(s) /Applicant(s), as specified by the Applicant to PTA in his EoI/Application;

9.2 All deliveries, notices or other communications made by Applicants to PTA in connection with the Application process shall be sent by fax, E-mail or letter (courier) to the officer mentioned in Para 14 of the IM.

**10. COSTS ASSOCIATED WITH BID AND BIDDING:**

10.1 The Bidders shall bear all their costs associated with the preparation and submission of their Bids and PTA shall in no case be responsible for these or any other costs, regardless of the conduct or outcome of the application process.

**11. RESERVATION OF RIGHTS:**

11.1 PTA reserves the right, in its sole discretion, to take any action, including amendment in this IM, which it considers necessary to ensure that the Auction process is carried out in a fair, open and transparent manner, in accordance with law and discourage collusion and predatory bidding that may block the entry of potential bidders into the bidding process.

11.2 PTA further reserves the right to modify or terminate the Auction process at any time in its sole discretion. In such an event Bid Earnest Money would

be returned to the Bidder within thirty (30) working days without bearing any liability.

## **12. MISCELLANEOUS:**

- 12.1 This IM and any License/Spectrum issued pursuant to the Auction process announced herein shall be exclusively subject to, and interpreted in accordance with provisions of the Pakistan Telecommunication (Re-Organization) Act, 1996, and the Rules and Regulations issued there under.
- 12.2 Any dispute, controversy or claim arising out of, or in connection with, this IM, or the breach, termination or invalidity thereof, shall be settled by PTA and its decision shall be final and binding.
- 12.3 The Auction process, the accompanying documents, and all correspondence relating to the Auction process announced in this IM shall be submitted in English language.
- 12.4 PTA, at all times, shall reserve the right to change, alter, modify, amend, supplement or replace any or all of the Auction process before the Auction Date and such change, alteration, modification, amendment, supplemental or replacement shall be communicated to the Bidders and become an integral part of the Auction process.
- 12.5 No suit, prosecution or any other legal proceedings shall lie against PTA or any member or employee of PTA in respect of anything done or intended to be done by PTA in good faith in connection with this IM.

## **13. DISCLAIMER:**

- 13.1 Questions or requests for clarification on the contents of this IM may be raised. PTA reserves the right not to reply to questions. However, to the extent that it does, it will publish/reply the question and the answer in written or at the PTA website [www.pta.gov.pk](http://www.pta.gov.pk), unless confidentiality has been requested. The identity of those asking the questions will not be published without the questioner's permission.

**14 ADDRESS FOR CORRESPONDENCE:**

- 14.1 All correspondence relating to this IM, Investors' Conference, submission of Application documents, Auction procedure and issuance of License duly marked **“Cellular Mobile (3G/4G/LTE etc) Auction”** should be addressed to:

***Director General (Licensing)***

Pakistan Telecommunication Authority

H/Qs F-5/1, Islamabad 44,000

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# **Mobile Cellular Policy**



January 28, 2004

**IT and Telecommunication Division**  
Ministry of Information Technology  
Government of Pakistan



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## 1 Introduction

This document presents the policy of the Ministry of Information Technology (MoIT) for the Mobile Industry. The Mobile Policy presented is consistent with the De-Regulation Policy for the Telecommunication Sector approved by the cabinet on January 10, 2004.

This Mobile Policy is set out in the following sections:

- Section 2 – Mobile Policy Objectives
- Section 3 – Mobile Sector of Pakistan
- Section 4 – Radio Spectrum
- Section 5 – Mobile Sector Roadmap
- Section 6 – License Conditions
- Section 7 – Obligations of PTCL
- Section 8 – Universal Service
- Section 9 – Investment incentives
- Section 10 – Regulatory Reform
- Section 11- Policy Review

## 2 Mobile Policy Objectives

In addition to the broad Telecom sector objectives, as outlined in the Telecom Deregulation policy, the following objectives specific to mobile cellular sector are expected to be achieved through this policy:

- i. Promotion of efficient use of radio spectrum;
- ii. Increased choice for customers of Cellular mobile services at competitive and affordable price;
- iii. Private investment in the cellular mobile sector;
- iv. Recognition of the rights and obligations of mobile cellular operators;
- v. Fair competition amongst mobile and fixed line operators;
- vi. An effective and well defined regulatory regime that is consistent with international best practices;

## 3 Mobile Cellular Sector of Pakistan

### 3.1 Mobile Licensees

Currently, four operators (2 GSM, 1 D-AMPS, 1 AMPS (migrating to GSM) are providing services to just under 3 million cellular subscribers all over the country. The



number of customers has more than tripled in the past two years. The table below provides an overview of the current subscriber base of the operators.

	<b>Mobilink</b>	<b>Ufone</b>	<b>Paktel</b>	<b>Instaphone</b>
Technology	GSM	GSM	AMPS, migrating to GSM	D-AMPS
No of Active mobiles Nov. 2003	1,675,000	552,000	255,000	478,261

Source: Figures stated by Operators as of Nov 2003

### **3.2 Market**

The Pakistani economy throughout 2003 has continued to post strong results with inflation under control at approximately 3% per annum and GDP growth at 5%. All the macro economic indicators have shown very healthy trends in the last four years. Forecasts suggest that the economy will continue to develop at even higher rates for the next few years.

The cellular industry in Pakistan registered significant growth when the tariff mechanism changed from Mobile Party Pays to Calling Party Pays regime in year 2000. At approximately the same time Ufone, a subsidiary of the state owned PTCL, launched its commercial service.

Pakistan has experienced sizable population growth over the last few decades. Its current population of around 150 million is expected to grow to 190 million by 2018 according to UN forecasts.

The province of Punjab accounts for 26% of the land mass and accommodates 56% of the population creating a population density of 402 people per square kilometre. This compares to Balochistan which covers almost 50% of the country's geography but has a small population, around 5% of the total, where the population density is only 19 people per square kilometre.

Current coverage is a constraining factor in the growth of mobile penetration. Since the existing operators have essentially built their networks in the cities and towns, current policy aims to accelerate coverage for rural areas by putting coverage obligations and by creating a Universal Service Fund.

Assuming that future cellular coverage reaches 95% of all urban population and 30% of rural population and taking into account the relative geography and population density of each Province, there is a potential demand of approximately 25 million cellular subscriptions by 2018.

## **4 Radio Spectrum**

Crucial to the development of the mobile cellular market is the availability of spectrum and its most optimal and efficient use for which a basic frame work was defined in the Telecom Deregulation policy as below:



## 4.1 Telecom De-Regulation Policy

With regards to radio spectrum, Telecom Deregulation Policy states at Section 4.4:

- 4.4.1 Radio spectrum is a valuable public resource belonging to the State and must be used in the public interest. The Frequency Allocation Board (FAB) is responsible for properly managing radio spectrum.
- 4.4.2 Wherever possible and consistent with good spectrum management practices, licensees shall be required to share spectrum with other licensees.
- 4.4.3 Licensees shall relinquish rights to spectrum that is no longer needed for their operations, and allow sharing of the bands they currently occupy where such sharing is technically feasible, and subject to management by FAB of frequency re-use in the band in accordance with best international practices. Unused spectrum allocated for operations of Local Loop (LL) & Long Distant International (LDI) licensees may be withdrawn if the licensees fail to begin operations within eighteen months of award of radio spectrum. The Licensees may not assign, lease or sell the rights of use of spectrum allocated to them in the first place.
- 4.4.4 All entities using spectrum shall be charged a fee for spectrum. The fee will be approved by the Government of Pakistan and recovered by Frequency Allocation Board from users of frequency spectrum. The factors to be considered in setting fees shall include but not limited to coverage, scarcity and value of the spectrum. The spectrum will be allocated for a definite time.
- 4.4.5 Where demand exceeds available frequency spectrum, it shall be allocated by auction or other transparent, non-discriminatory, open and competitive process.
- 4.4.6 Pakistan plans to follow ITU-R specified radio frequency bands<sup>1</sup> specific for the purpose of operations of Wireless in the Local Loop (WLL), point-to-point microwave and backbone / transmission services.
- 4.4.7 Information about available radio spectrum for telecommunication services would be placed in the public domain for the prospective users to apply for allocation on nation-wide or regional basis.
- 4.4.8 The FAB shall deal with the requests for radio spectrum, within the framework of Telecom Act 1996 and Rules thereunder, and process applications within a target of 30 days. FAB will streamline and proactively coordinate the process of site clearance for licensees who have been allocated frequency spectrum, to expedite rollout of wireless based networks.
- 4.4.9 LDI licensees will be entitled to radio spectrum (where available) for point-to-point / and backbone links, within the parameters of their licenses, on payment of spectrum charges.
- 4.4.10 LL licensees will be entitled to radio spectrum for WLL systems, and also spectrum for point-to-point links, where available, and on payment of spectrum charges.
- 4.4.11 LL and LDI licensees that receive spectrum shall meet defined usage milestones, failing which they must relinquish their rights to use the assigned spectrum.”

## 4.2 Current assignment of Mobile cellular spectrum

Currently assigned mobile cellular spectrum and deployed technologies in Pakistan are shown in Appendix A, together with the international allocation of particular bands to different mobile cellular technologies.

## 4.3 Available spectrum for mobile cellular

Based on the foregoing assignments, the availability of spectrum in Pakistan in internationally designated mobile cellular bands is shown in the Table below:

---

<sup>1</sup> The ITU defines Wireless Access as "end user radio connection(s) to core networks". Bands used for FWA include 3.4 - 3.6 GHz, 3.6 - 3.8 GHz, 10.15 - 10.3 & 10.5 - 10.65 GHz. Bands between 24.5 and 29.5 GHz are also used. In addition there are the license exempt bands where Radio Local Area Networks (RLANs) have been implemented using 802.11 or HIPERLAN technology the former and its derivatives in the 2.5 and 5.8 GHz ISM bands and Hiperlan in the range 5 - 5.7 GHz. DECT 1880-1900 MHz and cdmaOne frequency bands e.g. 850 and 1900 MHz.



Band (MHz)	Uplink (MHz)	Downlink (MHz)	Total Available	Recognised Standards	Notes
800	835 – 845	(none)	(10 + 0) MHz	GSM 850 CDMA 800 AMPS/DAMPS 800	Corresponding band not available
900	890 – 895	935 – 940	5 + 5 MHz	GSM 900	Additional 5 MHz is likely to be available, exact details will be mentioned in IM document.
1800	1710 – 1740	1805 – 1835	30 + 30 MHz	GSM 1800	Potentially more. Under re-farming.
1900	1900--1910	1980-1990	10 + 10 MHz	GSM 1900 CDMA 1900 (IMT 2000)	Small encroachment on lower IMT 2000 guard band. Under re-farming.
2100	Currently fixed links (PTCL, SSGC)			IMT 2000	Under re-farming

**Table A- Available mobile cellular bands and spectrum**

In summary it can be concluded that:

- i. In the **800 MHz** band, Paktel AMPS uplink assignment will eventually be returned to FAB for re-use. However there is no available downlink due to its utilisation by Paktel for GSM uplink channels.
- ii. In the **900 MHz** band there is only 2x5 MHz remaining from the total international band assignment of 2x35 MHz. (Additional 5 MHz is likely to be available in near future)
- iii. In the **1800 MHz** band there is currently 2x30 MHz available, with the potential for more being freed in future under current re-farming initiatives by FAB.
- iv. In the **1900 MHz** band there are currently 2 lots of 5 MHz available, one or two of these lots will be available for WLL services depending on the outcome of the auction for mobile cellular spectrum.
- v. The **2100 MHz** band is currently under re-farming. FAB is scheduled to complete this by the end of 2005.

#### 4.4 Spectrum Pricing

**The GoP wishes to encourage efficient use of the radio spectrum. As such the frequency usage charge will be set at such a price so as to encourage effective use.**

For Mobile Cellular Licenses, where the assignment of spectrum is linked to a set of license conditions, the associated fees will consist of two parts:

##### Cellular Spectrum Price.

The Spectrum price for national mobile cellular licenses will be determined through auction.



The Spectrum Price resulting from the auction will also be used as benchmark to determine price per MHz per annum for the existing operators, once they come under the purview of this policy.

### **Spectrum Administrative fees**

Administrative fees for radio spectrum will be set to recover the cost of administration of that spectrum. The total income generated from administrative fees for the whole spectrum should recover the reasonable operational costs of FAB incurred whilst managing, licensing and policing that spectrum.

Interim fees for the mobile licensees for first year of operation on the assumption of no change in allocated spectrum for existing operators are detailed in Appendix B. The fees may be adjusted in case the existing operators exchange some of their 900 MHz frequency with 1800 MHz band. Spectrum price for line of site links will be limited to the Administrative fees

The mobile licensees will pay the Pakistan Telecommunication Authority (PTA) – the regulator, in addition to the Spectrum Administration fee and the Spectrum Price, an annual license Administration fee (Regulatory fee), to reasonably cover the cost of regulation. The annual Regulatory fee shall not exceed 0.5% of last year's gross revenue minus inter-operator and related PTA / FAB mandated payments.

### **4.5 Management of fixed link spectrum**

**Assignment of spectrum to all fixed links will preferably be on a link-by-link basis.**

The current practice of making nationwide fixed link assignments is inefficient and may result in the appearance of scarcity of spectrum when in reality this is not the case. FAB shall assign spectrum based on optimal utilisation of scarce resources.

### **4.6 Use of Spectrum**

**Unused spectrum allocated to any licensee may be withdrawn if the licensee fails to begin operations within eighteen months of award of radio spectrum. The Licensees may not assign, lease or sell the rights of use of spectrum allocated to them.**

To support the promotion of efficient use of spectrum for national benefit it is important that spectrum which has not been used is returned to FAB for reallocation. Frequencies not used by Licensees will be returned to FAB if the Licensee does not make active or effective use of them. The use would be confirmed by monitoring. Licensees shall allow sharing of the bands they currently occupy where such sharing is technically feasible, and subject to management by FAB in accordance with best international practices.



## 5 Mobile Sector Roadmap

### 5.1 Number and Tenure of Mobile Cellular Licenses

**The PTA will issue new national, technology neutral, Mobile Cellular Licenses for 15 years tenure. Existing mobile cellular licensees will not be permitted to bid for these licenses.**

GoP has decided to grant new 15 year technology neutral National Mobile Cellular Licenses. Existing mobile cellular licensees will not be allowed to bid for these licenses. As further spectrum is cleared, frequency bands may be made available to licensed mobile cellular operators and WLL operators.

Pre-qualified bidders will receive the Information Memorandum (IM), which will include the License template and other relevant material. The currently licensed mobile operators and their substantial shareholders (10% or more) will not be eligible to bid for the new mobile cellular licenses. Applicants must also demonstrate that they have no substantial ownership/interest (10 percent or more) in more than one of the bidding companies or consortia.

### 5.2 Allocation of Mobile Cellular Spectrum

**The mobile cellular spectrum will be auctioned in blocks. The size of these blocks will be sufficient to support the creation of commercially viable services.**

The spectrum will be auctioned in blocks/packages keeping in mind the most effective use of the spectrum as a whole. At the same time the blocks of spectrum allocated will have sufficient bandwidth to enable economic use. PTA and FAB will define the Blocks in an Information Memorandum (IM) and will set the detailed method for the auction well in advance of the auction date.

The auction rules to be formulated by the PTA shall ensure that the auction process:

- Be fair and transparent;
- Provides a fair basis for competition among the pre-qualified bidders;
- Encourages the maximum number of potential investors;
- Establishes a fee which is economically justified when balanced with the investment required to meet the roll-out obligations specified with the license;
- Be simple to execute;
- Discourages collusion and predatory bidding that may block entry of potential bidders into the auction process.

**The standards employed for licensed blocks of Spectrum shall conform to recognized international standards.**

The standardization process has resulted in some technologies being associated with specific spectrum. To date GSM and CDMA are two such technologies. In such circumstances the cellular License should be linked to the associated recognised



standard. Where more than one standard could be adopted in any given block of spectrum the licensee shall have the right to choose which standard to employ.

**The licensees will also be entitled to bid for additional spectrum in the 2100 MHz (3G) band when it becomes available.**

In the context of 2100 MHz band, the GoP recognises its importance to enable mobile licensees to upgrade technology as spectrum becomes available. For this reason it is providing a degree of certainty in respect to the third generation mobile cellular technology.

While auctioning spectrum in 2100 MHz band, the reserve price per MHz per annum will be set by reference to the 2004 auction price

**If there is additional spectrum which is not required by licensees and if any other applicant requests its use for non-cellular services, subject to confirmation of spectrum by FAB, PTA may announce an auction within a reasonable time of the formal request.**

### 5.3 Payment Schedule

**After an initial payment of 50% of bid price as down payment on acceptance of bid, the Spectrum Price will be paid by the licensee(s) in equal annual instalments over next ten years.**

All licensees will make Spectrum Price payments on per MHz basis of the frequency allocated to them.

### 5.4 Renewal of existing licenses

**The Mobile Cellular License under this policy will replace the existing licenses as soon as possible or at latest upon expiry of the current licenses.**

The existing operators will be encouraged to come under the purview of Mobile Cellular policy even before the expiry of their existing License. This would mean that all Mobile Cellular Operators would have the same license terms. The licenses would vary only by their terms of coverage obligations, frequency assignments and level of performance bond. The coverage terms will be adjusted to take account of the existing deployed network. Total coverage required of each network will be equivalent after four years.

The advantage to existing mobile operators in changing would be to gain such benefits as:

- Certainty of 15 years renewal on expiry of their current tenure;
- Additional rights to self-build of regional backbone within each of the defined PTCL regions;
- Allocation of additional frequencies in the 1800 MHz band in exchange for a lesser amount of spectrum in the 900 MHz band;



- Rights in respect to bidding for additional 2100 MHz (3G) spectrum as and when available
- Access to Universal Access Fund (USF)

**The fees for the renewed licenses will also be paid using the same payment profile and be based upon the same per MHz per annum price as determined in the auction**

### 5.5 LDI and LL Licenses

**Mobile Operators will be eligible for LDI and LL Licenses.**

Commercial benefit could accrue to mobile operators also holding licenses to provide other types of services. Where an operator does hold a number of licenses the Licensee will have to meet the requirements of the PTA of accounting separation and for setting up separate legal entities for reasons of transparency and non-discrimination.

### 5.6 International Connectivity

International connectivity currently provides significant revenue to the telecommunications industry. The GoP recognises that high international rates may not be sustainable in the long run. However, as long as the premium continues to exist, a reasonable portion of the call termination premium is proposed to be used to promote infrastructure expansion. The portion of the premium applied to promoting infrastructure expansion is referred to as the "Access Promotion Contribution" ("APC").

If the Mobile Operator does not hold an LDI license then international connectivity will have to be obtained from an LDI operator.

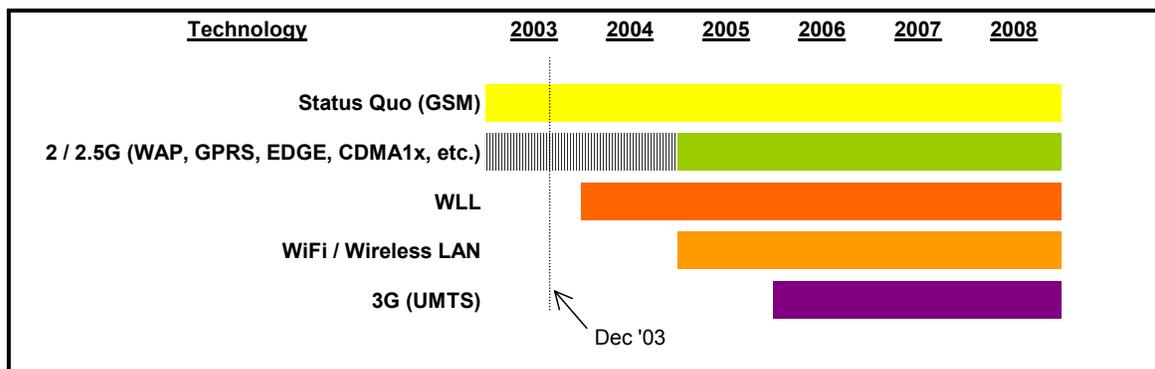
### 5.7 Technologies

The allocation of spectrum to mobile cellular licenses must take account of international standards and the need to encourage national harmonisation, the adoption of global standards and mass-market technology with associated social benefits.

Further, FAB is working to clear the spectrum in the 2100 MHz bands for IMT-2000 which is scheduled to be completed by the end of 2005.



The figure below indicates an anticipated time line for the introduction of new technologies in Pakistan.



## 5.8 3G Spectrum

**The 3G spectrum will be sold by auction. Both the Licensed mobile cellular operators and the new parties interested in 3 G licenses will be able to participate in the process.**

IMT2000<sup>2</sup> (UMTS) is becoming the de facto migration path from GSM to 3G in many countries. Internationally agreed bands are assigned for 3G implementation based on W-CDMA / UMTS technology.

Since GSM is currently the main cellular technology in use in Pakistan, it is likely that the preferred technology for 3G will be UMTS.

The FAB is clearing the 3G spectrum and will complete this task by the end of 2005. Thereafter, spectrum in the 3G Bands of 2100 MHz will be made available for auction.

The 3G licenses will include a minimum urban coverage requirement and performance bond to ensure the spectrum is utilised in a manner beneficial to the country. The PTA will specify the License conditions.

Frequency in the 3G FDD/TDD bands will be divided into Lots of 5 MHz + 5 MHz with coverage specified in the License. Interested parties will be able to bid for more than one Lot. Failure to launch commercial service within a specified period of time will result in the unused frequency being recovered by FAB (through PTA). If there is 3G spectrum not taken up then as the demand rises further auction dates will be set.

<sup>2</sup> Covers FDD/TDD frequencies

<sup>5</sup> Market will be considered sufficiently competitive when PTA determines that the cellular user has a real choice in terms quality of service, pricing and coverage.



## 5.9 Retail Prices

**The retail price cap on mobile Licensees, fixed from time to time, by PTA will continue till such time the market, in the view of PTA, becomes sufficiently competitive<sup>5</sup>.**

## 5.10 Significant Market Power (SMP)

**The PTA will regularly undertake a review to determine the relevant markets for the telecom Industry and in turn the SMP operators for the relevant markets. PTA should complete the first review within six months from the policy notification.**

The Government believes that the success of market liberalization depends on the development of a fair competitive environment for all licensees. In this regard, Mobile and fixed line licensees who emerge with Significant Market Power (SMP) shall be prohibited from abusing their dominant positions through anticompetitive conduct. PTA will incorporate provisions of anti-competitive practices in the licenses for SMP(s).

Operators with SMP will also have to produce a Reference Interconnection Offer (RIO) detailing the services and tariffs they provide to other Licensed operators.

Section 17 of the Pakistan Telecommunications Rules defines Significant Market Power (SMP).

*(1) An operator shall be presumed to have significant market power when it has a share of more than twenty-five per cent of a particular telecommunication market. The relevant market for these purposes shall be based on sector revenues.*

*(2) The Authority may, notwithstanding sub-rule (1), determine that an operator with a market share of less than twenty-five per cent of the relevant market has significant market power. It may also determine that an operator with a market share of more than twenty-five per cent of the relevant market does not have significant market power. In each case, the Authority shall take into account the operator's ability to influence market conditions, its turnover relative to the size of the relevant market, its control of the means of access to customers, its access to financial resources and its experience in providing telecommunication services and products in the relevant market.*

## 6 License Conditions

### 6.1 Self provision

**The mobile licensees will have the right to provide their own infrastructure within a PTCL Region and to also provide their own interconnection circuits to other operators.**

The GoP fully recognises that international best practice permits the Mobile operators to have the right to provide their own fixed links between all elements of their network. The key problems are timeliness of delivery and circuit availability for termination at suitable base station sites.



**In the event that an LDI operator is unable to provide a circuit within 3 months from request or the Quality of Service (QoS) falls below international standards the mobile operators will have the right to self provide inter regional circuits.**

Between Regions the GoP wishes to limit mobile operators to using leased circuits from an LDI operator to assist the development of the competitive LDI market. In the event that there are no LDI operators able to supply interregional leased circuits within 3 months from a formal order to meet the operational requirements of a Mobile Cellular Licensee then self provision will be permitted. It should be noted that the Mobile operators have the opportunity to apply for and hold an LDI license as well. In this case they will be able to self provide intra and inter regional circuits.

**Licensees will have the right to contract for the “Right of Way” (RoW) they need to construct their networks, subject to conditions laid down by the concerned agencies.**

## 6.2 Coverage and roll-out requirements

**The Mobile Cellular Licenses will include a coverage obligation against which a licensee will be obliged to submit a Performance Bond with the PTA. The performance bond will be linked to the rolling annual capital investment requirements to meet the coverage obligations over a 4 year period.**

A major objective of the GoP is to ensure, over a reasonable time, that there are services in the underserved and rural areas. The Mobile Cellular policy includes obligation to roll out coverage to at least 70% of Tehsil headquarters in four years with a minimum of 10% Tehsil coverage in all the provinces. Licensees would be required to deposit a performance bond to be redeemed against achievement of coverage targets. The value of the bond for the first year is set at USD 15 Million for new entrants and the value for existing operators will be set depending on the difference between their current level of coverage and the coverage targets in the license. Specific annual coverage targets will be included in the license.

## 6.3 Quality of Service

**The Licensee will provide a set of reasonable QoS measures against which the performance of licensee will be measured on a regular basis.**

The GoP intends to ensure that licensees provide a good quality of service. The following table is indicative of the QoS measures to be included as an Annex to the Mobile Cellular Licenses. The PTA will set the QoS parameters after consultation with the Licensees before final issue of the license.



Indicator	Short Term (first 3 years)	Long Term (3 years on)
Air Interface Blocking	<= 4% in busy hour	<= 2% in busy hour
Call Completion Rate	> 96%	> 98%
Call Connection Time	<= 7 seconds	<= 5 seconds
Call Quality	MOS <sup>3</sup> Score > 3	MOS Score > 3
Network Down-time (averaged across all sites) <sup>4</sup>	< 2% in any 1 calendar month < 1% over a 1 rolling year period	< 1% over a 1 month period
Cell-site Down-time (for each site) <sup>5</sup>	Not longer than 48 hours	Not longer than 24 hours

In addition to the above QoS measures a limited number of targets will be set for service covering such areas as:

- Customer service time to answer
- Time to resolve complaints
- Billing accuracy
- Provision of interconnect ports
- Repair of interconnect ports

The PTA will after due consultation prepare a set of criteria which will be attached to the License. The Mobile Cellular licensees will be required to provide regular reports to PTA on quality of service.

#### 6.4 Infrastructure Sharing

**All Licensees are encouraged to implement infrastructure sharing in accordance with the guidelines issued by PTA and FAB.**

It is important to encourage Infrastructure sharing as a matter of policy and keeping in view environmental issues related with towers and masts. Infrastructure sharing includes a requirement to lease facilities on a non-discriminatory basis, to such other service providers. The facilities provided may include space, electrical power, air conditioning, security, cable ducts, space on antenna masts or towers, rooms etc. Infrastructure sharing, including co-location and facility sharing, shall be provided based on the guidelines established by PTA/FAB on the principles of neutrality, non-discrimination, equal access and commercial arrangements.

<sup>3</sup> Bit Error Rate measurements can be used as a proxy

<sup>4</sup> Outages caused by third parties (such as PTCL) are not included in this figure

<sup>5</sup> Outages caused by third parties (such as PTCL) are not included in this figure



## 6.5 National Roaming

**Licensees are encouraged to offer National Roaming with other licensees offering reciprocal services in accordance with the guidelines issued by PTA.**

In order to implement the policy objectives of the GoP, Licensees are encouraged to offer nationwide service as expeditiously as possible at mutually acceptable terms. It is expected that national Roaming will remain a useful facility in order to promote competition in rural areas where it may well be the case that all operators will not have a presence.

## 6.6 International Roaming

All mobile operators are encouraged to negotiate International Roaming Agreements with foreign operators.

## 6.7 Interconnection

**The new licensee(s) will have the right to interconnect its network with other licensed mobile and fixed networks in Pakistan.**

It is important to enable customers to dial from one mobile network to customers on either another mobile network or customers on a fixed network at reasonable retail rates. To achieve this the mobile operators must be free to decide and make connection to, the most economic point of interconnection with other operators. Mobile operators will have the right to request leased lines from LDI operators.

Interconnection with PTCL will be covered by the Reference Interconnection Offer (RIO) being developed by PTCL under the interconnection guidelines.

**Mobile Interconnection termination charges will not exceed the existing level until cost-based rates are available for both fixed and mobile operators. PTA will set rates before the end of 2004 based upon its view of termination costs by existing operators.**

Interconnection charges will move to a cost plus normal return basis for all mobile operators on the basis that each operator has a monopoly on termination of calls to customers connected to its own network.

**All operators should provide the PTA with evidence of cost for interconnection termination rates within 12 months of beginning their operation.**

## 6.8 Mobile Number Portability

**PTA will immediately undertake a consultation process on the implementation of Mobile Number Portability with the aim to implement number portability within two years of policy notification.**

A major drawback to switching mobile operators is that, at present, customers need to change their mobile telephone numbers. In order to establish market conditions that



provide maximum choice, consumers should be able to switch operators in order to take advantage of attractive service offerings, lower prices or improved quality.

PTA will determine, in consultation with the industry, the most appropriate method of implementing number portability and establish rules for its implementation. To provide flexibility to consumers, all mobile licensees shall implement number portability, according to the PTA's requirements and guidelines. Although there may be a one-off charge for porting a number, there should be no additional on-going charges related to porting the number.

### 6.9 Customer Charter

**All Licensees are encouraged to publish a Customer Charter, to be approved by the PTA.**

The GoP wishes to see a significant improvement in the availability and quality of mobile services. The Customer Charter should provide commitments by the Licensee to Customers in respect of the standard and quality of the Licensed Service.

### 6.10 Standard Contract

**The Mobile Cellular Licensee shall submit a Standard Customer Contract before the commencement of its services to the PTA for approval.**

The Licensee shall prepare a standard contract of service for use with its customers. The Licensee shall file the standard contract, and amendments thereto from time to time, with the Authority for its approval.

The standard contract, as approved by the Authority, shall apply to all customers that obtain Mobile communications services from the Licensee.

### 6.11 Protection of customer from unsolicited fraudulent communications

**Operators should put in place mechanisms to prevent abuse of the systems which result in customers receiving unsolicited or fraudulent communications.**

The international growth in unsolicited and fraudulent use of the mobile networks enticing customers to make high priced calls ("Scamming") is a matter of concern. PTA after consultation with the industry will establish a code of practice for Mobile Operators to prevent such use. The code of practice will be produced before the end of 2004.

### 6.12 Mobile Virtual Network Operator (MVNO)

**All Operators will be permitted to support MVNO services, a detailed framework for which is to be prepared by PTA within two years of the policy notification.**

The concept of MVNO supports and encourages an open and competitive market in telecommunications. All Operators will be permitted to support MVNO services, a detailed framework for which is to be prepared by PTA within two years of the notification of the policy.



### 6.13 Legal Intercept

Licensees shall meet the requirements of authorized security agencies for legal interception of calls and messages. Further, the Government of Pakistan would have the right to either suspend the service or cancel any license to safeguard national security.

### 6.14 PTA License Fee

Licensees will pay to PTA a fixed annual fee, to reasonably cover the cost of regulation. The annual fee shall not exceed 0.5% of the previous year's gross revenue minus inter-operator and related PTA / FAB mandated payments.

### 6.15 R&D Fund

**Mobile Licensees will contribute 0.5% of gross revenue minus inter-operator and related PTA / FAB mandated payments to the Research and Development Fund.**

Detailed guidelines for the R&D Fund's utilization for IT & Telecom sector development and HRD etc will be proposed separately.

## 7 Obligations on PTCL

In order to facilitate market liberalization, PTCL, is obliged to:

- a) *Prepare all transit and tandem switches for interconnection and Implement within six months of policy notification, all needed upgrades in the transit switches to the capacity orders submitted by new entrants. PTCL shall not be required to implement upgrades in respect of orders not accompanied by pre-payment of 3 months port cost. PTCL shall pay needed penalties in case of delay in providing ordered Pols, to be determined by PTA.*
- b) *Prepare 50% (measured by lines in service) of local Main Switching Units ("MSU") for interconnection within one year. The remainder to be done in two equal stages within the subsequent two years.*
- c) *Unbundling of service and cost accounting information should be done based on the principles of transparency, orientation, and allocation based on activities and related cost drivers. They shall be sufficiently detailed to allow the clear identification of (a) activities related to interconnection - covering both interconnection services provided internally and interconnection services provided to others; and (b) other activities, so as to identify all elements of costs and revenues. Details of the basis of their calculations and the allocation methods used shall be provided, including an itemized breakdown of fixed assets and structural costs. Sufficient records must be kept to allow independent audit of these cost accounts.*
- d) *PTCL will issue a "Reference Interconnection Offer" (RIO) to be used as the default interconnection offer for interconnection with PTCL pending*



*determination of LRIC based pricing. PTCL can implement amendments to the interim RIO, subject to the prior approval of PTA.*

## 8 Universal Service & Access Promotion Contribution

**Mobile licensee shall pay a USF Charge limited to 1.5% of gross revenue minus inter-operator and related PTA / FAB mandated payments as determined by the Government.**

*The importance of funding telecommunication infrastructure in the rural areas cannot be underestimated for the long-term economic benefit and to avoid a 'digital divide' between rural and urban areas. The establishment of the USF and the allocation of funds to operators is an important factor in accelerating the availability of telecommunication services in rural areas. Mobile operators can play an important role in providing coverage to rural areas in particular where there is no fixed line service. The USF will be financed by revenues collected from all telecommunication licensees through a universal service fund charge (the "USF Charge"). The USF may also receive contributions from the Government, and also funding from international or bilateral development agencies.*

**Mobile operators shall be eligible to apply for money from the USF in order to cover rural and under-served areas as per guidelines for utilisation of USF to be notified separately.**

The Government has designed the market liberalization policy to maximize the commercial availability and coverage of telecommunication network and services in Pakistan. The Government recognizes, however, that even with market liberalization, and under strictly commercial considerations, there may exist certain populations or geographic areas that would remain un-served or relatively underserved. The Government's universal service policy is designed to ensure that these designated populations and geographic areas receive adequate service in a sustainable manner as resources permit.

**Fees collected by PTA and FAB from telecommunications licensees, which are in excess of administrative costs, shall be deposited into the Universal Service Fund.**

The USF policy framework will be prepared and approved by the Federal Government. It shall include collection of the funds from the licensees and its disbursement within approved USF framework. The amounts and usage of the USF will be made public, and shall be subject to independent audit. Disbursement of USF funds shall be made through a transparent, non-discriminatory and competitive process.

**The APC shall not be available to cellular operators. Premium of APC on current cellular termination rates would be mopped up and diverted to Universal Service Fund (USF).**

Premium of APC on current cellular termination rates would be mopped up and diverted to USF with effect from a future date to be notified by the Government.



## 9 Incentives for Investors

**The Telecom sector, including mobile cellular operations, will be classified as an Industry.**

The Mobile operators have to date been classed as a Service and not as an Industry. Reclassification of mobile operators to the Industrial Sector will reduce operational costs.

## 10 Legal and Regulatory Framework

Appropriate changes in the legal and regulatory framework will be made expeditiously to support the Mobile Cellular Sector Policy. Changes may result in amendments in Telecom Reorganisation Act of 1996 and corresponding rules and regulations. Such changes shall be effected expeditiously after the notification of the policy.

## 11 Review of Policy

**This policy will not be reviewed before five years of notification date.**



## Appendix A – Currently assigned mobile cellular spectrum

Operator	Technology	Up-Link	Down link	Comments
Instaphone	D-AMPS	825-835 MHz	870-880 MHz	2 x 10MHz
Paktel	AMPS	835-845 MHz	880-890 MHz	2 x 10MHz
Paktel (migration)	GSM 900	880-890 MHz	925-935 MHz	2 x 10MHz: (under implementation)
Mobilink	GSM 900	905-915 MHz	950-960 MHz	2 x 10MHz
Ufone	GSM 900	895-905 MHz	940-950MHz	2 x 10MHz

*Table 1 Current mobile cellular spectrum assignments*

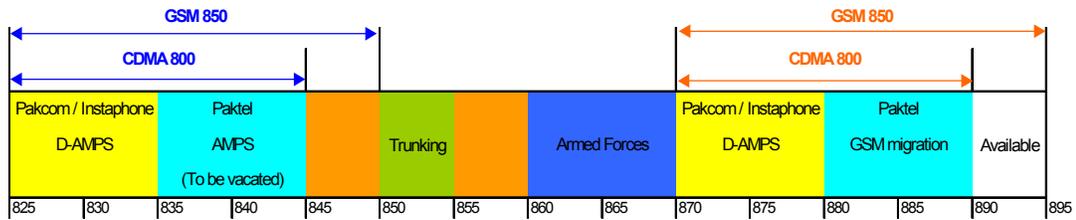
Each operator is currently assigned 2x10MHz, with Paktel in the process of migrating its network from AMPS technology to GSM<sup>6</sup>. This migration is utilising the AMPS downlink assignment for the GSM uplink, with a new assignment having been made for the GSM downlink. On completion of migration, Paktel's AMPS uplink assignment will be released to FAB.

Three operators in Pakistan, Mobilink, Ufone and Paktel (currently migrating customers to GSM from its AMPS service), have implemented GSM technology. Standardised under the auspices of ETSI<sup>7</sup>, GSM is used by over 1.2 billion subscribers on every continent of the world, with 550 operators supplying GSM services in 193 territories.

The international allocation of particular bands to different mobile cellular technologies Table 2 above and also in the 800, 900 and 1800 MHz band plans in Figure 1, Figure 2, and Figure 3 below. The band plans are illustrated in relation to current assignments in Pakistan.

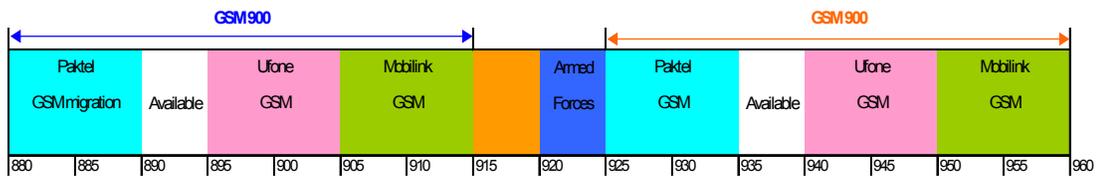
<sup>6</sup> Global System for Mobile communication

<sup>7</sup> European Telecommunications Standards Institute



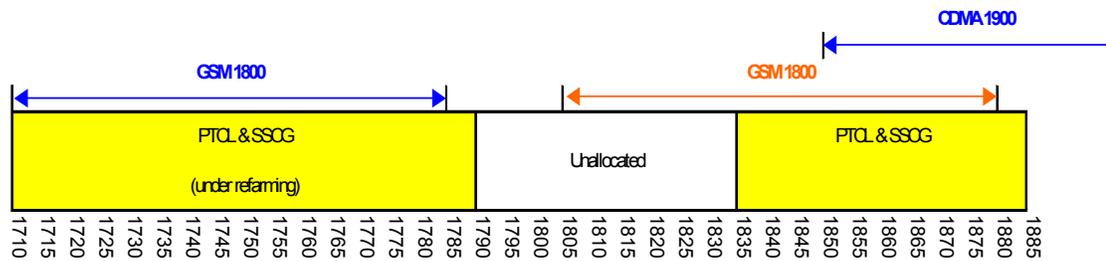
Source: FAB

Figure 1: 800 MHz band plan



Source: FAB

Figure 2: 900 MHz band plan



Source: FAB

Figure 3: 1800 MHz band plan



## Appendix B

### Spectrum Administrative Fees

Table of Spectrum Administrative Fees for Mobile operators assuming two new National Mobile Licenses.

Operator	Scenario A			Scenario B		
	Spectrum	% of total	Annual fee (Rs)	Spectrum	% of total	Annual fee (Rs)
Mobilink	2 x 10 MHz	15.4%	34.65m	2 x 10 MHz	17.4%	39.15m
Paktel	2 x 10 MHz	15.4%	34.65m	2 x 10 MHz	17.4%	39.15m
Ufone	2 x 10 MHz	15.4%	34.65m	2 x 10 MHz	17.4%	39.15m
Instaphone	2 x 10 MHz	15.4%	34.65m	2 x 10 MHz	17.4%	39.15m
New A	2 x 12.5 MHz	19.2%	43.2m	2 x 12.5 MHz	21.7%	48.83m
New B	2 x 12.5 MHz	19.2%	43.2m	2 x 5 MHz	8.7%	19.57m
<b>Total</b>	<b>2 x 65 MHz</b>	<b>100%</b>	<b>225m</b>	<b>2 x 57.5 MHz</b>	<b>100%</b>	<b>225m</b>

#### Assumptions made in setting the interim Administrative Fees

- i. For the financial year 2003, the budget for FAB was Rs300 million. This included the funds assigned for the maintenance of the new spectrum monitoring equipment recently acquired by FAB through World Bank funding (the World Bank loan itself is being repaid by the PTA).
- ii. FAB has estimated that around 75% of the resources of FAB are employed in managing the spectrum allocated to the mobile operators.
- iii. As all the mobile licences are national in scope, the issue of determining a geographic component for the spectrum administrative fee does not come into play, as all licences have the same geographic coverage
- iv. How much mobile spectrum is deployed, depends upon which of the proposed Lots is successfully won. Scenario A is that Lots 1&2 are chosen; scenario B is that Lot 1 or 2, together with Lot 3 are chosen. The total spectrum deployed, the proportion of that total used by each operator, and the equivalent annual fee is shown in the table for each of the two scenarios.
- v. Fees include all direct line of site links.



# Broadband Policy

**December 22, 2004**

**Ministry of Information Technology**  
IT & Telecommunications Division  
Government of Pakistan  
[www.moitt.gov.pk](http://www.moitt.gov.pk)

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## 1.0 INTRODUCTION:

### 1.1 Broadband Definition

The definition of ‘Broadband’ varies from country to country, but it is generally accepted as high speed, ‘always on’ Internet connection. Various organizations like the ITU, OECD and international regulators specify the minimum download speed of a broadband connection ranging from 128 Kbps to 2 Mbps or higher. The ‘Always On’ facility as opposed to the ‘dial up’ (10s of KBps) means that the user has access to the net as soon as he switches his internet browser on and does not need to dial the ISP number for a connection. As illustrated in Figure 1, most applications can be adequately supported if the minimum user speed is around 128kbps, accordingly broadband in Pakistan will be defined as “Always on Internet connection with a download speed of at least 128kbps connectivity”. This download speed target will be subject to an increase as the bandwidth prices reduce, local content becomes available and there is a general increase in awareness of broadband.

Speed, kbps	28	128	512	1,024	2,048	4,096	10,000
Transaction Processing	A	A	A	A	A	A	A
Messaging / Text Apps	A	A	A	A	A	A	A
Voice	A	A	A	A	A	A	A
Still Image Transfers	N	A	A	A	A	A	A
Internet / VPN Access	N	A	A	A	A	A	A
Database Access	N	A	A	A	A	A	A
Enhanced Web Surfing	N	A	A	A	A	A	A
Low quality Video	N	A	A	A	A	A	A
Hi - Fi Audio	N	A	A	A	A	A	A
Large File Transfer	P	A	A	A	A	A	A
Moderate Video	P	N	A	A	A	A	A
Interactive Entertainment	P	N	N	A	A	A	A
High Quality Video	P	P	N	N	A	A	A

A = Acceptable  
P = Poor Quality  
N = Not Acceptable

**Figure 1 – Broadband Applications & download speeds**

(Source – Broadband Strategy for Egypt 2004-2007)

### 1.2 Broadband Benefits

Broadband access is widely recognized as a catalyst for the economic and social development of a country. Broadband roll-out has a more powerful impact than the spread of basic telephony. For it not only allows people to communicate, but also to do business more efficiently over longer distances, be better educated, have access to better health services, benefit from better governance, and have enhanced entertainment services. A major part of the expected increase in GDP

and economic uplift due to broadband access will come from the benefits that high speed data networks and internet access will have on corporate efficiency and success. Whether transacting between a business and a consumer, or between two businesses, the success of e-commerce transactions severely decreases with lower speeds. This is driven by the longer time taken to access and act upon information.

A broadband connection can also be used for two way applications that would not be viable with a slow and unreliable ‘dial up’ service such as online classrooms and health clinics where the teacher and student and the Doctor and his patient can see and talk to each other through their computers.

### **1.3 Broadband Lessons From The World Markets**

Countries with high penetration of broadband users such as South Korea, Japan and Canada have all implemented conscious policies for the growth of broadband in their countries. These policies have included growth enablers such as price reductions for the use of infrastructure, unified licensing for service providers, government’s setting of strict annual broadband penetration targets, content and e-commerce development incentives and lowering of the price and tax barriers on the broadband terminal equipment. The resultant growth and high penetration of broadband has contributed significantly to the social and economic standing of these countries. Realising the social and economic benefits of broadband, other countries such as India and Egypt have also recently issued similar strategies for the growth of broadband in their countries.

### **1.4 Broadband in Pakistan**

#### **1.4.1 Global Standing of Pakistan**

Even with tremendous growth in the information technology sector over the past five years with the internet reaching almost 2000 towns and villages and the international bandwidth rates dropping by almost 90% (from USD 30,000 in year 2000 to USD 3,950 in 2004), overall ICT usage and penetration in Pakistan is still below international averages and shows a significant room for improvement. (See table 1- Annex B). Although the availability of broadband infrastructure in itself will not necessarily result in the spread of broadband services in Pakistan, the price of broadband access will play a significant role.

#### **1.4.2 Broadband Market Dynamics in Pakistan**

According to various market surveys and estimates carried out in Pakistan, Pakistan had approximately 2.5 million Internet users by the end of June 2004. First Broadband connection in Pakistan was given in 2002. By June 2004 there were approximately 29000 (89% cable, 10% DSL and less than 1 % satellite and wireless) broadband subscribers in Pakistan, i.e. a penetration of 1.16 %. All

broadband subscribers are in the three main cities of Karachi, Lahore and Islamabad.

Even though copper access network still dominates the cable / HFC network (less than 100,000 connections compared to over 4.5 million copper connections), broadband, in particular DSL, penetration is low because:

International IP bandwidth cost for a 2 Mbps connectivity, despite significant reductions, is a constraint at \$US 3995 in mid Aug 2004, and as a result the customer is charged a minimum of Rs 3500 for unlimited volume of shared 128 kbps of DSL broadband connectivity per month, plus the installation (Rs 2500) and CPE costs (Rs 3500). These tariffs<sup>1</sup> have kept the demand at a very low level.

Approximately 3000 DSL subscribers (by June 2004) belonged to four private sector companies namely Micronet Broadband Pakistan, Multinet Pakistan, Dancom Pakistan and Habib Rafiq Pakistan, who lease PTCL's access network on an Operation & Maintenance contract basis. These four DSL service providers had very little existing ISP presence/customer base when they started their DSL service. Hence their broadband customer acquisition costs were also high.

### 1.4.3 Barriers to Broadband Growth in Pakistan:

#### Price:

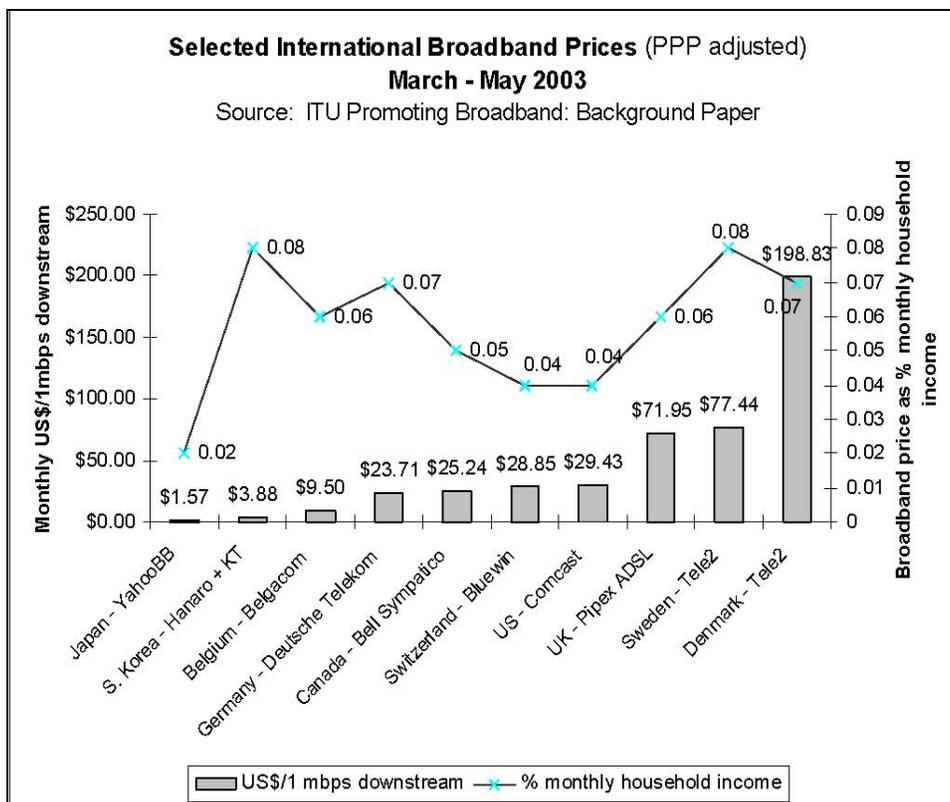
–The subscription prices for broadband in Pakistan are 60 times higher than in Korea<sup>2</sup>. However considering the respective purchasing powers of the two economies<sup>3</sup>, this translates to 1600 times higher prices in Pakistan.

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<sup>1</sup> These were the minimum tariffs for unlimited (non volume based), shared 128kbps usage, installation and CPE for broadband DSL in Pakistan in Oct 2004.

<sup>2</sup> In Oct 2004, the minimum monthly tariff for a 128kbps volume based broadband connection in Pakistan was Rs 1170.

<sup>3</sup> In June 2004, the per capita GDP in Korea was US\$ 17,700 as compared to US\$ 652 in Pakistan (source: Ministry of Finance, Pakistan and Ministry of Finance & Economy, ROK)



**Figure 3- International broadband prices**

(Source- ITU Promoting Broadband: Background Paper)

### Last Mile Access

- Low quality and small scaled HFC networks
- Quality issues with the copper beyond 1.5 km from the exchange
- Allocation and availability of frequency bands for BWA according to the ITU standards.

### Content:

- Lack of locally located and local language content
- Lack of content and applications e.g. online stock market, online content in local languages, online education, e-government, e-commerce, home shopping, on-line games etc.

#### **1.4.4 Broadband Enabling Steps Required in Pakistan.**

While other countries, like Japan and South Korea, are aiming at delivering “universal, affordable access to broadband” for all of their citizens, Pakistan needs to quickly create the environment for stimulating explosive initial growth. Without the right interventions, the current market offerings – dial-up connectivity of 50 hours per month for Rs. 500, or unlimited broadband

connection at more than Rs. 3500 per month<sup>4</sup>, with high installation and CPE costs, and low reliability and quality of service – will continue to prevail with benefits realized by only a few. Steps need to be taken in the Broadband sector in order to escalate the growth of users and in turn the GDP of the country.

In Pakistan the mobile users have already overtaken the fixed line users in Pakistan. However only until the year 2000, this figure stood at less than half a million. The government then introduced CPP (Calling Party Pays) regime in the mobile sector in Pakistan. Within four years the cellular penetration grew by more than a 1000% reaching 6.2 million by September 2004. One policy initiative changed the entire growth of the cellular sector in the country. Today the six mobile operators are each looking to add more than 1 million connections in a year. Similar if not higher growth rates are expected in the fixed line sector after the recent removal of the monopoly in fixed line service provision. The ‘open’ fixed line deregulation policy has resulted in 12 LDI (Long Distance International) operators and 80 Local loop service providers<sup>5</sup>. Open regulatory steps in the policy have resulted in such interest, which no doubt will contribute to a reduction of tariffs and accelerated growth of the fixed line services into the far flung areas of the country.

#### **1.4.5 Way Forward – A Broadband Enabling Policy**

In order for the above success to be replicated in the broadband sector of Pakistan, a broadband policy for Pakistan is required- A policy that aims at setting goals for broadband services in the country. This will include investment in urban networks, domestic and international backhaul, content delivery mechanisms, content and application development, and rural build-out. The content and applications would include a full menu of services including education, health, governance, locally located content, local language web content, and new broadband-based entertainment like games and videos. For this magnitude of investment to occur, the appropriate regulatory environment and policies need to be established. Once this happens, only then will there be successful growth and business models in broadband services.

### **1.5 Broadband Policy Objectives**

The Broadband policy is designed to achieve the following objectives:

- 1. Spreading of an affordable, ‘always on,’ broadband high speed internet service in the corporate/commercial and residential sectors across Pakistan.**
- 2. Encourage the entry and growth of new service providers while stimulating the growth of the existing ones at the same time.**

<sup>4</sup> The non volume based (unlimited) 128kbps broadband connection tariff in Pakistan in June 2004.

<sup>5</sup> Sept 2004 figures from PTA website.

### 3. Encourage private sector investment in local content generation and broadband service provision.

The policy proposes the following strategy for the achievement of the above objectives:

- a. Removing the existing technical, commercial, operational and legal barriers to the growth of broadband in Pakistan.
- b. Increasing the choice of broadband technologies (DSL, Cable & FTTx, Wireless, Satellite) available to the consumer at affordable prices.
- c. Encourage the development and hosting of local content so as to reduce reliance on the expensive international bandwidth.
- d. Promoting the sale of terminal equipment (PCs, CPEs).
- e. Obligating a pro-active and facilitating role by the largest infrastructure provider PTCL for the growth of Broadband in Pakistan.

#### 1.6 Broadband Targets:

**1.6.1 Broadband in Pakistan will be defined as “Always on Internet connection with a download speed of at least 128kbps connectivity”. This download speed target will be subject to an increase as the bandwidth prices reduce, local content becomes available and there is a general increase in awareness of broadband.**

The independent study of the consumer patterns in the Pakistani internet market has shown that a major percentage of internet users will switch to broadband if the average cost of internet usage falls reasonably keeping in mind the improvement in speed and broader choice of applications. However keeping in view the fact that a majority of the internet users are paying less than Rs 500 per month for a dial up connection (and would only switch if broadband tariffs are kept under the same rate as well) and do not pay any fixed costs either such as the costs of CPE and installation associated with broadband connection, it is estimated that with the enablers given in this policy and the resultant monthly tariffs dropping below Rs 1000, at least 5 % of the internet users will be connected to broadband. i.e. 200,000<sup>6</sup> broadband users in Pakistan within two years of implementing the policy. In line with the continuous reduction in international and domestic Internet and broadband tariffs and the expected availability of local content and broadband awareness facilitated through this policy, it is forecasted that the number of

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<sup>6</sup> Assumes 4 million dial up Internet users by the end of 2005.

broadband users in Pakistan will reach at least half a million within five years, with higher levels of penetrations with further reductions in the tariffs. Although these figures have been estimated the main goal of the policy is to create an environment where broadband proliferates. With the availability of broadband enabling content and applications as well as systematic well spread out and maintained infrastructure the market will take its own path and determine specific growth rates and targets.

Despite all the contributions projected from different parties, we should not expect the broadband services, especially those newly proposed, to turn profitable immediately. Looking at success stories of other developed countries, new services become profitable typically in 3 years. Broadband service providers in Pakistan should take that risk in order to stimulate usage and hence create much higher revenue streams in the future. The penetration levels envisaged in this policy will be achieved and further enhanced when the availability of local content and lucrative e-business models become widespread in Pakistan, when the legal framework fully supports the spread of such business models and when the cost of providing broadband services becomes as low as the levels seen in the broadband rich countries such as Japan, Korea and the US. The policy only aims to facilitate all of the above factors, but the actual growth will depend on the initiatives taken by the other stakeholders too, such as the service and content providers both abroad and in Pakistan to capitalize on these facilitations and help creating and meeting the demand rather than just meeting it.

## 2.0 Policy Structure:

This policy document aims at separating the broadband value chain into four components and creating growth enablers in each component (Fig 4). The four links of the broadband value chain that will cover all the enabling aspects of the broadband services are

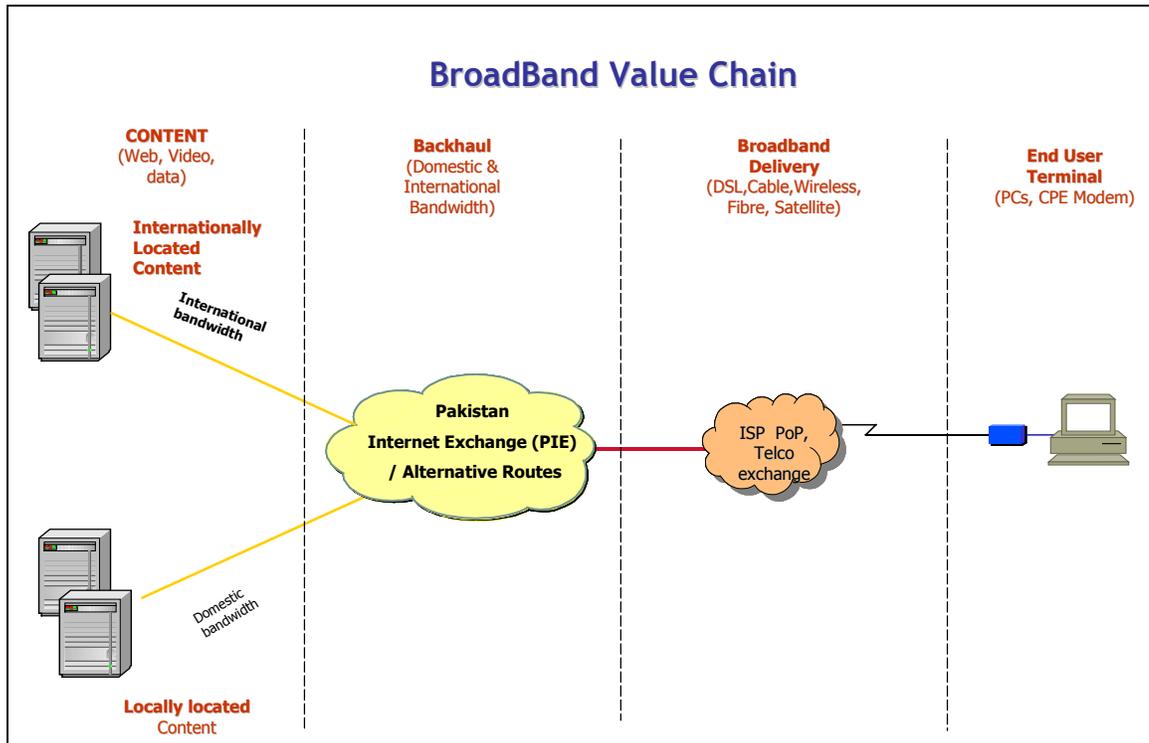


Fig 4- Broadband Value Chain

- 1) Content Facilitation
- 2) Backhaul Facilitation
- 3) Broadband Delivery facilitation
- 4) User Terminal equipment facilitation

### 3.0 CONTENT FACILITATION

The content available for use over the internet has very important role in enhancing the utility of internet for local population both in the way of local availability and availability in local language(s). The policy aims to enhance both the areas in tandem by ensuring that the content industry will flourish based on the incentives provided on all the platforms where data related services are delivered to the public including data over cellular and over fixed line CPEs apart from the availability on the internet. Policy aims at promoting new breed of Application Service Providers (APs) like Malaysia and other countries where content industry has developed.

#### 3.1 Locally Located Content:

Hosting of websites within a country is one of the main drivers for the promotion of broadband growth. It is therefore important to encourage both domestic and foreign operators to host their websites within Pakistan. This will address one of the key dimensions of accelerating broadband penetration, i.e., local content availability. By providing locally located content, this facility will reduce the reliance on the International IP bandwidth as a high proportion of the internet traffic would remain in Pakistan. To achieve this objective, the following steps will be implemented:

**3.1.1 The telecom operators, both fixed and mobile, will be encouraged to provide easy access (such as short access codes) to their networks for “third party content providers” on which PTA will issue guidelines.**

Third party content represents a significant chunk of revenues from the non-voice services of mobile and fixed line telecom operators. Since this industry directly impacts both content and broadband areas, the above step will help generate content providers in Pakistan.

New generations of communication CPEs in general, and mobile phones in particular, are supporting increasingly rich and advanced content types. The combination of ‘quality’ and ‘ease of downloading’ content are leading to rapid growth in the development of the content market. The recent past has seen a plethora of non-voice data services in the mobile area (Some VAS are available on Fixed Lines also) such as SMS, MMS and others delivered over different wireless service protocols. Given the popularity of content on mobile phones, encouragement of content providers to hook up to the cellular operators will help to bring in content providers much needed to facilitate broadband in Pakistan. The end user connectivity if provided in the form of short access codes will encourage the entry and growth of content providers in Pakistan, which in-turn will reduce the reliance on the international bandwidth. Several standards for provision of high-speed data services over cellular platforms are emerging. The telecom sector de-regulation policies do not bar the cellular providers from offering these new

services under their existing licenses. The issue of convergent/unified services on these platforms will however be the subject of a future study.

**3.1.2 An e-commerce wing will be set up in the Ministry of IT to encourage the growth of broadband services in the country. This wing will propose and implement strategies for e-fraud prevention, verification of company authentication certificates and reliable services such as money back guarantees. The proposals will be based on the collaborative efforts with all the relevant ministries/departments and relevant stake holders e.g. law, commerce etc. for a cohesive view on all these matters.**

Availability of useful applications like e-government, electronic tax filing, online stock trading, online gaming etc. have a huge impact on the demand for high speed internet and act as market drivers. The government is proactively working on the introduction of e-government applications. A 'National e-government council' has already been set up under the chairmanship of the Prime Minister of Pakistan. This council will oversee the e-government initiatives aiming at automation and e-communication within all federal ministries and assist all the local governments in automating their records, tax and revenue collection functions to improve decision making, besides ensuring electronic bill payment facility for all major utilities. Availability of these services in conjunction with the local language computing platform as envisaged in the policy will have a major impact on driving up the demand for broadband internet.

**3.1.3 In addition to the traditional credit card payment method over the net, all e-commerce content providers would be encouraged to offer payment model where their services are charged from the consumers through the broadband service provider monthly bills.**

**3.1.4 Facilitation on co-location of space and bandwidth will be given to companies which will set-up hosting facilities of 1 Tera Byte or more in Pakistan. The total storage to be setup at one time and can be in more than one location.**

This incentive will help bring in the web content located outside Pakistan thereby reducing the reliance on international bandwidth. This could also include the creation of a local mail service with 100MB storage per user. As of today, hosting websites is an expensive proposition due to the bandwidth and space charges that will be required for large hosting platforms. This financial barrier is one of the main reasons responsible for the low level of website development in Pakistan, whether in English or in Urdu.

Hosting web sites locally will have the following advantages:

- Access to these sites will be faster
- International IP bandwidth dependency will not be required for these sites

- Foreign exchange will be saved

### **3.2 Local Language Content:**

Even if the broadband policy is successful in reducing the international IP bandwidth barrier (reduced prices, peering networks etc), till such time that there is a demand from the consumers for utilization of this bandwidth, the objectives of the policy will not be achievable. Whilst no doubt there is enough material available on the world wide web that can be accessed, given the fact that literacy in English is extremely limited amongst the general population, the vast majority of users will not be able to benefit from the increased bandwidth speeds and cheaper access.

Different government agencies and private sector academic organizations have contributed significantly, with government funding, to the development of an Urdu language Unicode based standard for into website development. Standardization of the Unicode for Urdu has already materialized. This will lead to large software operating system companies to produce standardized software for the language, allowing websites in Urdu to be developed as per normal practice, which allows indexing, searching, sorting and other similar functions to be carried out. The Unicode development will also pave the way for integration of the Urdu language into most popular computing platforms like Microsoft Windows and also prompt the growth of related industry like keyboard manufacturing and Urdu speech-to-text conversion and translation services for the widespread acceptance of the new Unicode for Urdu, the policy envisages:

#### **3.2.1 Holding of a series of training workshops to teach the mechanics of developing Urdu language websites using the Unicode based standard.**

Developing the skills required to be able to develop websites in Urdu is not a complex task, and a short training course will equip the participants with the required skill level. Government will conduct a series of "Train the trainers" workshops. These trainers will then replicate these trainings at selected colleges and institutes throughout the country. This will result in a large pool of individuals who are able and willing to develop websites in Urdu.

It is anticipated that there will be a snowballing effect to this activity, since the more websites that are developed in Urdu, the more will be the usage of the internet within the country, which in turn will fuel the demand for more interesting and varied Urdu and other regional languages websites. This is a trend that has been observed in other countries, when a language has been introduced on the web, and there is no reason to believe that developments in Pakistan will not go down this route.

#### **3.2.2 To spur growth in local content, the government will encourage hosting services for any website developed using the Urdu Unicode standard.**

Availability of Urdu language websites hosted locally would combine to raise usage as well as reduce the cost of connectivity, thus driving the usage upwards in turn. This “virtuous” cycle will result in the objectives of the policy being achieved without any major financial burden on the stakeholders.

**3.2.3 To promote above concepts on content industry, the policy envisages a sustained and targeted media campaign run in conjunction with both the state as well as the private electronic media channels.**

A nation wide competition consisting of different categories of websites and web developers will be organized and attractive prizes will be awarded to the winners. This will stimulate the interest of the target audience and result in high quality websites being developed.

## 4.0 BACKHAUL FACILITATION

Most of the content (international and domestic websites, .pk domain etc) is located on Internet servers outside Pakistan (Largely in the US and to a smaller extent in Europe). This obligates ISPs and the consumers to pay for the expensive International IP bandwidth to access that content. However the ISPs also need the domestic bandwidth to access and connect their individual PoPs located in various cities in Pakistan. The Content, International bandwidth and the Domestic bandwidth make up three of the most important elements of the back end or ‘Backhaul’ of the Internet and broadband supply chain. (See figure 4). Facilitation of these three elements will therefore have a major bearing on the ability of the service providers to offer cheap and affordable broadband services.

With lowering of the barriers for the broadband users in Pakistan and the expected switch of Internet users from dial up to broadband, the charges incurred in the PRI equipment specific to dial up users will be reduced so that the ISP can re-deploy his PRI equipment in less lucrative areas. See section 4.2.2.

LDI Licensees will have the option to develop their own backbone networks including National Internet Exchanges (NIEs) to provide competitive connectivity to all existing and new data communication and Broadband service providers. Accordingly, the policy envisages:

### 4.1 Reduction in International IP Bandwidth Prices

**4.1.1 The existing International IP and associated bandwidth prices will be lowered to a level where the annual broadband user targets stated in this policy would be completely achieved by the service providers.**

International IP bandwidth price is the biggest factor in an ISP cost. At present prices, it can become a major component (up to 60%) of the operational expense of an ISP. Reducing the International IP bandwidth price will therefore enable ISPs to offer better dial up and broadband services at affordable prices. Bandwidth service provider’s price reduction can be achieved by various methods including reduction of costs of international capacities via long-term leasing of high bandwidth capacities and applying volume discounts on higher capacities (STM4). With the increased number of LDI service providers and increased competition in the infrastructure available in Pakistan, it is expected that natural price reductions will follow after the first ‘artificial’ price reduction offered specially for broadband promotion.

### 4.2 Reduction in Domestic Bandwidth Prices

**4.2.1 The existing domestic bandwidth prices will be lowered to a level where the service providers will be encouraged to use local and national peering services and generate local and nationally hosted content.**

A reduction of domestic bandwidth prices by the domestic bandwidth service provider should encourage ISPs to have their own countrywide network and carry their internal traffic on their own network instead of Internet. This will open up cheap new services such as VPNs that ISPs can offer using their national network. ISPs will be able to attract corporate customers and banks for their remote branch connectivity using their national network. It will also encourage companies to develop attractive and e-commerce oriented content that resides in Pakistan, again reducing reliance on the expensive international bandwidth.

**4.2.2 To promote IT industry, the PRI charges will be lowered to a level where the gap created in the dial up infrastructure usage by the dial up users switching over to broadband services will not make the operational and capital expenditure in the PRI service a liability for the internet service providers.**

PRI (Primary Rate Interface) defines the equipment that is exclusively used to connect the dial up users from their PCs to the ISPs PoP through the telephone exchange. The reduction in charges will ensure that drop in the PRI usage due to users switching to broadband will not hamper the ISPs profitability.

Provision of alternative methods to the current distance based dedicated resource tariffs can be one of the steps that could lead to reduction in broadband prices for the end-user. Facilitation of such steps will introduce options for the broadband service providers and help in lowering the costs for the end-user.

**4.2.3 Incumbent will be encouraged to work out alternative products and pricing plans (e.g. Ethernet/ IP ports etc.) complementing the current distance based dedicated resource tariffs, hence increasing the options for the service providers to lower the end-user prices.**

### 4.3 National and Regional Peering

**4.3.1 Establishment of National and Regional peering points that connect and switch the domestic traffic between all the ISPs and promote the creation of a national Intranet that provides domestic IP network services, would be encouraged.**

This facility will reduce the dependency of ISPs on the costly backhaul IP bandwidth. By exchanging traffic local to ISPs at peering points, their backhaul IP bandwidth will not be used and the customer will experience smaller delays because of shorter span the traffic needs to travel. It will also free up the backhaul IP bandwidth to be used by traffic that needs to go out of Pakistan hence increasing the overall response time.

This facility would again encourage the development of locally located content, such as domestic email and e-commerce services. Once the Peering service is

established, the creation and growth of local content and local e-business will become inevitable. This national intranet will be interconnected with the other intranets in Pakistan such as all the major Universities and Libraries intranet (PERN) and the intranet linking all the government organizations.

The cost of traffic internal within a closed Intranet is significantly lower than traffic on the Public Internet. Development of local intranets such as the already existing PERN network and connectivity between them will again lower the costs of providing broadband services to the residential and corporate users across Pakistan. This facility will also reduce the reliance on the international IP bandwidth.

## 5.0 BROADBAND DELIVERY FACILITATION

### 5.1 Broadband Delivery Technologies:

Today there are four primary mechanisms for broadband delivery:

	<u>Common Terminology</u>	<u>Technical Terminology</u>
1)	Copper Telephone lines	- Digital Subscriber Line (DSL)
2)	Hybrid of Coaxial and Fibre cable	- HFC Network
3)	Wireless	- Broadband Wireless Access
4)	Satellite	- VSAT and DTH

### 5.2 Digital Subscriber Line (DSL) Technology

In DSL, voice and data get transferred simultaneously over the existing copper telephone lines by using different frequency ranges on the same line. Voice is transferred on lower frequency bands and data on higher ones.

The technology to do this resides in the DSL transceiver or modem that's installed both at the subscriber end and at the end of the service provider. A DSL modem on the subscriber end sends data over the telephone line to the telephone exchange or Central Office (CO). At the telephone exchange, a DSL Access Multiplexer (DSLAM) terminates and aggregates incoming DSL lines. It redirects the voice traffic to the public switched telephone network (PSTN) and the data to a high-speed digital line that connects to the Internet as illustrated in Annex B. This results in the simultaneous availability of the telephone and Internet on the same line.

#### 5.2.1 Incumbent's Facilitation for Broadband Growth:

International experience shows that DSL succeeds when the local loop service providers follow the policy of providing the service in an aggressive manner, because the LL service provider typically has ownership of upwards of 90% of the copper local loop.

Since virtually all the local loop telephone lines are owned by the incumbent, giving nondiscriminatory access to this facility for use and investment by other operators also becomes crucial. Thus, the incumbents' role and effort is also the key to spur overall growth in the market.

All the DSL services will fall in one or more of the following categories:

- 1) Local Loop Service provider's retail DSL service.

- 2) Local loop service provider's wholesale DSL service for ISPs and content providers, where the investment in the entire infrastructure is the wholesaler's responsibility. The retailer will be responsible for marketing, customer acquisition and customer services only.
- 3) ISPs and other operators retail DSL service where the DSLAM investment is the ISPs responsibility.
- 4) Bandwidth provision from LDI operator to other service providers for onward delivery of DSL services.

### **5.2.2 Broadband Business Model and SMEs Growth in Pakistan:**

Besides the fast 'time to market' advantage, DSL wholesale will provide the cheapest way for a service provider to offer broadband services. The copper loop owner will be able to offer a wholesale service to any broadband service provider without the service provider having to invest in the infrastructure. This low cost and 'fast time to market' service provision is envisaged to present the SMEs (companies with low capital), with a very lucrative business model, thereby creating new companies and increasing the volume and turnovers of private sector service providers in Pakistan.

The following policy enablers for the above categories of DSL services will promote quick growth and competition in the DSL broadband services:

**5.2.3 There will be no restriction on the number of broadband service providers in the market. Any company or entity shall be able to provide broadband services provided that it has met the terms and conditions given under the section 'regulatory framework'**

One of the major reasons for the lack of growth in the broadband users in Pakistan is the restriction in the number of operators allowed to offer broadband DSL services. Unrestricted competition will escalate the growth of Broadband users, similar to the growth seen in the dial up Internet sector. Since the incumbent's initiatives are of key importance in the recently deregulated telecom sector, this policy just like the de-regulation policies of the fixed and mobile sector puts some obligations on PTCL to act as stimulus for the smooth entry of new providers into the market.

**5.2.4 PTCL will offer the content service provider (ISPs, Multimedia content providers) data stream access to the customer. Rather than a potential content provider having to obtain leased lines from PTCL, pay collocation charges and invest in exchange side broadband related equipment, the PTCL manages the transmission link from the customer to the services providers POP for a flat rate service charge. In order to ensure efficient and fair use of PTCL's resources and space for all service providers, the incumbent will offer wholesale services to retailers in exchanges for which the retail service providers have provided a viable business plan.**

This service obligates PTCL to install DSLAMS in its exchanges through which it will provide the ports to its wholesale customers and may also use those DSLAMS to provide retail service to customers. The wholesale service will simplify the broadband service offering by all ISPs and content providers and escalate the spread of the service. Effectively the service providers will be interconnecting at the data stream level rather than the physical copper level.

**5.2.5 PTCL will offer non-discriminatory shared access to its last mile copper, i.e. the service providers can install their own exchange side broadband equipment in PTCL's exchanges. The line will be available to other operators for data services only (as the policy's aim is to promote broadband). PTA will monitor the shared access for fair competition.**

This will distribute the investment load between the operator and incumbent. And the service provider will be able to deploy its DSLAMS where it makes business sense.

**5.2.6 PTCL will have sufficient dedicated staff for the facilitation of the access to its exchanges in order to ensure speedy provisioning of the service to the broadband service providers. PTCL will be required to provide the service within a predetermined time frame.**

**5.2.7 Service level agreements will be signed between the ISP, the LL/LDI operators and the broadband service provider in case they are all separate entities. Service level agreements will also need to be signed between the wholesale service provider and the retail service provider. In the case of non-availability of desired network infrastructure from any existing LDI/LL licensee, the broadband service provider (either retail or wholesale), can lay down their own purpose specific transport/local loop infrastructure just for providing broadband services, after three months of failure to obtain the network transport desired.**

**5.2.8 To contribute to the policy subscriber targets, PTCL will reduce the monthly rental charge for the copper loop in order to make it viable for the service provider to offer broadband services at an affordable price level.**

**5.2.9 Service level agreements stating benchmarks for QoS will have to be signed between customers and broadband service provider.**

#### **5.2.10 Regulatory Framework for DSL:**

The regulatory approaches on broadband vary from country to country depending on the level of market maturity. Local loop unbundling has occurred in countries such as the UK<sup>1</sup> and the US where teledensity has matured to a saturation level and there is little need to encourage the investor to lay new telephone lines,

whereas in growing teledensity countries such as Egypt and India, the local loop owner has to be paid a rent for using its loop for delivering broadband services. While full local loop unbundling will not occur in Pakistan until such time that teledensity has reached some level of maturity, the steps proposed in this policy aim to ensure that high growth areas such as the DSL have minimum level of barriers in Pakistan. However the reduction of the barriers has to be accompanied by the assurance of quality of service for the broadband users in Pakistan and the protection of stake holder's investments as well. Any entity will be able to offer broadband services in Pakistan provided that they have met the specified terms and conditions:

**5.2.10.1 Service level agreements need to be signed with the licensed local loop and LDI operators by the broadband service provider who may also offer value added services such as VPNs, video conferencing and call center connectivity remaining within the scope of class license template as explained in Section 7.**

### **5.3 Fiber / Coaxial Access Network**

Broadband services on coaxial networks holds less than 40% of the world broadband market (See Annex B). Its largest location is the US, where cable was deployed as the prime technology for broadband and multimedia services as far back as the 1980's. Before the xDSL and wireless technologies became advanced enough to offer broadband, cable was the medium that offered high bandwidth characteristics. Fiber Optic technology allows for transmission of 10 Gbps which is much higher than DSL technologies. Unlike the DSL service, cost and time constraints would still not allow the fiber to be taken to the customer's premises. However Fiber Optic cables are now being used from the exchange to the more remote feeder points to shorten the length of the copper wire. This may enable high bandwidth services such as broadcast TV and video on demand to be delivered on the DSL. The need for establishing many two way bi directional amplifiers in the network and the need to dig the roads for the laying of fiber and coaxial cable characterizes this technology. Right of Way is the most critical element in the deployment of this technology as far as the broadband policy enablers are concerned.

With the influx of new LL and LDI operators entering the Pakistan market, this might prove to be a major hurdle in rolling out new infrastructure and providing advanced broadband services in a timely manner.

The following policy features will facilitate ROW availability:

**5.3.1 The government will encourage local governments and utility companies etc. to offer non-exclusive, non discriminatory and uniform ROWs and space contracts thereof for the concerned market segment, as per the Telecom Deregulation policy section 4.1.**

**5.3.2 The government would encourage owners/builders of multi-storied buildings and commercial complexes, including local area authorities and operators not to enter into exclusive agreements, which would prevent others from serving potential customers in those areas.**

Although local governments, authorities and utility providers do not fall under the jurisdiction of the MoIT, facilitative steps taken for appropriate resolution of these crucial issues at the government level will be helpful for the new market entrants.

#### **5.3.4 Regulatory Frame Work for HFC Network**

The fixed nature of the HFC networks means that the regulatory policies for fiber and coaxial broadband networks will be similar to the policies defined for the fixed line copper networks. Regulatory framework clause 5.2.10.1 would also be applicable to the HFC broadband service providers. The broadband service providers desirous of deploying HFC network will have to meet the regulatory requirement of PRMRA if any.

#### **5.4 Broadband Wireless Access**

The ITU has allocated multiple frequency bands for fixed wireless deployment. These are

1) IEEE 802 based bands for Short distance broadband	2.4-2.5,5	GHz
2) Fixed Wireless Access bands	3.4-3.7, 10	GHz
2) Multipoint Microwave Distribution System (MMDS)	2.5-2.7	GHz
3) Local Multipoint Distribution System (LMDS)	24-32	GHz

Due to the convergence of broadband, TV and voice, many of the above listed bands are used for offering all services together. Except for the IEEE 802, multimedia convergence equipment is available in all of the above listed bands. Due to the equipment standardization and economies of scale, these bands will offer a potential broadband service provider a very attractive and fast method to deploy mechanism to deliver broadband services in Pakistan. However the recent auction of 3.4-3.7 GHz in Pakistan will give the service provider a fast route to delivering broadband to potential users where fixed lines have either not been installed or their quality is below the standard required for carrying high speed information.

To facilitate the above convergence and international standardization of wireless broadband equipment, the following policy enablers are proposed:

**5.4.1 In order to streamline frequency management and allocation plan for Pakistan in accordance with the international standards; a high level technical committee with representations from MoIT, PTA, PEMRA and FAB will be formed. The committee will consider measures with the objectives of making appropriate frequency spectrum available to the broadband service providers in Pakistan. All the licensed and unlicensed frequency bands internationally recommended by ITU for broadband wireless access would be analyzed and offered to promote the service. An inter-ministerial committee will take appropriate decisions based on the recommendations of the technical committee.**

The proceedings of the committee meetings will lead to the development of a road map leading to the gradual availability of the unlicensed ITU standardized frequency bands for the broadband deployment. The committee will also examine the scenario of overlap of regulatory authorities of different regulatory bodies like PEMRA, PTA, and FAB etc. and will suggest a framework for the smooth co functioning of the regulators while ensuring the facilitation of the new broadband service providers for the purpose of increase of investment in the sector. The recommendations of this committee would be placed before an inter ministerial body or cabinet committee for final decision.

**5.4.2 Service level agreements stating benchmarks for QoS will have to be signed between customers and wireless broadband service provider.**

**5.4.3 Regulatory Framework for Wireless Broadband Access:**

Regulatory policies vary across the world for wireless access broadband. For instance in some countries import duties and licensing exists on WiFi equipment that uses the unlicensed bands, whereas in mature markets like as the US, Korea and Singapore the regulation has allowed unlicensed usage of these bands resulting in the spread of broadband services in the corporate and confined public places. The bands in the IEEE 802 series need to be unlicensed and free for broadband usage in Pakistan in a non-exclusive manner.

**5.4.3.1 PTA to provide a regulatory framework for the unlicensed bands users that includes concerns such as setting of the maximum permissible power levels and protection of users against the violators.**

Because of the low cost of IEEE 802.11 (WiFi) equipment (off the shelf) and deployment, these technologies are very useful in many situations and make a viable business case for operators to distribute broadband connections to multiple users within a limited distance such as corporate offices (WLAN), airports and shopping malls. Operators using this band within close proximity will need to

restrict the power output to levels that does not interfere with the adjacent operators' service if they are using the same unlicensed band.

**5.4.3.2 PEMRA will be required to consult FAB before publicizing and committing any frequency resource bands for broadcast, VoD (Video on Demand) and other Multimedia / TV service.**

This would be done in the interest of optimal utilization of valuable frequency resource, which in certain areas falls in shared (broadcast, broadband and converged) services. This will eventually lead towards convergence as per the emerging international practices.

**5.4.3.3 PTA and FAB will explore alternative spectrum bands, which are not in the high demand, that could be used for deploying broadband services and develop pricing incentives for their usage.**

Because of the international standardization of frequency bands for a particular service, the infrastructure in those bands is manufactured in large volumes and hence sold at low prices. A similar allocation and standardization of frequency bands in Pakistan will give the broadband service provider in Pakistan a low capital expenditure and fast to deploy route to offering the service, thereby contributing to the spread of broadband in the country.

## **5.5 Satellite Broadband Access**

Satellite technology can provide a very 'fast to deliver' last mile alternative to DSL, HFC and wireless. It can make financial sense to deploy Satellite for delivery of services in remote areas where the other technologies become financially unfeasible due to the physical laying of the infrastructure.

**5.5.1 Satellite broadband services can be provided by Broadband service providers using VSAT technology provided they meet the class license requirements.**

**5.5.2 Satellite broadband services can also be provided by the DTH operators provided they have local loop and LDI licenses, keeping in mind the existing limitations of the DTH license issued to them from PEMRA.**

**5.5.3 The broadband service providers will operate under the class license (including registration with PTA). In case the broadband service provider is proved to be involved in running illegal operations through its service, PTA will take action according to license template and shall also have the right to cancel the registration. In case of violation by PEMRA's licensed service providers, PTA will refer the matter to PEMRA.**

## **5.6 Government Initiatives for Broadband Rollout in Pakistan:**

The following policy initiatives by the Government would help stimulate the roll out of all the broadband technologies in Pakistan:

**5.6.1 The government would require installation of facilities that enable broadband communications in new buildings built by the state, municipalities and government enterprises.**

**5.6.2 The government will play a proactive role in development of ICT and broadband services in unserved/underserved areas of Pakistan. The road-map for the USF also includes plans for ICT including broadband in both the areas. This will pave way for proliferation of broadband services in the rural areas of Pakistan.**

**5.6.3 The Government will encourage the co-existence of all the Broadband delivery technologies in the most efficient manner possible such that no artificial hurdles suppress one technology and maximum competition in the sector is allowed to grow.**

For growth in broadband in Pakistan to be accelerated, competition needs to be fostered and made viable in all of the services. The regulatory environment will ensure that each of these access paths co-exist in the most efficient manner possible such that no artificial hurdles suppress one technology. However almost 60% of the world broadband subscribers access the service along the copper telephone lines via the DSL technology. In line with the world trends and despite the need for the availability of all the possible technologies for broadband, the existence of over 5 million fixed telephone lines in Pakistan makes DSL the fastest possible technology to spread the broadband user base in Pakistan. While it is envisaged that the number of Cable Modem broadband users and, in time to come, the wireless broadband users, will grow at a steady pace, due to the existing availability and spread of the copper line infrastructure, majority of the broadband users expected in Pakistan over then next five years will be through the copper line DSL technology.

The Government will however play a proactive part in encouraging the entry and growth of any new and alternative broadband delivery technologies as well. For example, delivery technologies that might become an alternative to the cable and phone companies for delivering Broadband service such as ‘Broadband over Power lines’ or BPL could also fuel the spread of broadband households. Such technologies could offer enormous promise because the power grid is ubiquitous and the costs to the industry to offer the new service would be comparatively small. A technology like BPL would not only offer greater competition in the broadband market, but would also allow consumers to easily create networks in their home through special modems that plug into their electrical outlets.

## **6.0 END USER TERMINALS FACILITATION**

The availability of low cost access devices is a catalyst for broadband penetration. The policy proposes the following initiatives that will stimulate the sale and penetration of end user devices in Pakistan:

<b>6.1 Provisions relating to equipment depreciation and other fiscal incentives provided for in the IT policy will be maintained in the context of this policy.</b>
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The advancement of technology often makes IT equipment obsolete in a short span of time. This increased depreciation will help stimulate investment in the equipment sector. This will encourage the large corporations to update their PCs and make cheap second hand PCs available to the lower end of the market, stimulating the use and spread of PCs across Pakistan. This could particularly benefit the schools and colleges in smaller towns and villages across the country.

<b>6.2 Pakistan Government will introduce low interest rate loan facilitation through ‘own a computer initiative’, for the purchase of PCs and broadband customer premises equipment.</b>
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Other countries, like Korea, Malaysia and Thailand have taken significant steps with government funding this area for providing low cost and free PC's to low income families and for all schools. The Korean and Malaysian government provided heavy subsidization and low interest rate loans to help families with children obtain PC and further their ICT education.

## 7.0 REGULATORY FRAMEWORK AND ROLE OF PTA

The aim of the broadband policy is to simplify the licensing mechanism for the promotion of broadband services in particular and all types of data communication services in general. In pursuance of the already approved deregulation policies (section 13) existing licenses for the Data, ISPs, and EIS are proposed to be phased out after the expiry of their current license tenure or converted into class license. Those who opt to adopt the new class regime will be eligible to the incentives being provided in the Broadband policy. As part of class license the existing Data, ISPs, and EIS and new broadband operators will be free to sign bandwidth and local loop agreements with operators of their choice within policy framework for LDI/LL licensees. The existing data/Internet licensees can opt to continue under their existing license till its expiry within terms and conditions of their license, thereafter they will be governed under class license template. This action will result in simplification of regime with the incentive of lower class license upfront registration charges and elimination of recurring charges etc. The template for class license (registration) of Data, ISPs, and EIS and broadband Service Providers will be made by PTA taking into account conditions specifying requirements of security, violations, voice and illegal termination and penalties thereto. The template will also take care of substantive conditions of contractual obligations to be included in operator and customer agreements. PTA would also specify the necessary requirements for the SLAs and QOS to be incorporated in LL/LDI agreements and in broadband service providers' performance obligations. The idea of registration with PTA is to make sure that all the clauses of the policy are adhered to by the new service providers and for the purpose of national security. While formulating the class license templates, PTA, by incorporating suitable clauses regarding matters pertaining to the use of VSAT by Broadband service providers and VPN and related services, will ensure the protection of the interests of all stake-holders. The overall role of the regulator (PTA) is encompassed in the following text. These regulatory obligations would encompass all the broadband service providers irrespective of their delivery mechanism.

### 7.1 Class Licensing

**7.1.1 Pursuant to section 13 of the Telecom Sector Deregulation Policy existing licenses for the Data, ISPs, and EIS will be phased out after the expiry of their current period of validity and will be converted into class license and they will be eligible to the incentives being provided in the Broadband policy. The broad band service will also fall under the class license regime to ensure uniformity. The existing Data, ISPs, and EIS licensees can opt to continue under their existing license till its expiry within terms and conditions of their license or to be governed under class license template regime.**

**7.1.2 The existing Data, ISPs, and EIS licensees, who want to provide broadband services, will have to comply with the class license templates for the broadband operators including QoS provisions and service level agreements (SLAs).**

**7.1.3 PTA will prepare the class license templates and registration terms of Broadband, Data, ISPs, and EIS under the class licensing scheme taking into account conditions specifying requirements of security, violations (including illegal voice origination/termination) and penalties thereto.**

**7.1.4 The templates will incorporate substantive conditions of obligations to be included in the network transport contracts between broadband operator and the LL/LDI as well as the customer agreements of the broadband operators. The templates will also set time lines for the LDI/LL operators for the availability of their infrastructure for the Broadband operators and the mechanism of the monitoring for the designed SLAs.**

**7.1.5 PTA will also lay down a comprehensive framework for the required QoS and other performance obligations for the broadband operators. The resulting inter-operator and customer-operator SLAs will reflect these obligations. Detailed SLA and QoS parameters will be published regularly and updated periodically keeping pace with technological developments, by PTA.**

## **7.2. Class License Registration**

**7.2.1 The terms and conditions of registration (as per the criteria set by PTA) would be made public within three months of issuance of the policy.**

**7.2.2 Class license registration fee would be kept to a minimum level and would cover the cost of documentation and relevant administrative costs. Exact amount of this fee would be determined by PTA, while protecting licensees' interests and consumer rights. Royalty charges and annual fee would be kept to a minimum level and incorporated in the class license template.**

## **7.3 Code of Conduct**

**7.3.1 Code of Conduct, covering relevant aspects of policy and after reviewing best international practices in the context of narrow and broadband services would be published. PTA will specify this code for the registered service providers.**

**7.3.2** The Code would also specify the grounds for violation resulting in potential termination of registration. The record of violation/breach of conduct would be maintained by the Authority. It will be reviewed from time to time and would be applicable after serving of show cause notice.

#### **7.4 Quality of Service (QoS)**

**7.4.1** PTA, after studying various options/solutions, will specify parameters to ensure quality of service. QoS would cover entire range of services and would aim at protecting consumers' interests. The QoS standards would be reviewed periodically and these would be available on the website after a process of consultation and keeping in view the technological changes, international standards and best practices.

#### **7.5 Rights of Existing Licensees**

**7.5.1** Rights of existing licensees e.g. Electronic information service, ISP, Data network operators etc would be protected and these operators will be allowed to operate under the original terms and conditions of their licenses till the expiry of the same. In the meantime, these operators will also have the option of adopting the new regulatory regime, while adoption would become mandatory after the expiry of their existing licenses.

#### **7.6 Policy Implementation Plan**

**7.6.1** Implementation plan and roadmap for the Ministry (MoIT) and its related entities like Pakistan Software Export Board (PSEB) etc., the regulator (PTA), the incumbent (PTCL) have been laid out and appended as Annex D.

All these entities will work together for the smooth implementation of the road map and hence ensuring the ultimate success of this policy.

**8.0 BROADBAND PROMOTION AND AWARENESS:**

More than 40% of the internet users in Pakistan do not know what broadband DSL technology is and only 0.4% users have knowledge about the number of DSL service providers in Pakistan. Lack of marketing and awareness of broadband benefits also contribute to the slow growth of broadband users in the country. Broadband services and its benefits need to be aggressively marketed to both the corporate and residential users. The stakeholders need to inform the public of the benefits of broadband, its impact on the quality of life and on the society's social and economic standings. This would help raise the level of understanding of the benefits of broadband and promote its usage. The policy envisages the following measure towards broadband awareness:

- |   |
|---|
| <p><b>8.1 The MoIT in collaboration with the industry will carry out countrywide broadband awareness campaigns through series of seminars, workshops, media advertisements and live demos, spreading the importance of high speed internet in critical and attractive applications such as Tele medicine, Stock Trading and e-learning.</b></p> |
|---|

## **9.0 PAKISTAN BROADBAND ROADMAP:**

This section defines a broadband road map for Pakistan with specific milestones to assess and measure the enablers defined in this policy.

### **9.1 Increasing the DSL User Base**

Due to the removal of restriction on the number of Broadband DSL service providers, the reduction in the local loop and bandwidth charges and the availability of low cost wholesale broadband service for SMEs, the first target for this policy is the growth in the DSL users in Pakistan. The target for the end of the first year after the issuing of the policy is to increase the DSL users to 100,000.

### **9.2 Spread of Low Cost Unlicensed Wireless Technologies Such as WiFi.**

Ensuring the availability of all the ITU classified 'unlicensed' frequency bands for the use of the broadband user in Pakistan by the end of the first policy year. Using unlicensed technologies such as WiFi, the Government will have deployed broadband access in hot spots such as Airports, and Universities to set precedence and encourage the deployment and use of low cost unlicensed hot spot technologies such as WiFi technologies.

### **9.3 Enabling of New Technologies**

Broadband technologies such as WiMax and FTTH are still developing and are expected to fully mature by 2006. What is regarded as broadband today will become narrowband in a couple of years. Keeping the objectives of the broadband policy of Pakistan in view, the government will continue to encourage the deployment and spread of new broadband technologies and standards as they develop and mature.

### **9.4 Policy Review**

Keeping in view the fast pace of technology change the GoP may issue addendums and enhancements to the broadband policy if such necessity is warranted.

# Annex A

## Glossary

**APC:** (Access Promotion Charge)- A fund that is given to the ‘local loop’ operator to help increase its telephone lines in the area.

**ASP:** Application Service Providers

**Backhaul:** Transmission of content from the content source to the ‘local loop’ aggregation point such as the exchange, PoP etc.

**BB:** Broadband

**Broadband:** Electronic information access at high speed (> 128kbps)

**BWA:** (Broadband Wireless Access)- Broadband delivery to the customer via wireless.

**BW:** Bandwidth

**Content:** Information in an electronic format eg Websites, TV channels, data, voice etc.

**CPE:** (Customer Premises Equipment)- A piece of equipment that allows the user to convert the sent electronic information into a format that is acceptable by his display unit such as a PC, TV.

**CPP:** (Calling Party Pays)- A pricing regime that charges the person that has initiated a communication link such as making a phone call.

**‘Dial up’:** A method of connecting to the internet where the user has to dial a telephone number over an analogue or ISDN line and wait for the system to give him a communication link.

**DTH:** (Direct To Home)- A link that allows the receiving of broadcast TV channels over Satellite.

**DSLAM:** (Digital Subscriber Loop Access Multiplexer)- Piece of equipment that is located in the telephone exchange and connects, combines and digitizes multiple analogue telephone lines into one digital data link that terminates into the internet service provider’s PoP (point of presence) .

**DSL:** (Digital Subscriber Loop)- A technology that is capable of transforming ordinary phone lines into high speed digital lines capable of supporting applications such as high speed internet and video on demand.

**EIS:** Electronic Information Services

**Exchange:** Point of Presence of the telephone operator company that allows connectivity and switching between telephone users locally and internationally.

**FAB:** (Frequency Allocation Board)- A Pakistan Government organization that manages and allocates the Radio frequency spectrum in Pakistan.

**FTTx:** (Fiber To The Home/Curb/) - A fiber optic based communication network where 'x' is the physical point where the fiber is terminated.

**GDP:** (Gross Domestic Product) - A measure of the economic standing of a country.

**HFC:** (Hybrid of Fibre and Coaxial cable)- A communication network that comprises of primary fibre cable with an extension of a coaxial cable that terminates at the users premises.

**ICT:** (Information and Communication Technologies)- An international term to represent services and technologies that are driven by computer and Telecommunication networks.

**IEEE:** (Institution of Electronic and Electrical Engineers)- A US based international body that approves / accredits technologies and standards for ICT across the world.

**Intranet:** A closed loop and secure communications network as opposed to the public internet that can be accessed by anyone.

**Incumbent:** The telephone company that owns majority of the telecommunications network in a country ( PTCL in context of Pakistan).

**IP:** (Internet Protocol)- Procedures that allow transmission of communication packets between various internet PoPs.

**ISDN:** (Integrated Services Digital Network)- A technology that converts the normal analogue telephone lines into higher speed (less than 128kbps) digital lines.

**ISP:** (Internet Service Provider)- Company that owns internet based infrastructure (Routers, Servers) and provides internet access to users.

**ITU:** (International Telecommunication Union)- A UN based world body for setting and approving technologies and standards for Telecommunications.

**Kbps:** (Kilo Bits Per Second)- A measuring unit for electronic data speed in thousands.

**LDI:** (Long Distance International)- Term that defines communication between domestic cities and international countries.

**LL:** (Local Loop)- Term that defines communication between the users within a city/town/village.

**‘Local Loop’:** The physical communication link between the telephone user and the telephone exchange.

**Mbps:** (Mega Bits Per Second)- A measuring unit for electronic data speed in millions.

**Modem:** A device that converts analogue signals to digital and vice versa.

**MoIT:** Ministry of Information Technology, Pakistan

**Narrowband:** a service or connection that only allows a limited amount of information (< 64kbps) to be conveyed such as basic telephony.

**OECD:** Organization for Economic Cooperation and Development.

**Peering:** An interconnected communication network that allows two or more operators to be connected in such an efficient way so as to achieve economies of scale and minimize their intercommunication routes and costs.

**PEMRA:** (Pakistan Electronic Media Regulatory Authority)- Regulator for electronic media services in Pakistan.

**PERN:** (Pakistan Education and Research Network)- An intranet that links all the Universities and higher education institutions in Pakistan.

**PIE:** (Pakistan Internet Exchange)- PTCL’s owned IP based data network that allows the Internet and data traffic to route to locations in and out of Pakistan.

**PoP:** (Point of Presence)- A physical traffic aggregation/ distribution hub for a telecommunications service provider.

**PRI:** (Primary Rate Interface)- An ISDN service that specifies a digital pipe with 23 traffic channels and 1 control channel. It can provide full duplex transmission between 23 source and receiving nodes multiplexed into a single path.

**PSTN:** (Public Switched Telephone Network)- The conventional fixed line telephone network.

**PTA:** (Pakistan Telecommunications Authority)- The telecommunications regulator in Pakistan.

**PTCL:** (Pakistan Telecommunications Company Ltd)- The largest telecommunications infrastructure and service provider in Pakistan.

**QoS:** Quality of Service.

**RoW:** Right of Way.

**SME:** Small and Medium Enterprise

**SW:** Soft Ware

**Unicode:** A 16-bit character set that assigns unique character codes to characters in a wide range of languages.

**USO:** (Universal Service Obligation)- A financial obligation on the service providers for contribution to the development of infrastructure in under served areas.

**USF:** (Universal Service Fund) A fund in lieu of USO to be administered by the GoP.

**VPN:** (Virtual Private Network)- A secure communication network that links various locations of an organization.

**VSAT:** (Very Small Aperture Antenna) – An earthbound station used in satellite communications of data, voice and video signals, excluding broadcast television.

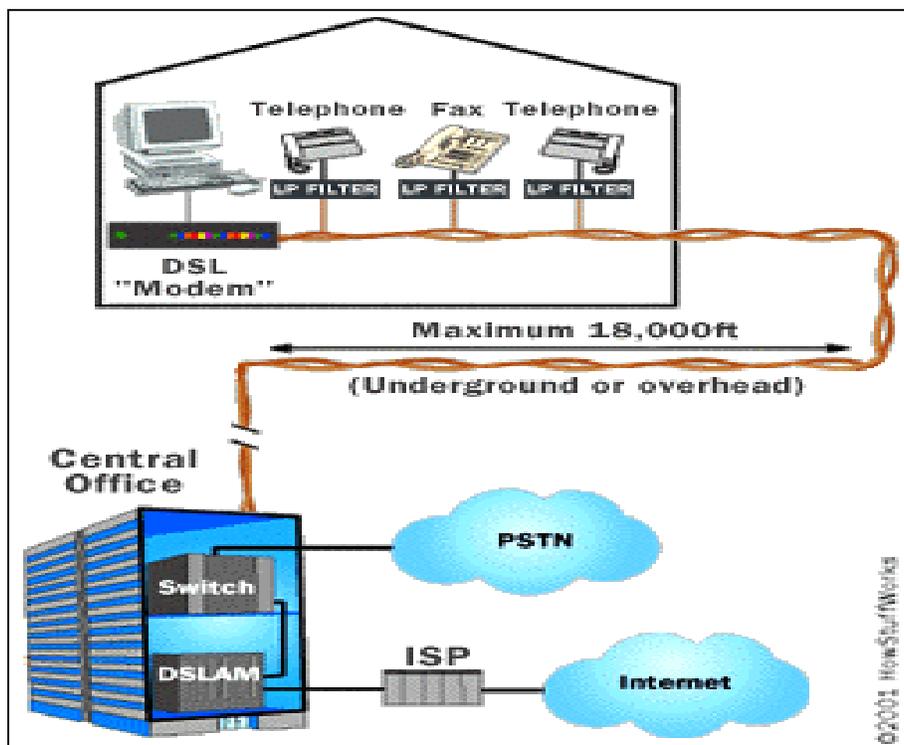
**WiFi:** (Wireless Fidelity) – Technology for low power, indoor wireless data communication.

**WiMax:** (Worldwide Interoperability of Microwave Access) - a standards-based technology enabling the delivery of last mile wireless broadband access over long distances.

# Annex B

## Illustrations

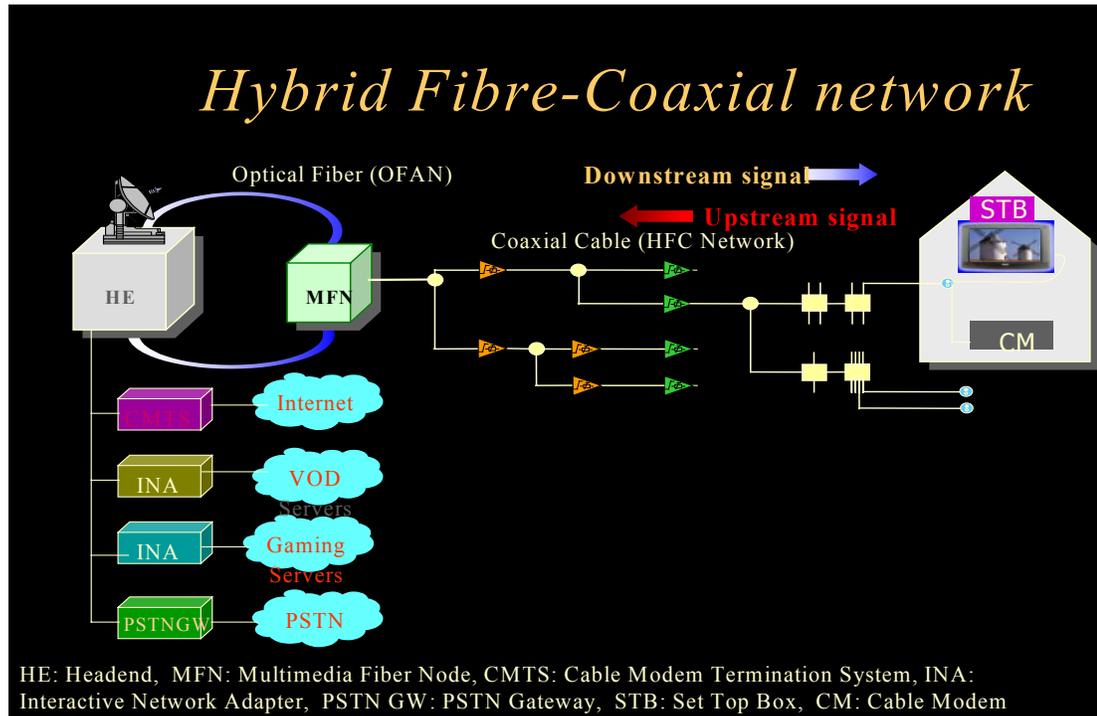
### 1) Copper telephone lines based Digital Subscriber Loop Technology



**Figure 6 - DSL Architecture**

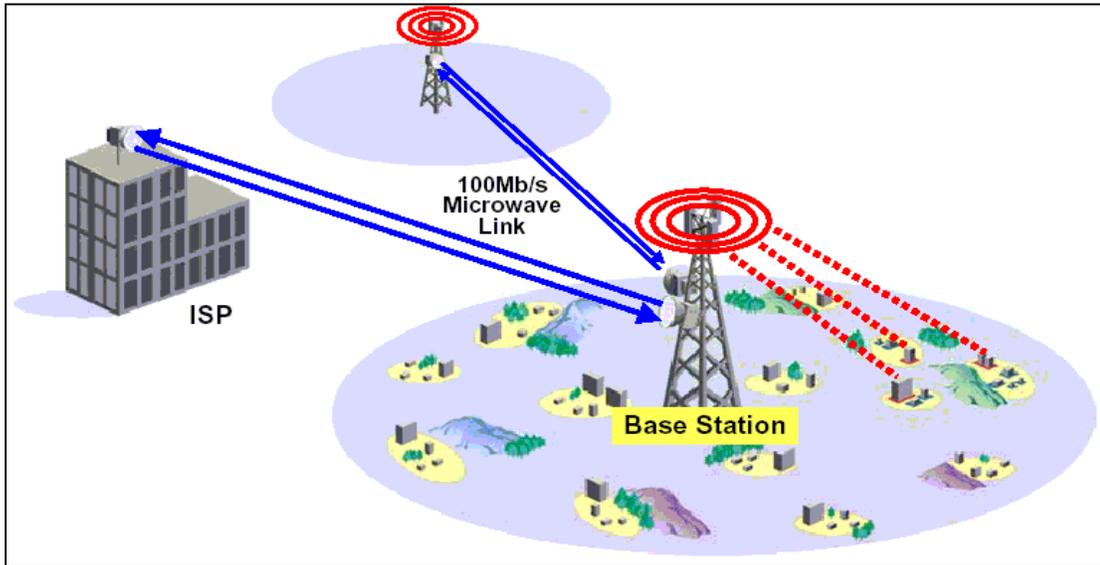
Source – Presentation paper on ADSL by Animation Factory, April 2003.

2) Hybrid Fibre and Coaxial network Architecture



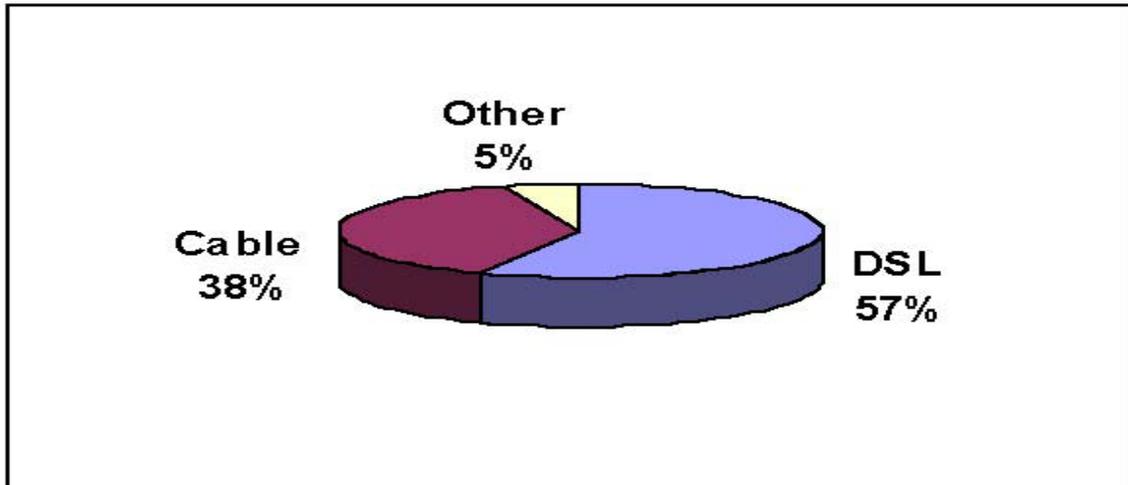
**Figure 7 – HFC Architecture**

**Wireless Broadband Access Architecture**



**Figure 8 – Broadband Wireless Access Architecture**

**Global Distribution of Broadband Technologies**



**Figure 9 - World market share of broadband technologies**  
 (Source – See Reference i)

**Table –1: Comparative Internet and Broadband Indicators (Mid-2003)**

	<b>Parameters</b>	<b>Korea</b>	<b>Malaysia</b>	<b>China</b>	<b>India</b>	<b>Pakistan</b>
<b>Access &amp;Infrastructure</b>	No. of PCs per 100	78.6	15	2.8	0.8	1.85
	No. of cable TVs per 100 persons	43	0	9	6	4.28
	No. of fixed telephone lines per 100 persons	49	18.5	16.7	4.5	2.8
	No. of mobile phones per 100 persons	68	39.6	16.1	2.4	1.43
	Cost of PC (USD)	[500]	1,100		600	347
	Cost of cable/DSL modem (USD)	60			100	90
<b>Internet Usage</b>	GDP (USD Per capita)	10,000	4,000	965	465	480
	No. of internet connections per 100 persons	58	11	2	0.4	0.2
	No. of users per 100 Persons	59.4	33	5	1	1.4
	Average revenue per user from an Internet customer per month (20 hrs, USD)	N/A	10		9	4.5
<b>Broadband</b>	No. of broadband connections per 100 persons	57.5	0.21	1	0.02	0.01
	Charges for broadband per month (USD)	30	29	16	20	-
	Charges per 100 Kbps per month (USD)	0.25	7.61	3.07	15.63	-

**Figure 10- World Internet and Broadband comparisons**  
(Source – See reference ii)

GOVERNMENT OF PAKISTAN  
MINISTRY OF INFORMATION TECHNOLOGY  
(IT & TELECOM DIVISION)

\*\*\*\*\*

No. 2-2/2007-Dir (W)

Islamabad, the 19<sup>th</sup> December 2011

Subject: - POLICY DIRECTIVE UNDER SECTION 8(2) OF THE PAKISTAN TELECOMMUNICATIONS (RE-ORGANIZATION) ACT 1996 FOR INTRODUCTION OF THIRD GENERATION (3G) MOBILE SERVICES IN PAKISTAN

The existing mobile phone services based on the second-generation (2G) technology have been extremely successful for voice and low speed data transmissions but can not support broadband applications like high speed Internet access, interactive multimedia value added or high-resolution video services. The Third Generation (3G) mobile systems have the capability to offer very high data rates and are hence a natural evolution of the 2G systems. Pakistan is currently lagging behind in the proliferation of broadband service primarily due to low penetration and quality of fixed lines. Wireless broadband solutions and especially 3G cellular can fill this gap.

2. The Cellular Mobile Policy 2004 approved by the Cabinet mandated introduction of 3G services in Pakistan by end of 2005 while laying down broad parameters for making requisite frequency spectrum available through open and transparent auction process to both existing 2G operators and new players (Annex I). Later the policy position was modified, by limiting the auction to just existing operators, in the wake of Pakistan Telecommunication Company Limited (PTCL) privatization (Annex-II). The auction, however, could not materialize as the industry requested that market was not ready for introduction of 3G while at the same time requisite frequency was not available as it was being used by other national entities for different purposes. Now the situation has changed on both counts; the industry is almost ready for 3G while at the same time frequency spectrum has been reasonably cleared to allow for 3G service introduction. With this changed scenario, a need has emerged for redefining policy framework and setting guiding principles for the auction of 3G frequency leading to introduction of relevant services.

3. Due to the aforementioned requirements the Federal Cabinet constituted a Committee of Federal Ministers to recommend to the GoP the policy for

3G frequency Auction and Licensing. The Committee, after thorough deliberations with all relevant stakeholders, including MoIT, MoF, PTA and FAB, has made its recommendations to the Prime Minister of Pakistan.

4 In view of the foregoing, keeping in view the importance of introduction of 3G services for the citizens and the Pakistani Telecom market, in line with the recommendations of the Cabinet Committee, the Federal Government, using powers conferred by the Section 8(2) of the Pakistan Telecommunication (Re-organization) Act 1996 (Amended 2006), is pleased to issue the following directives for compliance of the Pakistan Telecommunications Authority.

- (i) Transparent, competitive auction based on the auction principles prescribed in the cellular policy be adopted for the 3G frequency spectrum allocation. The allocation will be technology neutral and usable for any available or upcoming technology.
- (ii) License of defunct Instaphone (PakCom Ltd.) along with the allocated frequencies (Annex III) will be auctioned immediately. All existing operators as well as new players will be eligible to participate in the auction. However, if the final bid price is below a certain amount (as determined by the committee mentioned in sub-clause iv below) this auction would be declared invalid.
- (iii) Within three working days of the advertisement of the above mentioned step:
  - a. *Auction of three blocks of 10 MHz each out of the currently available 3G spectrum (1.9GHz/2.1GHz band Annex IV) shall be announced. All existing operators as well as new players will be eligible to participate in this auction. However, new players would be eligible to participate if they have either bid for the defunct Instaphone license OR are willing to start their operations after the end of March 2013.*
  - b. *Remaining available frequency shall be auctioned simultaneously to all existing and new players. However, this frequency band has to be re-farmed and the winner of this frequency band, would be eligible to start operations in this frequency band after March 2013.*
- (iv) The auction process to be overseen by a joint professional group (Auction Supervisory Committee, ASC) of public sector stakeholders including representatives of Ministry of Finance (MoF), Ministry of Information Technology (MoIT), PTA and FAB.

- (v) The "joint professional group of public sector stakeholders" will be called "3G Auction Supervisory Committee (ASC)" with the following composition and Terms of Reference (ToRs):
- a) Composition of the Auction Supervisory Committee (ASC):
- i. Federal minister for Finance (Chairman)
  - ii. Minister for Water and Power
  - iii. Minister for Petroleum and Natural Resources
  - iv. Minister for Privatization
  - v. Secretary Finance
  - vi. Secretary Information Technology (Convener)
  - vii. Secretary Law & Justice
  - viii. Member Telecom, Ministry of Information Technology
  - ix. Chairman, Pakistan Telecommunication Authority (PTA)
  - x. Executive Director, Frequency Allocation Board (FAB)
  - xi. Director Wireless, Ministry of Information Technology (Secretary of Committee)
- b) Terms of Reference (ToRs):
- i. Base price determination for the 3G auction as well as defunct Instaphone license auction;
  - ii. Methodology of the auction process;
  - iii. Management of the process and any other ancillary matter as deemed necessary.
- c) PTA to immediately carry out the process for appointment of internationally reputed consultant(s) to assist the ASC in fulfilling its assignments
- (vi) Auction to be held by Pakistan Telecommunication Authority (PTA) within 2 to 3 months of this policy decision adopting any suitable auction methodology as agreed by the "Auction Supervisory Committee" fulfilling policy objective of optimal outcome mitigating chances of collusion among bidders.
- (vii) For efficient and optimal rollout of 3G cellular services, sharing of infrastructure will be considered as a matter of first priority by the Cellular operators at the time of rollout.
- (viii) The 3G operators would be required to support the development and growth of mobile handset and telecom equipment manufacturing in Pakistan. Mechanism in this regard to be devised by PTA in consultation with stakeholders.

7. The Prime Minister in his capacity of Minister Incharge for IT has approved the issuance of this policy directive for immediate compliance of the Authority.

  
Dr. Syed Ismail Shah  
Member (Telecom)

Dr. Muhammad Yaseen  
Chairman,  
Pakistan Telecommunications Authority,  
Islamabad

Copy to:

1. Principal Secretary to the Prime Minister, PM Sectt. Islamabad.
2. The Secretary Cabinet, Cabinet Sectt, Islamabad
3. PSO to Secretary IT, Islamabad



# PAKISTAN TELECOMMUNICATION AUTHORITY

HEADQUARTERS F-5/1 ISLAMABAD, PAKISTAN

Licence No. 3G- 01/WLL&M/PTA/2012

XYZ

2012

**DRAFT MOBILE CELLULAR (3G/4G/LTE etc) SERVICES LICENCE ISSUED UNDER SECTION 21 OF THE PAKISTAN TELECOMMUNICATION (RE-ORGANIZATION) ACT, 1996**

The Pakistan Telecommunication Authority (“The Authority”) hereby grants a non-exclusive License to ..... (“The Licensee”) to provide the Licensed Services in Pakistan (excluding AJK and Gilgit Baltistan) and to establish, maintain and operate the Licensed System, subject to the terms and conditions contained herein.

On behalf of  
**The Authority**

On behalf of  
.....  
**(The Recipient)**

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## **PART 1 GRANT OF LICENCE**

### **1.1 SCOPE OF THE LICENCE**

- 1.1.1. This Licence authorizes the Licensee to provide the Licensed Services in Pakistan (excluding Azad Jammu and Kashmir & Gilgit Baltistan), and to establish, maintain and operate the Licensed System.
- 1.1.2 The Licensee shall provide Mobile Cellular Communication Service including the following Mandatory Services throughout Pakistan except AJK & GB:
  - 1.1.2.1 emergency services, as proposed by the Authority;
  - 1.1.2.2 operator assistance services;
  - 1.1.2.3 national and international long distance services through LDI operators;  
and
  - 1.1.2.4 such other Telecommunications Services as the Authority may, by Regulation, require.
- 1.1.3 The Licensee may provide optional services incidental to Mobile Cellular Communications.
- 1.1.4 The Licence does not authorize the following :
  - 1.1.4.1 the provision of Telecommunication Services in AJK & GB;
  - 1.1.4.2 the interconnection of the Licensed System to the telecommunication system of a service provider that provides telecommunications services outside Pakistan and in AJK & GB;
  - 1.1.4.3 such other activities or Telecommunication Services as the Authority may by Regulations prohibit;
  - 1.1.4.4 direct access for customers through NCP beside interconnection.
- 1.1.5 The Licensee shall not provide any Telecommunication Service or install, maintain or operate any Telecommunication System that is not authorized in this Licence, except pursuant to a separate licence or other proper authorization from the Authority.
- 1.1.6 The Licensee shall not authorize or facilitate the Terminal Equipment used by a fixed line customer in connection with the Limited Mobility Communication Service, to be authenticated or used with the Mobile Communication System.

- 1.1.7 The Licensee shall provide access to national and international Long Distance Telecommunication Services only through the interconnection of the Licensed System with the Telecommunication System of another Operator duly licensed by the Authority to provide national and international long distance services.
- 1.1.8 The Licensee shall notify the Authority at the time that the Licensee wishes to begin to offer a new category of Licensed Services not previously offered by the Licensee. In its notice, the Licensee shall describe the new category of Licensed Services and the expected date that they will begin to be offered commercially by the Licensee. The Authority where deemed necessary may intervene for supervision of such service.
- 1.1.9 Upon being notified by the Authority that an Operator's licence is suspended or terminated, the Licensee shall as promptly as practical in the circumstances, disconnect the Licensed System from the Telecommunication System of that operator, and discontinue using the Telecommunication Service of that operator, until such time the Authority restores or renews such License.

## **1.2 EFFECTIVE DATE AND TERM OF THE LICENCE**

- 1.2.1 This Licence shall come into force on the Effective Date and shall be valid for a term of 15 (fifteen) years.
- 1.2.2 If the Licensee wishes to renew the term of the Licence at the expiry of the initial or any renewal term, it shall submit to the Authority a written request for renewal at least 30 months prior to the expiry of the current term.
- 1.2.3 Within 3 months after the receipt of the Licensee's request pursuant to Condition 1.2.2, the Authority shall either:
  - 1.2.3.1 renew the License on such terms and conditions as are consistent with the policy of the Federal Government at that time to come into effect at the conclusion of the initial term; or
  - 1.2.3.2 Give written notice to the Licensee stating that the Authority may not renew the Licence and provide reasons thereof, which reasons may include the Licensee's repeated, grave or continuing violations of the terms and conditions of this licence, the Act, Rules or Regulations during the initial terms. The Licensee shall be given 60 days to make written representations in response to the Authority's show cause notice. Within 30 days after the conclusion of such 60 days period, the Authority shall hold a hearing at which the Licensee may make representations in response to the Authority's Show Cause Notice. The Licensee may, as part of its representation, indicate the further License conditions it is prepared to accept to reduce the likelihood of continued or further violations of the terms and conditions of this licence, the Act, Rules or Regulations.

Following such hearing, the Authority shall, within 15 days, give its determination either:

- (a) that the Authority has determined not to renew the License at the expiration of the initial term, and provide its reasons for making such a determination; or
- (b) to renew the License on such terms and conditions as are consistent with the policy of the Federal Government at the time, to come into effect at the conclusion of the initial term; or
- (c) to renew the License on such terms and conditions as are consistent with policy of Federal Government at that time, to come into effect at the conclusion of the initial term, and including such additional terms as the Authority considers appropriate to reduce the likelihood of continued or further violations of the terms and conditions of this License, the Act, Rules or Regulations.

## **PART 2 RIGHTS OF THE LICENSEE**

### **2.1 NUMBERS AND SHORT CODES**

- 2.1.1 The Licensee has the right to request geographic and non-geographic numbers, as well as short codes, in accordance with the national numbering plan developed by the Authority, for use in the provisions of the Licensed Services.
- 2.1.2 The Licensee shall allocate individual numbers to customers from the blocks allocated to it by the Authority and shall maintain suitable records of its utilisation of numbering capacity, subject to the following:
  - 2.1.2.1 The blocks of numbers and short codes allocated to the Licensee and the individual numbers allocated by the Licensee to its customers are a national resource; and
  - 2.1.2.2 Allocation of a number does not confer ownership of the number by the customer. However, an allocation conveys an ongoing right of use and an expectation of at least a three month notice period should it be necessary to withdraw or to change allocated numbers.

### **2.2 SIGNIFICANT MARKET POWER (SMP)**

- 2.2.1 If the Authority determines that a Licensee possesses SMP in a relevant market, the Licensee shall comply with orders / decisions of the Authority that are intended to prohibit abuse of its dominant position through anti-competitive conduct or to promote competition in respect of that relevant market or markets ancillary thereto, including

without limitation orders to produce a Reference Interconnection Offer (RIO) detailing the services and tariff they provide to other licensed operators.

### **2.3 MOBILE NUMBER PORTABILITY**

2.3.1 The Licensee shall implement Mobile Number Portability as it is implemented in Pakistan, within one year from the Effective date according to the Regulation/guidelines issued by the Authority from time to time. The Licensee is required to contribute to Pakistan Mobile Database (PMD) Company in accordance with MNP Regulations.

### **2.4 SELF PROVISIONING**

2.4.1 The Licensee will have the right to provide its own infrastructure:

2.4.1.1 within a Region and to also provide circuits to other operators;

2.4.1.2 between Regions in the event that all LDI operators are unable to provide a circuit within three months from request; or

2.4.1.3 in the event of quality of service falls below international standards for inter-regional circuits as determined by the Authority.

### **2.5 RIGHT OF WAY**

2.5.1 The Licensee will have the right to contract for the “right of way” (RoW) to construct its network subject to conditions laid down by the concerned agencies.

### **2.6 INFRASTRUCTURE SHARING**

2.6.1 Infrastructure sharing shall be considered as a matter of first priority by the Licensee. The Licensee is required to share its infrastructure with other operators as per the Authority’s directives.

2.6.2 The Licensee shall support the development and growth of mobile handset and telecom equipment manufacturing inside Pakistan as per the mechanism devised by the Authority in this regard.

### **2.7 NATIONAL ROAMING**

2.7.1 The Licensee may enter into commercial contract with other Mobile service providers as expeditiously as possible, at mutually acceptable terms and on reciprocal basis, to offer national roaming in order to promote telecommunication in rural areas.

### **2.8 MOBILE VIRTUAL NETWORK OPERATOR (MVNO)**

2.8.1 The Licensee is encouraged to support MVNO Services under the framework prepared and published by the Authority.

## **PART 3 OBLIGATIONS OF THE LICENSEE**

### **3.1 COMPLIANCE WITH LAW**

- 3.1.1 This Licence is subject to the terms and conditions contained herein and to the Act, Rules and Regulations. In the event of any conflict or inconsistency between the provisions of this Licence, and the provisions of the Act, Rules or Regulations, the provisions of the Act, Rules and Regulations shall prevail.
- 3.1.2 The Licensee shall establish, maintain and operate its Licensed System, and shall provide the Licensed Services, in compliance with the laws of Pakistan.
- 3.1.3 The Licensee shall at all times co-operate with the Authority and its authorized representatives in the exercise of the functions assigned to the Authority under the Act. The Licensee shall comply with all orders, determinations, directives and decisions of the Authority.
- 3.1.4 All foreign directors of the Licensee's company must be security cleared.

### **3.2 NETWORK ROLL-OUT**

- 3.2.1 **First Phase:** The Licensee shall within twelve (12) months from the Effective Date provide coverage in all four provincial capital cities and the federal capital.
- 3.2.2 **Second Phase:** The Licensee shall, within next eighteen (18) months from the date the first phase is complete, provide coverage within 10 major cities (excluding the cities mentioned in 3.2.1) covering at least one major city in each province.
- 3.2.3 **Third Phase:** The Licensee shall, within 03 years from the date the second phase is complete, provide coverage in 80% of District Headquarters and within 08 years provide coverage in 80% Tehsil Headquarters from the date the roll out obligation for the second phase is completed.
- 3.2.4 The Authority may ask the Licensee to extend its Services to other major cities/locations of the country, where it is technically and commercially feasible, with or without assistance of USF, after negotiation.

### **3.3 PERFORMANCE BOND**

- 3.3.1 As a guarantee for the performance of Licensee's obligations in clause 3.2 above herein, the Licensee shall deliver to the Authority a continuing and irrevocable Performance Bond in the shape of Bank Guarantee from a AAA rating bank, acceptable to the Authority, for the amount of US\$15,000,000 (US Dollars Fifteen Million only) prior to Effective Date.

3.3.2 At the expiry of the first eighteen months the Licensee shall be entitled to the release or exchange the irrevocable Performance Bond as stated in sub clause 3.3.1, proportionate to the rollout obligation met by the Licensee. In case the roll-out obligation in clause 3.2 is not fulfilled, the amount of Performance Bond, proportionate to the unmet obligation, shall be forfeited by the Authority:

3.3.2.1 The rate of exchange for determining the equivalent amount of Pakistan Rupees at the time of encashment shall be the T.T. Selling rate announced by the National Bank of Pakistan on the preceding working day of the conversion date.

3.3.3 In addition to the Performance Bond mentioned at clause 3.3.1, the Licensee shall provide a Performance Bond, in the shape of Bank Guarantee from an AAA rating bank, acceptable to the Authority, of US\$1,000,000 (US Dollars One Million only) against its financial obligations as mentioned in Part 4 of the License. If payment of any fee is not made by the Licensee by the due date, or in case of insolvency of the Licensee at any point of time during the License tenure, the Authority shall have the right to encash the Bank Guarantee at any time, to the extent of the amount unpaid by the Licensee. In the event of encashment of the Bank Guarantee by the Authority, the Licensee shall be obliged to submit a revised Bank Guarantee of US \$1,000,000 (One Million US Dollars) within one month of the encashment of old Bank Guarantee.

#### **3.4 ACCESS TO EMERGENCY SERVICES**

3.4.1 The Licensee shall provide its customers with access to government emergency services, including automatic connections to local police, fire and ambulance assistance by means of a simple telephone number with operator standby assistance available in case of failure of Licensee's automated system. The Licensee shall comply with other requirements imposed by the Authority in relation to emergency services.

#### **3.5 DIRECTORY INFORMATION**

3.5.1 The Licensee may provide directory enquiry service to its customers, consisting of access to current information as the telephone numbers of its customers and the customers of other cooperating Operators, except for those customers that request not to have such information publicly disclosed.

3.5.2 The Licensee may, on an annual basis, provide printed directories to its customers. Printed directories shall contain information regarding the names and telephone numbers of the Licensee's customers and the customers of other cooperating Operators, except for those customers that request not to have such information publicly disclosed.

3.5.3 The Licensee may permit other Operators to access its directory information, consisting of customer name, address and telephone number, except for those customers that request not to have such information publicly disclosed, in order to permit such Operators to offer their own directory enquiry service and to print telephone directories. The Licensee shall negotiate the pricing, terms and conditions of such access with other Operators that

request the same. If the Licensee and other Operator are unable to agree on the pricing, terms and conditions of such access, either Operator may refer the matter to the Authority as a dispute relating to interconnection.

### **3.6 ALTERATION OF NETWORK**

- 3.6.1 The Licensee shall, within such reasonable time and in such manner as may be directed by the Authority, and at its own expense, alter the course, depth, position or mode of attachment of any apparatus forming part of its Licensed System which may cause hazard to human life/community and is deemed against the public interest. All the telecommunication system of the operator must be in knowledge of the Authority including but not limited to Core and Access network.

## **PART 4 FEES AND OTHER CHARGES**

### **4.1 PAYMENT OF FEES**

- 4.1.1 The Licensee shall pay the following Initial License/Spectrum Fee to the Authority:

4.1.1.1 Prior to the Effective Date, a one-time upfront Initial License/Spectrum Fee of US\$ \_\_\_\_\_ (US Dollars \_\_\_\_\_ Million only) in US\$ or in equivalent Pakistan Rupees to be converted at the TT selling rate of National Bank of Pakistan on the day preceding the date of payment.

- 4.1.2 The Licensee shall pay the following annual fees, contributions and charges to the Authority within 120 days of the close of Financial Year of the Licensee:

4.1.2.1 The Licensee shall pay to the Authority an amount equivalent to 0.5% of the Licensee's Annual Gross Revenue from Licensed Services minus inter-Operator payments and related PTA/FAB mandated payments, as Annual License Fee. However, Initial License/Spectrum Fee, leased line charges, Late Payment Additional Fee, Penalties, collection charges, and other expenses imposed by PTA, if any, shall not be deducted from the gross revenue;

4.1.2.2 The Licensee shall pay annual Universal Service Fund contribution to the Authority, and amount equivalent to 1.5% of the Licensee's Annual Gross Revenue from Licensed Services minus inter operator and related PTA/FAB mandated payments. However, Initial License/Spectrum Fee, leased line charges, Late Payment Additional Fee, Penalties, collection charges, and other expenses imposed by PTA, if any, shall not be deducted from the gross revenue;

4.1.2.3 The Licensee shall contribute and amount equivalent to 0.5% of the Licensee's annual gross revenue from Licensed Services minus inter operator and related PTA/FAB mandated payments to the Authority for Research and Development Fund. However, Initial Spectrum / License Fee, leased line charges, Late Payment

Additional Fee, Penalties, collection charges, and other expenses imposed by PTA, if any, shall not be deducted from the gross revenue;

4.1.2.4 The Licensee shall also pay Annual Spectrum Administrative Fee (ASAF) on the basis of the proportion of spectrum allocated to the Licensee out of the total spectrum allocated to all Mobile Cellular Operators to recover 75 % of FAB's total budgeted expenditure for the next Financial Year, in the light of Appendix B of the Mobile Cellular Policy 2004. The ASAF is payable in advance for next Financial year by 30th June of every year;

4.1.2.5 For each number allocated to the Licensee, the Licensee shall pay at commencement of each Financial Year the Annual Number Charges as mentioned in the Numbering Allocation and Administration Regulations, 2011, as amended from time to time.

## **4.2 UNIVERSAL SERVICE FUND**

4.2.1 The Licensee shall be eligible to apply for money from the Universal Service Fund in order to cover rural and under served areas as per Rules / Regulations, notified, and as amended from time to time, for utilization of Universal Service Fund.

## **4.3 ACCESS PROMOTION CONTRIBUTION**

4.3.1 Access Promotion Contribution shall not be available to the Licensee. Premium of APC on current cellular termination would be mopped up and diverted to Universal Service Fund. However, the Licensee will be entitled to receive the termination charges as determined by the Authority from time to time.

## **4.4 GENERAL CONDITIONS CONCERNING FEES**

4.4.1 The Licensee shall pay all annual fees, contributions and charges as given in Part 4 of the License (except ASAF, which is to be paid by 30<sup>th</sup> June every year) to the Authority within 120 days of the end of the Financial Year to which such fees relate.

4.4.2 In addition to any other remedies available to the Authority, late payment of all fees, contributions and charges including Initial Spectrum / License Fee shall incur an additional fee calculated at the rate of 2% per month on the outstanding amount, for each month or part thereof from the due date until-paid.

4.4.3 As a continuing guarantee for payment of annual fees, contributions and charges the Licensee shall deliver to the Authority prior to the Effective Date, an irrevocable and continuing Bank Guarantee, from a AAA rating bank acceptable to the Authority, for the amount of US\$1,000,000 (US Dollars One Million only) or its equivalent in Pakistan Rupees, to be converted at the TT selling rate of National Bank of Pakistan on the day preceding the date of payment. If payment of any fee is not made by the Licensee by the due date, the Authority shall have the right to encash the Bank Guarantee at any time, to

the extent of the amount unpaid by the Licensee. In the event of encashment of the Bank Guarantee by the Authority, the Licensee shall be obliged to submit a revised Bank Guarantee of US\$1,000,000 (US Dollars One Million only) within one month of the encashment of the old Bank Guarantee.

- 4.4.4 The Licensee shall provide the evidence of cost for Interconnection Termination rates within 12 months of Commencement of the services. The cost accounts so provided should be certified by a practicing Cost and Management / Chartered Accountant firm of Pakistan
- 4.4.5 The Licensee shall annually submit to the Authority audited financial statements in support of its calculations of annual fees payable pursuant to clause 4. The notes to the financial statements of the Licensee should be drawn up in sufficient detail so as to disclose separately the Annual Gross Revenue between Licensed and Non-Licensed Services, and interconnection and inter-operator costs that are allowable to determine the Adjusted Gross Revenue of the Licensee as per clause 4.1.2.1 above for the purpose of calculation of Annual Fees, contributions and charges.
- 4.4.6 The Licensee may be suspended, in case the Licensee fails to make the payment of outstanding dues i.e. Initial Spectrum/License Fee, annual fees, contributions, charges, Late Payment Additional Fee, Penalties etc. on due dates.
- 4.4.7 Where the Licensee is required, under the Licence, to make a payment of fees to the Authority that is denominated in a currency other than Pakistan Rupees, the Licensee may make such payment in the equivalent amount of Pakistan Rupees. The rate of exchange for determining the equivalent amount of Pakistan Rupees shall be the TT selling rate of National Bank of Pakistan prevailing at the business day preceding the date of payment.

## **PART 5 RADIO FREQUENCY SPECTRUM**

### **5.1 RADIO FREQUENCY SPECTRUM ASSIGNED TO THE LICENSEE**

- 5.1.1 From the Effective Date, radio frequency spectrum described in Appendix-1 is assigned to the Licensee pursuant to the terms and conditions of this Licence, including any terms and conditions appearing in Appendix 1.
- 5.1.2 Notwithstanding anything contained in clause 1.2, the assignment of radio frequency spectrum to the Licensee pursuant to this Licence terminates upon the expiry of 15 (fifteen) years from the Effective Date. Such assignment of frequencies may be extended if the License is renewed for further terms as may be fixed by the Authority from time to time in accordance with the terms of this Licence.
- 5.1.3 Upon termination of the assignment to the Licensee of those radio frequencies listed in Appendix 1, the Licensee shall cease using any apparatus or device that emits or receives

any radio communication at those radio frequencies and shall cause its customers to discontinue using any such apparatus or device.

## **5.2 USE OF SPECTRUM**

5.2.1 The Licensee shall comply with the following terms and conditions relating to radio frequency spectrum assigned to the Licensee:

5.2.1.1 The Licensee shall report to the Authority and to the Board such information as each of them may require concerning the assigned radio frequency spectrum and its use;

5.2.1.2 The Licensee shall only use the assigned radio frequency spectrum in its own operations, and it shall not lease, sub-licence, allocate, assign or otherwise make available the use of the assigned radio frequency spectrum to another Operator;

5.2.1.3 The Authority shall have the right, exercisable at any time, to terminate the assignment to the Licensee of the radio frequency spectrum described in Appendix 1 if the Authority determines that the Licensee is not complying with the requirements applicable to such radio frequency spectrum and which are set forth in clause 1.2 of Appendix 1;

5.2.1.4 The Licensee shall use assigned radio frequency spectrum in compliance with all national, regional, intergovernmental and international arrangements in effect from time to time that are designed to reduce radio interference among service providers;

5.2.1.5 At all times, the Licensee shall implement all commercially reasonable measures to optimise the efficiency and effectiveness of its use of the radio frequency spectrum assigned to it;

5.2.1.6 Unused frequency spectrum assigned to the Licensee may be withdrawn, if the Licensee fails to commence its Services within eighteen months of the Effective Date

## **5.3 REASSIGNMENT OF FREQUENCIES**

5.3.1 The Authority may, in order to comply with international radio frequency spectrum co-ordination requirements, ITU assignments or reassignments, or generally in the course of regulating the radio frequency spectrum in the best interests of Pakistan, reassign radio frequency spectrum assigned to the Licensee or require the Licensee to surrender its rights in respect of radio frequency spectrum assigned to it and which is not reasonably required for the continued operation of the Licensed Services. In such cases, the Licensee shall be entitled to consult with the Authority before any such action is taken and the Licensee shall be entitled to reasonable time and, where applicable, the assignment of

appropriate alternative radio frequency spectrum, to permit the Licensee to carry on its business without unreasonable costs or disruptions.

- 5.3.2 If, pursuant to sub clause 5.3.1, the Authority requires that the Licensee change the radio frequency spectrum assigned to it, or surrender its rights in respect of radio frequency spectrum assigned to it, and the Authority re-assigns the radio frequency spectrum to another Operator within three years after the date established by the Authority as the last date that the Licensee may use any apparatus or device that emits or receives any radio communication in the band of the radio frequency spectrum, the Authority shall require the other Operator to compensate the Licensee for its reasonable costs incurred as a result of such change or surrender, as determined by the Authority. Detail procedure for re-farming will be provided by Board/Authority including but not limited to compensation modes etc.

#### **5.4 RADIO APPARATUS**

- 5.4.1 The Licensee shall operate radio communication apparatus and devices in compliance with all requirements of the Authority and the Board pertaining to emissions, frequencies of operation, BTS site clearance, technical characteristics, power and aerial characteristics.

### **PART 6 GENERAL CONDITIONS**

#### **6.1 OPERATION OF LICENSED SERVICES**

- 6.1.1 The Licensee shall ensure that the Licensed System and the Licensed Services do not cause any damage to, or interference with, any Telecommunication System or Telecommunications Services of any other Operator.
- 6.1.2 The Licensee shall conduct its operations and shall establish its Licensed System in a manner so that it is not a safety hazard and is not in contravention of any relevant law, rule or regulation.

#### **6.2 DISCONTINUATION OF SERVICES**

- 6.2.1 The Licensee shall not discontinue providing a category of Licensed Services in any area unless (a) the Licensee gives the Authority and affected customers at least 90 days prior written notice of such discontinuation, and (b) Authority's prior written approval to such discontinuation is obtained. However services to the subscribers who have defaulted may be disconnected as per the Authority approved "Code of Conduct" and "Service Level Agreement". The Authority will not give its written approval to such discontinuation if the Licensee is in arrears of any fees payable to the Authority.

### **6.3 MONITORING**

6.3.1 The Licensee shall provide, at its own cost, suitable equipment at premises designated by the Authority, in order to monitor the communications for the purpose of national security; measure and record traffic; call detail records; curbing of grey international telephony services and quality of service in a manner specified by the Authority. The Licensee shall provide the Authority and the concerned law enforcement agencies with access to such equipment, and the information generated by such equipment.

### **6.4 INFORMATION**

6.4.1 The Licensee shall furnish to the Authority, such information as the Authority may demands regarding the Licensee's network plan, network and terminal standards, links utilized, financial information, costs and accounts or any such other information as the Authority may from time to time request in connection with its functions, powers and responsibilities.

6.4.2 The Licensee shall maintain such books and records as the Authority may require. The authority shall give the Licensee a reasonable period of time, not to exceed 120 days, to implement appropriate routines and systems to comply with any such requirement imposed by the Authority. Upon request by the Authority, the Licensee shall make its books and records available for inspection by the Authority.

6.4.3 The Licensee shall maintain financial records and books of accounts in accordance with the laws of Pakistan. The Licensee shall submit audited financial statements, including at a minimum statements of profit and loss and assets and liabilities, to the Authority within 120 days of the closing date of Financial Year of the Licensee.

6.4.4 The Authority shall take reasonable steps to maintain the confidentiality of information in writing that is disclosed to it by the Licensee and which is clearly indicated as confidential, except that the Authority may disclose information where the Authority determines that the public interest in disclosure outweighs the Licensee's interest in maintaining the confidentiality of such information.

### **6.5 QUALITY OF SERVICE**

6.5.1 The Licensee shall at all times meet or exceed the quality of service standards described in Appendix- 2 and such other quality of service standards as the Authority may, by regulation, require. The Licensee shall maintain records of its performance in meeting these quality of service standards, and shall submit them to the Authority on a quarterly basis in such format as the Authority may require. The Licensee shall maintain supporting records for inspection and technical audit as and when required by the Authority. The Licensee shall maintain all such records for a period of three years.

6.5.2 The Authority may carry out tests on the quality of the Licensed Services and the Licensed System and the Licensee shall extend full co-operation and assistance for the purpose including provision of test instruments and equipment.

## **6.6 INSPECTION**

6.6.1 The Licensee shall allow inspection of any premises by a representative of the Authority at any time and furnish to the representative such information as may be required by the Authority.

## **6.7 NATIONAL SECURITY**

6.7.1 The Licensee shall comply with the national security and other requirements of section 54 of the Act and any other national security requirements under the law.

6.7.2 It shall be open to the Authority to restrict the Licensee from operating in any sensitive area defined by the Federal Government from the national security point of view.

6.7.3 The Licensee shall not transfer the following to any person/place outside Pakistan including AJ&K and Gilgit Baltistan:

6.7.3.1 any accounting information relating to subscriber (except for roaming/billing);  
and

6.7.3.2 user information (except pertaining to foreign subscribers on operator's network while roaming).

6.7.4 No local/long distance traffic (mobile and fixed line) shall be hauled outside Pakistan.

6.7.5 No remote access shall be provided to any person/place outside Pakistan for any maintenance/repairs/databases/facility unless approved by the Authority or concerned quarters.

6.7.6 The BTSs shall be installed in such a way that signal strength fades away within 2 KM along the international border, or as specified, and no communication takes place across the international border. No BTS shall be installed without prior approval of the Authority.

6.7.7 No ciphering equipment or software shall be used by the service provider or user without prior approval of the Authority.

6.7.8 The Licensee shall ensure to implement Equipment Identity Register (EIR) or related module in the network or as directed by the Authority.

6.7.9 All communication with CPE shall be through a specific subscriber identity number.

- 6.7.10 System must be LI (Lawful Interception) complaint and ready to be extended as desired by the Authority.
- 6.7.11 The Licensee shall activate a SIM of a subscriber after proper verification of his/her antecedents from NADRA through real-time processing or as proposed by the Authority. The verification recordings shall be kept online for nine (09) months and older recordings shall be archived for lifetime.
- 6.7.12 The Licensee shall follow the direction of the Authority in blocking any website/web content and any other services.

## **6.8 CALL RECORDS**

- 6.8.1 The Licensee shall maintain call records including called and calling numbers, date, duration, time, IMEI and cell site location with regard to the communications made on its Telecommunication System for a period of one year for scrutiny by or as directed by the Authority or required by security agencies under the law.
- 6.8.2 In addition to maintaining call records mentioned in clause 6.8.1 above, the Licensee shall also record/store data session logs/info along with IP address for one year for scrutiny by or as directed by the Authority or required by security agencies under the law.

## **6.9 NETWORK STANDARDS**

- 6.9.1 The Licensee shall use any type of network equipment that meets appropriate ITU or other international telecommunication standards recognized by the Authority.
- 6.9.2 The Licensee shall ensure that its network is at all times interoperable and inter-connectable with the networks of other Operators. If the Licensee implements any new equipment or protocols in its network, the Licensee shall bear the cost of any modifications to its network to maintain such interoperability and inter-connectibility with the networks of other Operators.

## **6.10 TYPE APPROVAL OF TERMINAL EQUIPMENT**

- 6.10.1 The Licensee shall not install or connect, or permit the installation or connection of, any Terminal Equipment unless the Terminal Equipment is (a) type approved, or otherwise permitted by the Authority, (b) type approved by a recognized telecommunications equipment type approval agency or a recognized telecommunications equipment testing laboratory in a member country of the Organisation of Economic Cooperation and Development (OECD). The Licensee shall not install or connect, or permit the installation or connection of, any Terminal Equipment or type of Terminal Equipment prohibited by the Authority.

## **6.11 SERVICE COMMENCEMENT CERTIFICATE**

- 6.11.1 The Licensee shall not provide any Licensed Services to customers, or accept any payment from customers in respect of Licensed Services to be provided by the Licensee, until the Licensee has obtained from the Authority a service commencement certificate evidencing that the Authority is satisfied that the Licensee has established the Licensed System, and is able to provide the Licensed Services including Mandatory Services as per the QoS KPIs set by the Authority, in accordance with the License.
- 6.11.2 The Licensee shall give 30 days prior written notice to the Authority of the date on which the Licensee intends to commence providing Mandatory Services to customers. The Licensee shall cooperate with the Authority in its investigation of the Licensed System and the Licensed Services in connection with the issuance by the Authority of a commencement certificate.

## **PART 7 RELATIONS WITH CUSTOMERS**

### **7.1 STANDARD CONTRACT OF SERVICE**

- 7.1.1 The Licensee shall submit a standard contract of service, for use with its non-commercial customers, for approval by the Authority, before commencement of its services. The Licensee shall file the standard contract, and amendments thereto from time to time, with the Authority for its approval. The Authority shall approve the standard contract if it contains the terms and conditions described in sub clause 7.2.1, and it contains the terms and conditions that are not unduly burdensome on non-commercial customers.
- 7.1.2 The standard contract, as approved by the Authority, shall apply to all consumers that obtain Mobile Cellular (3G/4G/LTE etc.) Telecommunication Service from the Licensee.
- 7.1.3 Prior to providing Mobile Cellular (3G/4G/LTE) Telecommunication Service to non-commercial customers, the Licensee shall enter into a contract with such customers in accordance with the standard form contract approved by the Authority.
- 7.1.4 Upon application by the Licensee, the Authority may waive compliance by the Licensee with the provisions of sub clause 7.1.3 above herein subject to such terms and conditions as the Authority may impose.
- 7.1.5 The Licensee may enter into agreements with commercial customers for the provision of Licensed Services on terms that are negotiated between the Licensee and such customers.

### **7.2 CONTENTS OF THE STANDARD CONTRACT OF SERVICE**

- 7.2.1 The standard contract shall include, at a minimum, the following terms and conditions:

- 7.2.1.1 Deposits and alternative methods of providing security for payment where reasonably required, provided that in no circumstances may such deposits or security exceeds the charges reasonably anticipated to be incurred by the customer within a three (3) month period;
- 7.2.1.2 Pricing or mechanisms by which prices are determined;
- 7.2.1.3 Confidentiality of customer information;
- 7.2.1.4 Refunds or other rebates for service problems or over-billing;
- 7.2.1.5 Payment terms, including any applicable interest or administration charges;
- 7.2.1.6 Minimum contract period;
- 7.2.1.7 Customer and Licensee rights of termination;
- 7.2.1.8 The customer shall not use the SIM for unsolicited, abusive, obnoxious, offensive, indecent, obscene, or menacing messages, calls or communications or for any improper, immoral or unlawful purpose; and
- 7.2.1.9 In case of loss or theft of the SIM Card, the Customer shall immediately inform and request operator, in writing, to block the SIM Card, failing which, the Customer shall not be absolved from criminal liability, if any, arising due to use of such SIM Card/connection in any unlawful/criminal act.

### **7.3 COMPLAINT SYSTEM**

- 7.3.1 The Licensee shall establish an efficient and easy-to-use system to promptly receive process and respond to complaints, claims or suggestions by customers of Licensed Services.
- 7.3.2 The Licensee shall make all reasonable efforts to resolve consumer complaints or disputes without delay and without recourse to the Authority.
- 7.3.3 If a complaint is filed with the Authority in connection with any dispute between the Licensee and a customer regarding any activity that is the subject of this Licence, the Authority may settle the dispute. Without prejudice to the appeal and revision rights established in section 7 of the Act, the Licensee shall abide by any resulting decision of the Authority.

### **7.4 CONTENT AND FORMAT OF BILLS**

- 7.4.1 The Licensee may determine the content and format of its bills to customers provided that:

7.4.1.1 in relation to a customer, the bill reflects the types of service and the units for which charges are made including, but only to the extent requested by the customer, the starting time of each connection, the number called and the duration and number of units for each call; and

7.4.1.2 the Licensee retains in its records information sufficient:

- (a) to identify for customers the basis of the amount charged for use of its Telecommunication Services; and
- (b) to provide the Authority with an independent quality assurance that the billing process complies with the requirements set out above.

7.4.2 The Licensee shall maintain appropriate billing processes to enable the Licensee to comply with the billing requirements of conditions in clause 7.4.

7.4.3 The above information must be made available to pre-paid customers either in printed or electronic form upon request. The supply of such information may attract a reasonable charge

## **7.5 CODE OF COMMERCIAL PRACTICE (CUSTOMER CHARTER)**

7.5.1 The Licensee shall publish within six months of the Effective Date, a code of commercial practices approved by the Authority. The code of practice shall include, at a minimum, provisions covering the following issues:

7.5.1.1 A commitment to take steps to remedy service interruptions as soon as reasonably possible and to provide reasonable credits to customers for lengthy outages;

7.5.1.2 Protection of the privacy of information transmitted over the Licensed System;

7.5.1.3 Maintenance by Licensee of the confidentiality of customer information;

7.5.1.4 Procedures for resolving disputes between Licensee and customers; and

7.5.1.5 Availability to customers of information concerning their accounts with the Licensee; and

7.5.1.6 Commitment by the Licensee to customers in respect of standard and quality of Licensed Services.

## **7.6 PRIVACY OF COMMUNICATIONS**

7.6.1 The Licensee shall not monitor or disclose the contents of any communication conveyed over its Licensed System except to the extent necessary for the purpose of maintaining or repairing any part of the Licensed System or monitoring the Licensee's quality of service, or except as required by the Act, the Rules, Regulations and conditions of this License.

7.6.2 The Licensee shall take reasonable measures to safeguard its Licensed System from unauthorized interception of communication carried on the Licensed System.

## **7.7 CONFIDENTIALITY OF CUSTOMER INFORMATION**

7.7.1 Except as permitted below, the Licensee shall take all reasonable measures to prevent information about its customers, including information about their business, other than directory information, from being disclosed to third parties, including the Licensee's own subsidiaries, affiliates and associated companies, except information which is required:

7.7.1.1 for the process of collection of debts owed to the Licensee;

7.7.1.2 by another Operator in relation to the provision of services to the customer, and provided that the information is disclosed in confidence to that Operator;

7.7.1.3 by the Licensee's auditors for the purpose of auditing the Licensee's accounts; or

7.7.1.4 for the prevention or detection of crime or the apprehension or prosecution of offenders or as may otherwise be authorised by or under any law of Pakistan.

7.7.2 The Licensee shall be permitted to disclose information about a customer where the Licensee has clearly explained to the customer (a) the nature of the information to be disclosed, (b) the recipients of the information to be disclosed and (c) the purpose for the disclosure, and the customer has provided Licensee with consent to such disclosure.

## **7.8 HARASSING, OFFENSIVE, UNSOLICITED OR UNLAWFUL COMMUNICATION**

7.8.1 The Licensee shall take all reasonable steps to track and locate and prevent the source of harassing, unsolicited, offensive, fraudulent or unlawful communication. For that purpose:

7.8.1.1 Any customer of the Licensee may request (the Requesting Customer) the Authority or other duly authorized authority in Pakistan to authorize the Licensee to monitor calls to the Requesting customer's mobile handset or device;

7.8.1.2 The Authority or other duly authorized authority in Pakistan may direct a Licensee to monitor communication to and from a customer's telephone;

7.8.1.3 The Licensee shall provide to the Authority the information resulting from the monitoring of the communication to and from a customer's telephone, including the identification number or details of the party or parties that are the source of harassing, offensive fraudulent or unlawful communication and the dates of occurrence of such calls and their frequency;

7.8.1.4 The Authority may direct the Licensee to undertake appropriate action to protect the public from harassing, offensive, fraudulent or unlawful communication. Such direction may require the Licensee to co-operate fully with and/or provide

relevant information to such other parties identified as being competent authorities by the Authority in its direction; and

7.8.1.5 The Licensee shall, at the request of the Authority, terminate service to any customer that is the source of harassing, offensive or illegal communication.

## **PART 8 TARIFFS**

### **8.1 TARIFF OF NON-SMP OPERATORS**

8.1.1 Except as otherwise provided in this License or as required by Law, the Licensee is free to set tariffs for the Licensed Services as it may deem fit.

8.1.2 If the Authority determines that the Licensee's prices for any Licensed Services are unfair and unreasonable to individual customers, the Authority may regulate Licensee's tariffs, terms and conditions for those Licensed Services. The Licensee shall comply with the Authority's orders, directives and determinations relating to the Licensee's tariffs, terms and conditions for those Licensed Services.

### **8.2 PRICE REGULATION OF OPERATORS WITH SMP**

8.2.1 If the Authority determines that the Licensee possesses SMP in a relevant market, the Authority may regulate Licensee's prices, terms and conditions, for those Licensed Services where the Licensee possesses SMP, and any Licensed Services incidental thereto as determined by the Authority. The method of regulation shall be determined by the Authority and may include a requirement for prior approval of the Authorities for any price, term or condition, or the maximum or minimum price, or both, for the Licensed Services.

### **8.3 PUBLICATION OF TARIFFS, NOTIFICATIONS AND DISPLAY OF INFORMATION**

8.3.1 The Licensee shall comply with all requirements regarding publication of prices, terms, and conditions, notifications and display of information, as established by the Authority from time to time.

## **PART 9 RELATIONS WITH OTHER OPERATORS**

### **9.1 INTERCONNECTION**

9.1.1 The Licensee shall, within 15 business days of a written request by another licensee, enter into negotiation, in good faith, for an agreement:

- 9.1.1.1 to connect and keep connected to the Licensee's Mobile Cellular System the Telecommunications Network run by the requesting operator at specified points of connection; and
- 9.1.1.2 to provide such other Mobile Services as are reasonably requested in order for the requesting person to provide Mobile Services to its Customers.
- 9.1.2 The Licensee may not be required to enter into an agreement as required above vide sub clause 9.1.1 where to do so would, in its reasonable opinion and with the consent of the Authority:
  - 9.1.2.1 cause or would be likely to cause danger, damage or injury to any person or to any property;
  - 9.1.2.2 cause damage or otherwise interfere with the running of the Licensee's Mobile System or the provision over its Mobile Services over its Mobile System; or
  - 9.1.2.3 not be technically or economically feasible.
- 9.1.3 If the Authority determines that the Licensee has SMP in the relevant telecom market under the Rules issued from time to time then termination charges shall be offered at cost based rates with reasonable margin, and
  - 9.1.3.1 on a transparent, non-discriminatory and objective basis; and
  - 9.1.3.2 subject to reasonable terms and conditions.
- 9.1.4 Subject to any default charges which may be approved by the Authority, the Licensee shall ensure that within a reasonable specified period of time to be set by the Authority its charges for the provision of Mobile Services in accordance with the above clause shall be cost-oriented and fully justified, such charges to be calculated based on a reasonable assessment of the costs associated with establishing interconnection and providing the requested services.
- 9.1.5 The Licensee shall provide to the Authority all such technical, operational and accounting information as the Authority may require in this regard. The Authority shall ensure that any information provided to it in accordance with this condition, which is expressed to be confidential, is maintained as such.

## **PART 10      INFRACTIONS AND SANCTIONS**

### **10.1    SANCTIONS FOR VIOLATIONS OF THE LICENCE**

- 10.1.1 If the Authority determines that the Licensee has violated a provision of this Licence or the Act, Rules or Regulations conditions of this License or any other order or instructions of the Authorities, the Authority may by order impose one or more sanctions provided in the Act, the Rules and Regulations issued there under.

## **PART 11      TERMINATION AND AMENDMENT**

### **11.1    TERMINATION OF THE LICENCE**

11.1.1 The Licence shall remain in force until it is terminated by one of the following events:

11.1.1.1 The term of the Licence expires without renewal;

11.1.1.2 The Licensee agrees to the termination of this Licence; or

11.1.1.3 The Licence is suspended or terminated in accordance with the Act, Rules or Regulations, or the provisions of this Licence.

### **11.2    AMENDMENT**

11.2.1 This Licence may be amended by written agreement between the Licensee and the Authority subject to the provisions of the Act, Rules and Regulations.

## **PART 12      GENERAL**

### **12.1    ASSIGNMENT OF RIGHTS**

12.1.1 The License granted under the Act and Rules shall be personal to the Licensee and shall not be assigned, sub-licensed to, transferred directly or indirectly or held on trust for any person, without the prior written approval of the Authority.

### **12.2    OWNERSHIP AND CONTROL REPORTING**

12.2.1 The Licensee shall notify the Authority of the occurrence of any act, agreement or transaction that to its knowledge, directly or indirectly, results in (a) acquisition by a person or a group acting in common of more than 10 per cent of the Voting Interests of the Licensee, or (b) disinvestment by a person or a group acting in common having direct or indirect control of 10 per cent or more of the Voting Interest of the Licensee, of those Voting Interest to any other person or group of persons.

12.2.2 The Licensee shall give the notification referred to in sub clause 12.2.1 above to the Authority on the later to occur of (a) one day after the date that the Licensee becomes aware of the act, agreement or transaction, or (b) 30 days prior to the completion of the act, agreement or transaction.

12.2.3 For a period of one year following the Effective date, the Licensee shall take all necessary steps to ensure that no transaction described in sub clause 12.2.1 takes place unless the prior consent of the Authority is obtained.

### **12.3 NO LIABILITY BY THE AUTHORITY**

12.3.1 No suit, prosecution or other legal proceeding shall lie against the Authority or any member or employee of the Authority in respect of anything done or intended to be done by the Authority in the good faith exercise of its powers subject to section 33 of the Act.

### **12.4 FORCE MAJEURE**

12.4.1 Notwithstanding anything to the contrary contained in this License, if the Licensee shall be rendered unable to carry out the whole or any part of its obligations under this License for any reason beyond the control of the Licensee, including but not limited, to acts of God, strikes, war, riots etc, then the performance of the obligations of the Licensee as it is affected by such cause shall be excused during the continuance of any inability so caused provided that the Licensee has taken all appropriate precautions and reasonable measures to fulfil its obligation and that it shall within 14 days of its first occurrence notify to the Authority the same and cause of such inability and its efforts to remove such cause and remedy its consequences.

### **12.5 COMMUNICATION WITH THE LICENSEE**

12.5.1 The Licensee shall maintain on file with the Authority a current address for the Licensee, including telephone number, fax number and email address, and the name and title of a contact person, for the purposes of receiving communications from the Authority. Any notice or other communication to the Licensee permitted under this License may be given by hand delivering the same, or by mail, facsimile, or electronic mail addressed to the Licensee at its most recent address on file with the Authority.

## **PART 13 INTERPRETATION AND DEFINITIONS**

### **13.1 INTERPRETATION**

13.1.1 In this Licence, words importing the singular shall include the plural and vice versa.

13.1.2 The headings in this Licence shall not affect its interpretation.

13.1.3 Any reference, express or implied, to any legislation (including rules and regulations issued pursuant to that legislation) includes references to that legislation (and rules and regulations) as it may be amended or modified from time to time.

### **13.2 DEFINITIONS**

13.2.1 The words and expressions used herein but not defined shall have the same meaning as are respectively assigned to them in the Act, the Rules and Regulations and Licenses issued thereunder. Unless the context otherwise requires, the following terms used in this Licence shall have the meanings indicated below:

“Act” means The Pakistan Telecommunication (Re-organization) Act 1996;

**“Authority”** means the Pakistan Telecommunication Authority established under section 3 of the Act;

**“Basic Public Telephone Access Service”** means a Telecommunications Service providing access to the PSTN and comprised of technical features which permit the establishing of a telephony channel capable of allowing users to make and receive local, long distance and international real time voice telephone calls;

**“Board”** means the Frequency Allocation Board;

**“Control”** means control in any manner that results in control in fact of more than 10% or more, whether directly through ownership of shares or indirectly through an agreement, arrangement or otherwise, or indirectly through an agreement or arrangement involving next of kin;

**“Effective Date”** means the date on which this Licence is issued by the Authority and is appearing on the first page of this Licence, which date may be 60 working days after the notification of the winners of 3G/4G/LTE spectrum by the Authority and after the Authority receives the full Auction Winning Price from the Licensee described in sub clause 4.1.1.1 above;

**“Federal Government”** means the Federal Government of Pakistan;

**“Financial Year”** means the period of twelve (12) months in respect of which the Licensee is required to make up its Annual Report and Audited Accounts under the Companies Ordinance, 1984;

**“Grey International Telephony Services”** means involvement at any level in origination, termination, routing, modification, alteration of telecom traffic by licensed or unlicensed operator with the intent to avoid the associated fees, taxes levied by the Regulator or GOP from time to time and / or to conceal or misreport the traffic and the associated information from the regulator for the gain of any other motives;

**“Interconnection Rules”** means the Rules relating to interconnection;

**“ITU”** means the International Telecommunications Union;

**“License”** means this License, the terms and conditions applicable thereto, and any amendments thereto;

**“Licensed Services”** means the Mandatory Services i.e. voice, data, multimedia and internet with data rate greater than 2 Mbps for indoor environments;

**“Licensed System”** means the Telecommunication Systems which are in existence and operational or installed or otherwise provided, maintained and/or operated by the Licensee now and at any time and from time to time for the purpose of providing Licensed Services by whatever means;

**“Long Distance”** means end to end communication between points that are (i) located in different Regions or (ii) such other distance apart as the Authority may by Regulations specify;

**“Long Distance and International Licensee”** means a Licensee licensed to offer end to end communication between points that are (i) located in different Region or (ii) located in Pakistan and outside of Pakistan or (iii) such other distance apart as the Authority may by Regulations, specify;

**“LI”** means Lawful Interception;

**“Mandatory Services”** means the Telecommunications Services that the Licensee must provide under this Licence, and which are described in sub clause 1.1.2 of the License;

**“Mobile Cellular (3G/4G/LTE etc.) Communications Service”** means Mobile Communications Services which is capable of providing voice, data, video telephony and internet with data rate greater than 2 Mbps for indoor environment, 384 Kbps for moving vehicle and any other services defined by international standardization bodies for Cellular Mobile (3G/4G/LTE etc.) Communications;

**“Mobile Numbering Portability”** means a facility provided by any licensed provider of Mobile Services to another which enables any user to whom a telephone number has been assigned to continue to be provided with Mobile Services using the same number irrespective of the identity of the service provider providing the service;

**“Mobile Virtual Network Operator (MVNO)”** means a person who has no license to operate a mobile Telecommunication Network and no frequency assignments, but who will provide Mobile Services to his own users by means of entering into arrangements with a Licensed Operator of a mobile Telecommunications Network for the provision to him of capacity and facilities on that network;

**“National Numbering Scheme”** means the scheme administered by the Authority which sets out the sequence of numbers or other characters which shall be used to route telephony traffic to specific locations;

**“Network Connection Point (NCP)”** is a location at which other Operators can send to or receive from the Licensee voice or data traffic originated by or destined for the Licensee’s customers;

**“Network Termination Point”** means any point or node forming part of Licensed System to which users may connect to the Licensed System by means of a wireless link and Public Telecommunication Network and are necessary at which Terminal Equipment may be connected;

**“National Numbering Scheme”** means the scheme administered by the Authority which sets out the sequence of numbers or other characters which shall be used to route telephony traffic to specific locations;

**“Operator”** means any person authorized by a licence issued by the Authority to provide Telecommunication Services or to establish, maintain and operate a Telecommunication System;

**“Premium Rate Service”** means the service of routing a telephone call with a non-geographic number to a hidden geographic or mobile number, with a premium rate charge to the calling party;

**“Private Circuit”** means a telecommunication facility that provides for transmission capacity between fixed points within a Telecommunication System and does not enable the user to control the switching functions;

**“Public Mobile Payphone Services”** means the commercial provision to the public of mobile Public Telephone Access Services;

**“Public Voice Telephone Services”** means the commercial provision to the public of the transmission and switching of voice in real time between public switched Network Termination Points, enabling any user to use equipment connected to such a Network Termination Point to communicate with a user connected to another Network Termination Point;

**“PSTN”** means the Public Switched Telecommunications Network in Pakistan, consisting of the telecommunications transmission and switching facilities, including any wire, cable, radio, satellite, optical or other electromagnetic Telecommunication Systems, that are (i) owned by any Operator, (ii) used for the transmission and switching of intelligence for members of the public, and (iii) located wholly or partly in Pakistan;

**“Region”** means a telecommunications administrative region, as determined by the Authority;

**“Regulations”** means all or any regulations issued from time to time by the Authority;

**“Rules”** means all or any rules issued from time to time by the Federal Government under the Act;

**“SMP”** means significant market power as defined in the Rules;

**“SIM”** means subscriber identity module;

**“Telecommunication Service”** means a service consisting in the emission, conveyance, switching or reception of any intelligence within, or into, or from, Pakistan by any electrical, electro-magnetic, electronic, optical or optio-electronic system, whether or not the intelligence is subjected to re-arrangement, computation or any other process in the course of the service;

**“Telecommunication System”** means any electrical, electro-magnetic, electronic, optical or optio-electronic system for the emission, conveyance, switching or reception of any intelligence within or into, or from, Pakistan, whether or not that intelligence is subjected to re-arrangement, computation or any other process in the course of operation of the system, and includes a cable transmission system, a cable television transmission system and terminal equipment;

**“Terminal Equipment”** means equipment which is directly or indirectly connected to any Network Termination Point and which is used directly by users in order to access Telecommunications Services;

**“USO”** means universal service obligation as defined in any Regulations issued by the Authority from time to time;

**“Voting Interest”** means, in respect of:

- (a) a corporation with share capital, means the vote attached to a voting share;
- (b) a corporation without share capital, means an interest that entitles the owner to voting rights similar to those enjoyed by the owner of a voting share;
- (c) a partnership, a trust, an association or a joint venture, means an ownership interest in the assets of it that entitles the owner to receive a share of the profits of it, to receive a share of the assets of it on dissolution and to participate directly in the management of it or to vote on the election of the persons to be entrusted with the power and responsibility to manage it; and
- (d) a not-for-profit partnership, trust, association or joint venture, means a right that entitles the owner to participate directly in the management of it or to vote on the election of the persons to be entrusted with the power and responsibility to manage it.

**“VSAT Services”** means satellite communications services utilizing very small aperture terminals capable of satellite communications.

## APPENDIX - 1

### RADIO FREQUENCY SPECTRUM ASSIGNMENT, TERMS AND CONDITIONS

#### 1.1 RADIO FREQUENCY SPECTRUM ASSIGNED TO LICENSEE

1.1.1. Subject to the terms and conditions of this Licence, the Licensee is assigned the following radio frequencies for use in providing the Licensed Services in Pakistan:

- (a) xxxxxxxxxxxxxx |

#### 1.2 FEES RELATED TO RADIO FREQUENCY SPECTRUM

1.2.1 In addition to any other fees payable by the Licensee under this Licence, the Licensee shall pay Annual Spectrum Administrative Fee (ASAF) as per clause 4.1.2.4 of the License.

## APPENDIX - 2

### QUALITY OF SERVICE STANDARDS

- 1.1 The Licensee shall take reasonable and prudent measures to ensure that the Licensed System and Licensed Services are available as per the network roll out obligations and operate as per the following QoS Key Performance Indicators (KPIs) at all times.
- 1.2 Any fault in any component of the Licensed System or Licensed Service shall be repaired as per the time lines given in the following standards.
- 1.3 Licensee shall meet or exceed the following quality of service standards (except for causes attributable to another Operator or a service provider that provides telecommunications services outside Pakistan beside Interconnect and Mutual service level Agreement):

Indicators	Minimum Target	Remarks
<b>Service Provisioning</b>		
Service Activation Time		
Post-Paid	1hr.	
Pre-paid	30 min.	
<b>Service Quality</b>		
The Licensee shall be solely responsible for meeting all regulatory obligations such as PTA's Regulations on QoS and relevant International standardization forums such as ETSI, ANSI, ITU ,3GPP/2, IEC etc.		
Key Performance Indicator	Benchmark	Remarks
Network Down-time	< 1 %	
Network Accessibility	> 99	
Grade of Service (end to end blocking)	<= 2 %	

Service Accessibility	> 98%	
Call Connection Time	<= 5 sec	
Call Completion Ratio	> 98 %	
Mean Opinion Score (Average of, Average A2B plus Average B2A)	> 3	As recommended by ITU-T in recommendation number P.862.2 ( PESQ), P.862.3 (POLQA) or latest ITU/Relevant forum recommendation
SMS Success Rate	> 99%	
End to End SMS Delivery	< 8 seconds	
<b>Indicators</b>	<b>Bench Mark</b>	<b>Remarks</b>
<b>Customer's Complaints</b>		
Customer Complaints/100 Subscribers  / Month		
Complaints Regarding Billing	<=1 %	
Complaints Regarding Network Operability	<=1 %	
Complaint Turn Around Time		
%age of Billing Complaints Resolved Within 24 hrs.	98 %	
%age of Billing Complaints Resolved Within 48 hrs.	100 %	
%age of Complaints (Regarding Network Operability) Resolved		

Within 24 hrs.	95 %		
Within 48 hrs.	100 %		
<b>Billing Service</b>			
Billing Complaints	0.2 per 100 bills issued		Applies to complaints which are valid
Reconnection Time After Clearing Arrears	15min.		The time it takes in minutes to reconnect the service once the due payment has been made by the customer
<b>Operator Service</b>			
Operator Assistance Response Time Within 30sec.	>=98 %		There should be a queuing system for all operator attended calls i.e., no call should receive a busy signal; rather each call is queued and maximum calls (as shown in the given benchmark) should be answered within 30 seconds.
Customer Complaint Response Time Within 30sec.	>=98 %		
Directory Assistance Response Time Within 30sec.	>=98 %		
Calls to Emergency Numbers Handled Within 30 Seconds	100%		
<b>Directory Assistance</b>			
Updated Directory Assistance	Provisioning of redirect mechanism to PTCL directory	Provisioning of updated directory assistance	The Licensee should provide redirect service mechanism for accessing PTCL directory assistance to its subscribers. In the long-term period, the Licensee is

			required to provide its own directory assistance service.
<b>Network Management &amp; Security</b>			
Voice Security during Connection		Yes	
Personal Information Security		Yes	
Provisioning of Centralized Customer Complaint Database		Yes	
Provisioning of Computerized Directory Access System		Yes	
Probability of Fraud on User's Account		No	The Licensee should demonstrate to PTA that fraud controlled procedures are in place.

***NOTE: In addition to above mentioned quality standards, any QoS KPIs devised in future and regulations made there to by the Authority for mobile cellular (3G/4G/LTE etc.) services, shall be strictly followed.***

**Pakistan Telecommunication Authority  
Headquarters F-5/1, Islamabad**

**Auction of Mobile Cellular (3G/4G/LTE) License/ Spectrum  
Bid Form (Out-cry)**

Name of Company \_\_\_\_\_

Name of Authorized Representative \_\_\_\_\_

Bid Amount in Figures US\$ \_\_\_\_\_

Bid Amount in Words US\$ \_\_\_\_\_

I solemnly declare that this bid for Mobile Cellular (3G/4G/LTE etc.) License/ Spectrum is unconditional, irrecoverable and is valid for sixty (60) days from the date of submission of this bid, and all other conditions of the where applicable.

\_\_\_\_\_  
Signature of Authorized Representative

Date: \_\_\_\_\_

**[[Letterhead of the Company]**

I, \_\_\_\_\_, Company Secretary of *[HERE GIVE FULL NAME AND ADDRESS OF THE APPLICANT ENTITY]* (the "Company"), do hereby certify that the following is a true and correct copy of a resolution duly adopted at a meeting of the

Board of Directors of the Company duly convened and held on \_\_\_\_\_, and that such resolution has not been modified, rescinded or revoked, and is at present in full force and effect:

RESOLVED THAT the Company be and is hereby authorized to apply for the grant of *[here describe the nature of the license being applied for]*, ("the License") and to comply with all requirements of its application process and the terms of the License, if any, granted as a consequence;

FURTHER RESOLVED THAT Mr. \_\_\_\_\_ bearing CNIC/Passport No \_\_\_\_\_ resident of \_\_\_\_\_ *[here give designation of the appointee]* be and is hereby appointed as an attorney of the Company (the "Attorney"), for and on its behalf, to execute all documents and take all actions as may be required, necessary or incidental in connection with submission and grant of the application of the License, including submission of the Affidavit in the form and manner prescribed at Annex D-2 of the Information Memorandum issued by the Pakistan Telecommunication Authority for which all necessary instructions and information has been provided to him;

FURTHER RESOLVED THAT Mr. \_\_\_\_\_, director/secretary of the Company be and is hereby authorized on behalf of the Company to execute a Power of Attorney in favour of the Attorney on such terms as may be deemed expedient and in the form prescribed by the Pakistan Telecommunication Authority.

Certified to be a true copy:  
**Company Secretary**

**POWER OF ATTORNEY**

[To be submitted on a stamp paper of Rs. \_\_\_\_\_, or US \$ \_\_\_\_\_ in case of foreign applicants]

KNOW ALL MEN BY THESE PRESENTS THAT We

Having our registered office at \_\_\_\_\_ (herein after called the "Applicant") do hereby nominate, constitute and appoint [*here give name, parentage and address of the Special Attorney*] to be and to act as our lawful attorney, for us, in our name and on our behalf to exercise any and all of the powers herein contained, that is to say:

1. to sign, execute or authenticate all applications or other documents required to be submitted to Pakistan Telecommunication Authority (herein after the "Authority") and to act for and on our behalf in all matters relating to grant of the license for provision of mobile cellular services in Pakistan;
2. to fulfill all the requirements and formalities as may be required to be fulfilled for the grant of the license applied for on behalf of the Applicant;
3. to attend all hearings before the Authority and to provide all necessary documents and material information or assistance as may be required by the Authority for its satisfaction to issue the license applied for by the Applicant;
4. to sign all applications, correspondence, statements or other documents submitted to the Authority on behalf of the Applicant relating to issuance of the license applied for by the Applicant;

5. to execute all such documents and undertake all such acts as may be necessary in order to comply with the directions, decisions and orders of the Authority relating to issuance of license applied for by the Applicant;
6. and generally to do all such acts as may be necessary or incidental for the grant of the license applied for by the Applicant.

We hereby agree and undertake to confirm and ratify all acts, deeds and things which the said Attorney shall lawfully do or cause to be done in purported exercise of any of the powers contained herein.

This Power of Attorney shall not be revoked without prior written notice to the Authority and such revocation shall not invalidate any action taken by the Attorney in exercise of the powers vested hereby. In witness where of we have signed this power of attorney at this day \_\_\_\_ of \_\_\_\_\_, 2012

EXECUTANT

Seal of the Company

WITNESSES:

1. \_\_\_\_\_

National ID/CNIC NO. \_\_\_\_\_

2. \_\_\_\_\_

National ID/CNIC NO. \_\_\_\_\_

## PAKISTAN TELECOMMUNICATION AUTHORITY PTA

Headquarters Building, F-5/1, Islamabad, Pakistan

(*www.pta.gov.pk*)

Mobile Cellular (3G/4G/LTE) Spectrum(1)

Date:

**Mobile Cellular (3G/4G/LTE etc.) License / Spectrum in 1900 / 2100 MHz Band**

**APPENDIX TO EXISTING MOBILE CELLUAR LICENSE - RADIO FREQUENCY SPECTRUM IN 1900 / 2100 MHZ BAND, ASSIGNMENT, TERMS AND CONDITIONS**

**1.1 RADIO FREQUENCY SPECTRUM ASSIGNED TO LICENSEE**

1.1.1. The Licensee is assigned the following radio frequency spectrum from Effective Date for use in providing the Licensed Services nationwide in Pakistan excluding Azad Jammu and Kashmir (AJK) and Gilgit Baltistan (GB). The Effective Date for this Addendum shall be the date this Addendum is issued by the Authority.

*[Will be written after Auction]*

1.1.2 The Licensee shall be authorized to use the spectrum identified in clause 1.1.1 above, for the duration of 15 years from the Effective Date of the addendum.

1.1.3 The renewal of spectrum identified in clause 1.1.1 will be subject to the satisfactory performance including but not limited to clearance of outstanding dues, implementation of national security requirements, and proper utilization of spectrum. The existing License will be renewed against the following Spectrums:-

*[Will be written after Auction]*

**1.2 NATIONAL SECURITY**

1.2.1 The Licensee shall comply with the national security and other requirements of section 54 of the Act and any other national security requirements under the law.

1.2.2 The Authority may restrict the Licensee from operating in any sensitive area defined by the Federal Government from the national security point of view.

1.2.3 The Licensee shall not transfer the following to any person/place outside Pakistan including AJK & GB:-

1.2.3.1 any accounting information relating to subscriber (except for roaming/billing); and

1.2.3.2 user information (except pertaining to foreign subscribers on operator's network while roaming).

1.2.4 No local/long distance traffic (mobile and fixed line) shall be hauled outside Pakistan.

Every page will be stamped and signed with date

- 1.2.5 No remote access shall be provided to any person/place outside Pakistan for any maintenance/repairs/databases/facility unless approved by the Authority or concerned quarters.
- 1.2.6 The BTSs shall be installed in such a way that signal strength fades away within 2 Km along the international border, or as specified, and no communication takes place across the international border. No BTS shall be installed without prior approval of the Authority.
- 1.2.7 No ciphering, equipment or software, shall be used by the service provider or user without prior approval of the Authority.
- 1.2.8 The Licensee shall ensure to implement Equipment Identity Register (EIR) or related module in the network or as directed by the Authority.
- 1.2.9 All communication with CPE shall be through a specific subscriber identity number.
- 1.2.10 System must be LI (Lawful Interception) complaint and ready to be extended as desired by the Authority.
- 1.2.11 The Licensee shall activate a SIM of a subscriber after proper verification of his/her antecedents from NADRA through real-time processing or as proposed by the Authority. The verification recordings shall be kept online for nine (09) months and older recordings shall be archived for lifetime.
- 1.2.12 In addition to maintaining call records, the licensee shall also record/store data session logs/info along with IP address for one year for scrutiny by or as directed by the Authority or required by security agencies under the law.
- 1.2.13 The Licensee shall provide, at its own cost, suitable equipment at premises designated by the Authority, in order to monitor the communications for the purpose of national security; measure and record traffic; call detail records; curbing of grey international telephony services and quality of service in a manner specified by the Authority. The Licensee shall provide the Authority and the concerned law enforcement agencies with access to such equipment, and the information generated by such equipment.

### 1.3 NETWORK ROLL-OUT

- 1.3.1. **First Phase:** The Licensee shall within six (06) months from the Effective Date of the spectrum assigned as per clause 1.1.1, provide coverage in all four Provincial Capital cities and the Federal Capital.
- 1.3.2. **Second Phase:** The Licensee shall within next eighteen (18) months (from the date the first phase is complete) provide coverage within 10 major cities (excluding the cities mentioned in 1.3.1.1) covering at least one major city in each province.
- 1.3.3. **Third Phase:** The Licensee shall within 03 years (from the date the second phase is complete) provide coverage in 80% of District Headquarters and within 08 years provide coverage in 80% Tehsil Headquarters from the date the roll out obligation for the second phase is completed.

- 1.3.4 The Authority reserves the right to suggest the Licensee for extension of Services to other major cities of Pakistan where technically and commercially viable, with or without assistance of USF, after negotiation.
- 1.3.5 As a guarantee for the performance of Licensee's obligations in clause 1.3.1 above herein, the Licensee shall deliver to the Authority a continuing and irrevocable Performance Bond in the shape of Bank Guarantee from a AAA rating bank, acceptable to the Authority for the amount of US\$15,000,000 (Fifteen Million US Dollars) or its equivalent in Pakistan Rupees of the value prior to Effective Date. In the event of encashment of the Bank Guarantee by the Authority, the Licensee shall be obliged to submit a revised an irrevocable and continuing Bank Guarantee of US \$15 Million (Fifteen Million US Dollars) within one month of the encashment of old Bank Guarantee.
- 1.3.6 At the expiry of the first six (06) months the Licensee shall be entitled to release and exchange the irrevocable Performance Bond as stated in sub clause 1.3.3 proportionate to the rollout obligation met by the Licensee. In case the roll-out obligation in clause 1.3.1 is not fulfilled the Performance Bond proportionate to the unmet obligation shall be forfeited by the Authority.
- 1.3.7 If the Radio spectrum is not utilized as identified in 1.1.1 and 1.1.2 then the same may be withdrawn.

#### **1.4 FEES RELATED TO RADIO FREQUENCY SPECTRUM/LICENSE**

- 1.4.1 In addition to any other fees payable by the Licensee under the Licence, the Licensee shall pay one time Initial License/Spectrum Fee of US\$\_\_\_\_\_ (US Dollars \_\_\_\_\_ Million only) to the Authority in US\$\_\_\_\_\_, or equivalent in Pak Rupees to be converted at the TT selling rate of National Bank of Pakistan on the day preceding the date of payment after adjustment of Bid Earnest Money prior to award of Spectrum as identified in 1.1.1.
- 1.4.2 After expiry of the 15 year term spectrum assignment will be renewed on payment of the same Initial License/Spectrum Fee unless revised by the GoP.
- 1.4.2 The Licensee shall pay all Annual Regulatory Dues (including Annual License Fee, USF Contribution, R&D Fund Contribution, Annual Numbering Charges etc.) within 120 days of the close of its financial year end on the total annual gross revenue of the Licensee from Licensed Services as per the clauses of these fees and contributions given in the License.
- 1.4.3 The Licensee shall also pay Annual Spectrum Administrative Fee (ASAF) on the basis of the proportion of spectrum allocated to the Licensee out of the total spectrum allocated to all Mobile Cellular Operators to recover 75 % of FAB's total budgeted expenditure for the next Financial Year, in the light of Appendix B of the Mobile Cellular Policy 2004. The ASAF is payable in advance for next Financial year by 30<sup>th</sup> June of every year.
- 1.4.4 In case of delay in payment of any fees or contribution to the Authority, the Licensee shall pay Late Payment Additional Fee @ 2% per month or part thereof from the due date till the date of payment.

- 1.4.5 As a continuing guarantee for payment of Annual Regulatory Dues, the Licensee shall deliver to the Authority an irrevocable and continuing Bank Guarantee acceptable to the Authority, from a AAA rated bank, for the amount of US\$1,000,000 (US Dollars One Million only) prior to Effective Date. If payment of any fee is not made by the Licensee by the due date, the Authority shall have the right to encash the Bank Guarantee at any time, to the extent of the amount unpaid by the Licensee. In the event of encashment of the Bank Guarantee by the Authority, the Licensee shall be obliged to submit a revised Bank Guarantee of US\$1,000,000 (US Dollars One Million only) within one month of the encashment of the old Bank Guarantee.
- 1.4.6 This Addendum/License may be suspended, in case the Licensee fails to make the payment of outstanding dues i.e. Initial License/Spectrum Fee, annual fees, contributions, charges, Late Payment Additional Fee, Penalties etc. on due dates.

## **1.5 MISCELLANEOUS**

- 1.5.1 The Licensee shall not provide any Licensed Services to customers, or accept any payment from customers in respect of Licensed Services to be provided by the Licensee, until the Licensee has obtained from the Authority a service commencement certificate evidencing that the Authority is satisfied that the Licensee has established the Licensed System, and is able to provide the Licensed Services including Mandatory Services as per the QoS KPIs set by the Authority, in accordance with the Licence.
- 1.5.2 The Licensee would be required to support the development and growth of mobile handset and telecom equipment manufacturing inside Pakistan as per the mechanism devised by the Authority in this regard.
- 1.5.3 For efficient and optimal rollout of Mobile Cellular (3G/4G/LTE etc.) Services, the Licensee shall be required to share its infrastructure with other telecom service providers as a matter of first priority.
- 1.5.4 In addition to maintaining complete call records, the Licensee shall also record/store data session logs/info along with IP address for one year for scrutiny by or as directed by the Authority or required by security agencies under the law.
- 1.5.5 The Licensee shall follow the direction of the Authority in blocking any website/web content and any other services or as issued from time to time.
- 1.5.6 All terms and conditions in the main License, and not mentioned in this addendum, shall also be applicable to this addendum also.

## **1.6 QUALITY OF SERVICE STANDARDS**

- 1.6.1 The Licensee shall take reasonable and prudent measures to ensure that the Licensed System and Licensed Services are available as per the network roll out obligations and operate as per the following QoS Key Performance Indicators (KPIs) at all times.
- 1.6.2 Any fault in any component of its Licensed System or Licensed Service shall be repaired as per the time lines given in the following standards.
- 1.6.3 PTA's Regulation on QoS and 3GPP latest Version/Release for Cellular Mobile (3G/4G/LTE) shall be followed. The Authority may carry out tests on the quality of

the Licensed Services and the Licensed System and the Licensee shall extend full co-operation and assistance for the purpose including provision of test instruments and equipment. During each calendar month, Licensee shall meet or exceed the following quality of service standards (except for causes attributable to another Operator or a service provider that provides telecommunication services outside Pakistan.

- 1.6.4 During each calendar month, Licensee shall meet or exceed the following quality of service standards (except for causes attributable to another Operator or a service provider that provides telecommunications services outside Pakistan):

Indicators	Minimum Target	Remarks
<b>Service Provisioning</b>		
Service Activation Time		
Post-Paid	1hr.	
Pre-paid	30 min.	
<b>Service Quality</b>		
The Licensee shall be solely responsible for meeting all regulatory obligations such as PTA's Regulations on QoS and relevant International standardization forums such as ETSI, ANSI, ITU, 3GPP/2, IEC etc.		
Key Performance Indicator	Benchmark	Remarks
Network Down-time	< 1 %	
Network Accessibility	> 99	
Grade of Service (end to end blocking)	<= 2 %	
Service Accessibility	> 98%	
Call Connection Time	<= 5 sec	
Call Completion Ratio	> 98 %	
Mean Opinion Score (Average of, Average A2B plus Average B2A)	> 3	As recommended by ITU-T in recommendation number P.862.2 ( PESQ), P.862.3 (POLQA) or latest ITU/Relevant forum recommendation
SMS Success Rate	> 99%	
End to End SMS Delivery	< 8 seconds	

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Indicators	Benchmark		Remarks
<b>Customer's Complaints</b>			
Customer Complaints/100 Subscribers / Month			
Complaints Regarding Billing	<=1 %		
Complaints Regarding Network Operability	<=1 %		
Complaint Turn Around Time			
%age of Billing Complaints Resolved Within 24 hrs.	98 %		
%age of Billing Complaints Resolved Within 48 hrs.	100 %		
%age of Complaints (Regarding Network Operability) Resolved Within 24 hrs.	95 %		
48 hrs.	Within	100 %	
<b>Billing Service</b>			
Billing Complaints	0.2 per 100 bills issued		Applies to complaints which are valid
Reconnection Time After Clearing Arrears	15min.		The time it takes in minutes to reconnect the service once the due payment has been made by the customer
<b>Operator Service</b>			
Operator Assistance Response Time Within 30sec.	>=98 %		There should be a queuing system for all operator attended calls i.e., no call should receive a busy signal; rather each call is queued and maximum calls (as shown in the given benchmark) should be answered within 30 seconds.
Customer Complaint Response Time Within 30sec.	>=98 %		
Directory Assistance Response Time Within 30sec.	>=98 %		
Calls to Emergency Numbers Handled Within 30 Seconds	100%		
<b>Directory Assistance</b>			
Updated Directory Assistance	Provisioning of redirect mechanism to PTCL directory	Provisioning of updated directory assistance	The Licensee should provide redirect service mechanism for accessing PTCL directory assistance to its subscribers. In the long-term period, the Licensee is required to provide their own directory assistance service
<b>Network Management &amp; Security</b>			
Voice Security during Connection	Yes		
Personal Information Security	Yes		
Provisioning of Centralized Customer Complaint Database	Yes		

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Indicators	Benchmark	Remarks
Provisioning of Computerized Directory Access System	Yes	
Probability of Fraud on User's Account	No	The Licensee should demonstrate to PTA that fraud controlled procedures are in place.

*NOTE: In addition to above mentioned quality standards any QoS KPIs devised in future and regulations made there to by the Authority for Mobile Cellular (3G/4G/LTE) Services shall be strictly followed.*

On behalf of  
**The Authority**

On behalf of  
**M/s (Private) Limited**  
**(The Recipient)**

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**CHECKLIST OF MATERIALS TO BE SUBMITTED WITH THE APPLICATION**

<b>Sr. No</b>	<b>Document</b>	<b>Attached (Tick if document attached)</b>	<b>No. of Pages</b>	<b>Remarks (if any)</b>
1	Letter of Application			
2	Application Processing Fees: <b>US \$ 1,000</b> or equivalent Pak Rupees to be credited in the designated bank account of PTA with intimation to PTA.			
3	Company Information (Certified true copies to be provided by new players only)			
	A Certificate of Incorporation/registration			
	B Memorandum and Articles of Association			
	C List of Directors with details of their shareholdings, and relation to other Operators and applicants for a License			
	D Shareholders with details of equity ownership			
	E List of Shareholder Affiliates that are Operators or applicants for a License, and description of relation to Applicant			
	F National Identity Card (for Pakistan National)/ Passport (for foreign nationals) and other antecedents of the Directors and authorized representatives of the company			
4	Provide undertaking for the following.			
	A That the Company or its Directors have never been declared insolvent by a court of law or government organization.			
	b That the Directors of the company have never been convicted by a court of law for major offences or unethical/ immoral turpitude (other than minor offences)			
	C That neither the applicant Company nor its group/consortium members are defaulter(s) of PTA and to other PTA licenses/transactions.			

## ANNEX -F

	D	National Income Tax Number (if any)			
5		Certificate on original letterhead from the Group /Joint venture/Consortium members that they are the authorized participants for Mobile Cellular license in <b>Pakistan</b> through the applicant company. (Annex F1)			
6		Certificate of good standing with the fiscal administration.(FBR in case of Pakistan).			
7		Resolution of the Board of Directors of the Applicant authorizing the person who submits and signs the Letter of Application			
8		Special Power of Attorney granted to the person who submits and signs the Letter of Application			
9		Brief Description of Telecommunications Qualifications and Experience of the Applicant, its key management personnel and its shareholders			
10		Capital Cost of service/ project for the first year and the sources of finance in the form of equity and long term debt.			
11		Brief Description of the project in the form of forecast balance sheet and profit loss account/ income statement for the first 5 years of operation.			
12		Brief description of committed financial resources to meet Capex of the project for the 1st year in the form of bank statement of the company's account duly signed and stamped by bank manager and letter of intent / MOU signed bank and CFO/ Authorized officer of the company for any long term debt.			
13		Technical Plan			
14		Affidavit (Annex F-2)			