

**ISLAMIC REPUBLIC OF PAKISTAN
MINISTRY OF INFORMATION TECHNOLOGY
TELECOMMUNICATIONS POLICY
CONSULTATION DRAFT**



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1. FOREWORD

- 1.1 Government recognises that Information and Communication Technology (ICT) is now entering an exciting and transformational era, in which it will become one of the dominant sectors in the economy, contributing hugely to the wellbeing of society and GDP
- 1.2 This Policy contributes toward the attainment of an all-embracing national agenda for renewal and change, with the overarching aim that Pakistan becomes an industrialized and knowledge-based medium-income country by 2025.
- 1.3 Pakistan faces challenges in terms of ICT provision. This Policy identifies how existing assets, both physical and human, may be nurtured within a context designed to improve the availability of telecommunications, and thus social and economic enhancement. It also states how new technologies and new areas of economic activity may be embraced to widen the scope of the sector, and increase its contribution to the Nation and Global existence



2. BACKGROUND

The progress that Pakistan has made in the supply and use of telecommunications services over the last ten years under the previous telecommunications related policies has been impressive.

2.1 Penetration

2.1.1 Penetration (see Table 1) of mobile services has grown to a point where there are 76 subscriptions for every 100 people.

Table 1: Penetration, subscriptions per 100 population, May, 2014

Service	Per 100 population
Mobile	76.2
Fixed	3.1
Total (Mobile + Fixed)	79.3
Fixed broadband	2

2.1.2 While there has been rapid and continuous growth in mobile penetration, the trend in fixed penetration is mixed. In the last ten years, there has been a marked decline in penetration, initially in wireline access, but more recently in fixed wireless access. However, the decline in fixed access has now stabilised.

2.1.3 At the same time there has been a marked increase in fixed broadband access to a point where at least 56% of fixed access includes broadband access. Fixed broadband subscriptions have grown at the rate of 88.5% p.a. since the service was introduced in 2005-6. The current level of fixed broadband teledensity of 2% implies at least 10% of the population has access to broadband.

2.2 Market structure

2.2.1 The telecommunications services market is highly competitive, with world class providers of mobile and fixed services. Nevertheless there are structural issues, particularly the disparity in size between the smaller and larger players.

2.2.2 The mobile sector, with five players, has as many operators as found in most markets, with current licensees all having significant market share and the backing of international groups. The fixed sector is concentrated with only one major operator, PTCL, providing long distance, international and access services, although many smaller licensees provide long distance or regional access.

2.2.3 The difference in scale between the mobile operators and the fixed operators, and between individual fixed operators is very marked as can be seen in Table 2 below.



Table 2: Subscribers by licensee

	Mobile subscribers (May 2014)	Fixed subscribers (Q4 2013)
Mobilink	38,444,357	
Telenor	36,311,451	
Ufone/PTCL	24,645,598	4,102,121
Zong	26,736,308	
Warid	13,060,765	
Worldcall		533,852
Wateen		310,182
TeleCard		260,336
Wi-Tribe		199,886
NTC		117,799
Sharp/Qubee		75,517
Link Direct		18,833
Brain Ltd		14,530
Union		4,175
Naya Tel		3,699
Mytel		32
Total	139,198,479	5,640,962

2.3 Coverage

2.3.1 The roll out obligations placed on mobile operators have had a significant effect on coverage. These roll out obligations have been continued in the 2014 3G/4G auction which required licensees to reach 90% of Tehsil headquarters in the next five years. While this obligation will bring broadband to these locations, there is still a requirement to roll out services, particularly broadband services, to underserved and unserved areas beyond those covered by roll out obligations.

2.3.2 Telecommunications in these areas has been supported through the USF. As well as the provision of basic services, the USF has enabled the roll out fibre infrastructure into underserved and unserved areas of the country. The flexible approach taken has enabled the fibre to be used for mobile backhaul as well as for delivery of the universal services themselves.

2.4 Pricing

2.4.1 Pakistan has some of the lowest mobile call charges in the world. In 2011, the prices of 3 minute mobile calls either on-net or off-net in purchasing power parity (PPP) terms placed Pakistan within the lowest twenty of 161 reporting countries. Fixed access and fixed calls are also relatively low. Access prices in PPP terms placed Pakistan 47th and the price of a 3 minute local call in PPP terms placed Pakistan 63rd out of the same reporting countries. The price for broadband access in PPP terms places Pakistan 84th of 162 reporting countries.



2.5 Changes in technology and markets that create major policy requirements

- 2.5.1 The growth of broadband, particularly mobile broadband, will require very rapid expansion in the capacity of backhaul, transit, and international capacity. This expansion will require continued investment by the sector particularly in fibre links as microwave capacity becomes a limiting factor.
- 2.5.2 Technical innovation is leading to new methods of service provision, particularly in services provided over broadband networks. Instead of embedding services in a network, services can be delivered “over the top” (OTT) of the telecommunications network. This innovation means that there are opportunities for efficiently locating service delivery elements, reducing cost, and the possibility of new business models. Therefore, the opportunity to provide services is open to new businesses, both domestic and foreign, and it is expected that the telecommunications market will attract entry from many more service providers and will lead to changes in market character and structure.
- 2.5.3 Such changes in the market character and its structure, and the underlying changes in the technology base, are leading to new requirements for the regulation of the telecommunications sector.
- 2.5.4 The development of broadband networks will lead to convergence in the types of content delivered over telecommunications networks and content delivered over broadcasting networks. This convergence also brings with it a requirement for changes in policy and consequential regulation.

2.6 Continuing requirements

- 2.6.1 The requirement of the telecommunications sector, that it delivers universally available and affordable services remains.



3. POLICY VISION

3.1 Government's vision for the sector is for:

Universally available, affordable and quality telecom services provided through open, competitive, and well managed markets and used by all to the benefit of the economy and society.

3.2 Specific expectations included in this vision comprise:

- 3.2.1 **Universally available, affordable and quality telecommunications services.** Such services will be enabled by timely availability of required scarce resources, a technology neutral regulatory environment that facilitates the use of the most modern technology, and open market structures. Coverage will be extended to high cost areas through obligations placed on licensees. Underserved and unserved areas will be subsidised by the USF. Services will continue to be affordable to consumers through the maintenance of competition in telecommunications markets. Quality of service standards will be set to enable consumers to benefit from the services they use.
- 3.2.2 **Open, competitive, and well managed markets.** The sector will continue to be competitive with multiple operators of fixed networks and mobile networks, duly regulated to ensure fair competition and regulatory certainty. Market conditions will therefore provide an attractive investment environment and will lead to the efficient provision of services.
- 3.2.3 **Used by all.** A substantial increase in penetration of mobile services, and fixed and mobile broadband services, will be brought about by services that are universally available and affordable, in conjunction with content development and citizen services that provide immediate and long term benefit to consumers.
- 3.2.4 **The benefit to the economy and society.** High penetration of telecommunications services and resultant use, particularly of broadband services, will lead to increased growth in GDP. In relation to society, telecommunications services and appropriately managed information services will improve communication between individuals and their access to information and services, leading to personal development, participation by individuals in society, and social cohesion.



4. PRINCIPLES OF POLICY DELIVERY

Six guiding principles have been used to define policy goals.

- 4.1 **Market driven.** Infrastructure provision and service delivery will be through the operation of market forces subject to appropriate regulation.
- 4.2 **Appropriate regulation.** The Policy will encourage the development by the private sector of efficient telecommunications markets. Regulation will aim to promote competition, sector development and migration to new, more efficient methods of delivering services as they become available through fair, transparent and non-discriminatory regulation.
- 4.3 **Forward looking.** While the Policy is technology neutral, it will permit and promote the provision of contemporary and new services using the most modern technology available at the time.
- 4.4 **Accelerated digitalisation.** The Policy will facilitate the development of a modern Information Technology enabled economy and a knowledge based information society with research and innovation, transfer of technology, local manufacturing, content development, and corresponding employment creation.
- 4.5 **Universal access.** The Policy will promote access to services for all people and communities. Access is a function of availability, affordability and capacity to use. Community level access and personal access both have roles to play in establishing universal access.
- 4.6 **Government intervention only where necessary.** Government will show leadership, set direction and priorities, manage scarce resources, regulate appropriately, and support the provision of services in underserved and unserved areas.



5. POLICY GOALS

5.1 The Goals enabled by this Policy related to aspects of supply and use of telecommunications listed in Table 3 support the overall vision presented above. These goals are intended to focus action. The specific enabling actions are included in subsequent sections of this Policy.

Table 3: Policy goals

Area	Goals
Telecommunications market and services	Efficient markets with straightforward entry and exit of qualified entities that have sufficient financial resource to invest in and deliver quality services.
Broadband services	Widespread availability of affordable broadband services provided over fixed or mobile networks with characteristics that support contemporary and new digital applications and content.
Telecommunications infrastructure	Physical infrastructure and rights of way required for the roll out of telecommunications networks that are readily available and accessible through clear processes.
Spectrum	Allocation and assignment of spectrum to maximize the social and economic benefits derived from the use of this scarce resource.
Telecommunications law and regulation	A legal and regulatory environment that continues the development of efficient markets and that safeguards users.
Use of telecommunications services	Progressive increase in penetration and use of telecommunications services of all kinds, and of applications that enhance social and economic development.
Universal Service Funding	Available and affordable telephony and broadband services covering 80% of the population. Universal broadband access for education, health, agriculture, and ecommerce in underserved and unserved areas.
Research & Development through the National ICT R&D Fund	An ICT sector, working within the international research and development community, that provides applications and relevant content to support Pakistan's developmental aims. An ICT eco-system in Pakistan for the creation of valuable Intellectual Property in ICT, particularly in telecommunications, that may be exploited for the benefit of all sectors of socio-economic development.
Satellite regulation	An 'open skies' approach to encourages foreign investment and which promotes the deployment of Fixed, Broadcast and Mobile Satellite Services.



6. TELECOMMUNICATIONS MARKET AND SERVICES

Efficient markets with straightforward entry and exit of qualified entities that have sufficient financial resource to invest in and deliver high quality services.

6.1 Competition Rules

- 6.1.1 The current competitive and open telecommunications market structure will be maintained.
- 6.1.2 The sector will increasingly be managed through the application of Competition Rules for the telecommunications sector to be developed by MoIT. These Competition Rules will provide processes for market review: identifying markets, determining the respective market power of service providers within each market, determining whether anti-competitive behaviour is apparent and what remedies should be applied as ex ante or ex post measures. The framework will be based on best international practice for markets with similar levels of competition to those evident in Pakistan. A set of initial product markets will be defined on the basis of current international practice and conditions in Pakistan. These will then be used to evaluate specific issues facing the sector including the examination of allegations of unfair competition made by respective licensees in both the fixed and mobile sectors and deriving a fair set of remedies should such allegations be substantiated.
- 6.1.3 Product markets may themselves comprise a number of geographic markets representing different market conditions.
- 6.1.4 Once a specific market within the telecommunications sector is managed using the Competition Rules, controls in that market on wholesale and retail pricing will be removed except in so far as required under the Rules or in order to protect the customer from unfair practices as defined in rules, regulation or guidelines.
- 6.1.5 Remedies in specific instances may include obligations to provide wholesale services in a fair, equal and non-discriminatory manner, at cost oriented prices. Remedies shall be applied first in upstream wholesale markets to minimise regulation of downstream retail markets.
- 6.1.6 To make a service available in a fair and non-discriminatory manner, the provider of the service must offer and then deliver it to another service provider at the same price and under the same conditions as it offers the service to its own business in all relevant components of the service delivery process from planning, through ordering, implementation, activation, configuration, operation, maintenance and termination of the service.
- 6.1.7 Pricing remedies, including interconnection charges, will follow international best practice for cost plus orientation and shall be reviewed on a regular basis but no less than once every two years.
- 6.1.8 The obligations on PTCL in Section 4.6 of the Deregulation Policy 2003 shall remain until the Competition Rules are implemented. At that time, PTCL shall be regulated in a manner consistent with its market power in relevant markets.
- 6.1.9 On implementation of the Competition Rules specified in Paras 1.1.1 to 6.1.7, and the identification of markets relevant to the services mentioned in Para 6.7.1 to 6.7.3, PTA will review the markets, determine market power of PTCL and other operators and



impose remedies accordingly. In doing, so, an orderly transition of remedies will be determined.

6.1.10 All other identified markets will be reviewed in accordance with the Competition Rules.

6.2 Licensing framework

6.2.1 The current licensing framework shall continue to apply subject to the introduction of class licences associated with satellite services.

6.2.2 The present licensing regime already distinguishes between those operators that provide infrastructure as well as services and those that provide services alone. Nevertheless, there are gaps and inconsistencies in the licensing framework that should be addressed.

6.2.3 MoIT, in consultation with the PTA, will therefore review the licensing framework, in recognition of the market state at that time, the move to regulation through Competition Rules, changes in the technology used to provide services, and consequential changes in the types of organisations that are telecommunications service providers. It is expected that this review will take place by 31st December 2016. Any proposed changes to the licensing framework will be made in consultation with the sector stakeholders and subject to approval by Government.

6.2.4 Any new licensing regime will be based on international best practices. It will enable new services to be readily provided while meeting service specific requirements (including but not limited to quality of service, customer protection, content acceptability and national security) as they are defined. The licensing regime will continue rights and obligations associated with scarce resources and any obligations on network roll out.

6.2.5 In developing the new licensing framework the following should be taken into account:

- a) Whether there should be a separation of spectrum and operations licensing;
- b) The requirements for licensing of satellite services specified elsewhere in this Policy;
- c) The requirement for spectrum related licensing for non-public telecommunications use such as amateur radio, maritime and aviation uses;
- d) The extent to which telecommunications and content services require licensing;
- e) Whether distinctions should be maintained between different licence types, and if not, the implications for removing such distinctions including the rights and obligations of existing licensees that would need to be transitioned;
- f) The method of licensing of those organisations that hold a broadcasting licence to offer telecommunications services to ensure equivalent treatment of alternative infrastructure providers;
- g) The licensing of telecommunications licensees for the provision of broadcast TV, including the necessity of doing so given the evolving nature of TV.

6.2.6 A process for orderly transition in terms of rights and obligations of new and legacy licences will form a part of the new licensing framework.

6.2.7 The changes to licensing obligations and rights specified elsewhere in this policy pertaining to specific licence types would be carried forward into the new licensing framework.



- 6.2.8 PTA will continue to prepare requisite licence templates, information packages and other necessary measures with the approval of Federal Government to facilitate the licensing process. Issuance of revised licences would commence as soon as possible after the approval of the revised licensing framework by Federal Government.
- 6.2.9 This policy will be without prejudice to the purpose specific licences given to Government / Semi-Government and Autonomous organizations, as these specific licences do not allow holders to become commercial operators.

6.3 Termination or transfer of a business

- 6.3.1 A regulatory framework will be applied on the winding up or transfer to another company of a business holding a telecommunications licence. This framework will supplement Rule 11 of SRO 847 (Telecommunications Rules) November 2000. It should ensure an orderly termination or transfer of the business. It should reasonably protect stakeholders in the business including customers. On transfer or termination, it should require the return of any deposits and payment of outstanding dues to PTA. On transfer it should enable the transfer of licences and obligations to the acquiring business subject to the approval of PTA. These requirements are in addition to the normal responsibilities of a business when winding up or transferring its affairs. Further requirements with respect to spectrum are specified in Section 9.18.

6.4 VoIP and other over the top services

- 6.4.1 Federal Government, in consultation with PTA, will develop appropriate regulatory instruments will be developed to enable VoIP and other over the top services (OTT). These instruments will take account of: the possibility that service providers offering such services may not install any equipment in Pakistan, the rapidity of development of such services, the extensive range of such services, the potential requirements for scarce resources (e.g. numbers), requirements for access to emergency services and lawful interception, and where appropriate, the requirement for interconnection with the equivalent embedded or over the top services.
- 6.4.2 LL and mobile licensees may originate and terminate VoIP traffic. LL licensees will be required to lease capacity provided by LDIs for originating and terminating VoIP traffic out of area.
- 6.4.3 Regulatory instruments for content services provided over the top of telecommunications networks shall include the requirements specified in Section 10.8.
- 6.4.4 Taking into account the globally emerging revenue sharing arrangements between local licensees and over the top players, for offering better than normal best effort services, broadband access providers will be free to enter into mutual agreements with those service providers enabling them to monetize OTT service delivery on mutually agreed terms.

6.5 Net neutrality

- 6.5.1 With respect to net neutrality and the provision of services aimed at over the top service providers, Government is of the view that (1) ISPs are compensated for any traffic consumed by their customers, and



(2) they may implement tiered retail service tariffing with limits on traffic volumes delivered, thereby limiting their liability to carry traffic. Therefore, the Internet access service provided by an ISP or a network operator shall provide access to all services without discrimination through the technical characteristics of the service. To be specific:

- a) Throttling and traffic shaping on access components must not be undertaken to discriminate between the access provider's own services, or services that the access provider favours, and other services. Access here means the service between the final distribution node and the device providing the customer's connection to the network, beyond which the customer has control.
- b) The ISP or network operator may use traffic throttling and shaping to avoid network congestion and to implement fair use clauses in its contract with an individual customer, provided that the contract itself does not discriminate between the access provider's own services, or services that the access provider favours, and other services, and provides protection to the consumer against unwarranted action.
- c) Backhaul, transit services and gateways between operator networks may not discriminate between the access provider's own services, or services that the access provider favours, and other services.
- d) A backhaul or transit service provider may offer higher quality services and services designed to deliver particular types of content (e.g. games or streamed video). If it does provide such services, it must not require a service provider to use a relevant delivery service unless its own equivalent end user services use the same delivery service exclusively. In all cases, where an alternative network solution is offered, the terms of service and quality of service provided under those terms shall be equivalent and shall not discriminate between service provider customers.

6.6 Special Communications Organisation

- 6.6.1 The Special Communications Organisation (SCO) will continue to operate in its territory and will provide access to its infrastructure to other operators at cost oriented wholesale rates to enable service based competition. In this respect SCO shall itself be subject to the Competition Rules introduced in this Policy (see Section 6.1).
- 6.6.2 Keeping in view the requirements of SCO to invest into network expansion for its area of responsibility, appropriate clauses will be built into SCO's license to allow it to utilize its own revenues for development activities instead of the current requirement to deposit all revenues into the national exchequer and then use PSDP funding for network development. Such amendments will also have provision for meeting any shortfall in SCO's development budget through Federal PSDP, AJK/GB budget etc as deemed appropriate by the Federal or AJK/GB Governments.

6.7 PTCL

- 6.7.1 PTCL will continue to offer non-discriminatory shared access to its last mile infrastructure with related colocation space for service providers to install their own exchange side broadband equipment in PTCL's exchanges. Access to copper and related



colocation space will be at cost oriented wholesale rates. PTA will monitor the shared access for fair competition.

- 6.7.2 PTCL will continue to provide bitstream services at cost oriented wholesale rates to licensed service providers.
- 6.7.3 PTCL will continue to provide backhaul services to licensed telecommunications service providers from its local exchange to the service provider's Point of Presence at wholesale rates.
- 6.7.4 PTCL's backhaul services and service provisioning shall be subject to service level agreements between the parties.
- 6.7.5 PTCL will have sufficient dedicated staff for the facilitation of access to its exchanges to ensure speedy provisioning of services specified in Paras 6.7.1 to 6.7.3 within timescales agreed with PTA.
- 6.7.6 PTA will monitor the services and tariffs provided under Paras 6.7.1 to 6.7.3 to ensure fair and non-discriminatory behaviour on behalf of PTCL. Obligations on PTCL specified in Paras 6.7.1 to 6.7.5 shall be reviewed after the introduction of the Competition Rules by investigations of relevant markets using processes defined in the Competition Rules.

6.8 Interconnection

- 6.8.1 The obligation on licensees to interconnect for the origination and termination of telephony traffic remains, so that calls may be established between any two numbers in Pakistan and/or between international calls originated and terminated within/outside Pakistan.
- 6.8.2 Once the Competition Rules are applied to relevant markets, operator specific fixed and mobile termination rates will be determined for those operators with SMP in a relevant fixed or mobile market. A clear and open schedule of charges should be first encouraged and subsequently overseen by the PTA to ensure that they are in keeping with a fair and competitive market.
- 6.8.3 For licensees designated as SMP in the relevant market, the schedule of charges and the standard termination charge will be determined using a cost orientation appropriate to pricing in a wholesale market. PTA will therefore propose, implement and maintain a Forward Looking Long Run Incremental Cost regime for interconnection and apply it to licensees that have SMP in the relevant market.
- 6.8.4 Termination rates and schedules of charges will be reviewed every three years or earlier if the market conditions so require. Costs will take account of documented plans for infrastructure and service roll out that have been formally approved by the licensee concerned. If such plans change materially over the period during which the termination rate and other charges apply, the termination rate and other charges shall be re-determined. The use of such forward looking termination rates is intended to promote the roll out of networks.
- 6.8.5 Operators that are not subject to SMP in the relevant market may use commercially agreed termination rates. All licensees shall inform PTA of applicable termination rates and any changes to those rates. PTA shall arbitrate between the parties if in PTA's opinion, it is unlikely that an agreement on termination rates will be reached.



- 6.8.6 Interconnection obligations on individual operators specified in preceding paragraphs will be subject to any action taken as a consequence of the application of the Competition Rules in relevant markets.

6.9 Peering and exchange points

- 6.9.1 Internet and other traffic will be exchanged within Pakistan using local peering or exchange points as far as it is possible to do so, recognising that the use of international peering points in other countries imposes an unnecessary cost burden and a potential security risk. The exchange of IP traffic within Pakistan is necessary to promote a content and Internet services sector in Pakistan. The provision of such peering or exchange points is a proper role of a Long Distance and International (LDI) operator. Such an exchange may also concentrate international traffic for the LDI.

6.10 Satellite based broadband services

- 6.10.1 Satellite broadband services may be provided using VSAT technology under an appropriate class licence (See Section 14). Satellite broadband services may be provided by DTH operators provided they have local loop, LDI or an appropriate telecommunications class licence subject to limitations of the DTH license issued to them by PEMRA.

6.11 International telecommunications

6.11.1 ICH

- 6.11.1.1 The Policy Directive for establishment of the International Clearing House Exchange for International Incoming Calls, dated 13th August 2012 issued vide MoIT letter No 9-1/2002-DT is withdrawn.
- 6.11.1.2 LDI licensees may enter into agreements with international carriers and other national carriers for originating and terminating switched voice traffic.

6.11.2 Cross border links

- 6.11.2.1 LDI licensees shall be eligible for establishing communications links with neighbouring countries of Pakistan. Such links may be established using fixed wireline, terrestrial wireless or satellite technologies subject to approval by PTA and as necessary by relevant authorities in the neighbouring country, based on the following criteria:
- a) Any bilateral links shall be terminated at a legally established gateway in Pakistan.
 - b) Prior approval shall be obtained for any spectrum used from FAB in Pakistan and the relevant regulatory authority of the neighbouring state;
 - c) The ITU prescribed regime shall be used for cross border interference protection in relation to any wireless communication to prevent interference on both sides of the border by FAB;
 - d) Prior approval shall be obtained of landing rights for any proposed use of satellite communication from relevant authorities in Pakistan and the neighbouring state.
 - e) If on the onward route, the communications link is to be part of any international cable system, the details and legal arrangements of such



participation will be made available to the PTA by the applicant. In such a case, a clear roadmap for establishing connectivity with a credible International Partner Consortium at a well-established Point of Presence at the far end shall be provided.

- f) All security related requirements (e.g. LI compliance) as specified by the PTA in consultation with the Security agencies shall be complied with.
- g) LI facilities shall be installed on the cross border link and maintained by the licensee.
- h) A No Objection Certificate from Security Agencies before commencement of telecommunications network operations shall be obtained.

6.11.2.2 The PTA shall provide a process for approving cross border fixed wireline link requests by the already established committee comprising the Chairman of the PTA, and a representative from each of the following: Ministry of the Interior, Cabinet Division, Ministry of IT, and Security Agencies. The approval or denial of a request for a cross border link shall be granted in a timely manner ensuring that in any case it may not exceed six weeks. For terrestrial microwave or satellite links, the approval of FAB obtained vide section 6.9.1.1(b) will suffice since approvals of all concerned departments including the security agencies would have been obtained.

6.11.2.3 In case of change of ownership of a licensee that operates bilateral links, prior clearance from PTA shall be required, and where ownership includes foreign nationals, clearance should be provided in consultation with the Security Agencies.

6.11.3 Long distance carriers will be allowed to enter into international transit agreements with operators from other countries subject to agreement by PTA on a case by case basis and subject to Para 6.11.1.

6.11.4 Any allegations of anti-competitive pricing amongst LDIs will be investigated, and a pricing or other remedy imposed under the law by PTA. Anti-competitive pricing has occurred on previous occasions. Such pricing may recur and if it does, action is required immediately. The Telecommunications Act provides PTA with the requisite powers.

6.12 Public Wi-Fi

6.12.1 Provision of Wi-Fi wireless in-building, in-vehicle and external commercial hot spots based on IEEE802.11 standards shall be allowed. The PTA will put in place any necessary regulations, with appropriate adjustments in transmit power and hop length, to ensure that they are able to operate successfully while providing the consumer protection and other regulatory arrangements that apply to ISPs more generally.

6.12.2 Backhaul from Wi-Fi hot spots shall be provided by a fixed network operator where such services are available. Mobile operators wishing to provide public Wi-Fi services or Wi-Fi offloading to their own customers may do so under a commercial arrangement with a fixed network operator.

6.12.3 Prices and terms for backhaul from Wi-Fi hot spots shall be fair and non-discriminatory.



- 6.12.4 PTA shall review and revise as necessary power level and bandwidth specifications for Public Wi-Fi to ensure that the benefit available from Wi-Fi is maximised within the constraints of the relevant standards and possible interference effects.

6.13 Customer charter

- 6.13.1 All licensees will be required to publish a customer charter and provide standard terms and conditions for use with their customers. In addition, licensees should put in place mechanisms to prevent abuse of their systems that results in customers receiving unsolicited or fraudulent communications.
- 6.13.2 All licensees will provide coverage and pricing information to customers in an easily accessible and understood form.

6.14 Corporate networks

- 6.14.1 Corporate entities that wish to establish intra-corporate networks will continue to be facilitated. Licensees shall be required to provide infrastructure and services for such networks at competitive prices. Corporate networks shall be permitted to connect to a licensee's public network in one or more places for the purpose of origination and termination of traffic. However, a corporate entity may not engage in any commercial activity that enables transit of voice or data across a corporate network between such points of interconnection.



7. BROADBAND SERVICES

Widespread availability of affordable broadband services provided over fixed or mobile networks with characteristics that support contemporary and new digital applications and content.

- 7.1 Next generation broadband networks, delivering end user narrowband and broadband services over an IP network are expected to become the predominant technology during the policy period without any specific Federal Government intervention except in underserved and unserved areas. Nevertheless, this Policy contains many actions that are intended to support the goals of universal availability and increasing affordability.
- 7.2 Specific actions that are intended to support the goal comprise:
- a) Initiatives to facilitate and promote fibre and wireless network roll out including:
 - (i) Fast track processes for rights of way (Para 8.1)
 - (ii) Building codes (Para 8.2)
 - (iii) Use of utility infrastructure (Para 8.3)
 - (iv) Infrastructure sharing (8.5)
 - (v) Development of standards for fibre deployment (Para 8.7.1)
 - (vi) Development of a fibre roll out plan agreed with the sector (Para 8.7.2)
 - (vii) The introduction of wholesale fibre services (Para 8.7.3)
 - (viii) The inclusion of broadband in the set of services to be supported by the USF (Para 12.5.1);
 - (ix) The inclusion of multi-Megabit and multi-Gigabit wholesale transit and backhaul services .A presumption in favour of fibre over copper for all(Para 12.3.3);
 - b) Initiatives to ensure that spectrum is available to meet demand
 - (i) Development of a rolling spectrum strategy (Para 9.3)
 - (ii) Release of spectrum in a timely manner (Para 9.4)
 - (iii) Spectrum refarming (Paras 9.5 to 9.7)
 - (iv) Provision of spectrum for high speed digital microwave transmission
 - (v) Establishment of a light touch regulatory regime for E-Band (Para 9.9)
 - c) Initiatives to ensure suitable backhaul arrangements
 - (i) Net neutrality related rights and obligations of operators (Para 6.5);
 - (ii) Peering in Pakistan (Para 6.8), which encourages the development of colocation and cacheing services, improves access to national online services, and enables competition, diversity of routing and load sharing on international capacity;
 - (iii) Renewal of the obligations on LDIs to meet the conditions of their licences (Para 6.10);
 - d) Promotion of competition in retail broadband services:
 - (i) The introduction of a Competition Rules
 - (ii) The continued obligations on PTCL to provide access to last mile infrastructure, to provide bitstream services and to provide backhaul services (Para 6.6)
 - e) The development of regulatory instruments for VoIP (Para 6.3);
 - f) Amendments to the provision of Wi-Fi hot spots (Para 6.12);
 - g) Development of a broadband quality of service regime (Para 10.3);
 - h) Facilitation of the content sector and development of content (Paras 15.5).
 - i) Mobile operators shall be able to use femto and pico cells to extend their network coverage or improve quality of service as an integral part of their mobile network.



Access via such cells shall be provided to subscribers that ordinarily have access to the mobile operator's network.



8. TELECOMMUNICATIONS INFRASTRUCTURE

Physical infrastructure and rights of way required for the roll out of telecommunications networks that are readily available and accessible through clear processes.

8.1 Rights of way

8.1.1 Fast track processes associated with the provision of rights of way including space on land and on or in buildings for the installation of telecommunications infrastructure will be introduced. These should cover both areas that are already developed, for example where a road, footpath and railway infrastructure has been installed, and those to be developed or redeveloped, where an infrastructure has yet to be installed. MoIT will liaise with other Ministries, municipalities, local authorities, and agencies that have rights of way oversight, including those responsible for electrical power, gas and water transmission and distribution, and sewage to determine the requirement for a common approach to the provision and coordination of all rights of way. Depending on the outcome of such consultation, the MoIT in consultation with PTA will develop a new framework. PTA, as per the Law, will have the responsibility to implement this framework.

8.1.2 The framework will include, but will not be limited to:

- a) Standard processes for granting rights of way
- b) Arbitration processes.
- c) Responsibilities for granting rights of way.
- d) An outside plant code for roads and footpaths to ensure ducts and access points.
- e) Formulae for reasonably pricing rights of way as required by the Act.

8.1.3 The new framework will be completed by the end of Financial Year 2014/15.

8.2 Outside plant code

8.2.1 A code for local authorities will be developed to ensure that ducts and associated access points are provided in new roads, footpaths and railway tracks, and those that are being rebuilt. PTA will work with the appropriate authorities for roads to develop a code for the construction of telecommunications ducts to be included in the specification for any road or railway construction or rebuilding programme. The code will provide a specification for ducts to carry telecommunications cabling including any necessary related power cabling and voids or spaces to be provided at critical points for the provision of buried or surface mounted equipment chambers. This code will be required, also, to determine the terms on which ducts and voids/spaces are provided to telecommunications licence holders, taking account of the need to stimulate and facilitate the provision of telecommunications infrastructure. The tariff for the use of such infrastructure shall be determined in manner equivalent to that for rights of way. The building costs for ducts, spaces and voids shall be included in the budget for the road, footpath or railway track, and shall be borne by the budget holder.

8.2.2 The code shall be implemented by the appropriate authorities.



8.3 In-building cabling

- 8.3.1 PTA shall review standards for in-building telecommunications cabling and identify standards to be used in new and re-furnished buildings. PTA shall work with the stakeholders in the telecommunications sector, the building industry, architects, and cable installers to disseminate such standards.

8.4 Use of utility infrastructure

- 8.4.1 The use of electricity networks and water, gas and other pipelines to provide rights of way and in some cases infrastructure for telecommunications will be promoted by ensuring the legality of such use and the preparation of guidelines for their use and pricing. Economic pricing for the use of such infrastructure as a right of way for telecommunications infrastructure shall be applied. Federal Government will consult with owners of utility infrastructure over specific proposals for an economic pricing methodology and implement a policy directive for the calculation of the cost of rights of way.

8.5 Infrastructure sharing

- 8.5.1 To implement cost savings in the telecoms industry and to mitigate the delays incurred in procuring rights of way for new infrastructure, reducing environmental clutter, sharing of passive and active infrastructure should be considered before granting a new right of way or space to build towers or for other infrastructure. All licensees with significant market power in a relevant market are obliged to share infrastructure on fair and non-discriminatory terms where practical. To this end, the PTA will develop the necessary regulations or amendments to licence conditions, codes of conduct and model contracts, and arbitrate between licensees in disputes over infrastructure sharing. Infrastructure sharing obligations encompass a requirement to lease facilities on a fair and non-discriminatory basis, to other licensed service providers. The facilities provided include space, electrical power, air conditioning, security, cable ducts, space on antenna, towers, etc.
- 8.5.2 Infrastructure sharing (passive and active) shall be provided based on the regulations and guidelines established by PTA, in consultation with MoIT, on the principles of neutrality, non-discrimination, and equal access. The guidelines should take account of established best practices.

8.6 National roaming

- 8.6.1 In the interest of quick rollout of services for consumers and to achieve the objectives related to provision of universal service for different classes of service, national roaming will be encouraged in accordance with mobile licence terms. Mobile licensees will be encouraged to offer nationwide service as expeditiously as possible at mutually acceptable terms.
- 8.6.2 Licensees that are designated as SMP in a relevant market under the Competition Rules shall be required to introduce national roaming on a fair and non-discriminatory basis.

8.7 Use of fibre

- 8.7.1 The preferred medium for wireline access will be fibre, to enable the carriage of broadband. The PTA will work with licensees to determine suitable standards and/or incentives to spur commercial fibre deployment.



- 8.7.2 PTA will put in place the regulatory framework for the provision of wholesale fibre services on a fair and non-discriminatory basis as required in a licence or on designation of SMP in a relevant market under the Competition Rules.
- 8.7.3 Migration from copper to fibre in existing access networks will be encouraged. The PTA will consult with the sector on the cost and optimal timing of such a roll out to meet increasing requirements for speed, and will present the findings in the form of a roll out plan for the nation covering the policy period. In the first instance, this plan should consider broad area types and specify a roll out plan for each such type.

8.8 Telecommunications and National Disaster Management

- 8.8.1 A National Disaster Telecommunications Plan for the provision and use of telecommunications services before, during and after a national disaster will be defined. The National Plan will specify:
- a) The services to be provided during each phase of a disaster within the area covered by the disaster and in other areas in terms of the availability of a specified set of services to specified closed user groups and to the general public.
 - b) A catalogue of critical telecommunications elements to be available at times of emergency.
 - c) Network redundancy requirements taking account of the possibility that a national disaster may damage the available telecommunications networks themselves.
 - d) The processes to be followed in a national disaster to liaise with licensees about the reconfiguration of their networks and services to provide the specified services and for returning networks and services to their commercial state. Related internal processes are for individual licensees to develop.
 - e) The processes to be followed for the urgent replacement of critical infrastructure including obligations on suppliers of such infrastructure.
 - f) Audit and testing processes for the Plan.
- 8.8.2 With respect to the Plan:
- a) MoIT will assess the Federal Government and the Provincial Governments' requirements for critical telecommunications infrastructure and services.
 - b) The PTA will develop the Plan in conjunction with the National Disaster Management Authority (NDMA) and in consultation licensees.
- 8.8.3 The PTA, in conjunction with the NDMA and in consultation with licensees, will develop regulations, and licensees will adopt regulations that apply when a regional or national emergency has been declared by Federal Government or a Provincial Government in the legally required manner to promulgate the Plan.
- 8.8.4 Having promulgated the necessary regulations and periodically thereafter, PTA will require licensees to audit and test their individual national disaster plans and processes.
- 8.8.5 PTA in conjunction with NDMA may periodically require licensees to participate in national exercises to test overall disaster management processes and plans.



8.9 Alternative power sources

- 8.9.1 MoIT, working with PTA, telecommunications licensees and other Ministries, will evaluate the feasibility of using alternative power sources. PTA shall accordingly mandate a roadmap for conversion to alternative power sources to which licensees will comply.



9. SPECTRUM

Allocation and assignment of spectrum to maximize the social and economic benefits that can be derived from the use of this scarce resource.

9.1 Background

9.1.1 Balancing competing needs against the finite availability of spectrum to obtain the most efficient use of spectrum will be key to achieving the economic growth potential of the ICT and digital media sectors.

9.1.2 Recognising that spectrum is a valuable public resource belonging to the State and must be used in the public interest, the overriding spectrum policy goals are to:

- Promote stability and transparency;
- Use spectrum in an efficient and flexible manner;
- Maximise social and economic benefits;
- Support the emergence of future telecommunications services.

9.2 Spectrum harmonization

9.2.1 Whilst Spectrum allocation will continue to be, in principle, technology neutral, it will also continue to be harmonized with ITU radio regulations, guidelines, resolutions and recommendations except where national interests warrant a different determination. Pakistan shall remain within the ITU Region 3. The process of allocating frequencies to services and the regulatory framework is largely determined by external factors such as public policy, legislation and international agreements or regulations. Pakistan will play an active role in international fora, through engagement by relevant government departments, to ensure that as far as possible the international allocation and regulatory framework accommodates Pakistan's specific requirements. It is further required that Pakistan participates in international technical studies to support more efficient and flexible use of spectrum. A structured and output based process led by MoIT as the entity representing Pakistan on international fora with participation of the PTA, FAB and other stakeholders including the industry, will be introduced to this effect and appropriate human resources will be allocated for the purpose.

9.3 Spectrum strategy

9.3.1 MoIT, on recommendations of FAB and PTA, will prepare and publish a rolling spectrum strategy to be published every year () that provides a programme for the succeeding three years from the date of publication. The Spectrum Strategy shall identify:

- For the succeeding period:
 - Plan for existing spectrum allocation audit and re-allocation
 - New spectrum bands to be made available
 - Consequential requirements for spectrum re-farming
 - Spectrum to be auctioned, with an indication of approximate timescales
 - Spectrum to be subject to Administrative Incentive Pricing (AIP)
 - Spectrum to be subject to spectrum trading and/or other market mechanisms
- Anticipated longer term developments such as longer term changes in spectrum allocation and availability for use.



- 9.3.2 While stability is important, the strategy must adapt to the changing needs of the telecommunications sector. Therefore, PTA and FAB shall continuously review the environment and spectrum needs, and in consultation with stakeholders update the spectrum strategy to ensure it remains relevant to evolving demands. PTA and FAB shall conduct a review of the spectrum strategy prior to publication by MoIT of the update.

9.4 Release of spectrum

- 9.4.1 Spectrum will be released in a timely manner to meet the requirements of new services and to ensure capacity requirements of existing services are met. This is essential to avoid any constraint on usage or degradation of quality of service arising from lack of spectrum. Regulators, PTA and PEMRA, will take account of the recognised link between economic growth and penetration of services when deciding on spectrum to be released and the timing of release. Regulators will take account of the requirement for universal service coverage, arising from education and health, provision of government services and other social and business uses in releasing spectrum. Regulators will take into account the value of spectrum to the economy as well as to the exchequer in determining the details of the mechanism used for valuing and selling spectrum.

9.5 Spectrum refarming

- 9.5.1 Spectrum will be re-farmed where current use is not in the best social and economic interests of Pakistan, where spectrum is underutilised, used inefficiently, or its use is inconsistent with international allocations. This will ensure the reassignment of frequencies to uses with greater social and commercial benefits than are attainable from the prevailing assignment of those frequencies. Spectrum to be re-farmed will be identified in the rolling spectrum strategy.
- 9.5.2 FAB/PTA/PEMRA, in consultation with MoIT, will formulate a framework for spectrum re-farming. The framework will be approved by the Federal Government. The re-farming framework will be a combination of administrative, financial and technical measures aimed at removing incumbent users and hence their equipment from their spectrum assignments in a particular band either partially or completely so that the band may be allocated to other uses.
- 9.5.3 The incumbent users, who are required to vacate spectrum identified for refarming, may receive compensation for the disruption to their wireless communications operations caused by relocating to new spectrum. FAB shall assist these spectrum users throughout their transition to a new spectrum band. Compensation will cover the cost of new equipment and other costs associated with the relocation to new spectrum. Funds for compensation shall be raised from fees collected from the issue of the licences that incorporate spectrum assignments in the re-farmed band. Compensation shall in all cases be less than the fees raised from the re-sale of spectrum under new assignments.
- 9.5.4 In deciding on spectrum to be refarmed, FAB shall:
- a) Estimate the compensation cost of refarming;
 - b) Estimate the value of the refarmed spectrum using the valuation method to be adopted;
 - c) Refarm the spectrum only if a significant value can be released by refarming
- 9.5.5 On refarming, compensation costs will be recovered from the licence fees paid through the regulatory authority that collects the fees.
- 9.5.6 Re-farming includes but is not limited to the bands associated with the uses in Section 9.6



9.6 Analogue UHF TV spectrum and MMDS spectrum

9.6.1 The use of digital technologies has dramatically changed the way in which broadcast and telecommunications services are delivered to and accessed by users. During the Policy period, FAB will determine the degree to which spectrum allocated to analogue UHF TV services may be reallocated either wholly or in part to telecommunications services, in order to achieve a digital dividend and to accelerate provision of broadband services to rural communities which is enabled by better coverage characteristics of this spectrum. Erstwhile MMDS spectrum may also be reallocated either wholly or in part to telecommunications services to achieve international best practice and to maximise the benefit of the spectrum.

9.7 Un-used fixed wireless access (WLL) spectrum

9.7.1 Some spectrum remains unused in bands allocated to fixed wireless access. This spectrum shall be re-farmed for mobile use following consultation with stakeholders and taking account of the licensees' rights and obligations.

9.8 Spectrum assignment

9.8.1 Spectrum will be assigned in a manner that recognises the value of the spectrum to the prospective licensee and to the economy as a whole, and in a manner that is consistent with the Spectrum Strategy. Where spectrum is licensed, a fee will be charged based on the most appropriate of the following methods:

- a) Auctions, the preferred method of assigning access rights to blocks of spectrum for dedicated use. To the extent possible these will be technology neutral and include coverage and quality of service obligations in the licence to maximise the public benefit. Where a band is to be shared between users and / or applications, blocks of spectrum will be created that reflect these joint uses.
- b) Administrative Incentive Pricing (AIP), reflects the opportunity cost of spectrum to encourage efficient use of spectrum and shall be introduced for congested spectrum that has not been subject to an auction, for example microwave spectrum. AIP improves the efficient use of spectrum by setting the price for spectrum at a level that encourages the user to consider alternatives and encourage spectrum use to move to the highest value application.
- c) Administrative Cost Recovery (ACR) shall be adopted where auctions and AIP are inappropriate, for example in aeronautical, maritime and amateur radio bands. The fee shall be set to reflect the costs incurred in administering spectrum in the band from which frequency is to be assigned. This approach shall be applied to spectrum that is not congested and where the risk of interference is low.

9.8.2 The Annual Spectrum Administrative Fee (ASAF) shall continue. The ASAF shall not be charged on spectrum assignments subject to ACR. The ASAF will be taken into account in determining any AIP price.

9.8.3 Any method of assigning and pricing spectrum used shall:

- Be fair, transparent and non-discriminatory;
- Encourage fair competition where appropriate;
- Establish a fee which is economically justified when balanced with the investment
- Take account of any roll-out obligations specified;
- Be simple to execute;
- Discourage collusion and predatory behaviour.



- 9.8.4 These methods will apply to all assignments, including those for broadcast, telecommunications and for any other use of spectrum since to do otherwise would be to discriminate between prospective spectrum users. Therefore, there should be no difference in the criteria used on the basis of the use to which the spectrum is to be put.

9.9 Spectrum for digital microwave communication

- 9.9.1 Spectrum will be allocated for high speed digital microwave communication to provide cost effective backhaul services for mobile broadband services. The roll out of 4G+ mobile technology is, in the absence of fibre, likely to create a bottleneck in backhaul. Federal Government requires that before this bottleneck arises, spectrum is allocated and assigned to licensees using Administrative Incentive Pricing to determine the price paid and to ensure responsibility in spectrum use for the purpose.

9.10 E-Band (71 – 76 and 81 – 86 GHz)

- 9.10.1 Assignments in E-Band will be made on link by link basis. The principle of first come first serve basis will apply. Applicants will apply to PTA for approval. FAB will manage the database of the approved links on public domain. New applicants will apply for assignments taking account of the existing assignments and protecting the earlier assignments. FAB will arbitrate where cases of interference are identified. The band plan approved by FAB, based on ITU Recommendations and best international practices, will be followed for making assignments.
- 9.10.2 Applicants will be required to establish and commence operation within three months of the approval of the link. In case of non-utilization, the approval will stand cancelled and database will be updated accordingly.

9.11 Continuing spectrum rights and obligations

- 9.11.1 LDI licensees will continue to 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 to PTA.
- 9.11.2 LL licensees will continue to be entitled to radio spectrum for WLL systems, and also spectrum for point-to-point links, within the parameters of their licenses, on payment of spectrum charges as specified in this policy.
- 9.11.3 LL and LDI licensees that receive spectrum shall continue to be required to meet defined usage milestones, failing which they must relinquish their rights to use the assigned spectrum.

9.12 Relinquished spectrum rights

- 9.12.1 Licensees will relinquish rights to spectrum that is no longer needed for their operations. Un-used assigned spectrum shall be withdrawn if a licensee fails to begin operations within eighteen months of award.

9.13 Licence renewal where the licence includes spectrum assignments

- 9.13.1 Spectrum that was originally assigned through an auction may be re-auctioned subject to licence conditions or as deemed appropriate at the time by Federal Government.



9.13.2 Other spectrum shall be priced in accordance with the applicable spectrum pricing method specified in Section 9.8.

9.13.3 Where separate payments for microwave and mobile spectrum are introduced subsequent to the initial assignment of mobile spectrum, the mobile spectrum fees shall be determined through auction whereas the microwave spectrum fees shall be determined in accordance with the applicable method for microwave spectrum.

9.14 Introduction of AIP for microwave spectrum assignments

9.14.1 AIP will be introduced for microwave spectrum assignments. In the past microwave spectrum for backhauling purposes was assigned to operators in line with Federal Government policies based on the market conditions prevailing at that time. It has been observed that operators' are requesting additional spectrum for backhaul transmission instead of utilizing alternate means or utilizing their existing assignments more efficiently. There is a need to introduce an appropriate charging mechanism for the microwave spectrum assignments in order to ensure efficient and economical use of the scarce resource as per best international practices.

9.14.2 Therefore the PTA will establish a regulatory framework for the introduction of AIP for microwave spectrum for new and existing assignments. Practice hitherto has been to bundle microwave spectrum used for backhaul from base stations with spectrum for fixed and mobile access in a single licence fee payment. The introduction of AIP will require payments for microwave spectrum to be made separately. This unbundling of the fee structure will improve the efficiency with which licensees use microwave spectrum. It is not intended to increase the fees paid overall by licensees for spectrum already acquired. Hence, the framework for the introduction of AIP for microwave spectrum will:

- a) Estimate the value of microwave spectrum on an AIP basis taking account of other means, including fibre, of providing backhaul.
- b) Allow for a phased introduction of AIP that recognises that licensees will need time to review and revise their use of microwave spectrum, and implement alternative methods of providing backhaul, and recognises also the investment that has been made in microwave equipment.
- c) Encourage the implementation of alternative methods of providing backhaul and increased efficiency in the use of microwave spectrum.
- d) Enable operators that keep up with the phased introduction of AIP not to increase the overall cost of backhaul.

9.15 Unlicensed access

9.15.1 Unlicensed access will be continued for licence-exempt spectrum. This ensures fair competition, protects consumer interests, and provides the simplest and most effective framework for market access.

9.15.2 Licence-exempt spectrum shall be made available in line with ITU-R Radio Regulations. Devices shall be type approved and conform to international standards or those published by PTA, and access shall be on a non-interference and non-protection basis.

9.16 Test and Development Licences

9.16.1 Temporary Test and Development Licences will be established and issued as appropriate. The industry must be able to test and develop new services by the assignment of spectrum



with specific limited conditions of use for research, development testing and demonstration activities and that such licences are made available within a three months of application.

9.16.2 PTA shall prepare a framework for test and development licences including criteria for the provision of licences, licence conditions, the duration of the licences, the possibility of reissuing the licences on termination, and the draft licences themselves. PTA shall consult the sector on the framework. PTA shall then finalize the test and development framework and enable qualified organisations to acquire such licences. PTA will forward the application to FAB for allocation of suitable frequency band for any such request as per procedure in vogue.

9.17 Spectrum trading

9.17.1 The purpose of spectrum trading is to allow markets to determine the best use of spectrum.

9.17.2 Spectrum trading will be permitted under specific conditions. Spectrum trading occur through outright sale of the rights and obligations or term lease, subject to licence conditions and approval by PTA / PEMRA and FAB.

9.17.3 A spectrum trading framework will be developed by the PTA and PEMRA, and will be approved by Federal Government.

9.17.4 In relation to trading, the seller shall be expected to pay a Trading Fee, and in addition, a Processing Fee shall be levied to cover re-issuing of licenses.

9.17.5 Trading shall be a commercial decision for the licence holder, who can decide to trade if its licence permits. The terms of the trade shall be a commercial agreement between the licensee and third-parties.

9.17.6 Spectrum shall be traded only if the relevant licence, that contains the spectrum assignment to be traded, permits trading. Spectrum assigned to a licence without such a permit shall not be traded unless Federal Government specifically authorises the trade as being in the public interest under the framework specified in Section 9.17.12.

9.17.7 Nevertheless, spectrum trading shall be permitted only for spectrum that has been acquired through a pricing arrangement that represents its market value (i.e. auction or AIP). Spectrum subject to Administrative Cost Recovery or other forms of nominal pricing shall not be traded.

9.17.8 Spectrum trading rights will not be introduced into issued licences.

9.17.9 Spectrum shall not be traded by any licensee with the necessary licence conditions until the licensee has fulfilled its roll out obligations unless it also transfers its roll out obligations with the trade. In practice, this will mean that a licensee must trade its entire assignment related to a particular roll out obligation, until it has met that roll out obligation.

9.17.10 The eligibility for receiving spectrum through a trade shall be the same as the eligibility for assignment of spectrum by FAB. The acquirer of spectrum shall be required to obtain the appropriate telecommunications licence and to meet the terms of that licence.

9.17.11 The seller and acquirer shall be required to inform PTA/ PEMRA and FAB of the trade. PTA/ PEMRA and FAB shall determine whether the trade may happen taking into



account its effect on competition, national security public health and safety, compliance with the law and government policy, compliance with international obligations and compliance with international relations.

9.17.12 The decision to introduce such trading in a particular band will be subject to public consultation.

9.18 Spectrum sharing

9.18.1 Spectrum sharing will be permitted under specific conditions, fulfilment of licence obligations and approval by FAB and PTA/ PEMRA.

9.18.2 Spectrum may be shared between any licensees with the necessary licence conditions to enable the share.

9.18.3 The sharers shall be required to inform PTA/ PEMRA and FAB of the share. PTA / PEMRA in consultation with FAB shall determine whether the share is to be permitted taking into account its effect on competition, national security public health and safety, compliance with the law and government policy, compliance with international obligations and compliance with international relations.

9.18.4 Permission to share spectrum does not absolve the assigned licensee from any roll out and payment obligations that are conditions of its licence or imposed by regulation.

9.19 Mergers and acquisitions

9.19.1 On merger or acquisition of a company with spectrum assigned under its telecommunications licences, spectrum and licence rights and obligations of licences will be transferable to the merged or acquiring organisation. Where Mergers and Acquisitions are concerned, access to spectrum, and the associated licence, is a critical asset of companies that rely on wireless communications. Whether a merger or acquisition should be allowed to proceed is a competition matter which is outside the jurisdiction of spectrum management, and should not be impeded by an inability to transfer licences. Therefore, except where there are overriding technical reasons, or reasons arising out of the national interest, the spectrum rights and obligations of licences will be transferable to the merged or acquiring organisation. PTA / PEMRA are to intimate FAB of any merger/ acquisition.

9.19.2 Mergers and acquisitions will be allowed subject to Section 9.19.1 and subject to having met all licence obligations including payment and roll out obligations.



10. TELECOMMUNICATIONS LAW AND REGULATION

A legal and regulatory environment that continues the development of efficient markets and that safeguards users.

10.1 Market regulation

10.1.1 Section 6 specifies actions that are intended to support the development of efficient markets and reduce regulatory risk.

10.2 Quality of service

10.2.1 The PTA will ensure that common services are subject to minimum quality of service standards. These standards should include not only the services themselves but the marketing, customer provisioning processes, billing processes, customer support processes, payment processes and repair associated with such services.

10.2.2 PTA shall monitor customer service performance. Service monitoring shall include:

- a) Call centre performance: call waiting time including variance in call waiting time, problem resolution success rate, the mean time required to resolve problems including variance, and customer perception of customer service performance;
- b) Other problem resolution performance;
- c) Billing accuracy and billing problems, including billing problem resolution performance;
- d) Service activation performance including time taken to activate common services including variance;
- e) Service termination performance including time taken to terminate common services including variance.

10.3 Broadband quality of service

10.3.1 Broadband quality of service will be progressively improved for wholesale and for retail customers. The PTA will publish quality of service guidelines for wholesale and retail broadband services. These will include speed, latency and availability (uptime and geographic) characteristics. The guidelines will be modified on a regular basis to take account of the evolving requirements of applications and content. The PTA will monitor broadband quality of service provided by all service providers against the guidelines and will publish the results. Should performance regularly fall short of the guidelines, a quality of service regulation will be introduced by the PTA setting obligations on service providers. Expectations of performance are changing rapidly and it is not possible therefore to specify definitive and enduring values for such characteristics in a policy statement. Therefore the guidelines published by PTA shall be based on the prevailing characteristics of broadband at the time in countries with similar levels of development. The standards shall be intended to influence technology choice from the date of publication. Therefore, the PTA should include a forward looking statement of anticipated development in broadband performance requirements as well as the current performance requirement.



10.4 Affordable services

10.4.1 PTA will ensure that all licensees provide affordable services. PTA will review the appropriateness and adequacy of fixed and mobile broadband prices available from licensees on a regular basis and encourage the introduction of price packages to fill in perceived gaps. The range of broadband prices available from any operator should include an entry level option at an affordable price.

10.5 Numbering

10.5.1 Licensed service providers that offer new voice services whose subscribers may be reached via the PSTN will be provided with suitable number ranges.

10.5.2 All licensees that provide public IP networks should adopt IPv6 by 2017 to ensure appropriate availability of addresses.

10.6 Type approval and blocking of phones with duplicated identifier or that have been stolen

10.6.1 Terminal equipment will be subject to type approval based on international norms and testing by one of an approved set of laboratories.

10.6.2 Mobile terminal equipment must have a valid and unique IMEI or equivalent identifier.

10.6.3 Mobile licensees shall become members of the International Mobile Equipment Identity Database (IMEI DB, formerly the CEIR) operated by the GSMA, immediately.

10.6.4 Mobile licensees shall include countries that are the source of a large number of stolen devices to Pakistan in their IMEI DB notification profile, immediately.

10.6.5 Mobile licensees shall report stolen terminal equipment and terminal equipment with invalid identifiers to the IMEI DB, immediately.

10.6.6 Mobile licensees shall block stolen terminal equipment immediately once reported

10.6.7 Mobile licensees shall not allow the registration of new terminal equipment with invalid identifiers on their networks.

10.6.8 Mobile licensees shall identify terminal equipment with invalid identifiers and report.

10.6.9 Blocked identifiers shall not be activated.

10.7 Environmental obligations

10.7.1 The PTA will put in place an environmental regulatory framework for the sector consistent with the 2005 Environmental Policy.

10.7.2 The PTA will prepare environmental risk assessment guidelines for the telecommunications sector and publish the environmental performance of the organisations it monitors against the defined targets on its website and through other channels, as appropriate.

10.7.3 Licensees will implement the 2005 Environmental Policy, subsequent policies and consequential regulations and laws. To this end, PTA will establish, within the



environmental regulatory framework, a monitoring mechanism and monitor the performance of licensees in the following areas:

- a) Use of renewable sources of energy
- b) CO₂ emissions arising from their business activities
- c) Other forms of air pollution from for example diesel and other methods of electrical power generation arising from their business activities
- d) Management and documentation of the recycling and disposal of electronic waste, hazardous chemicals and other hazardous materials
- e) Reinstatement of the environment after civil works.

10.7.4 Licensees that do not meet defined targets will be required to make changes to their operations or financial penalties will be levied by the PTA, with funds being channelled to the USF. The PTA will publish awards for those organisations that meet a specified environmental standard.

10.7.5 The Telecommunications Act will be modified by MoIT to give PTA the additional responsibility for monitoring the environmental impact of licensees and the authority to define standards for the sector and issue orders to licensees and take other action on contravention of such standards.

10.8 Content management

10.8.1 A regulatory framework for content with consistent application across broadcasting and telecommunications will be established by MoIT working with the Ministry of Information. This framework will enable the monitoring and control of the distribution and display of blasphemous and pornographic material in conflict with the principles of Islamic way of life as reflected in the Objectives Resolution and with Article 31 of the Constitution, material viewed as leading to the exploitation or abuse of children or other vulnerable groups, and material that is considered to be a direct incitement to commit a crime of a serious nature. The regulatory framework would nevertheless guarantee the right to freedom of speech and expression under Article 19 of the Constitution. The framework would also implement any reasonable restrictions imposed by law and cover content delivered over either a broadcasting or a telecommunications network.

10.8.2 A regulatory agency, either PEMRA or PTA, or a new agency, as determined in the regulatory framework, will implement the framework. The regulatory authority should work with national and international bodies in developing and maintaining the framework since there are many organisations, such as the Internet Watch Foundation, that have built up and maintain lists of inappropriate or dangerous material that Pakistan may use directly.

10.8.3 Government recognizes that telecommunications operators and service providers: LL, WLL, mobile licensees, class licensees, cable landing stations, etc, carry content which is outside their control; such content is under the control of third parties and subscribers that wish to access the content. As such they are acting as intermediaries when they do not originate the content. Government will not require intermediaries to identify content to be filtered or blocked.

10.8.4 Telecommunications operators and service providers: LL, WLL, mobile licensees, class licensees, cable landing stations, etc as appropriate, will nevertheless implement and maintain a content filtering regime specified by the regulatory authority and will filter or block as appropriate content specified by that regulatory authority. Within the context of a



content framework, the possibility of implementing a content filtering regime for Pakistan will be explored with international providers of content.

10.8.5 Traffic filtering and blocking will be proportionate. Traffic from a source that is subject to filtering and blocking shall be filtered or blocked only if it falls within the guidelines for filtering and blocking. Any traffic from such a source that does not fall within the guidelines shall be allowed.

10.8.6 The relevant regulator will provide a telephone and website notification mechanism for traffic filtering and blocking.

10.8.7 Until this new body is established, the Inter-Ministerial Committee already constituted for evaluation of websites will continue its mandated work as per its Terms of Reference.

10.9 Amended law and regulation

10.9.1 In order to realise this Policy, all necessary changes to the Acts, Ordinances and Rules should be carried out. The relevant documents include:

- The Pakistan Telecommunications (Reorganization) Act - 1996 as amended to 2006;
- The Pakistan Electronic Media Regulatory Authority Ordinance 2002 as amended by the Pakistan Electronic Media Regulatory Authority (Amendment) Act, 2007 (Act No.II of 2007);
- The Telecommunications Rules (S.R.O. 847 (I)/2000).

10.9.2 In addition, the PTA and other regulatory bodies will carry out necessary changes to regulations and other subsidiary instruments necessary to enable the policy.

10.10 Continuing policies and rules

10.10.1 The following Policy Directives shall continue to apply:

- Policy Directive under Section 8 of Pakistan Telecommunications (Re-organisation) Act, 1996 regarding closure of telecom services due to national security concerns.
- Guidelines for Mitigating Environmental and Health Related Effects of the Cellular Base Station Antennas.
- Policy on Jammer and Disabler Devices for Blocking Cellular Communications and Related Services.
- Policy Directive for Mobile Subscriber Documentation and Antecedent Verification.
- Policy Guidelines on Mobile Network Operators and Mobile Virtual Network Operators.
- Policy to Support Technical Implementation of Mobile Banking including Mobile Money Transfers and Remittances.

10.11 Role of the PTA

10.11.1 The PTA will undertake its roles as defined in the Telecommunications Act in a proactive manner and to act accordingly to implement this Policy in areas where Policy has been specified and to adhere to the generally stated principles within this Policy where specific Policy measures have not been specified.



MoIT in collaboration with PTA & FAB will devise a framework for sector contribution to standards development organizations (SDOs) including but not limited to 3GPP, IEEE-SA and IETF.



11. USE OF TELECOMMUNICATION SERVICES

Progressive increase in penetration and use of telecommunications services of all kinds and of applications that enhance social and economic development.

- 11.1 This policy contains the following measures in the support of this goal.
- a) To increase service availability
 - i. Public Wi-Fi (Para 6.12)
 - ii. Extension of service availability in unserved and underserved areas (Section 12)
 - b) To maintain low prices by maintaining an efficient telecommunications market
 - i. Introduction of a Competition Rules
 - ii. Continuation of obligations to provide wholesale services that reduce costs for operators that do not have infrastructure at particular locations (Para 6.6)
 - iii. Maintenance of a peering and interconnection regime (Para 6.8)
 - iv. A requirement on PTA to ensure affordable services are available (Para 10.4)
 - c) To provide community access particularly for those who cannot afford personal access to telecommunications services (Para 12.1.1)
 - d) To provide schools, hospitals and health centres with access to broadband telecommunications services. (Section 12)
 - e) To increase literacy and numeracy in the longer term through online education services, countering this inhibitor to the take up of telecommunications services. (Section 12, Para 13.2)
 - f) To increase eLiteracy (Section 12, Para 13.2)
 - g) To provide applications and content in major languages as well as English (Para 15.4)
 - h) To fund development of applications that will increase the value of telecommunications services (Para 13.2)
 - i) To increase the range and quality of service and hence promote an increase in service attractiveness.
 - i. Enablement of new over the top services (Para 6.3)
 - ii. Measures associated with net neutrality (Para 6.5)
 - iii. Introduction of customer charters (Para 6.13)
 - iv. Increase in quality of service, and specifically broadband quality of service (Paras 10.2 and 10.3)



12. UNIVERSAL SERVICE

Available and affordable telephony and broadband services covering 80% of the population.
Universal broadband access for education, health, agriculture, and ecommerce in underserved and unserved areas.

12.1 USF focus

12.1.1 The established USF policy will continue, funded at its present level, and will focus on:

- a) Making available affordable voice telephony and broadband data services in unserved and under-served populated areas so as to meet an overall goal of providing services to 95% of the population.
- b) Community Broadband Services that provide telephony and broadband access to the Internet in general, and government services in particular.
- c) Broadband access to education, health, and other institutions in USF Contract Areas sufficient to meet the need of the user community within the institution.

12.1.2 The USF shall not cover areas that are or will be covered by roll out obligations on particular licensees.

12.2 USF funding

12.2.1 Contributions for the USF will be collected from a percentage of licensed operators' revenues (the USF Contribution), and may be collected from other sources, as specified in the Telecommunications Act and USF Rules made thereunder.

12.2.2 The USF Contribution will not exceed 1.5% of a licensee's gross revenue minus inter-operator payments and PTA/FAB mandated payments.

12.3 Use of the USF

12.3.1 Funds will be provided for the capital and operating costs associated with the provision of services in a Contract Area for a specified, limited start-up period during which the USF Contractor implements its infrastructure and grows its customer base and provides the USF Services. Funding beyond that period shall not be available, since the contractor is assumed to have factored in the risk of failure when constructing its offer.

12.3.2 The USF will also be used to fund the development and delivery of services, infrastructure or other related items, through the Special Projects mechanism.

12.3.3 There should be a presumption in favour of the use of fibre over microwave in backhaul and fibre over copper in wireline access to meet growing fixed and mobile broadband requirements.

12.3.4 The USF Company shall consider the use of re-farmed spectrum previously allocated to analogue UHF TV or allocated to MMDS (See Para 9.6) as well as other available and applicable spectrum for roll out of fixed or mobile broadband services in rural areas, and plan accordingly.



12.4 Eligibility for applying for USF contracts

- 12.4.1 All licensed operators that contribute to USF shall be eligible to apply for all Universal Service Fund contracts, including Special Projects.
- 12.4.2 No restrictions shall be placed on eligibility arising from success in earlier auctions. Competition issues that may arise shall be resolved using the Competition Rules introduced in this Policy .
- 12.4.3 Consortia are allowed to bid for USF contracts, provided the specified requirements are met.

12.5 The USF Services

- 12.5.1 The USF Services shall include:
- a) Telephone services to local, national, mobile, freephone, premium rate, and international numbers, including facilities for incoming calls from all sources, accessed from public access points as well as private lines;
 - b) Access to emergency services (as under voice licences);
 - c) Broadband Internet access services for individual subscribers in underserved and unserved areas;
 - d) E-mail and other related services;
 - e) Telecentres, including the equipment, buildings and other capital associated with the telecentre itself;
 - f) Broadband Internet access service to support multiple terminals at telecentres at speeds consistent with the size of the concurrent user base
 - g) Narrowband and broadband wireline access services to specified institutions to include educational establishments and health care establishments, courts and government offices with suitable capacity for the size and characteristics of the user base. These institutions should be provided with fibre access as a matter of course.
- 12.5.2 The USF Services shall include the following wholesale services to be offered after the start of the supply of the Supported Services according to a timetable specified and approved by the USF Board.
- a) Multi-Megabit and multi-Gigabit fibre based transit, and backhaul services within the USF Contract Area;
 - b) Wholesale narrowband and broadband wireline access services (e.g. Local loop unbundling, wholesale line rental, bitstream over copper or fibre) and shared narrowband and broadband wireless access;
 - c) Wholesale narrowband and broadband wireline access services for organisations provided over fibre to the premises.
- 12.5.3 The purpose of requiring the provision of wholesale services is to ensure that all licensees that contribute to the USF may also benefit from the extension of coverage that it provides.
- 12.5.4 These wholesale services shall be provided in a fair and non-discriminatory manner consistent with the Competition Rules.



- 12.5.5 PTA shall set the wholesale tariffs that shall be applied to the Wholesale Services in the USF Contract Area in order to ensure that operators that provide retail services may make a reasonable profit. These wholesale tariffs would ordinarily be set at levels prevalent in the remaining areas of Pakistan.
- 12.5.6 Any operator that provides services in a USF Contract Area shall be required to do so under the tariff plan that it applies anywhere in Pakistan.
- 12.5.7 Any operator that provides services in a USF Contract Area shall be required to provide services to the same overall quality as is available elsewhere in Pakistan. This quality obligation includes telecommunications services, customer services and billing services.
- 12.5.8 The Competition Rules shall apply to Contract Areas. Under these Rules, a separate geographic market may be defined for a Contract Area if conditions in the Contract Area are sufficiently different from conditions elsewhere in Pakistan.

12.6 Rolling programme

- 12.6.1 The USF Company will maintain a rolling programme of USF projects. The programme will provide a prioritised list of projects in areas that require USF intervention (Contract Areas) and the anticipated dates when the Contract Areas will be tendered. The programme will be published annually and will cover the three subsequent years starting on or shortly after the date of publication. In this way, the sector will be able to anticipate tendering opportunities and will be given at least two years' visibility of the USF programme. Each annual update will extend the rolling programme by a year, and specify any updates to the programme for the overlapping period.
- 12.6.2 The USF Company will implement the rolling programme following a consultation.

12.7 USF Contract Area

- 12.7.1 A USF Contract Area should ordinarily have the following characteristics:
- a) It is currently an unserved or underserved populated area;
 - b) It is suffering Market Failure associated with the supply of telecommunications services and this Market Failure is likely to endure;
 - c) It is not within the roll out obligation of any licensee.
- 12.7.2 The USF Company shall maintain a list of such areas and, accordingly, order them in the rolling programme for subsequent tendering in a transparent and reasonable manner.

12.8 Market Failure

- 12.8.1 An area of the country that is experiencing Market Failure is one where a hypothetical telecommunications operator which is extending its footprint in order to provide the USF Services is unable to make a normal profit over a typical planning period, assuming reasonable projections of demand, incremental costs of extending the business, no common costs, and typical sector values for cost of capital and discount rate.
- 12.8.2 The estimate of the loss made by the hypothetical operator can be used in the determination of any maximum subsidy to be offered.



12.9 Services to be facilitated by the USF

12.9.1 USF contractors shall also facilitate and provide access to services and applications such as:

- eGovernment
- eCommerce
- eHealth
- eLearning
- Other ICT services (based on Government IT Policy).

12.10 Community broadband services

12.10.1 USF contractors will provide community broadband services in areas with low income to enable access to telecommunications and over the top services, including eGovernment services and applications that serve developmental needs, without the need to purchase handsets or other devices. This will ensure access to applications and services developed under this policy as well as similar applications that may be available from other sources.



13. NATIONAL ICT R&D FUND

An ICT sector, working within the international research and development community, that provides applications and relevant content to support Pakistan's developmental aims.

An ICT eco-system in Pakistan for the creation of valuable Intellectual Property in ICT, particularly in telecommunications, that may be exploited for the benefit of all sectors of socio-economic development.

13.1 Funding

13.1.1 The R&D Fund contribution will not exceed 0.5% of a licensee's gross revenue minus inter-operator and related PTA/FAB mandated payments to the National ICT R&D Fund established with the Ministry of Information Technology.

13.1.2 The National ICT R&D Fund will be used for:

- a) The development and deployment of applications and relevant content associated with Government developmental goals and WSIS Action Lines to be delivered over telecommunications networks (including via smartphones and tablets) and through telecentres,
- b) The development of Intellectual Property in ICT, particularly in telecommunications working in conjunction with the international research and development community.

13.1.3 The Fund will be concerned with demand driven research and development.

13.1.4 The Fund will at all times take into consideration that the eco-system, applications and content being developed will also be equally relevant for many other developing countries. Therefore, the Fund shall coordinate with other organizations such as PSEB to fully promote and export applications, contents and 7P.

13.2 Applications associated with Government developmental goals and WSIS Capacity Building Action Lines

13.2.1 Applications associated with Government goals and WSIS Action Lines include:

- a) Literacy and numeracy in particular and education, more generally, for both children and adults including applications for students and teachers and for such organizations as SMEDA;
- b) eLiteracy;
- c) Enablers of confidence and security associated with ICT use;
- d) Health information, access to health services, monitoring and control of communicable diseases and remote diagnostic aids in coordination with provincial health services and the Ministry of National Health Services, Regulation and Coordination;
- e) Environmental protection and sustainable use of resources;
- f) Agricultural information and access to agricultural markets in coordination with the Ministry of Industries and Production
- g) Government information and services that promote efficiency and transparency, and democratic processes



13.3 The development of Intellectual Property in ICT

- 13.3.1 The National ICT R&D Fund will coordinate market research for applications and services in the ICT areas including those listed in Para 13.2.1. The Fund will develop, maintain and implement a rolling three year plan specifying the projects to be let and the outcomes expected.
- 13.3.2 Projects covering applied research in ICT, market research, product specification, product development will be funded from the National ICT R&D Fund.
- 13.3.3 The Fund will establish links with international centres of expertise in the application areas listed in Paragraph 13.2.1 and those concerned with telecommunications infrastructure and services. The Fund will explore methods and facilitate joint working with development organisations in Pakistan and such international centres of expertise on particular projects. In such cases the Fund may provide funding for the work undertaken by the Pakistan development organisations. Development organisations include but are not limited to: private businesses in the ICT industry, academia, standards bodies and equipment suppliers.
- 13.3.4 The Fund will establish links with other funding organisations with the intention of bringing their expertise to Pakistan and to establish joint funding of particular projects.
- 13.3.5 The consequences of such activity will be the development of intellectual property in ICT. In return for funding of the development of this intellectual property, the Fund will take an agreed share of the intellectual property produced.

Rolling programme

- 13.4.1 The National ICT R&D Fund Company will maintain a rolling programme of projects. The programme will include projects to be funded, projects under execution and projects to be completed during the plan period.
- 13.4.2 The programme will be published annually and will cover the three subsequent years starting on or shortly after the date of publication. In this way, interested parties will be able to anticipate tendering opportunities and will be given at least two years' visibility of the programme. Each annual update will extend the rolling programme by a year, and specify any updates to the programme for the overlapping period.
- 13.4.3 The National ICT R&D Fund Company will implement the rolling programme.
- 13.4.4 The National ICT R&D Fund Company, will as part of its rolling programme, report on the outcome of each project on completion when publishing the programme.



14. SATELLITES

14.1 Satellite policy goals

An ‘open skies’ approach to encourage foreign investment and addresses the deployment of Fixed, Broadcast and Mobile Satellite Services.

14.1.1 Satellite systems have a unique capability to deliver telecommunications services nationally and internationally, providing social and economic benefits. The ability to deliver high quality communications services, economically to remote areas that are difficult to serve by terrestrial means makes satellite communications an essential part of Pakistan’s national telecommunications infrastructure. Satellite systems enable rural access to telecommunications services including voice and Internet access, critical telecommunications services for disaster relief operations, socially beneficial services such as e-learning and tele-medicine, and the efficient provision of broadcast services over wide geographic areas.

14.1.2 Satellite communications is by its nature a global sector. To be effective the satellite communications policy must reflect this situation. It is the aim of Government to operate an open and transparent market that encourages foreign investment to deliver world class satellite communications for the use by citizens, businesses and government.

14.1.3 The overall goals of this satellite policy relate to aspects of supply and use of satellite communications support this vision:

- Promotion of the use of satellite services by citizens, businesses and government
- Protection of users against harmful interference.

14.2 Definitions

14.2.1 The Satellite Services covered by this Policy are as defined in the Radio Regulations published by the International Telecommunications Union (ITU):

- Fixed-Satellite Service (FSS): A radio-communication service between earth stations at given positions, when one or more satellites are used; the given position may be a specified fixed point or any fixed point within specified areas; in some cases this service includes satellite-to satellite links, which may also be operated in the inter-satellite service; the fixed-satellite service may also include feeder links for other space radio-communication services.
- Mobile-Satellite Service (MSS): A radio-communication service between mobile earth stations and one or more space stations, or between space stations used by this service; or between mobile earth stations by means of one or more space stations. This service may also include feeder links necessary for its operation.
- Broadcasting-Satellite Service (BSS): A radio-communication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public.

14.2.2 An “earth station” is defined by the ITU as: a station located either on the Earth’s surface or within the major portion of the earth’s atmosphere and intended for communication with one or more space stations; or with one or more stations of the same kind by means of one or more reflecting satellites or other objects in space. In this Policy, the term “Earth Station” is to be distinguished from the term “Terminal”. The term “Earth Station”



is used to mean an earth station that acts as a gateway to a public network. Any other station is termed a Terminal.

14.3 Satellite systems

- 14.3.1 Any foreign satellite operator that provides services in the geographic boundaries of Pakistan should register with PTA.
- 14.3.2 Any national satellite operator shall be licensed by PTA.

14.4 Satellite service provision

- 14.4.1 Satellite services are those services that are provided through a satellite system, foreign or domestic. Satellite services provided in Pakistan shall be provided through a system that has been properly coordinated through the ITU.
- 14.4.2 The satellite service provider shall be a licensed. The satellite service provider shall obtain a license from PTA before starting provision of any kind of service to its customers.
- 14.4.3 The satellite service provider shall not be required to establish a local gateway for delivery of telecommunications traffic within the geographic bounds of Pakistan by satellite unless adequate lawful interception cannot otherwise be established subject to any specific requirements in Section 14.7.

14.5 Access to electromagnetic spectrum

- 14.5.1 Access to spectrum and associated orbital resources for satellite services shall be managed by FAB. Management of spectrum for satellite services shall be in accordance with the applicable ITU-R Radio Regulations, Recommendations and Pakistan Table of Frequency Allocations while keeping in view the protection of existing services/ users to the extent possible with minimum chances of interference.

14.6 Access to space segment capacity

- 14.6.1 Radio transmissions from Earth Stations and Terminals have the potential to cause harmful interference to satellite systems. The Government of Pakistan has obligations under international ITU Radio Regulations to avoid causing such harmful interference. Therefore:
- All transmissions to satellites from within Pakistan must be authorised by the satellite operator;
 - Satellite terminal equipment must conform to the relevant standards set out in this policy; and
 - Earth Stations must be properly licenced by PTA as set out in this policy.
- 14.6.2 All relevant technical details of Earth Stations licensed by PTA shall be shared with FAB for record purposes. The same information will be used by FAB for interference mitigation if any is reported by foreign or national satellite operator. Licensing of satellite earth stations



14.7 Satellite service licensing and general provisions

- 14.7.1 The present rights and obligations specified in the LDI and LL licences associated with the installation and use of satellite networks shall remain.
- 14.7.2 VSAT services used to provide fixed access to public telecommunications networks
- 14.7.2.1 Any LL licensee may operate VSAT services in such a manner under its licence having first registered the service with PTA.
- 14.7.2.2 A class licensee (data) may operate VSAT services in such a manner to provide narrowband and broadband access and may then deliver OTT services.
- 14.7.2.3 If the class licensee wishes to provide access to public telephony services, a class licence shall be provided for the provision of such VSAT services by parties other than LL licensees.
- 14.7.2.4 Licensees that use VSAT services in this manner shall be required to use an LDI licensee for the provision of national and international transit services.
- 14.7.3 VSAT services used to provide bulk point to point transmission nationally or internationally
- 14.7.3.1 Any LDI or Infrastructure licensee may operate VSAT services in such a manner under its licence having first registered this use with PTA.
- 14.7.3.2 An LL licensee may use VSAT services in this manner within its geographic area having first registered this use with PTA.
- 14.7.3.3 Licensees shall require prior approval from PTA and FAB for the provision or use of VSAT services.
- 14.7.4 Receive Only Earth Stations
- 14.7.4.1 There shall be no licencing requirement for the installation of Receive Only Earth Stations (ROES). The provision of broadcast services to ROES will require the appropriate licence issued by PEMRA.
- 14.7.5 Mobile Satellite Services
- 14.7.5.1 Except where noted below, the operation of a terminal in a Mobile Satellite Service shall require authorisation from the PTA. Satellite terminals that operate in a Mobile Satellite Services must conform to technical standards which shall be made available on the PTA website.
- 14.7.6 General licencing provisions for GMPCS
- 14.7.6.1 The use of mobile Earth Stations for Global Mobile Personal Communications by Satellite (GMPCS) shall not require a specific end user licence where the service is provided either by a local service provider or on a roaming basis by 'recognised' providers of GMPCS Services. For the purposes of this policy a 'recognised' provider will be one that is listed on the PTA website.
- 14.7.6.2 The local service provider shall need to obtain a class licence from the PTA for the provision of GMPCS services, unless it holds a mobile licence. A



mobile operator shall inform PTA on the introduction of a GMPCS service. Whether the local service provider is providing services using a domestic satellite network or one owned by a foreign entity, it shall be a provision of the class licence that information concerning traffic originating in, or routed to, Pakistan are made available to PTA and that lawful interception of such traffic is possible.

14.7.7 Roaming GMPCS terminals

14.7.7.1 Use of GMPCS terminals on a roaming basis is subject to provisions being in place with the respective GMPCS operators to provide data concerning traffic originating in, or routed to, Pakistan. A list of such 'recognised' operators will be made available on the PTA website. The PTA website shall provide guidance for GMPCS operators to ensure they are included on this list.

14.7.7.2 Prior to entering Pakistan it shall be the responsibility of the individual user of the GMPCS terminal to register their intent to bring a GMPCS terminal into the country. A web based registration process shall be established by the PTA to facilitate this. Where a GMPCS operator is not included on the list of 'recognised' operators the use of a GMPCS terminal shall not be permitted.

14.7.8 Aeronautical Terminals

14.7.8.1 Aeronautical terminals shall require a licence from the PTA for operation while in Pakistan's Airspace. The licence shall set out the conditions of use for the Aeronautical Terminal.

14.7.9 Earth Stations on Vessels (ESV)

14.7.9.1 Earth Stations on Vessels operate under the regulations set out by the ITU. A licence, issued by the PTA, shall be required for the use of terminals within the territorial waters of Pakistan.

14.7.9.2 Where an ESV operator is required to coordinate the use of the terminal with Pakistan, as determined under the relevant sections of the ITU Radio Regulations, FAB shall be the point of contact.

14.7.10 The PTA shall develop and publish processes and requirements relating to registration and granting permission for the use of equipment and services, and class licencing of satellite services.

14.8 Satellite service and satellite system licence fees

14.8.1 Satellite related licence fees shall in general be calculated on an Administrative Cost Recovery Basis. The schedule of licencing fees shall published on the PTA website.

14.8.2 If the spectrum available for Satellite Services is congested, Administrative Incentive Pricing may be considered for that specific band. PTA shall consult with stakeholders before any change to the licence fee arrangements is made.

14.9 Satellite terminal equipment standards

14.9.1 To protect adjacent satellites and terrestrial services, satellite terminal equipment used in Earth Stations and Terminals shall be regulated by technical standards published by the PTA. A technical standard shall prescribe the minimum technical requirements to be



fulfilled by the satellite terminal equipment intended for sale and use in Pakistan. These requirements shall conform to requirements published by the ITU for satellite earth stations and to the extent possible shall be based on existing international equipment standards.

14.10 Installation and health and safety

14.10.1 The operator of an Earth Station or Terminal shall be responsible for ensuring the installation adheres to appropriate standards to avoid interference with other services as well as health and safety standards.

14.11 Publicly available information

14.11.1 Information relating to the operation of satellite systems, licensing processes, charging mechanisms, standards, complaints procedures and public consultations shall be made available publicly through the PTA website.



15. FEDERAL AND PROVINCIAL GOVERNMENT

15.1 NTC

15.1.1 The efficiency of the NTC will be improved through the establishment of partnerships with the private sector to the benefit of both Government users and the private sector. These partnerships will enable the economies of scale necessary for efficient operation and may be realised for example by:

- Outsourcing of an enhanced version of the NTC service portfolio
- Public private partnership whereby the resources of one or more operators would be used in partnership with NTC
- NTC procuring services to deliver its service portfolio.

15.1.2 The NTC Charter will be amended in accordance with Para 15.1.1.

15.2 Special Communications Organisation

15.2.1 The Special Communications Organisation (SCO) will continue to operate in its territory and will provide access to its infrastructure to other operators at cost oriented wholesale rates to enable service based competition.

15.2.2 Keeping in view the requirements of SCO to invest into network expansion for its area of responsibility, appropriate clauses will be built into SCO's license to allow it to utilise its own revenues for development activities instead of the current requirement to deposit all revenues into the national exchequer and then tap PSDP funding for network development. Such amendments will also have provision for meeting any shortfall in SCO's development budget through Federal PSDP, AJK/GB budget etc as deemed appropriate by the federal or AJK/GB governments.

15.3 eGovernment

15.3.1 A significant programme for the development and implementation of eGovernment transactions will be pursued over the next five years. This programme will address all licence applications, tax and other payment transactions, notifications and other transactions and functions represent target areas for development of online transactions that may carry incentives for online rather than paper-based or in-person transactions.

15.3.2 Within each Ministry and Province a prioritised eGovernment programme will be put in place to take account of the opportunities for service delivery over broadband and the anticipated growth in broadband penetration that will arise from mobile broadband availability.

15.4 Broadband provisioning in public buildings

15.4.1 Facilities that enable broadband communications will be installed in new buildings built by the state, municipalities and government enterprises.

15.5 Content development

15.5.1 Government will facilitate the content sector. To this end Government Ministries shall contract out to Pakistani private sector content developers wherever possible and



encourage mass usage of local content applications through Government leadership. Local content shall be available in Urdu and other major languages as well as in English.

15.6 Local manufacturing

15.6.1 MoIT will assess the feasibility of domestic production of telecommunications equipment with specific focus on national assets and other strengths that can be exploited. The assessment will determine where in the equipment manufacture and supply chain Pakistan should operate and whether and how it should cooperate with existing equipment manufacturers. If a feasible position is available, it should consider the investment requirements and how to realise the required financial and other capital. On the basis of this evaluation, Government will decide whether to proceed or not in promoting a domestic production facility and decide on how to promote it.



16. POLICY REVIEW

- 16.1 Government may review the policy after five years, depending on market and other developments.



Glossary

3G: Third generation mobile telecommunications technology, following International Mobile Telecommunications-2000 specifications from ITU. 3G supports Internet access, video calls and mobile TV as well as telephony

4G: Fourth generation mobile telecommunications technology, following International Mobile Telecommunications-2000 specifications from ITU. 4G provides ultrafast broadband access

Access (as an element in a telecommunications network): Transmission from the final distribution point before the CPE to the CPE

Access (regulatory use): Access to a network or service element provided by a network or service provider to another service provider

ACR: Administrative Cost Recovery

AIP: Administrative Incentive Pricing

Allocation (spectrum): The specification of the services to which a particular spectrum band may be put

Assignment (spectrum): The assignment of a specified quantity of spectrum to an individual licensee including technical characteristics of specified spectrum

Backhaul: Transmission from the content source to final distribution point before the CPE

Bitstream service: often used to mean wholesale DSL. A wholesale broadband service that provides broadband transmission over an access element (copper, fibre or in principle, wireless) of a telecommunications network. To provide a connection to a service provider's services, the bitstream service must be used in conjunction with a suitable backhaul service.

Broadband: Electronic information access at high speed

CEIR: Central Equipment Identity Register; a register that lists reported IMEIs and can be used to identify stolen or cloned mobile terminal devices

Content: Information in an electronic format, for example - Websites, TV channels, data, voice etc.

CPE: Customer Premises Equipment. Any 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

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

Economic pricing: pricing established through economic principles

Government, eCommerce, eLearning, eHealth: The use of the Internet to provided services to support specific functions

Exchange: Point of Presence of the telephone operator company that allows connectivity and switching between telephone users locally and internationally. In next generation networks, the local exchange is often replaced by concentrators with switching done elsewhere. The local exchange building then provides space for content caching and other functions that are best undertaken near the user, and to provide colocation space for third party service providers

FAB: Frequency Allocation Board. FAB is the statutory body constituted under Section 42 of the Pakistan Telecom Act 1996 to allocate portions of frequency spectrum to different users.

GDP: Gross Domestic Product. A measure of the economic standing of a country

ICT: Information and Communication Technologies; universally understood to represent services that are based on a combination of computer and telecommunication networks technologies



IMEI: International Mobile Station Equipment Identity. A unique reference number used to identify mobile devices

Incumbent: The telecommunications company that owns majority of the telecommunications network in a country – PTCL in context of Pakistan

IP: Internet Protocol. Standard procedures that allow transmission of communication packets between Internet PoPs

ISP: Internet Service Provider. A 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

ITU-R: Division of ITU responsible for Radio Standards

LDI License: Long Distance and International License, allows holder to offer communication between domestic cities and international countries

LL License: Local Loop License, allows holder to offer communication between the users within a city/town/village

Local Loop: The physical communication link between the telephone user and the telephone exchange

LTE: Long term evolution. LTE is a standard for the wireless communication of high-speed data for mobile phones and broadband wireless

MoIT: Ministry of Information Technology and Telecom, Pakistan

NDMA: National Disaster Management Authority

Next Generation Network (NGN): A telecommunications network based on packet switching (as opposed to the traditional circuit switching). In an NGN, end user services, including telephony services, are delivered over the top of the packet switched network from service nodes

Next Generation Access (NGA): Deployment of fibre cables in the local loop to replace copper cables, allowing the delivery of higher speed broadband service associated with an NGN

NTC: National Telecommunications Corporation

OTT: Over the top. OTT designates the carriage of telecom services, such as voice telephony, on top of a general purpose communication path, such as the Internet

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

PSEB: Pakistan Software Export Board

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

R&D: Research and Development

SCO: Special Communications Organisation



Teledensity: A measure of the penetration of telephone lines in a country. Usually expressed as a % of the population or households that have access to telecom services

UN: United Nations

USF: Universal Service Fund

VoIP: Voice over Internet Protocol. Carriage of voice signals using Internet techniques. With VoIP, analogue speech is encoded into standard format Internet packets.

Wi-Fi: Wireless Fidelity. Technology corresponding to the IEEE802.11 standards for low power, indoor wireless data communication

WLL: Wireless Local Loop

WRC: World Radio Conference, the ITU-R conferences used to determined international coordination of the use of radio spectrum

WSIS: World Summit on Information Society