

2009-10

ANNUAL REPORT

Pakistan
Telecommunication
Authority

www.pta.gov.pk



ProPakistani.PK



ANNUAL REPORT 2009-10

Pakistan
Telecommunication
Authority

www.pta.gov.pk

ANNUAL REPORT 2009-10

Copyrights © 2010 Pakistan Telecommunication Authority

All rights reserved. Printed and bound in Pakistan. No part of this publication may be reproduced, or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information of storage and retrieval system, or transmitted, without the prior written permission of the publisher

Published by

Pakistan Telecommunication Authority
Headquarters, F-5/1,
Islamabad, Pakistan
Website : www.pta.gov.pk

Cataloging-in-Publication Data

Pakistan Telecommunication Authority
PTA Annual Report 2009-10
ISBN: 978-969-8667-51-1
1. Pakistan Telecommunication Authority - Annual Report 2009-10
I. Title

International Standards Book Number: ISBN: 978-969-8667-51-1



CONTENTS

Chairman Note	v
Executive Summary	vii
Chapter - 1: Core Areas of Concentration	01
- Standing by The Nation	01
- Core Areas of Concentration	03
- Regulatory Measures	04
- Enhancing Competition	07
- ICT Promotion	11
- Researching	15
Chapter - 2: Telecom Sector Review	21
- Economic Contribution	21
- Cellular Mobile	26
- Basic Services	33
- Long Distance International	36
- Broadband Services	37
Chapter - 3: Working for Consumers	43
- PTA's Initiatives for Consumers	43
- Complaints Management	44
- IMEI Blocking	46
- Specific Consumer Oriented Issues	46
- Consumer Forums	48
Chapter - 4: Building Bridges & Capacities	51
- Creating Awareness	51
- Capacity Building	55
Chapter - 5: Challenges for the Regulator	57
- New Technologies	60
Annexure	63
- Annex - 1 : PTA Accounts	65
- Annex - 2 : Significant Market Players of Pakistan	68
- Annex - 3 : Change of Numbering Plan	69
- Annex - 4 : Telecom Revenues	70
- Annex - 5 : Foreign Direct Investment	71
- Annex - 6 : Telecom Investment	72
- Annex - 7 : Annual Cellular Subscribers	73
- Annex - 8 : Cell Sites by Cellular Operators	74

ProPakistani.PK

FIGURES AND TABLES

Figures

Figure - 1	Teledensity	22
Figure - 2	Telecom Contribution to Exchequer	22
Figure - 3	Telecom Revenues	23
Figure - 4	Foreign Direct Investment	24
Figure - 5	GST/FED Collected	25
Figure - 6	Cellular Penetration	28
Figure - 7	Cellular Subscribers	28
Figure - 8	Cellular Subscribers by Operator	29
Figure - 9	Cellular Mobile Average Revenue per User per Month	30
Figure - 10	Cell Sites by Cellular Operators	30
Figure - 11	Subscriber wise - Cellular Market Share	31
Figure - 12	Revenue Share by Cellular Operators	32
Figure - 13	Cellular Mobile Tariffs	32
Figure - 14	Local Loop Teledensity	34
Figure - 15	Basic Subscribers Share by Service (LL & WLL)	34
Figure - 16	Basic Telephony Subscribers	35
Figure - 17	Basic Subscribers Share by Province	35
Figure - 18	Basic Telephony Subscribers Share by Operators (LL& WLL)	35
Figure - 19	International Outgoing Minutes by LDI Operators	37
Figure - 20	Broadband Penetration	39
Figure - 21	Broadband Subscribers	40
Figure - 22	Broadband Subscribers Share by Operator	40
Figure - 23	Broadband Subscribers by Major Operator	40
Figure - 24	Broadband Subscribers Share by Technology	41
Figure - 25	Fixed Vs Wireless Subscribers	42
Figure - 26	Nature wise Consumer Complaints	45
Figure - 27	IMEI's Blocked	46

Tables

Table - 1	Type Approval of Telecom Equipments	5
Table - 2	Comparison of Incumbent Operator Tariffs	17
Table - 3	Comparison of Unlimited Packages with Minimum Charges	17
Table - 4	Telecom Investment	24
Table - 5	Taxes by Cellular Mobile Industry	25
Table - 6	Mobile Penetration 2010	27
Table - 7	Subscribers Net Addition by Cellular Operators	29
Table - 8	National Top-5 BSPs' Ranking (Technology-Neutral, Consumer-Based)	48
Table - 9	National Top-4 BSPs' Ranking (Wireline)	48
Table - 10	National Top-4 BSPs' Ranking (Wireless)	48

ProPakistani.PK



CHAIRMAN'S NOTE



It gives me immense pleasure in presenting the Annual Report 2009-10 of the Pakistan Telecom Authority (PTA). It not only offers an account of the latest and prospective activities, in light of the historical perspective, but also provides an analysis of the telecom sector of Pakistan with an intent to aid the reader and the telecom analysts.

PTA's vision of creating a fair regulatory regime to promote investment, encourage competition, protect consumer interest and ensure high-quality ICT services can only be achieved by keeping abreast of the rapid changes in technology, its regulatory implications and creating an environment in which a balance is maintained between the sustainability of all operators and interests of consumers. This has been achieved primarily by the investment friendly policies framed by the Government, their implementation through a highly skilled work force at PTA and playing an impartial role of a referee besides acting as facilitator for bringing latest technologies in Pakistan and ensuring their propagation through consumer friendly regulatory initiatives. All these efforts have translated into the Telecom Sector's unprecedented growth in an era, which has been severally hampered by global economic meltdown and financial crunch.

In terms of the regulatory measures to subdue security threats that Pakistan is weathering day-in day-out, PTA has successfully launched services such as 789, 668 and 667 as one of the anti-terrorist drives, from consumer perspective, to counter the menace of instability, repercussions of which could hit home the Telecom sector, where the heart of the economy resides.

After a lapse of two years of intermittent growth, the sector straddles on success. Government's revenue stream is once again rejuvenated with the life infusing blood of the Telecom sector's contributions that owe their entire stake to the consumer demand invoked by consistent quality of service standards ensured by PTA and the unrelenting services in the wake of deregulated pricing regime.

The resounding success was borne by the fabric of 100 million mobile subscribers in the country within a short span of 6 years. One of its constituents is broadband that has woven into the lives of the metropolitan populace, while the under-served and un-served areas rely upon the fulcrum of the Universal Service Fund, created for the sole purpose of disseminating financial resources to economically unviable endeavors. The broadband growth stands at a luscious 118%, forging ahead of all its counterparts.

I applaud and thank all the Divisions of PTA, and particularly Economic Affairs Directorate, for compiling the rivulets of information, the Government of Pakistan for its investment-viable and pliant policies, all those consumers for their valuable feedback and most importantly the Telecom operators, for playing their respective roles in bringing about the Telecom Revolution.

I wish you all a happy reading.

Dr. Mohammed Yaseen
Chairman

ProPakistani.PK

THE AUTHORITY



Dr. Muhammad Yaseen
Chairman



Dr. Khawar Siddique Khokhar
Member (Technical)



Syed Nasrul Karim Ahmed Ghaznavi
Member (Finance)

ProPakistani.PK



EXECUTIVE SUMMARY

Pakistan Telecommunication Authority (PTA) as a regulator of telecom sector has always maintained a balanced approach in terms of ensuring consumer satisfaction and protecting industry interests. It revised its regulatory framework for ICT Promotion and Healthy Competition.

In terms of statistics, total teledensity of the country reached at 64.08% in FY2009-10 showing growth of 3.5% since FY2008-09. Pakistan mobile sector has survived the tough times and the telecom indicators have been stabilized with timely and prudent strategies adapted by the Government and the Regulator. The total mobile subscribers reached 100 million at the end of July 2010 with mobile penetration of 60.4%. Total telecom sector revenues reached at Rs. 357.7 billion in the FY2009-10 compared to Rs. 333 billion the previous year. Cellular mobile sector revenues remained the main contributor to the total telecom revenue with Rs. 236.1 billion in the FY 2009-10 showing 11% growth since last year. In the FY2009-10, telecom sector invested over US\$ 1.13 billion where cellular mobile share was over 80%. Telecom sector fetched over Rs. 109.5 billion in contribution to national exchequer. PTA collected over Rs. 13.56 billion in the FY2009-10 as initial license fee, USF and R&D contributions. This amount was 48% higher than Rs. 9.15 billion collected in the previous year. Telecom Sector revenues improved steadily in the FY2009-10 and 6.5% growth rate was witnessed. PTA kept on reminding the tax authorities about the fact that telecom sector is over burdened with taxes and requested for relief so that more tax collections could be achieved from the sector.

Following the international trend, the fixed line teledensity in Pakistan has been on decline since last couple of years and stands at 3.68% at the end of FY 2009-10. There are a total of 6.08 million local loop subscribers comprising of 3.42 million FLL and 2.66 million WLL subscribers. PTCL continues to be the dominant player in the FLL market with 74% market share in terms of subscribers. The deployment of M&RITT facility is believed to be a major step towards restoring the confidence of genuine investors in LDI business as record number of International traffic was reported in the FY 2008-09. This year, LDI industry has gone one step ahead and reached 3.2 billion international outgoing minutes, an all time highest.

Keeping in view the international trends and an obligation to implement the directives of MoIT&T to achieve the objectives of Cellular Mobile Policy 2004, PTA revised and issued framework for MVNO services in Pakistan. In addition, a transparent regulatory framework of spectrum charging regime for maritime communication services in Pakistan has been developed. PTA also drafted Visiting Craft Regulations to formalize the procedures for radio use on-board for the visiting aircrafts and ships. The status of SMP operators was also re-assessed in the light of criteria as per PTA Rules, Pakistan Telecommunication (Re-organization) Act and comments by stakeholders. PTA has always tried to introduce healthy competition in



the market so that tariffs become competitive, infrastructure expands and customer support improves. PTA analyzes the tariff proposals of PTCL and approves the same after detailed analysis and deliberations. Moreover, industry issues like introduction of SMS Termination Charges and freezing of Mobile Termination Rate (MTR) were also amicably settled through consultation and dialogue process. PTA also initiated a consultation process with the operators to develop a comprehensive spectrum management policy in view of the increasing spectrum significance. Comprehensive numbering plan to migrate the Fixed Line and Wireless Local Loop (WLL) numbers in Lahore & Karachi from 7 to 8-digit format was also a highlight of this year's activities.

ICT promotion remains the top agenda of PTA and a number of initiatives have been undertaken and supported by PTA throughout the year to improve the ICT profile of the country. In recognition of his untiring efforts for proliferation of ICT services in the country, Chairman PTA Dr. Mohammed Yaseen was presented with "ICT Excellence Award 2010" by NetSol Technologies. To highlight the need for local content and applications, PTA in collaboration with Motorola organized an exclusive conference on "Promoting ICT Sector of Pakistan" where innovative content providers demonstrated their latest applications and programs. PTA also launched the Urdu version of PTA's website so that majority of people who are not well conversant in English can use the website as well. Similarly, development of National Rabta Portal, Mobile Banking Regulations and collaboration with Ericsson Pakistan for prospective ICT initiatives are some of the major highlights of PTA's focus on ICT sector. Moreover, PTA signed a Memorandum of Understanding (MoUs) with National University of Science and Technology (NUST) and COMSATS Institute of Information Technology (CIIT) to enhance mutual cooperation for research in the relevant field and to promote mutually beneficial relations between the two organisations. PTA organized seminars workshops and forums in collaboration with international organizations on the topics of "Mobile 2.0 Applications", "3G demands and beyond" and "Telecom Reporting Workshop" for journalists. PTA Gold Medals 2010 for outstanding research projects in IT and Telecom have further strengthened the longstanding relationship between PTA, the media, academic circles, the telecom industry and its experts.

Broadband subscribers in Pakistan reached the figure of 900,648 at the end of FY2009-10 as compared to 413,809 at the end of FY2008-09. The astounding growth rate of over 100% has constantly been sustained by the industry for three consecutive years with 118% being the latest growth rate figure. Among the major players, PTCL is the biggest operator with 474,387 subscribers and a 53% market share while Wateen follows with 188,725 subscribers and 21% market share. Collectively during the reported year, wireless technologies have added 257,510 subscribers as compared to 229,329 by fixed technologies. Since the introduction of effective competition in the market, tariffs have been constantly declining as well.

On the consumer front, PTA has taken a number of steps after the introduction of Consumer Protection Regulations 2009 and measures against SPAM, Unsolicited, Obnoxious and Fraudulent Communication. In addition, Quality of Service surveys, raids against illegal operators and IMEI blocking/unblocking of stolen handsets was also conducted by PTA. A Complaint Lodging and Redressal of Grievances Mechanism was launched in July 2009 which is a faster and more efficient system of lodging, redressal and reviewing mechanism of complaints handling. More than 24,711 complaints were received during the reported period (July'09-June'10) out of which on average over 95% were resolved. PTA blocked over

511,950 mobile handsets reported to be stolen or theft since 30th September, 2006. To bring awareness for telecom services, PTA held Consumer forums at Lahore, Karachi and Quetta where prominent quarters of the public turned up to express their views, comments and concerns about the telecom services in Pakistan. To ensure the quality of telecom services provided in the country, PTA carried out Quality of Service survey for mobile, fixed and broadband services during the reported period.

Pakistan has been hit by the worst natural disaster in the history and the United Nations estimates that more than 21 million people are affected as a result of the recent flooding. In this dire hour of need, PTA contributed Rs. 201.43 million to the Prime Minister's Flood Relief Fund 2010 for the assistance of the flood affected people as first installment. This amount comprises of one day salary of PTA employees, PTA sources and collection through the 1234 SMS service initiated by PTA. Apart from PTA's efforts, three leading telecom operators Ufone, Mobilink and Telenor contributed Rs 238.5 million in all, while other operators also made efforts to assist the flood victims. According to the telecom industry's estimates, a total of 3104 BTS sites have been damaged by the recent flooding. However, the timely intervention of PTA and quick action by telecom companies ensured the restoration of 90% of the total communication outage in short span of time.

PROPakistani.PK

ProPakistani.PK

1

Core Areas of Concentration

STANDING BY THE NATION

Pakistan has been hit by worst ever flood that have wreaked havoc in all its provinces. This disaster killed about 2,000 inhabitants and affected about 20 million people across the country. The telecommunity stood with the nation to help the affected people through donations and quick repair of the damaged telecom infrastructure to provide telecom facilities to the affectees.

PTA Donation for Flood Victims

Chairman Pakistan Telecommunication Authority (PTA), Dr. Mohammed Yaseen presented a cheque of Rs. 201.43 million (first installment) to the Prime Minister of



Pakistan, Syed Yousaf Raza Gillani for the “Prime Minister's Flood Relief Fund 2010 for the Assistance of Flood Affected People”. This amount comprise of one day salary of PTA employees, PTA contribution from its own sources and the first installment of the collection realized through 1234 SMS service initiated by PTA. Prime Minister Syed Yousaf Raza Gillani urged the Chairman Pakistan Telecommunication Authority to ensure the reconstruction of telecommunication infrastructure in the flood-hit areas to strengthen the relief activities and appreciated the gesture of PTA employees who contributed one day salary to help distressed families in the flood-hit areas. The Chairman PTA apprised the Prime Minister about the damage caused to the telecom infrastructure in flood affected areas and various means devised by PTA for the early restoration of partially destroyed or denigrated networks.

Local and International Telecommunity Efforts

Apart from PTA's efforts, a handsome contribution has been made by the telecom companies to help the flood affectees. Three leading telecom operators Ufone, Mobilink and Telenor contributed Rs 238.5 million, while other operators also made efforts to assist the flood victims. Out of these 238.5 million, Telenor contributed Rs 100 million through Pakistan Red Crescent Society (PRCS) while Mobilink committed Rs. 85 million to relief organizations, including World Food Programme (WFP) and World Health Organization (WHO) to reach out to the flood victims. PTCL and Ufone, made a joint contribution of Rs 53.5 million to the Prime Minister's Flood Relief Fund. The funds will be used to provide immediate relief assistance including clean drinking water and dry food rations.



International community including international telecom foundations- responded by pledging funds. Telecoms Sans Frontiers (TSF) has set up eight

centers in Pakistan to assist aid agencies with communications services and help stranded locals get in touch with relatives to apprise them of their conditions. The eight mobile teams, equipped with satellite and GSM cell phones, are based in the flood affected areas so that a maximum number of affected people can avail their service. Many victims have lost their mobile phone or are in places with no electricity to recharge the mobile batteries or simply have no money to credit their accounts. These teams are providing GSM and satellite phone facilities free of charge to the flood affectees to help them in this hour of dire need¹.

¹http://www.dailytimes.com.pk/default.asp?page=2010\09\02\story_2-9-2010_pg1_4

ITU's Help for Flood Affectees

In response to the recent Floods in Pakistan, ITU offered 100 units of Satellite Phones (INMARSAT, IRIDIUM and THURAYA) to the Government of Pakistan on loan basis for a period of three months to assist flood relief operations. These Satellite phones are to be deployed in relief camps and medical units through National Disaster Management Authority (NDMA) and National Telecommunication Corporation (NTC). Satellite Phones offer instant communication solutions in difficult environments to aid agencies operating in areas damaged by natural disasters like earthquake, flood, war etc.

SMS Service “1234” to Help Flood Affectees

PTA in collaboration with Telecom Industry started “1234” SMS Service to supplement the efforts of the Government in financing its rescue and rehabilitation efforts for the flood affected people across the country. The short code “1234” was activated from all cellular mobile operators' platforms. From any mobile cellular connection, an SMS could be sent to “1234” by writing “Fund” that was charged @Rs.10/- excluding taxes. The amount collected by generating these SMSs would be deposited with “Prime Minister's Flood Relief Fund 2010”, for which a special account has been created. PTA appealed to the public to send maximum number of SMSs to assist the Government in providing relief to the crises-stricken population. An encouraging response was witnessed from public to contribute through this SMS service.

Assessment of Telecom Infrastructure Losses

In the recent flooding, apart from roads, houses, bridges, buildings and other infrastructure, telecom has also been adversely affected. According to telecom industry, a total of 3,104 BTS/sites were damaged by the recent floods. However, timely intervention by PTA and quick action by telecom companies ensured that 90% of the total communication outage was restored in short span of time. Some of the reasons of non-restoration in the rest of areas are: -

- *Access issues due to heavy flood and road damages.*
- *Non-availability of power both primary and backup (fuel).*
- *Some sites are down because their links with the Hub sites have been damaged.*

CORE AREAS OF CONCENTRATION

Despite a difficult economic situation, soaring inflation trend and unstable security situation, telecom sector showed positive growth in terms of teledensity and revenue for FY 2009-10. PTA re-defined its initial priorities from industrial growth to consumer protection mechanism. This would stimulate healthy competition in the market and provide level-playing field to all the stakeholders while serving PTA's agenda for FY 2009-10.

The latest developments in the telecom sector have been kept well under observation by PTA through various expert studies on emerging regulatory issues to technical issues. A special emphasis has been given to ICT development in the country by undertaking numerous projects and studies so that knowledge gained through these can be effectively channeled into creating more awareness among the general public about their usage, cost and real time serving options for accessing information and achieving benefits in all aspects of life.

REGULATORY MEASURES

Regulation of a sector is a complex task where it is pertinent to keep a balance between the consumer rights, industry interests and implementation of Government policies in true spirit. With ever changing market conditions and user demands, the regulator has to constantly adjust itself to the emerging paradigms of telecom market. It has been a hallmark of PTA's success that it has always kept a flexible and supportive regulatory framework to uplift the telecom services in the country. With the economic slowdown and precarious security situation in the country since last year, PTA re-enforced its regulatory framework with a balanced approach so that telecom users remain satisfied while operators ARPU's improve. Following are some of the areas where PTA regulated the sector with a vision to strengthen the telecom market of Pakistan.

Determination on SMP

Pakistan Telecommunication Authority through its earlier determination on 25th August, 2004 had determined and declared Relevant Markets and SMP Operators in Pakistan, AJK and GB. PTCL was declared SMP in Long Distance International, Local Loop, Leased lines and national interconnection markets of Pakistan. SCO was declared as SMP in Local Loop, Long Distance International and mobile cellular market of AJK & GB. Mobilink was declared SMP in cellular and national interconnection market of Pakistan.

Since the issuance of the previous determination, the telecommunication markets of Pakistan, Azad Jammu & Kashmir and Gilgit Baltistan (AJK/GB) had undergone a considerable change in their size, scope, diversity, needs and dynamics requiring a fresh review of the relevant markets and declaration of SMP operators according to the changed situations. In view of the foregoing, the Authority issued a Consultation Paper on the subject on 31st July, 2009 and sought comments from all stake holders.

In the light of criteria for determination of SMP operators as per PTA Rules, Pakistan Telecommunication Re-organization Act and comments from the stakeholders, the Authority determined SMP status of various operators in different markets. PTCL has been declared SMP in FLL, LDI, Retail Broadband, Domestic Leased line, IP Bandwidth, Call transit Services and Wholesale Broadband access markets in Pakistan while SCO has been declared SMP in all above markets in AJK and GB. All operators have the status of SMP in individual fixed and mobile markets in Pakistan and AJK and GB, (See Annex- 2).

Harmonization of Short Codes

PTA has exclusive powers under Section 5(2) of the Pakistan Telecommunication Re-Organization Act 1996 to develop and allocate numbering series for telecom services. Some operators were found involved in issuing short codes for content based services without following the proper procedure set by PTA. Such unilateral allocation of short codes on the part of CMOs has resulted in non-harmonized short code regime. Authority taking cognizance of the issue has warned all CMOs to refrain from issuing short codes without getting prior approval of the Authority. In this regard, two industry consultation meetings have been held at PTA and the proposed framework has been finalized and approved for implementation. The approved plan was circulated to the industry but CMOs again raised their concerns on the framework. Therefore, a meeting with CMOs and PTCL was held and following decisions were taken and conveyed to all concerned for compliance: -

- CMO's will surrender all short codes used for on-net and off-net services initiating from level 1xxx.
- CMO's jointly agreed to reserve level 8xxx and 9xxx for allocation of short codes.
- Each CMO is required to apply for regularization of short codes in use and provide details of the short codes separately for internal use, company's promotional and white label (3rd Parties) purposes.
- Industry will provide feedback regarding short codes programmed/burned on the SIM Toolkit Menu (STK) whether these short codes could be changed technically without the replacement of SIMs in use or otherwise.
- Short codes to content based services providers will be allocated by PTA out of the reserved level/block. PTA will issue an SOP in this regard.

Type Approval of Telecom Equipments

Type approval granted by PTA signifies that particular telecommunication equipment is approved for sale and is suitable for radio communication or to connect to a specific public telecommunication network in Pakistan. Table-1 exhibits the detail of equipments that have been type approved during FY 2009-10.

S. No.	Equipment	No. of Type Approval issued
1	Wireless LAN Card	33
2	Wireless Radio Set	17
3	Fixed Wireless Terminal	13
4	Wi-Fi Terminal	3
5	WiMax Terminal	01
6	IP Phone	06
7	PABX	02
Total		75

Cellular Mobile Infrastructure Sharing

Tower/infrastructure sharing has long been a priority matter for PTA and constant endeavors had been made to reach a viable agreement between all the operators for the said purpose. Currently in Pakistan, Tenancy Ratio is 1.02 which means out of every 100 towers only two are shared by operators.

In continuation of its efforts, PTA and CMO's signed Memorandum of Understanding (MoU) on Infrastructure Sharing on August 02, 2010 in Karachi, in the presence of Secretary MoIT&T and telecom professionals. This MoU will be valid for an initial term of three (3) years. It is aimed at accelerating the current pace of infrastructure sharing in the country and to increase the overall industry Tenancy Ratio. It is anticipated that this co-operation will serve to support mutual interests resulting in requiring less human resource for maintenance, lower fuel expenses, quality maintenance, low power consumption, an environmentally friendly appearance, better opportunities for new service providers (ease of roll-out), public convenience, and expanded coverage in-line with international best practices.

MVNO Framework

A Mobile Virtual Network Operator (MVNO) is a company that provides mobile phone services but does not have its own licensed radio frequency, nor does it necessarily have all of the infrastructure required to provide mobile telephone services. Keeping in view the international trends and an obligation to implement the directives of MoIT&T to achieve the objectives of Cellular Mobile Policy 2004, PTA revised and issued framework for MVNO services in Pakistan. As a consequence of this framework, draft MVNO regulations have also been prepared and sent to the MoIT&T. In the revised framework, PTA has made it compulsory for prospective MVNOs to first sign an agreement with at least one Mobile Network Operator (MNO) before seeking license from PTA. Further, MVNOs will be allowed to make commercial arrangements with more than one MNOs for provision of mobile communication services to their own customers. Other salient features of the revised MVNO framework include roaming agreements with other operators on mutually agreed terms and conditions, provision of uninterrupted services by MNOs to MVNOs, responsibility of the MNOs regarding the national security issues and Quality of Service (QoS) assurance. It is also included that the MVNOs shall not stop provision of services to its customers without at least a three months notice and prior approval from PTA which shall also approve the contents of Standard Contract of Service and Customer Agreement Form of MVNO(s) prior to the commencement of its services.

Initially the license shall be issued for a period of 10 years which would be extendable for a term of 10 years subject to mutual agreement between the parties and consent of the Authority. However, the license shall be terminated on expiry of agreement between MNO and MVNO or upon expiry of the license of the parent MNO. With the later the former would stand redundant. MVNOs shall also be liable to pay all other regulatory fees and contributions in addition to the initial license fee.

Pakistan Maritime Regulatory Framework

PTA conducted a comprehensive study of maritime communication systems and international maritime communications regulatory framework for developing transparent framework of spectrum charging regime. The draft has been forwarded to MoIT&T for approval. Detailed meetings with FAB have been conducted to finalize the Spectrum Plan for coast and ship stations. It has been decided that FAB will formalize the spectrum plan, for different categories of ships in Medium Frequency (MF), High Frequency (HF) and Very High Frequency (VHF) bands for different types of services and will get this approved from the Board. This plan will then be issued as addendum to the license issued by PTA and will also be published in the 'Guide to Port Entry' for foreign visiting ships. For coast stations, unlike ship stations, cases will be forwarded to FAB for allocation on case-to-case basis.

Visiting Craft Regulations

Visiting Craft Regulations were developed to regulate the frequency use by the incoming aircrafts and ships in Pakistan Territorial Air-space and waters respectively. As per current practice, the cases of radio equipment use on board the visiting aircrafts are not processed through PTA; however, the applications for visiting ships/vessels are processed and forwarded to FAB via PTA. Since, this is a long process that normally takes one to three months, by the time approval is granted, the ships have already sailed off Pakistani coast. The regulations have been drafted to formalize the procedures for radio use on board the visiting aircrafts and ships. Regulations will be published after approval of MoIT&T.

ENHANCING COMPETITION

Pakistan telecom market hosts some of the biggest and most successful multinational companies in the world. Cellular market of the telecom industry has seen a constant change from monopolistic environment to a highly competitive one. PTA has always endeavoured to introduce healthy competition in the market so that prices can be lowered, infrastructure expanded and customer support improved. Currently, five cellular mobile operators are operational in the country resulting in a highly mature and competitive cellular market. However, despite several initiatives by PTA, local loop segment of the country is still dominated by PTCL. PTA resolved and regulated a number of industry issues with an aim to keep the optimum level of competition intact. Following issues have been dealt with by PTA which directly or indirectly enhanced competition among the telecom players: -

Approval of PTCL Tariff Proposals

Being declared an SMP, PTCL submits its tariff proposals to PTA from time to time which are extensively reviewed in the context of maintaining fair and effective competition in the market. During FY 2009-10, PTCL submitted a number of tariff proposals for approval of

the Authority. The proposals included V-fone prepaid & postpaid tariffs, voice and broadband bundled packages, special packages for stimulating demand and utilizing the idle capacity in high ARPU urban areas of Karachi and Lahore. PTCL also submitted various rural packages to offer telecom services in rural areas of Pakistan at subsidized rates. PTA analyzed the proposals and after detailed analysis and deliberations, approved the tariff proposals submitted by PTCL.

Issues of SMS Termination Charges

Short Messaging Service (SMS) is one of the major reason of the enormous success of mobile industry in Pakistan. Since the inception of cellular services in Pakistan, SMS charges have been based on Sender Keeps All (SKA) basis whereby the cellular company of the originating SMS (sender) keeps all the revenue irrespective of the recipient company. However, PTA was requested by M/s Telenor to introduce SMS Termination Charge on the basis of following reasons: -

- *Market conditions have changed considerably with the introduction of bundled SMS Packages.*
- *Traffic volume has increased and there exists a significant imbalance of SMS Traffic.*
- *Increase in off-net SMS volume is negatively affecting SMS performance and clogs up the network.*
- *Interconnection Guidelines also recognize that the operator that causes a cost of interconnection service shall pay for that cost to the operator when interconnecting.*

The Authority held a meeting with CEOs of all cellular mobile operators regarding introduction of SMS Termination Charges on January 13, 2010 wherein Telenor, Mobilink and Warid supported introduction of SMS Termination Charges, however, Ufone and Zong were in favor of Sender Keeps All (SKA) regime. Authority conducted a detailed analysis of SMS traffic to finalize the issue. After thorough deliberations, it was decided that mobile to mobile SMS shall continue to be settled on 'Sender Keeps All' principle till further orders.

Development of Spectrum Charging Regime

With the growth of telecom industry, a drastic change in spectrum demand has been observed in Pakistan which needs an associated price change like any other commodity in the world. PTA initiated a consultation process on this new approach towards setting the annual spectrum fee for radio based services. The proposed changes are based on a thorough analysis of various frequency bands. Moreover, all internationally accepted methods for derivation of spectrum charges have been explored.

The present spectrum charging methodology was worked out in the FY 2000, keeping in view the availability of abundant spectrum. Now the situation has changed altogether.

Therefore, it was decided that to avoid undue economic pressure on the licensees. A periodic review of spectrum prices would be carried out to introduce utilization efficiency, bring technological innovation and tackle any distortions observed after implementation of proposed charges. PTA has noted the points raised by operators during this consultation and a comprehensive spectrum management policy, including pricing issues, is being formulated.

Implementation of 7-8 Digit Fixed Number Migration

Pakistan's telecom industry has been a true model of success and exemplary efforts of PTA have been major contributor to this achievement. Keeping in view the future demands of the industry, PTA has devised a comprehensive numbering plan to accommodate growing telephone users especially in the major cities of the country. Fixed Line and Wireless Local Loop (WLL) numbers in Lahore and Karachi have been migrated from 7 to 8-digit format, (See Annex-3).

PTCL-DSL Interconnect Agreement

The interconnection agreement between the DSL operators and PTCL was pending since long and PTA had been making efforts to resolve the issues raised by both the parties, on mutually agreed terms. These issues include permissibility to DSL operators to lease bandwidth from other private operators, laying of optic fiber in PTCL collocation sites, prices and discounts offered by PTCL for domestic and international bandwidth and provisioning of VPN services. PTA resolved the matter by carrying out detailed consultation with PTCL and DSL operators in a series of meetings.

PTCL and DSL Operators finally signed a DSL interconnection agreement for provision of broadband services under the auspices of PTA. Under this agreement, DSL operators will



now have a choice to acquire IP bandwidth from any other operator in addition to PTCL which will enable DSL operators to offer broadband services at competitive tariffs. It is believed that broadband tariffs will be reduced significantly. This would not only attract new broadband subscribers but would also motivate dialup users to shift to broadband services thereby increasing the broadband penetration in Pakistan.

Agreement on Local Internet Peering

In a joint ceremony held at PTA Headquarters, PTCL and Trans World Associates (TWA) signed an agreement on establishment of local peering of administratively separate internet networks for routing of domestic email and Internet traffic. This arrangement will bring cost efficiency vis-à-vis international IP bandwidth by restricting local internet traffic within the country. Considered a major step towards ICT revolution, the arrangement will also have an indirect impact on proliferation of local internet content development in the country.

Internet Service Providers (ISPs) of Pakistan seek international internet connectivity through PTCL and TWA. The domestic internet traffic originated by ISPs of the country was being routed through international hops as currently no mutual peering points existed in Pakistan. This agreement will reduce unnecessary delay in routing the local internet traffic, mitigate extra burden on international internet links and bring down average per bit delivery cost of ISPs.

Freezing of Mobile Termination Rates

PTA devised call based interconnection charges in 2008 which aimed at gradually decreasing the Mobile Termination Rate (MTR). Reduction in MTR significantly reduces the call rates at consumer level, therefore, this step could ultimately benefit the end user in the long run. Since 2008 till January 2010, MTR was gradually decreased from Rs. 1.20 per minute to Rs. 0.90 per minute; however, cellular mobile operators constantly approached the Authority to freeze the termination rates at Rs. 1.00 per minute due to

tough financial circumstances of the cellular industry.



In this regard, PTA held a meeting with CEOs of all cellular mobile operators regarding freezing of Mobile Termination Rates (MTR) on 13th January, 2010. All the cellular mobile operators were of the view that they have complied with Authority's determination on cost based

interconnection charges regarding reduction in MTR to Rs. 0.90. Thus, MTR for inter-operator mobile calls should be maintained at Rs. 1.00 per minute. While analyzing traffic data of cellular mobile operators, it was observed that traffic volume of all the CMOs has increased significantly. After thorough discussion with the stakeholders and based on traffic and cost analysis, it was decided by the Authority to retain the MTR at Rs. 0.90 per minute till further orders.

ICT PROMOTION

ICT capability is fundamental to participation and engagement in modern society. ICT can be used to find, develop, analyze and present information, as well as to model situations and solve problems. It enables rapid access to ideas and experiences from a wide range of people, communities and cultures, and allows people to collaborate and exchange information on a wide scale. ICT acts as a powerful force for change in society, and citizens should have an understanding of the social, ethical, legal and economic implications of its use. Pakistan has a huge untapped potential in ICT especially regarding the proliferation of internet and broadband services. PTA is cognizant of the endless possibilities of ICT usage not only for information but development as well. ICT promotion has been the top agenda of PTA and a number of initiatives have been undertaken and supported by PTA throughout the year to improve the ICT profile of the country.

ICT Excellence Award for Chairman PTA

The 2010 NetSol Technologies ICT Excellence Award was presented to Chairman PTA, Dr. Mohammed Yaseen to appreciate his personal and professional dedication to initiate ICT usage in the country. The NetSol Technologies ICT Excellence Award was held to identify



the most outstanding contribution towards ICT development in Pakistan. In this regard an exclusive ceremony was held at NetSol IT Village, Lahore where President Netsol Technologies Mr. Salim Ghauri presented the award to Chairman PTA.

NGN-Industry Working Group

PTA and all major operators have formed an industry working group on NGN so that any issues related to migration of existing networks towards NGN can be mutually discussed and resolved with unanimous consent. Telecom vendors have also been made up of the working group so that every quarter is on board regarding NGN developments in the country. The operators and stakeholders have been very active providing Authority with their network status and recommendations during the group meetings.

During the first seven months of the working group formation, issues like hardware standardization, carrier interconnects, present and future roadmaps, requirements and framework of end-to-end QoS and security considerations for NGN networks have been deliberated upon by the participants.

As a result of these efforts, 'Pakistan Internet-backbone' on Gigabit Ethernet (GigE) interface (IP-MPLS) has been proposed by the working group. With this concept, the IP backbones of various major operators will converge on an optical backhaul platform i.e. virtually any type of traffic, and any service type. It will help facilitate the convergence of traffic e.g. one protocol from user-end to another user end with simplified management, better quality of service with flexible and user centric service creation and hence fast services roll-out.

Promotion of Local Content and Applications

PTA in collaboration with Motorola organized an exclusive conference on “Promoting ICT Sector of Pakistan” on February 25, 2010 at Islamabad with the aspiration to encourage widespread development of local content and applications together with establishing strong links between the ICT industry and Academia. Secretary IT & Telecom Naguibullah Malik, Chairman PTA Dr. Mohammed Yaseen, Member (Finance) PTA Syed Nasrul Karim Ghaznavi, Member (Technical) PTA Dr. Khawar Siddique Khokhar and more than 120 leading representatives from Ministry of IT&T, USF, ICT R&D Co, PSEB, PTA officers, telecom operators, IT companies, ICT



equipment manufacturers, ICT consultants, and academia were present to impart their valuable input and expertise on the subject. The primary theme behind the conference was to discuss various accessible technologies, their potential in being pertinent to Pakistani telecom market and setting up a forum for promoting efforts in both technical and business related areas, to promote and generate local applications as well as entrepreneurial and managerial skills with relevance to ICT sector in Pakistan. A total of nine (09) content providers demonstrated their latest applications which were received with tremendous response by the participants.

Mobile Banking Regulations

Subsequent to Electronic Transfer Act (2005) and Branchless Banking Regulations (2008) promulgated by State Bank of Pakistan and PTA, a couple of financial institutes introduced mobile banking models based on a 1-to-1 relationship. Furthermore, Telenor also announced its mobile payment/transfer model where the operator bought a financial institute. In order to introduce a unified regulatory regime catering to the requirements of operators, financial institutions and the consumers by providing a many-to-many relationship, PTA has joined hands with SBP for drafting of "Mobile Banking Regulation" based on a third party service provider model. The primary objective of these regulations is to cater to three major concerns including the need to continuously balance between prudential controls and allowing innovation to flourish within the financial and telecommunication sector, to ensure consumer confidence in the payment systems and clarity on accountability with cross-sector regulatory requirements. PTA and SBP are in the process for preparing the draft of 'third party mobile banking regulations' to make the technological, financial combo endowment of the country flourish.

National Rabta Portal Development

Pakistan is one of the most promising countries in the world owing to huge potential it offers with its vast resources and hardworking people. In this age of information and internet, strong online presence is a necessity rather than a facility. Therefore, PTA has planned to launch a national information portal which would provide information and content repository regarding Pakistan to residents, visitors and international communities. The primary objective of the national web portal is to create a single source facilitation web site that allows a user to access any and all information regarding Pakistan that is available on the net or electronically.

National Rabta Portal will be a highly robust and reliable online resource modeled on the international standards with advanced features such as highly friendly user interface, efficient search mechanism, well secured and resilient to any hacker attacks.

Joint Statement of Interest with Ericsson Pakistan

In a joint ceremony held at PTA headquarters, Ericsson Pakistan and PTA signed a joint statement of interest for prospective ICT initiatives to be carried out jointly by both

organizations. Chairman PTA, Dr. Mohammed Yaseen and President Ericsson Pakistan (Pvt) Ltd, Mr. Mohsen Tavakol signed the statement. The statement of interest was signed in relation with ITU theme of 'Better City, Better Life with ICTs' for this year's World Telecom and Information Society Day (WTISD).



PTA and Ericsson will embark upon a number of projects in the near future and the joint statement of interest was an official recognition of commitment between both the parties. PTA has taken number of initiatives to launch and promote new innovative solutions for the betterment of telecom industry and society. PTA believe in harmonized efforts for the escalation of ICT industry in Pakistan and looks forward to carry out significant projects in partnership with Ericsson Pakistan to bridge the gap between industry, academia and the regulator.

Urdu Version of PTA Website

On 17th March 2010, PTA launched the Urdu version of its official website on internet to assist the major chunk of Pakistan's population which is more comfortable with presentation of information in national language. The website was unveiled in an auspicious ceremony held at PTA Headquarters, Islamabad by The Advisor to the Prime Minister on IT, Sardar Muhammad Latif Khan Khosa. Chairman PTA, Dr. Mohammed Yaseen, Member (Finance) PTA, Syed Nasrul Karim Ghaznavi, Member (Technical) PTA, Dr. Khawar Siddique Khokhar were also present on the occasion.

This new Urdu version of PTA website contains the same contents of the English version converted into simple Urdu language with similar layout and design. This step has been taken in view of providing online information to those internet users who are generally less-educated in web-surfing or less-familiar with English language. The users would also be able to access the online available information regarding PTA activities, decisions, policies, consumer protection regulation and complaint management system. A special CMS (Content Management System) has also been developed for this website to integrate the new consumer complaint system with the telecommunication operators. The new complaint system would also provide a multilingual interface to the consumer both in

English and Urdu. Under the link titled “shikayaat” the consumers can lodge their complaints by filling and submitting a simple online complaint form. Besides, SIM Information System 668, blocking of stolen handsets through IMEI number, telecom sector indicators and other such services would also be available on Urdu version of PTA website.



Mobile Edition of PTA Website

PTA as a facilitator and staunch advocate of ICT based services has the responsibility to create awareness regarding ICT platforms and ICT usage among telecom industry and general public. In a trend setting move, PTA launched its Wireless Application Protocol (WAP) site thus allowing users to access the website through mobile phones. Mobile users can now access PTA's website through <http://wap.pta.gov.pk>. The available information of PTA's standard website has been transformed into simple text-based content to lower the bandwidth requirements of a mobile consumer. It is worth mentioning here that PTA has become the first public sector organization in Pakistan to have English, Urdu and the mobile versions of its website.

RESEARCHING

PTA being the regulator of the telecom industry puts special emphasis on latest and home based research to keep an eye on the latest developments in telecommunication and ICT

around the world. Different paradigms of telecom industry and possible ways forward are explored via in-house studies and outsourced consultancies. Different study papers are prepared by PTA officers on a diverse range of topics such as policy and regulations, ICT access and use, tax analysis, , industry matters and consumer-related SOP's and guidelines etc. Moreover, PTA continued to engage local universities to undertake research on telecom sector that could be helpful for policy making in Pakistan.

PTA being an academia friendly organization has taken number of initiatives to establish strong linkages between the educational institutions and PTA for the promotion of telecom research. Continuing the trend, PTA plans to sign such MoUs with leading research institutes all across the country. It is anticipated that such collaboration would allow the academia to share its research in the field of telecom, for its appropriate utilization by the regulator and other organizations. Main objectives of this collaboration are to support research activities and to equip the future leaders with theoretical training as well as practical experience in policy and regulatory issues of telecom sector.

Memorandum of Understanding with NUST & CIIT

PTA has signed Memorandum of Understandings (MoUs) with National University of Science and Technology (NUST) and COMSATS Institute of Technology (CIIT) to enhance mutual cooperation for research in the relevant field and to promote mutually beneficial relations between the institutions. Chairman PTA signed MOUs with Rectors of NUST & CIIT separately. These MoUs would be valid for (five) 5 years and would be renewed after completion of the five year period.



The MoUs envisage that PTA would provide telecom information and expertise to NUST and CIIT; reciprocally NUST and CIIT would encourage its students to undertake research in different areas of telecom sector. Under these MoUs, PTA would help NUST and CIIT in identification of research areas. Similarly NUST and CIIT would cooperate with PTA on different issues related to trade, business and economy. PTA is also working with NUST on the establishment of Lab for WiMax standard testing.



Benchmark Study on Broadband Tariffs

PTA carried out a benchmark study on broadband tariffs to assess and compare level of broadband tariffs prevailing in Pakistan against other countries and to identify the areas where further improvements can be made for the benefit of operators and users. For this purpose, broadband tariffs of SAARC region (India, Bangla-desh, Sri Lanka, Maldives, Nepal and Bhutan) as well as Malaysia were analyzed and reviewed. The study was based on the broadband tariffs offered by different operators in each country

²<http://www.sbs.ox.ac.uk>

Table - 2
Comparison of Incumbent Operator Tariffs

(Rs/mbps)

Countries	Tariffs	Data Limit
Pakistan	1,199	Unlimited
India	1,850	Night time
Malaysia	2,475	Unlimited
Bangladesh	1,584	Night time
Sri Lanka	2,146	Unlimited
Maldives	1,309	2 GB
Nepal	5,635	Unlimited
Bhutan	3,346	10 GB

Table - 3
Comparison of Unlimited Packages with Minimum Charges

(Rs)

Countries	256 Kbps	512 Kbps	1 Mbps
Pakistan	1,199	850	1,199
India	1,108	1,108	1,848
Malaysia	-	-	1,650
Bangladesh	1,215	2,612	-
Sri Lanka	-	1,184	2,146
Maldives	-	4,244	-
Nepal	1,610	2,990	5,635

on unlimited or limited data basis. Each country's broadband profile and operator-wise tariff details were analyzed and compared with same (or closest) package available in Pakistan. Some of the study results are given in Tables 2 & 3.

The study concluded that Pakistan's broadband tariffs are very competitive as compared to regional countries. . However, one area of concern is that despite competitive tariffs, Pakistan's penetration rate is the lowest among peer countries like Malaysia, India, Sri Lanka and Maldives. It is also pertinent to highlight that Global Broadband Study was carried out by University of Oxford in September 2009, sponsored by Cisco which has ranked Pakistan at 60th position ahead of India and Indonesia which were given 62nd and 63rd position respectively². Malaysia was ranked at 48th position out of 66 countries. Broadband quality study has defined two waves of broadband services. meeting today's requirements which has download and upload speed of 3.75 Mbps and 1 Mbps for the period starting from 2000 to 2009 and meeting tomorrow's requirement with download and upload speed of 11.25 Mbps and 5 Mbps starting from 2010 till 2015. Pakistan which was placed in leapfrog opportunity in 2008 has now been upgraded in today's applications threshold category whereas India was placed at leapfrog opportunity for both the years.

Unearthing the menace of Grey Traffic

Controlling the grey traffic is one of the most arduous and difficult tasks for a telecom regulator in any part of the world. Not only it harms the national economy by depriving the Government revenue in terms of Access Promotion Contribution (APC) but creates a web of illegal telecom activities difficult to detect. PTA is determined to end this menace and took a number of steps to block illegal voice calls being brought in Pakistan from abroad using internet and bypassing the International Gateways. A monitoring team of highly technical professionals and dedicated workers equipped with fully automated state of the art monitoring tool monitors and adopts different procedures and processes to apprehend the culprits round the clock, not only to safeguard the national exchequer but also to ensure severe punishment as per the law. In addition, the technical system does a real time monitoring of IPs and blocks the ones involved in carrying illegal traffic to the country. Similarly, SIMs/IMEIs suspected to be involved in illegal call termination are also blocked on daily basis.

As a result of these efforts, 17 successful raids were carried out during FY2009-10. During these raids, 27 Gateway Exchanges were confiscated and 31 persons including foreigners apprehended. Moreover, PTA blocked 20,560 SIMs/connections of cellular operators and 13,032 IMEIs. In addition, approximately 0.17 million IPs involved in illegal call termination were blocked during the current fiscal year.

² www.sbs.ox.ac.uk

Comparative Study on Domestic Private Leased Circuit (DPLC) Charges

PTA carried out an important study to analyze and compare prevailing tariffs of DPLC in Pakistan with international best practices in order to identify the areas where further improvement can be made for the benefit of telecom operators and end users. In this regard, DPLC tariffs of Pakistan were analyzed in context with India, Sri Lanka, Singapore, Australia, and UK. Circuit types/capacities included in the study comprised of 2 Mbps, 8 Mbps, 34 Mbps and 155 Mbps. Study findings revealed that: -

- *For bandwidth capacity of 2 Mbps, India offered lowest DPLC tariffs as compared to Pakistan, Sri Lanka, Australia, UK and Singapore.*
- *British Telecom (BT) of UK charged highest tariffs under 8 Mbps and 34 Mbps capacities as compared to India and Pakistan while India offered lowest tariffs for said capacity. It was also observed that incumbent operators of Sri Lanka, Singapore and Australia did not offer this capacity to their interconnect operators.*
- *In bandwidth capacity of 155 Mbps, India offered lowest tariff as compared with Pakistan, Sri Lanka, Australia, UK and Singapore. Pakistan was placed at second position and Australia was at last place with highest tariffs.*

The study thus concluded that Pakistan's DPLC tariffs were competitive as compared to the advanced telecommunications markets like Australia, UK and Singapore. Recommendations/suggestions of the study are being reviewed by the Authority for making DPLC charges of Pakistan more competitive and comparable.

Unification of Licenses

With the evolution of technology, the traditional technologies applied for provision of telecom services are squeezing and now one technology can be used to offer more than one type of service. In order to address this issue a term “unification of licenses” has been introduced where all type of services can be provided under one license.

A study was conducted mainly focused on current telecom licensing regime in Pakistan from the legal and regulatory stand point under the existing legislative framework, with an anticipatory overview of highlighting the legal and regulatory issues of Unified Licensing to be faced by the policy makers and country's regulator in the years to come. The scope of the study however, was neither to discuss the technological issues or aspects of introducing the concept of Unified Licensing Regime nor the migration process towards Unified Access License in Pakistan.

Clock Synchronisation of Service Provider's Network

PTA carried out a comprehensive testing across Pakistan from 25th May, 2010 to 15th June, 2010 on the approved clock synchronization methodology. The Authority had approved the methodology/SOP for the testing or verification of the network clock

synchronization of the service providers. The objective of this exercise was to ascertain that no anomalies exist between the standard Greenwich Mean Time (GMT) and service provider's network elements especially CDRs generating servers, since this time synchronisation difference has a direct impact on the inter and intra operator billing and reconciliation. The entire verification of the service providers showed that no major discrepancy in timings of the GMT and that of the servers generating the CDRs was encountered and they were more or less strictly synched with GMT, either through GPS or Network Time Protocol (NTP).

PROPakistani.PK



ECONOMIC CONTRIBUTION

During FY 2009-10, Telecom sector continued to actively contribute to the national exchequer through a steady state of revenue generation, subscriber growth and boost in teledensity despite difficult economic situation in the country. Telecom companies invested heavily in aggressive marketing techniques and infrastructural expansion in far flung areas of Pakistan. USF contribution for undertaking these investments lent a helpful hand in keeping the telecom developments consistent. PTA's contribution has facilitated a smooth growth of the sector. The Authority has approached the concerned quarters of the government to reduce the tax burden on the industry to ensure confidence building of the investors in the telecom sector.

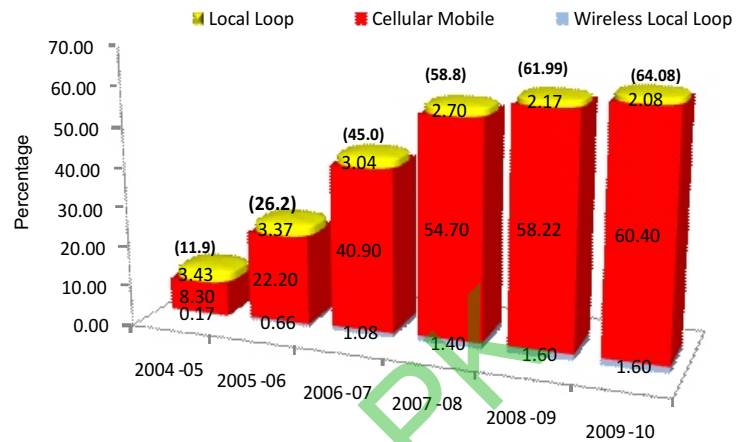
Teledensity

Total teledensity of the country reached at 64.08% with 3.5% increase registered in FY 2009-10. Cellular mobile sector took lead in the increase of teledensity, offsetting the dwindling figure of fixed/wired line teledensity. Emergence of effective competition between telecom operators continued in telecom sector benefiting the consumer in terms of lowering tariffs and unraveling costly investment possibilities. Cellular mobile companies are now moving towards lowest possible tariffs and offering wide range of data services as well.

Mobile telephony has substituted the fixed line telephony in Pakistan with teledensity ratio of 94% to 6% in 2010. This trend has also been observed around the world however, the wireless fixed line service is still in its infancy. The incumbent operator, who is the

major share holder in fixed line services in Pakistan, has offered various incentives for the expansion of fixed line coverage in both underserved and already served areas with customer services representatives knocking on doors asking people if they require a new connection or a broadband solution. PTCL has metamorphosed from implementation to interactive mode on the principle that fixed line telephony can never be redundant due to the comfort and clarity of voice communication associated with it. Major revenue is generated from voice service. A migration to data services is the future revenue stream with EvDO and other brands giving high downloading speeds of 20 to 30 MB. Overall PTCL has inherent advantages in the face of competition like its network core locations and infrastructure.

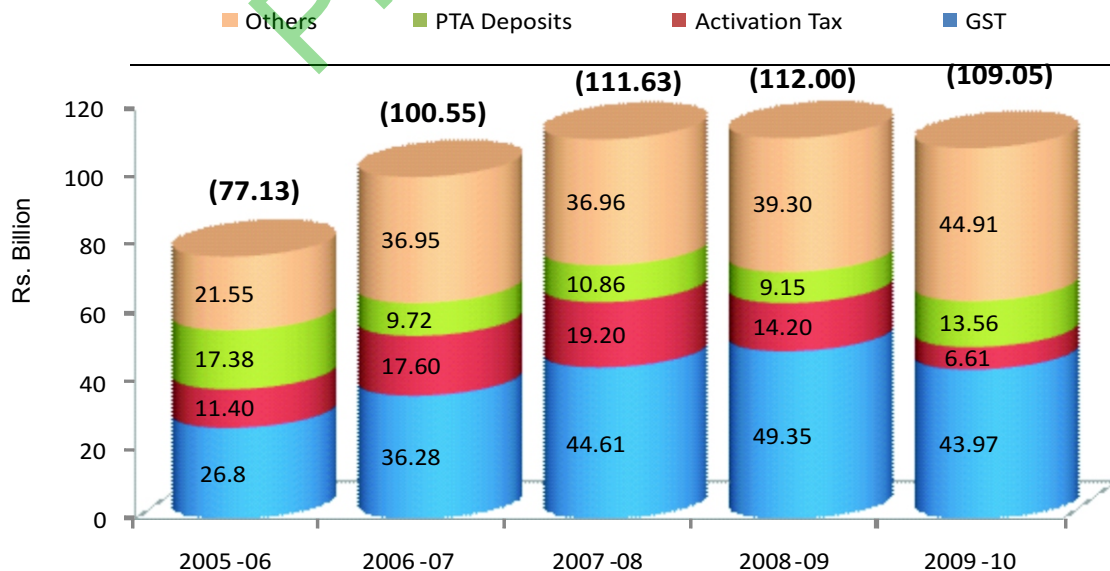
**Figure - 1
Teledensity**



Contribution to Exchequer

During the FY 2009-10, telecom sector contributed handsomely to the national exchequer through taxes, license fees and other duties of Rs. 109.05 billion which is about Rs. 2.5 billion less than the previous year. During last five years, over Rs. 500 billion poured into the national kitty in lieu of taxes and duties. The decline in

**Figure - 2
Telecom Contribution to Exchequer**



Source: Central Board of Revenue and Pakistan Telecommunication Authority.

Note: PTA's contributions comprise of all its receipts including Initial and Annual License Fee, Annual Spectrum Administrative Fee, USF and R&D Fund Contributions, Numbering Charges, License Application Fee, etc. Others include custom duties, WH Tax and other taxes.

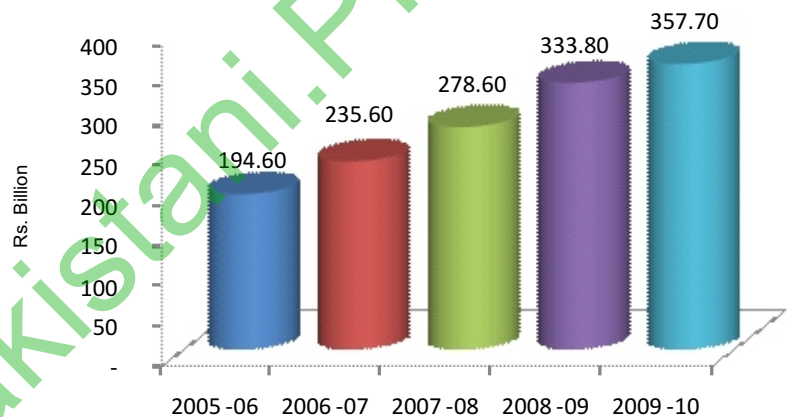
contribution is mainly because the market has reached its saturation point and additional subscription is lowering every year which is reflected in lower activation tax collection. FED/GST collection from the telecom sector also declined impeding the usage of telecom services due to high tax rates.

PTA has collected over Rs. 13.56 billion in the FY 2009-10 as initial license fee, USF and R&D contribution. This amount was 48% higher than the Rs. 9.15 billion collected in the previous fiscal year.

Revenues

Telecom Sector revenues improved steadily in the FY 2009-10 and 6.5% growth rate was witnessed. Total telecom sector revenues reached Rs. 357.7 billion in the FY 2009-10 compared to Rs. 333 billion the previous year. Cellular Mobile sector remained in the forefront of revenue generation. Its revenue increased by about 11% in the current year from Rs. 212,423 million last year to Rs. 236,046 million in the FY 2009-10. Its share in total telecom revenue stands at about 70% in the FY 2009-10 compared to 64% in the previous year.

**Figure - 3
Telecom Revenues**



Investments

During the past 5 years, telecom sector invested over US\$ 11 billion in total in all segments of the sector and created millions of job opportunities in the country. Since the telecom sector is heading towards maturity, investment is also contracting with time. In the FY 2009-10, telecom sector invested over US\$ 1.13 billion in total which is about 508 million less than the previous year. Cellular mobile share in total stake remained about 80% with coverage for infrastructural expansion of over US\$ 908 million extended to all regions of Pakistan

Telecom sector attracted over US\$ 6.3 billion FDI in the last 5 years, which is an encouraging response by the investors to Pakistan telecom sector policies. UAE, Norway and USA remained the major sources for FDI during last five years. Out of total US\$ 6.3 billion FDI in the sector, UAE invested over US\$ 2 billion and its share was more than 32% while USA and Norway brought FDI worth US\$ 890 million and US\$ 639 million respectively. Share in telecom FDI of both of these countries comes out 24%. China is another source of FDI for telecom sector with contribution of US\$ 582 million in last five

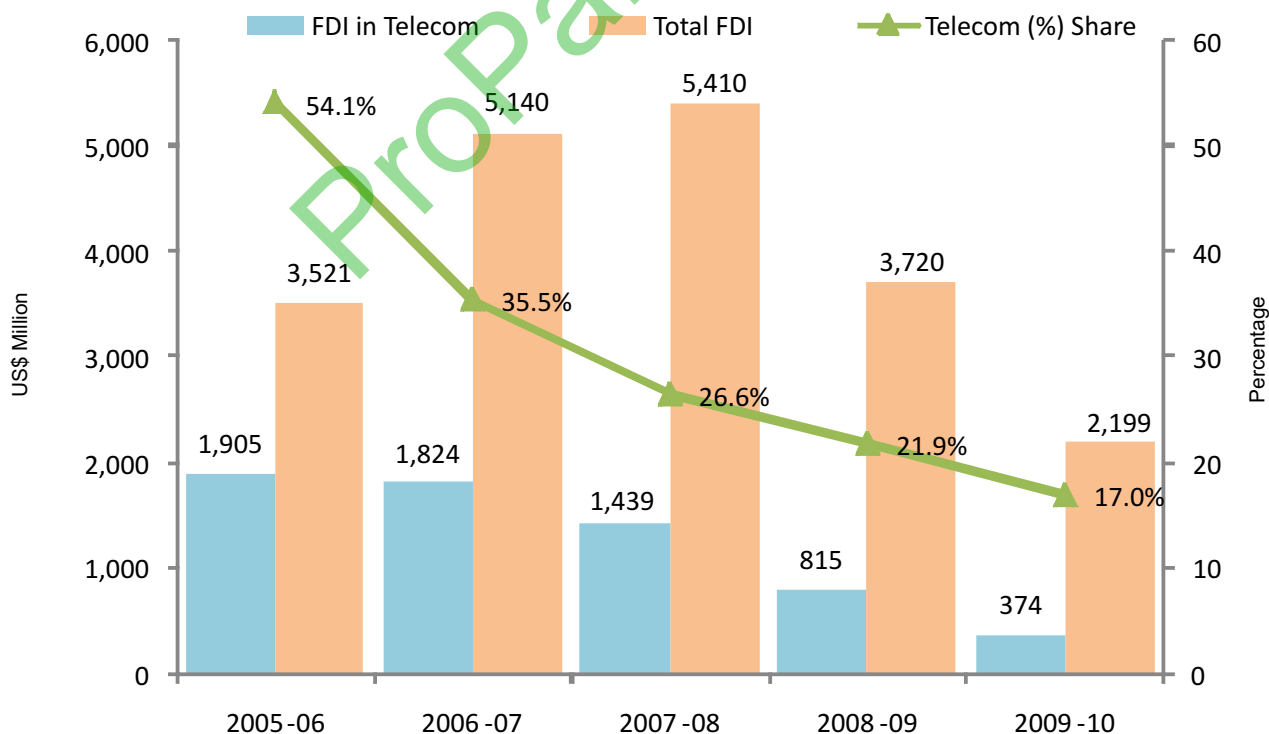
years. Rest of the FDI brought by other countries including Singapore, Netherlands, United Kingdom and Hong Kong etc.

**Table - 4
Telecom Investment**

	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Cellular	1,158.1	1,420.9	2,584.5	2,337.7	,229.75	908.8
LDI	35.1	50.5	602.8	403.9	276.75	183.1
LL	2.3	0.3	40.6	342.1	57.37	22.5
WLL	277.3	259.4	747.0	52.8	82.11	23.0
Total	1,472.8	1,731.1	3,974.8	3,136.4	1,645.98	1,137.51

Recently the growth of FDI in telecom sector declined slightly due to saturation in the telecom market. But another wave of FDI is expected after the launch of 3G services by Pakistan. In FY 2009-10 alone, telecom sector attracted over US\$ 373 million FDI which is about 17% of the total FDI landed in Pakistan during FY 2009-10.

**Figure - 4
Foreign Direct Investment**



Source: State Bank of Pakistan

Taxes

Tax rate rationalization is the need of the hour for further growth of the telecom sector. PTA has time and again reminded the tax authorities that telecom sector is over burdened with taxes which should be reduced so that more tax collections could be achieved from the sector.

Telecom sector contributed about Rs. 44 billion alone in FED/GST head to the Government of

Pakistan during FY 2009-10 where sector also contributes in other tax heads like withholding, Income taxes and duties etc. Last year sector contribution in FED/GST was more than Rs. 49 billion. The decline in FED/GST collection is attributed to increase in its rate, low tariffs and decline in service usage due to high inflation in the country.

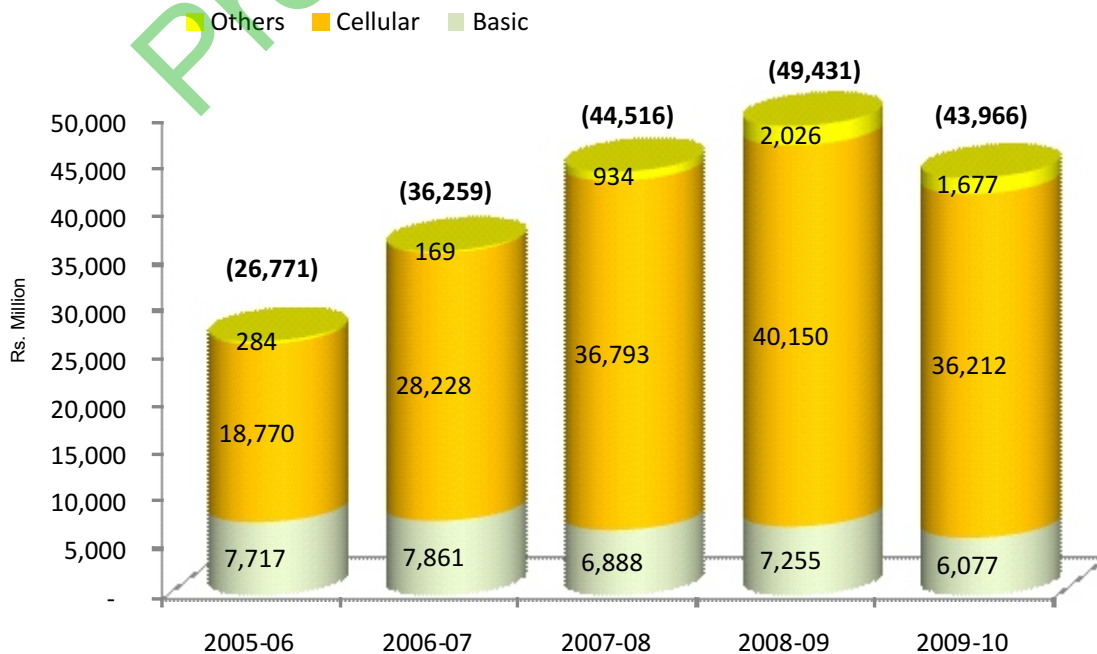
Pakistan mobile industry continued to be one of the main contributors to national exchequer in terms of taxes. At the end of reported year total tax collection by mobile sector was Rs. 71.95 billion which was Rs. 82.3 billion in 2008-09. Therefore a dip of 13% in total tax collection from mobile sector is witnessed during the reported year. While looking at each segment, a dip of 10% is observed in total FED/GST collection from mobile sector where Rs. 36 billion have been deposited in national exchequer by all mobile operator during FY 2009-10. Activation tax is another area where collection declined by about 53% in the FY 2009-10.

Table - 5
Taxes by Cellular Mobile Industry

	<i>Rs Million</i>					
	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
GST	9,872	18,770	28,324	36,793	40,150	36,212
Activation	7,577	11,398	17,579	19,189	14,189	6,614
Withholding	4,470	8,584	17,438	23,386	28,002	29,125
Total	21,919	38,752	63,341	79,368	82,341	71,951

Source: Federal Board of Revenue & PTA

Figure - 5
GST/FED Collected



Source: Federal Board of Revenue

CELLULAR MOBILE

Due to consistent and unwavering growth patterns Pakistan mobile industry has achieved landmark of 100 million subscribers at the end of July 2010. Even though the sector had been showing signs of slow down since last year yet growth remained positive. The economic crisis around the world had hit Pakistan in general and its impact on the mobile sector was also felt. However, continuous investment streams in the homeland by world's telecom giants such as Orascom, Telenor, Etisalat, Singtel and China Mobile, kept the sector alive even in these arduous times. The operators kept introducing new value added services and increasing their coverage areas while maintaining the international standards of quality. Services like, Double Number SIM by Ufone, first ever Android Phone launched by Mobilink, Telenor's Easy Paisa and first-ever location based service in Pakistan for Chitral city by Zong are a few to name that have taken our mobile sector to new heights.

Pakistan mobile sector has survived the tough time and the falling telecom indicators have stabilized with timely and prudent strategies adapted by the Government and the Regulator. The total subscribers grew by 5.1% in FY 2009-10, whereas the revenue growth was 11% for the FY 2009-10 when compared to last year. However, the security and global financial conditions are two areas which are beyond the control of policy makers. Service disruptions due to jammers and physical damages to the mobile networks in the troubled areas have taken away the communication necessity from the population of those areas. Similarly natural calamities like torrential rains, floods and earthquakes are common causes of non-availability of services to the affected areas for a longer or shorter span of time. The power shortage and unannounced power disruptions also caused damages to mobile services across the country. However, in order to keep the systems up and running and offer more reliable services, the operators worked around the clock and looked for alternative solutions like using solar powered BTS. There is a huge unmet and pending demand of mobile services from the disconnected troubled areas of the country and the operators are doing their best to come up to the expectations of their subscribers across the country.

Pakistan is among those few emerging markets in the world that are faced with low ARPU right after the deregulation of the sector where the ARPU stands at US\$ 2.41. There are several reasons for low ARPUs; Pakistan like many emerging markets has a heavy tilt towards low usage prepaid subscription which counts towards low ARPU. The usage patterns are more towards voice and data is so far not an appropriately explored area thus constituting low returns.

Pakistan mobile sector recorded total revenue of Rs. 236.74 billion at the end of FY 2009-10 showing a growth of 11% over the previous year. It was expected that the revenue

growth would be higher this year but with aggressive competition, tariffs have been pushed down to minimal levels. In just one year, 10% to 20% reductions have been witnessed which resulted in narrowing the margins. Similarly Pakistan is among those few countries around the world where telecom services have been heavily taxed.

Pakistan Telecommunication Authority has been striving towards achieving excellence in quality of service of telecom sector whereby a healthy competition is maintained with latest and inexpensive technologies available to our local users as early as possible. In this regard the Authority regularly conducted QoS surveys during the year for all services; including mobile. PTA carried out QoS survey of all mobile operators, which were published in daily newspapers and resultantly the service quality has improved.

A well documented sector is termed to be the basic pillar for steady growth of the sector and realizing this PTA has successfully completed the verification of SIMs project. Also the operators are now bound to provide the active subscribers number on the standard active subscriber's definition issued by the Authority.

In order to make the sector most efficient in utilizing the telecom resources, PTA has implemented the infrastructure sharing SOP's and in addition a Memorandum of Understanding has been signed between the Authority and all operators on the subject. Infrastructure sharing would not only make the operators more efficient but also would give them huge cost saving and reduce environmental hazards in the country. With MVNOs getting common across the globe, Pakistan is also getting itself prepared for the new service. The Authority in this regard has announced licensing of MVNO's and interested parties are being given every support in terms of information required. The much awaited 3G licensing is just around the corner, where all the necessary work has been completed and the Authority is waiting for a policy by the Government of Pakistan to initiate the licensing processes. In continuation to its efforts PTA has been arranging seminars on 3G during the reported year for creating awareness about the 3G services and to foresee and discuss the challenges that the industry may face with the introduction of 3G services.

Mobile Penetration

Mobile penetration in Pakistan had been increasing at a very high pace from 2005 to 2007 and the growth was outstanding. However, with market getting mature and saturated the growth rate started to drop in 2007-08. Now the growth rate in mobile penetration is stable and penetration stands at 60.4% showing a cumulative average growth of 5% in last three years.

According to Information Economy Report, 2009 published by the United Nations Conference on Trade

Table - 6
Mobile Penetration 2010 (%)

Country	Penetration
Malaysia	96.8
Pakistan	60.4
India	53.8
Sri Lanka	35.0
Bangladesh	35.0
Nepal	20.0

and Development (UNCTAD), Pakistan is among the five dynamic economies of developing Asia in terms of increased penetration of mobile phones. While looking at the regional mobile penetration, Pakistan is far better than many of the Asian countries. Table-6 shows comparison of Mobile Penetration of selected Asian economies.

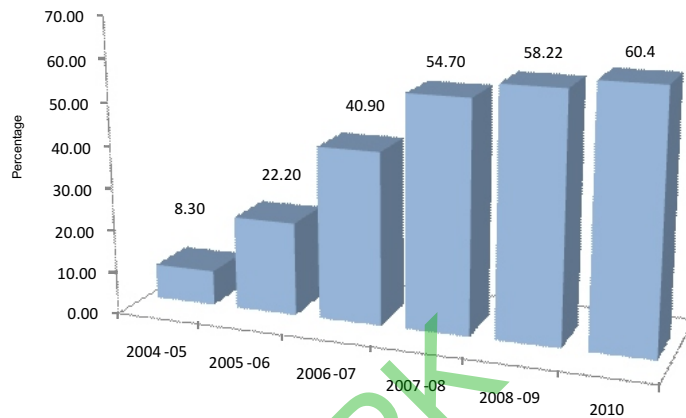
The mobile operators have been aggressively working on increasing their networks especially to unserved areas but disturbance in Khyber Pukhtun Khawa and Balochistan is hampering the progress of mobile communication.

Mobile Subscription

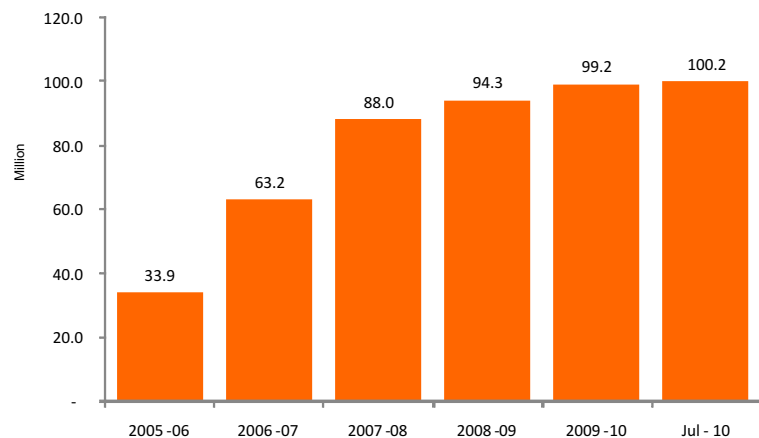
Like number of other emerging markets, Pakistan mobile sector also constitutes mainly of prepaid subscription. Since the economic situation is not very favorable due to increased inflation and higher cost of living, individuals have reduced their spending on communication needs, therefore, suitable options to stay connected still rests with easy loads and scratch cards. With over 97% prepaid subscription in the mobile market, the post paid subscription in Pakistan is insignificant (3%).

At the end of July 2010, total mobile subscribers reached at 100 million. During the FY 2009-10 cellular mobile subscriber showed a growth of 5.1% as compared to 2008-09 when the total subscribers stood at 94.3 million and growth was over 7%. The slow growth in the subscriber numbers is attributed to the fact that PTA has implemented the standard Active Subscriber's definition in the industry which has forced the operators to adopt data cleaning process. The total subscriber figures from all operators kept fluctuating in their

**Figure - 6
Cellular Penetration**

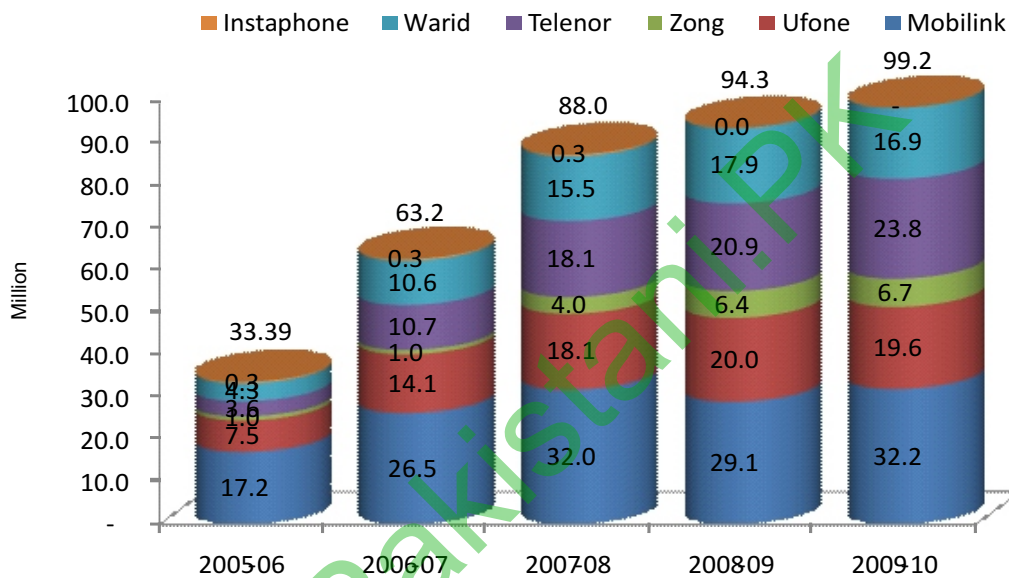


**Figure - 7
Cellular Subscribers**



quarterly reports. However, by the end of FY 2009-10 drop in the subscriber's number was reported by Ufone and Warid only. Similarly impact of verification of SIMs and falling economic and security conditions also played role in slow growth in subscriber numbers. Mobilink at the end of FY 2009-10 reported a figure of 32.2 million subscribers followed by Telenor at 23.8 million. Mobilink has been the market leader since long but if we look at the growth, Telenor's subscriber have grown by 14% in the reported year as compared to Mobilink's growth of 10.7%.

Figure - 8
Cellular Subscribers by Operator



Net Addition

The cellular operators added a total of 4.8 million subscribers to their network during FY 2009-10. While looking at the growth rate with which the net additions have grown over a year, a drop of 24% in net addition is observed since last year. Obvious reason for negative growth in net addition is due to data cleaning activity which was a result of implementation of standard definition for Active Subscribers by all operators. Ufone and Warid in an attempt to achieve the correct Active Subscriber figures, reported loss of 455,607 and 955,049 subscribers respectively, during the reported period. During the year only Mobilink, Telenor and Zong added new subscribers to their networks. The Table -7 shows net addition by each operator during FY 2009-10.

Table - 7
Subscribers Net Addition by Cellular Operators

	Mobilink	Ufone	Zong	Instaphone	Telenor	Warid	Total
2007-08	5,565,912	4,085,380	2,926,195	-1,1947	7,423,856	4,869,472	24,858,868
2008-09	-2,895,524	1,904,267	2,435,813	-287,086	2,767,940	2,396,878	6,322,288
2009-10	3,065,708	-455,607	317,717	-34,048	2,905,092	-955,049	4,843,813

Average Revenue per User

The Pakistani Mobile industry has been facing dropping ARPU's for last couple of years owing to the fact that initially the operators were adjusting to amplified fixed investments (rolling out network, predatory pricing etc). The falling exchange rates played an important role in pushing the ARPUs downward. This fact about local industry however, stands true for global mobile industry as well which is also depicting dropping ARPU levels. The economic turmoil that hit the global economy two years back also affected revenues and thus profits of the companies.

Pakistan mobile industry had witnessed dropping ARPU's till early 2009, however, recently the trend of ARPUs of cellular mobile industry appear to be stabilized and have stopped falling in the local industry (Figure -9 shows the quarterly ARPU trend). Stability in ARPU's can be seen in the purview of the facts that companies have recovered their fixed costs and the recent financial crunch have pushed the operators to reduce their operating expenses (layoffs etc.). The ARPU of Pakistan Mobile industry today thus stands at an average of US\$ 2.46 during last quarter of the FY 2009-10.

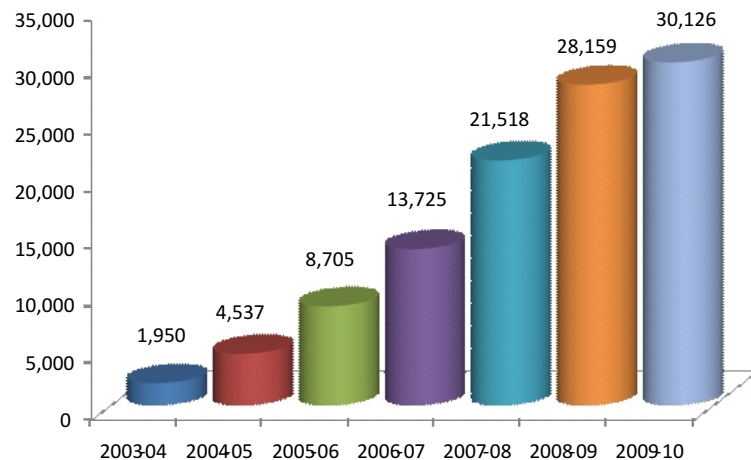
Figure - 9
Cellular Mobile Average Revenue per User per Month



Network Coverage

Network coverage coupled with exciting value added services plays an important role in deciding about the position of any operator in the market. The increasing coverage area serves as a key to incrementing the subscribers base. Number of cell sites erected by the operators also shows the position of the operator in the market and companies are competing with each other to gain bigger share. Today there are 30,126 cell sites erected by all operators combined across Pakistan, whereas in 2009 the total cell sites were 28,159

Figure - 10
Cell Sites by Cellular Operators



showing a growth rate of 7% in the reported year. Mobilink has the maximum number of cell sites in the country followed by Telenor and Ufone. While looking at net additions made by the operators, Ufone and Zong added maximum number of cell sites whereas minimum number was added by Mobilink and Warid. With a rather new concept of infrastructure sharing for which MoU has already been signed, number of cell sites will not remain a reliable parameter to evaluate the position of operators in future.

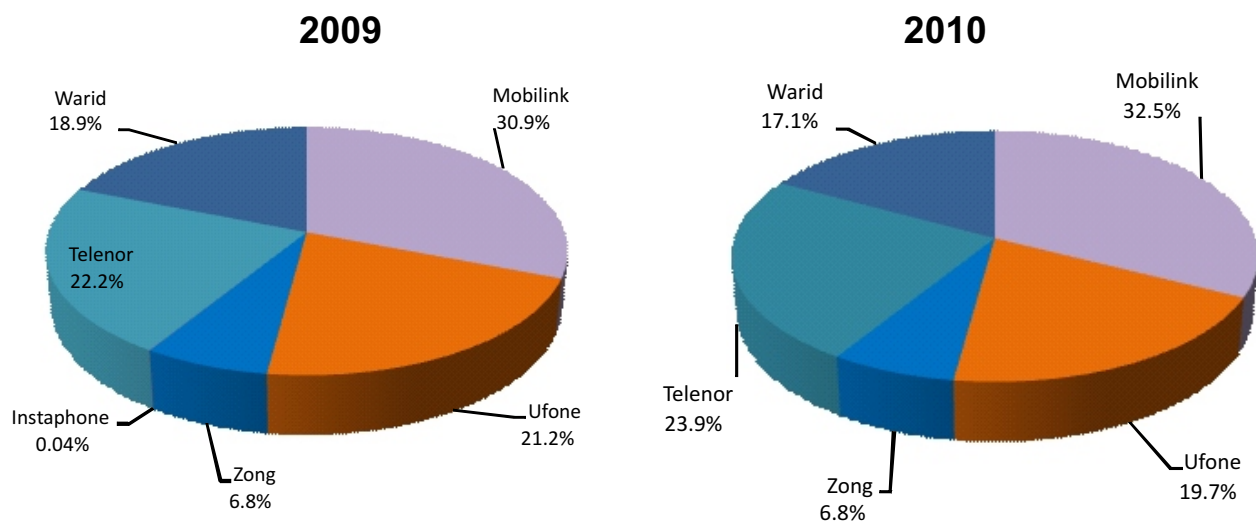
Market Share

Market share identifies market structure and status of local industry. The degree of competitiveness is entirely dependent on the share of each operator and the difference in shares among the operator. The lesser the difference more competitive is the market structure and vice versa.

Analysis of the market share is carried out on the basis of two parameters; subscribers and revenue. Since the start of sector, Mobilink has been leading both in terms of subscribers and revenue but the gap between Mobilink and other operators has been narrowing. Looking at the subscriber base Mobilink has a maximum share of 32% followed by Telenor and Ufone with 24% and 19.7% respectively. Comparing this year's market share with 2008-09 it is obvious that the share of Warid and Ufone have dropped by 1.9% points and 1.3% points. This drop in the share of Ufone and Warid has been taken over by Mobilink and Telenor whereas Zong maintains its share at 6.7%.

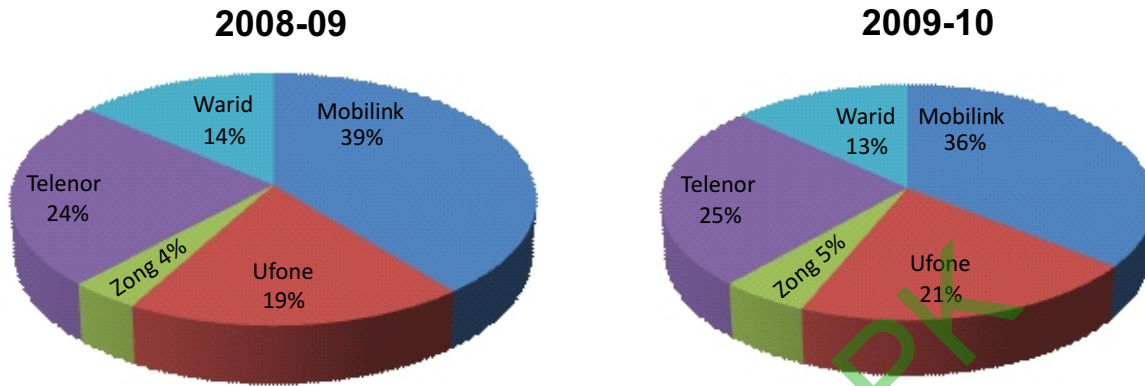
Total revenue of the mobile industry stands at Rs.236.74 billion during the reported year. While looking at the market share in terms of revenue the situation is no different than the situation in terms of subscribers. Mobilink has the maximum share in the market. The market share of Mobilink and Telenor has increased as their revenues improved over the year while the revenue of Warid dropped by about 1% compared to the previous year whereas drop in subscriber's is 5%. Conversely, in the case of Ufone, although the

Figure - 11
Subscriber wise - Cellular Market Share



subscribers have dropped with negative growth of 3% but the revenue was not adversely affected rather it improved.

Figure - 12
Revenue Share by Cellular Operators

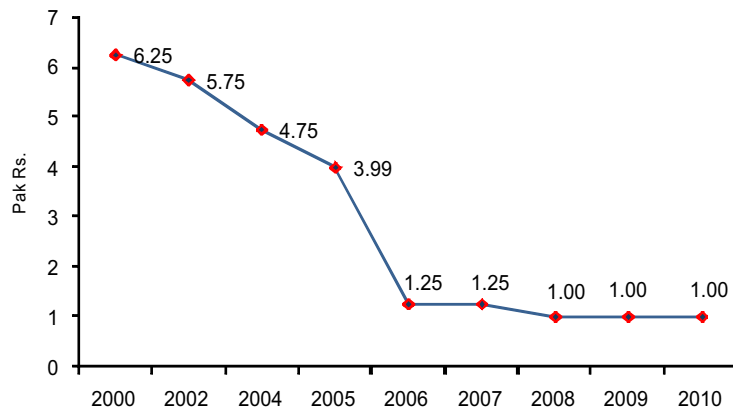


Cellular Mobile Tariffs

During the period under review, cellular mobile operators continued introducing innovative and attractive packages to their subscribers. However, it is satisfactory to note that the cellular mobile operators did not indulge in price-war which was witnessed during the previous financial year. Ufone took the lead in introducing most limited time offer packages and also introduced 'Super Ghanta Package' wherein Ufone subscribers can call to PTCL/Vfone subscribers at Rs. 3.50 per hour from 0400 to 1659 hrs with daily charge of Rs. 5.99. Cellular mobile subscribers continued to avail unlimited SMS bundled packages offered by several mobile networks. Some of the cellular mobile networks also offered attractive prizes to their subscribers whereby they have to answer simple and easy questions through SMS to win.

It is also heartening to note that cellular mobile operators are offering competitive international roaming tariffs. In this regard, some of the cellular mobile operators are offering discounted 'International Roaming' tariffs to their subscribers. Resultantly, IR tariffs (incoming charges) for networks on selected destinations such as UAE, KSA and UK were reduced to as low as Rs. 15 per minute.

Figure - 13
Cellular Mobile Tariffs



BASIC SERVICES

The Pakistan fixed lines sector when deregulated in 2003 was segregated into two separate categories against which licensing was carried out, Fixed Local Loop Services (FLL) and Wireless Local Loop Services (WLL). One of the main objective for the introduction of WLL service at the time of deregulation in 2003 was to provide a choice of wireless service to fixed lines users that presents the ease of movement of subscriber in small vicinity without any cable or wire attached. Another reason for the introduction of WLL service is that laying copper across the country is an arduous and time consuming task and incurs heavy expenditures. Pakistan Telecom Company Limited (PTCL), the incumbent operator still retains virtual monopoly in both fixed and wireless local loop services. The company has maximum presence across the country both for wireless and fixed local loop network. However, the company could not expand fixed line users as per expectations, though huge opportunities are still available. To revive its fixedline telephony, PTCL offered various tariff packages. However, all of these packages remained limited to its own network (fixed and wireless) which has market of only 3-4 million subscribers while no major bundle package for the cellular mobile segment was announced that has market of more than 100 million subscribers. The competition that PTCL faces in the areas where new operators are working is healthy thereby subscribers are enjoying enhanced services and lower tariffs. Both the new operators and PTCL are giving array of value added services to the subscribers with connections of both fixed and wireless including high speed broadband, IPTV, free voice mail service, free email account, Personal Global Number, WiFi services and many more. PTCL and new operators are equally facing problems especially in terms of maintenance. Recent torrential rains have seriously affected the telecommunication infrastructure across the country but operators are moving swiftly for restoration. In one such instance where a fiber optic cable of PTCL was damaged in the recent floods, the company repaired the fiber and the telecom services were available in a record 90 minutes.

Local Loop Teledensity

Across the globe the fixed line services are on the decline and it is expected that the declining trend will continue in the near future. Following the international trend, the fixed line teledensity in Pakistan has been on decline since last couple of years for various reasons. Today the total basic teledensity including fixed and wireless stands at 3.68%. The yearly growth in teledensity has slightly declined in the FY 2009-10. Fixed teledensity which has been dropping at a faster pace since 2007, today stands at 2.08% whereas the wireless teledensity is showing an increasing trend and has stabilized at 1.6%. The incumbent operator PTCL in order to maintain its existing customers and to attract new ones is offering number of incentives including waiver of line rent, bundled tariffs, attractive value added services and reduced international tariffs. Although fixed line services are being taken over by the wireless services up to some extent, however, no one

can deny the potential and advantages of fixed line services. Wireless local loop services are swiftly making inroads alongside fixed networks and are expected to outgrow the fixed local loop services. While looking at the market share fixed local loop has a total market share of 56% whereas wireless local loop's share is 44% at the end of reported year. Comparing current figure with those of 2006-07 the situation was quite different where fixed local loop had 85% and WLL had only 15% market share. It was the time when WLL services were newly introduced in the market. The WLL take up turned out to be very fast and only in three years it witnessed an average growth rate over 160%.

Figure - 14
Local Loop Teledensity

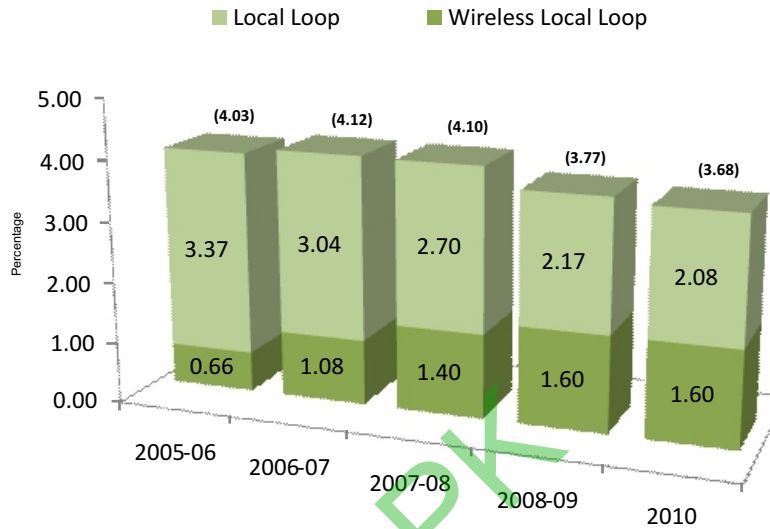
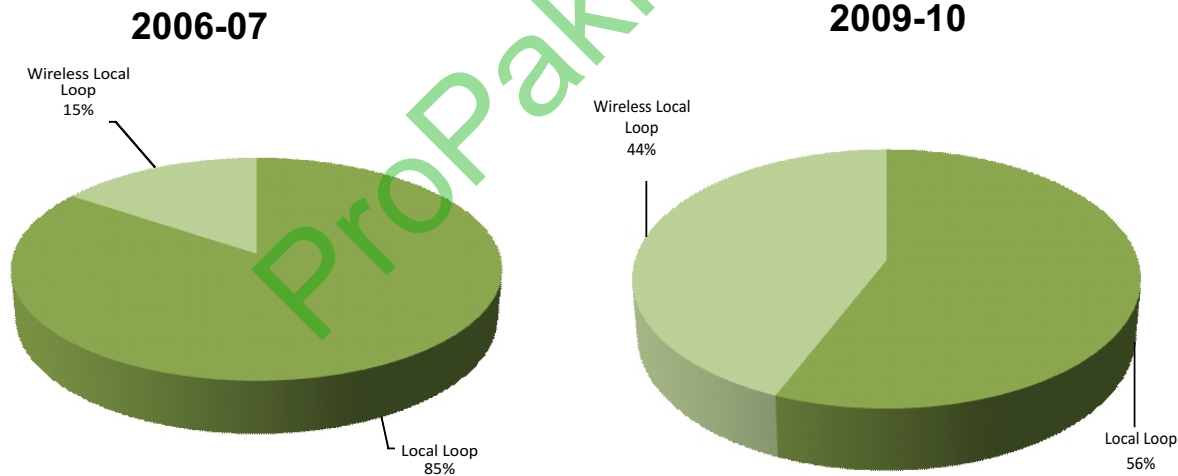


Figure - 15
Basic Subscribers Share by Service (LL & WLL)



Subscribers Mix

The main players in the basic telephony services remained to be Pakistan Telecom Company Limited (PTCL), National Telecommunication Company (NTC), Special Communication Organization (SCO), World Call, Telecard and Wateen. There is a total of 6.08 million local loop subscribers of which 3.42 million subscribers are of fixed local loop and 2.66 million subscribers are of wireless local loop services. The total local loop subscribers including fixed and wireless stood at 6.14 million in 2008-09. The segment did not show any improvement during the year rather a drop of 1% was witnessed in the

growth of local loop subscribers in the reported year. One of the main reasons for drop in the subscriber base was that PTCL lost 109,853 subscribers during the reported year. Moreover World Call also lost 2,360 subscribers during the same period.

While looking at the provincial scenario, the presence of local loop subscribers is maximum in the Punjab with 3.3 million subscribers followed by Sindh with 1.9 million subscribers, whereas the Khyber Pukhtoon Khawa (KPK) and Baluchistan have 0.7

Figure - 16
Basic Telephony Subscribers

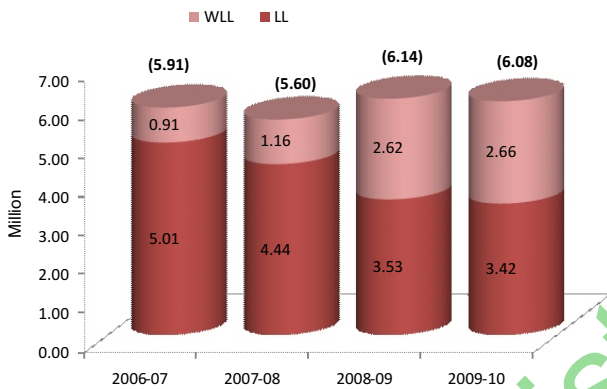
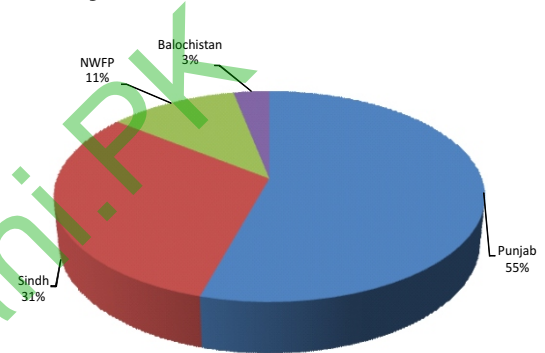


Figure - 17
Basic Telephony Subscribers Share by Province Jun-2010

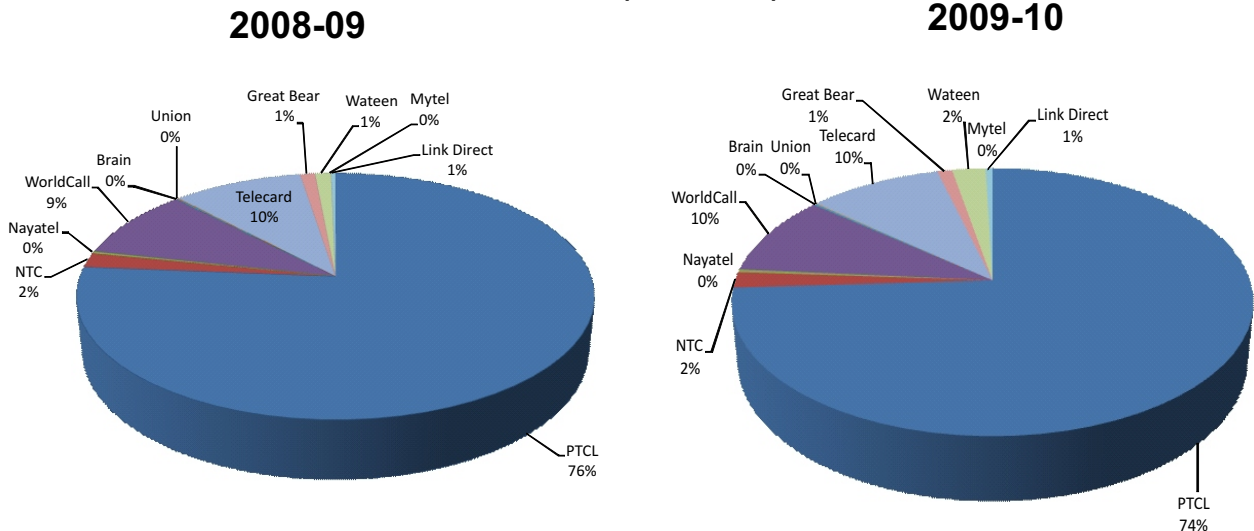


million and 0.19 million subscribers till the end of 2009-2010.

Market Share

PTCL remained to be the market leader as far as market share is concerned. PTCL has been declared as Significant Market Power (SMP) operator in Pakistan in segments including fixed line. PTCL is the sole operator in Pakistan with 100% coverage across the

Figure - 18
Basic Telephony Subscribers Share by Operators (LL& WLL)



country, however the quality of service issue still persists. First time in the history of Pakistan the Authority has issued Show Cause Notices (SCN) to the PTCL on poor quality of service and response is awaited for further action. The company currently holds 74% market share and has lost 2% in a year. Rest of the 26% market share is divided among the new operators out of which companies including Telecard holds 10%, World Call holds 10% and NTC and Wateen hold 2% each. While looking at the year on year growth Wateen has added maximum subscribers and thus gained 2% market share in FY 2009-10 from 1% in the previous year. All other small operators have added new subscribers to their networks including World Call, Nayatel, Telecard, Link Direct and Brain. Great Bear is the only company in addition to PTCL that has lost its subscribers during the reported

LONG DISTANCE INTERNATIONAL period.

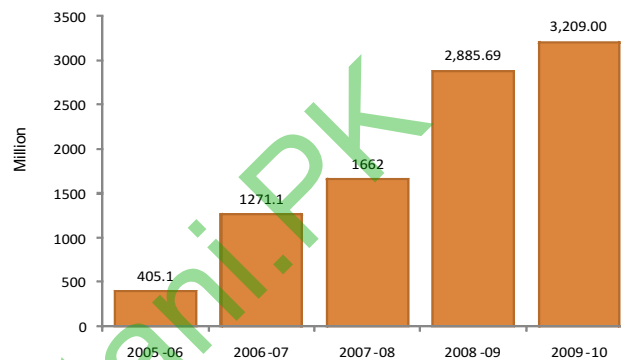
Long Distance International (LDI) services are an integral part of Pakistan's telecom industry which is responsible for carrying international traffic from Pakistan to abroad and terminating international traffic in Pakistan. LDI industry has invested heavily in infrastructure and is paying reasonable amount to national kitty through taxes.. Since the de-regulation of telecom sector in 2004, LDI industry has been trying to develop a stable business model where customer satisfaction could be achieved while keeping a sizeable profit margin intact. However, due to factors such as instant set up of illegal gateways, lack of industry coordination, high cost of optical links and unrealistically low tariffs, LDI industry struggled to establish its feet in the market. PTA stepped forward to bail out the industry by taking a number of initiatives like directing all LDI companies to follow the approved settlement rates, deployment of Monitoring and Reconciliation of International Telephony Traffic (M&RITT) system, raids against illegal call termination networks and regular review of Access Promotion Charges (APC). Due to high volumes of traffic being carried by the LDI companies, revenue generation has always been a highlight of LDI operations.

At the time of de-regulation in 2004, 14 LDI licenses were awarded of which 09 companies are currently operational in the country. Among the major players are PTCL, Link Direct, Wateen, WorldCall and Telecard. The license condition of minimum number of POPs for commercial roll out has been met by all the operational companies. The LDI industry is also a major source of foreign exchange earnings. Since the inception of LDI services, grey telephony has been a major irritant for Government and industry alike; however, PTA took up the challenge of curbing this menace by deploying a Monitoring facility called Monitoring and Reconciliation of International Telephony Traffic (M&RITT). The facility has so far saved the National Exchequer from billions of loss by detecting illegal IPs involved in grey telephony. Thousands of IPs and illegal SIMs have been blocked by the said facility apart from regular raids at the illegal exchanges. The deployment of M&RITT

facility is believed to be a major step towards restoring the confidence of genuine investors in LDI business and improving the portfolio of LDI services in the country. This fact is further advocated by the record number of international traffic reported in the FY 2008-09. This year, LDI industry has gone one step further and reached all time highest number of international outgoing traffic minutes owing to competitive international tariffs offered by various operators.

Figure -19 provides an insight on the outgoing traffic trends of LDI industry for the last few years. A total of 3.2 billion international outgoing minutes have been recorded in FY 2009-10 by all LDI companies combined. Although the growth rate is significantly low since last year, it is a fact that incoming traffic to Pakistan has always been higher than outgoing due to better economic condition of people residing outside the country. However, the increase in total number of outgoing international minutes is encouraging as people are showing confidence in LDI

Figure - 19
International Outgoing Minutes by LDI Operators



BROADBAND SERVICES

performance.

The Information and Communication Technology industry around the globe has evolved and matured with an unsurpassed pace of growth and its diffusion has been exceptionally smooth. The mandate of World Summit on Information Society (WSIS) that “more than half of world's inhabitants will have access to ICTs within their reach by 2015” has already been met. The dynamism of fixed and wireless broadband now becomes a deciding factor for increasing the broadband proliferation in any part of the world which would bring a lot more gains than what mobile communications had offered us at the start of the new millennium. Therefore a large number of countries are considering wireless broadband to overcome access gap, whereas Nordic countries vigorously expanded broadband usage on the basis of fixed broadband connection in 2002. Government policies also play pivotal role in proliferation of broadband. To this end investor friendly policies are formulated to facilitate broadband rollout through soft taxation regimes, competitive market structures and fiscal incentives that result in giving stimulus for growth to the local market.

Pakistan experienced a decade of exceptionally high telecom growth both in terms of technologies and accessibility, however, this growth mostly remained limited to voice only up till recently. It has been over 10 years now that Pakistan is connected to the World

Wide Web however, a negligible number of people have the opportunity to enjoy this facility. The basic email and internet services that were introduced in Pakistan in 1998 were taken over by broadband services in the year 2000 when World Call introduced the first ever high speed internet through Hybrid Fibre-Coaxial (HFC) followed by xDSL in 2002. With rapid advancement in technologies latest developments kept pouring into the country compelling the Government to revise and reform broadband friendly policy framework. As a result Pakistan received and implemented its first ever broadband policy in 2004 with optimistic targets for five years. It was the same time when Pakistan had entered the stage of telecom sector liberalization. It was expected that Government's enhanced focus on broadband and telecom deregulation would have synergy effect on broadband proliferation in the country. However, contrary to the expectations the broadband growth did not meet overwhelming results. There are number of economic and technical factors attached to it which include low literacy rate, down beat, absence of computers and allied equipment, inaccessibility of service, non availability of local content and very little awareness of the ICT innovation. As recent as 2008 the broadband was available only in three metropolitan cities of the country.

Today Pakistan is standing at the verge of entering broadband revolution that will place our nation on the road to ICT revolution with the rest of the world. There are over 0.9 million broadband subscribers in Pakistan with three years average growth rate of over 150%. According to Point Topic's (a renowned international broadband research company) Global Broadband Report for 4th quarter 2009, Pakistan stands among the top ten countries for annual Broadband subscription growth. Similarly a global Broadband study was carried out by University of Oxford in September 2009, sponsored by Cisco which has ranked Pakistan at 60th position ahead of India and Indonesia which were given 62nd and 63rd positions respectively.

The broadband market of Pakistan is invoking competition among 13 companies providing broadband services. Tariffs have gone down tremendously and broadband is now available at affordable rates. A study carried out in the authority also concluded that Pakistan has most competitive broadband tariffs when compared with regional SARRC countries³. PTCL being dominant player has maximum market share in the broadband market. Today the incumbent is offering broadband services in more than 100 cities of Pakistan and is aspiring 3 million subscribers in the next 5 years. Since the company has the largest fixed line networks with over 3 million fixed line subscription, the target set by the company is easily achievable. PTCL has been offering very attractive packages in the past including efficient broadband data transmission rate to customers, IPTV at reasonable rates and wireless broadband dongle (EVO). After PTCL Wateen is the next most promising operator with 2nd largest market share in broadband market and was the first one to provide wireless broadband to Pakistani consumers. It also introduced unlimited WiMax broadband Package in the country for the first time and has made a mark in the local industry. Worldcall and Witribe are two operators with significant

³source:www.sbs.ox.ac.uk

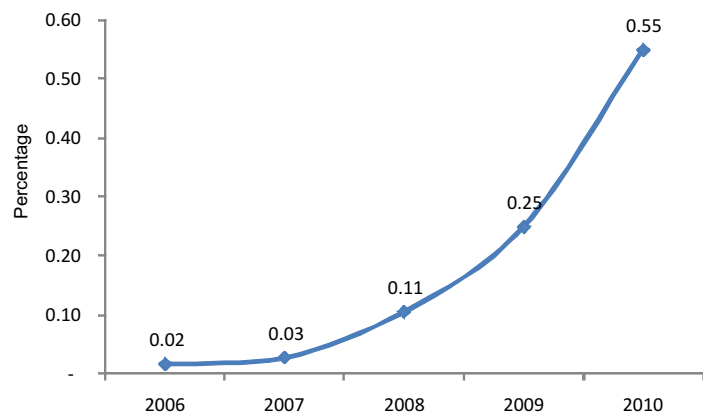
market presence specially in Karachi and Islamabad. Witribe is owned by Qatar's Qtel group that has lent it a strong financial standing. It is not only providing quality wireless services but also spending a lot on marketing campaign across Pakistan. Rest of 9 companies have a low subscriber base but are nevertheless poised to offer enough competition to the market. With increasing demand for broadband in the local market it is expected that companies other than PTCL would embark upon unexplored avenues of dilating broadband subscriptions. With 13 main internet service providing companies and 50 small and medium ones, Pakistan is expected to make advancement in this field soon.

A lot is happening at the Governmental level and the operators are also investing heavily in expanding their networks while improving the quality of services, Pakistan is about to enter the broadband revolution. There are large number of areas which need to be accessed by the existing operators. In this regard Universal Service Fund (USF) is making concerted efforts to provide broadband services in these far flung areas and has already started projects with PTCL, Wateen, Worldcall and Zong for provision of broadband services in Baluchistan, Interior Sindh, Southern Punjab and Khyber Pukhtoon Khawa (Hazara). Growth of broadband till 2010 is discussed in the ensuing pages.

Broadband Penetration

Broadband penetration in Pakistan today, stands at 0.55% showing an average growth rate of 150% per year over the last three years. The broadband penetration kicked off in 2008 when the Government took some major initiatives for its launch. Although there exists a colossal demand and supply barrier with large parts sans access to the services, Pakistan has not received the kind of investment that could coax robust broadband penetration. This was due to the fact that the world's strongest economies face a crippling financial situation that has been trickling down over the years in to a gargantuan crisis of demand failure. On a positive note broadband density verges improvement. If we look at the growth in penetration it is very impressive and stands at over 100% in the reported year.

Figure - 20
Broadband Penetration



Subscriber Mix

Broadband subscriber growth in Pakistan has truly been an amazing phenomenon over the last few years. From a handful of subscribers in 2005 to almost a million by the end of

FY 2009-10, broadband has transformed from a business luxury to a household necessity. People from all walks of life, professionals, students, academicians, business executives and corporate giants, all are at an equal footing to avail broadband privileges.

Broadband in Pakistan passed 900,648 subscriber mark at the end of FY 2009-10 as compared to 413,809 at the end of FY 2008-09. The astounding growth rate of over 100% is constantly being

sustained by the industry for three consecutive years with 118% being the latest growth rate figure. A total of 486,839 new subscribers have been registered by the broadband companies during the FY 2009-10, the highest ever. The continuous rise in the subscriber figure further consolidates the opinion that broadband will be 'The Next Big Thing' in the Pakistan's telecom market.

Among the major players, PTCL is the biggest operator with 474,387 subscribers and a 53% market share combining both of its DSL and EvDO services. Wateen is the main competitor of PTCL with 188,725 subscribers and 21% market share. WorldCall is the third biggest company with 97,280 subscribers and an 11% market share. Wi-Tribe which started its services about a year ago has stepped into fourth spot with 51,912 subscribers and 6% market share. Link Dot Net has 34,818 subscribers and a 4% market share. Figure-22 depicts the rise of broadband players. It is evident that Wi-Tribe is by far the fastest growing broadband operator in the country with a staggering 1814% growth

Figure - 21
Broadband Subscribers

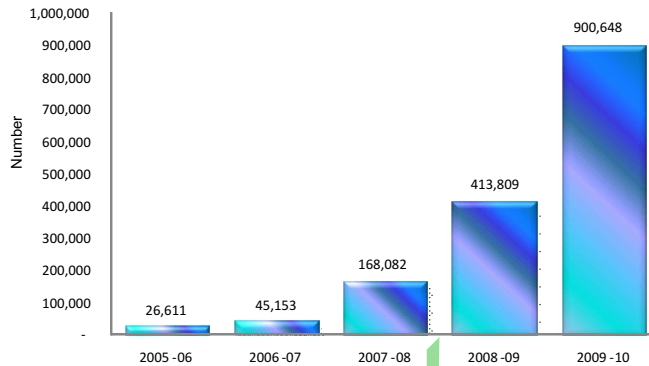


Figure - 22
Broadband Subscribers Share by Operator

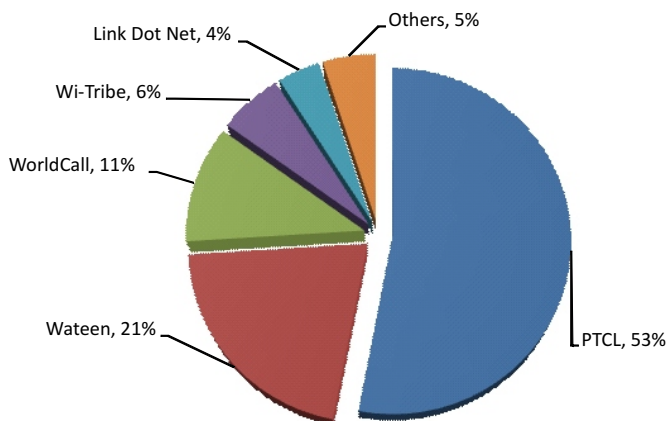
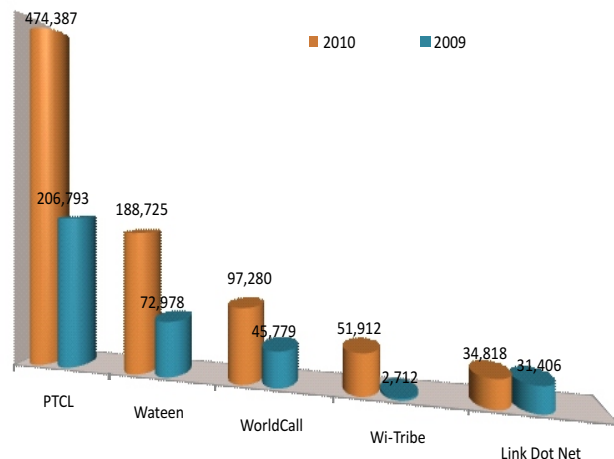


Figure - 23
Broadband Subscribers by Major Operator

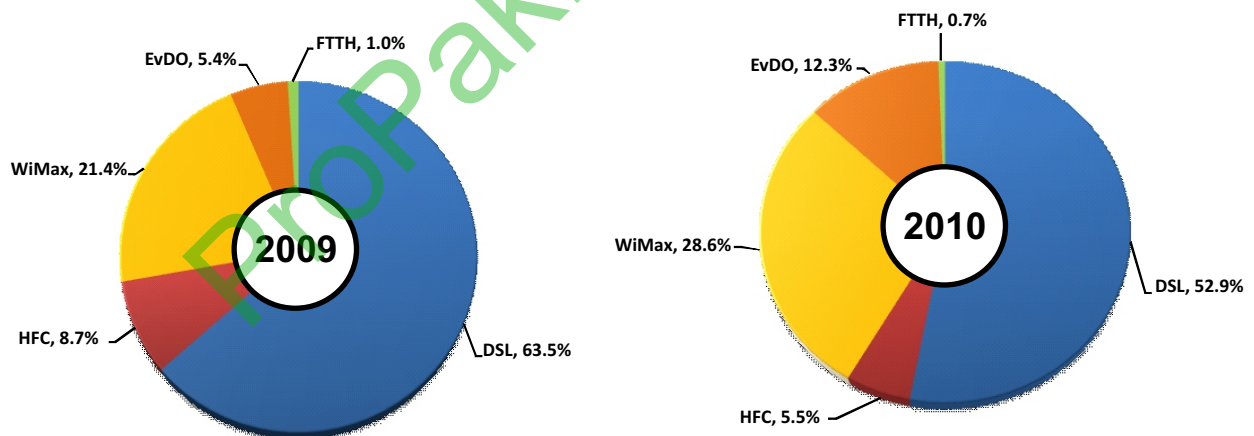


rate and 49,200 net additions. Wateen holds the second spot with 158% growth along with 115,747 new subscribers during FY 2009-10. PTCL despite holding highest share in the market has the third highest growth rate at 129% and highest net new additions of 267,594 customers. WorldCall registered a 112% growth rate with 51,501 new subscribers during the FY 2009-10.

Broadband Technology Trends

Broadband is one of the most innovative telecommunication media, capable of carrying , heavy applications and multi-services delivery. The technological and economical impact of broadband especially in the context of ICT access has instigated policy makers and strategists for new paradigm to dwell upon. Exploring newest technologies and facilitating the emergence of this platform is among the main targets and goals of nations around the world. PTA has been keeping a close eye on these global developments and maintains a balanced approach towards broadband proliferation. On one hand, it assists the new entrants by providing technology-neutral license and negligible entry level fees while on the other hand keeps the companies on their toes in terms of quality of service and customer assistance. Pakistan stands out as among the few countries in the world where multiple latest technologies exist for both wired and wireless media. The current

Figure - 24
Broadband Subscribers Share by Technology



technologies and their respective share in the broadband market are given below: -

It is evident from Figure-24 that wireless technologies (WiMAX and EvDO) are clearly gaining on the market share like WiMax has total share of 28.6% and EvDO's share is 12.3%. The DSL, HFC, FTTH are rapidly losing their share where DSL lost its share of 64% to 53% in one year. The main reason behind this trend is the deteriorating condition of fixed line infrastructure and poor quality of services. Although the entry cost of wireless broadband is higher, customers prefer to go for wireless media due to its robust and newly developed infrastructure. This trend is in total contrast with the global situation where

⁴Source: Point Topic Quarterly Report (Q4 2009)

DSL dominates the technology market with over 64% stake⁴. Since the introduction of WiMax in 2007 by Wateen, an intense competition has emerged between the fixed as wireless broadband technologies in the market. Figure-25 portrays the current scenario of fixed and wireless technologies in the context of number of new subscribers added to the respective clans. It is a good measure of industry trend where general tendency of potential users can be judged. During the last four quarters, wireless technologies have usually surpassed the wire line technologies by a clear margin except for the quarter of Jan-Mar 2010. This trend is an ample justification of the fact that wireless media is becoming more popular among the broadband users. Collectively during the FY 2009-10, wireless technologies have added 257,510 subscribers as compared to 229,329 by fixed technologies. However, the growth rate of wireless technologies i.e. 231% is remarkably higher than 75% growth rate of fixed technologies.

Figure - 25
Fixed Vs Wireless Subscribers



Broadband Tariff

Broadband proliferation, like any other emerging phenomenon, has certain attributes/constraints which affect its penetration potential. Among the prime factors is the cost of service which is perhaps the most influential one. Cost of service has been the main reason behind sluggish growth of broadband till 2007 when market became feasible for private investors. Therefore, several new companies like Wateen, Link dot Net, Link Direct, Wi-Tribe etc launched broadband services mostly using wireless technology. Since then, a constant decline in monthly charges has been observed as a result of competition in the market. The costly Customer Premises Equipment (CPE) charges especially in the case of Wireless services remained a hindrance for general people to rush into the broadband arena. However, wireless broadband service providers are gradually bringing down the entry level charges (installation + CPE + security deposit) to a minimum possible. PTA carried out a benchmark study on broadband tariffs where level of broadband tariffs prevailing in Pakistan against other SAARC countries were compared to identify the areas where further improvements can be made for the benefit of operators and users. The study concludes that Pakistan's broadband tariffs are very competitive as compared to those of other regions⁵. This is a good sign for the telecom market of Pakistan where low per capita income impedes the major portion of population to subscribe to broadband services.

⁴ For more details See Chapter 1: Core Areas of Concentration



Working for Consumers

In a short span of time, Pakistan telecom sector have come a long way towards achieving a very promising future in the country. The phenomenal growth in the sector has brought huge benefits to the people of Pakistan with network expansion, increased scope of services and reduction in tariffs and availability of a host of telecom operators with whom to choose from. In the same breath the Authority fully realizes that the availability of telecom services must be accompanied by Quality of Service and be reflective of consumer satisfaction for these. For the last two years a Consumer Protection Directorate (CPD) at the Authority has been working dedicatedly to ensure consumer satisfaction at all times for all telecom services. PTA's CPD focuses on redressal of consumer complaints made through toll free number, telephone, fax, e-mail & web mail. Analysis of consumer complaints is done with a view to isolate key problem areas and their rectification, proactively taking up issues that are violating basic consumer rights, taking measures against practices that may harm consumer interests, and identifying areas for regulatory interventions in order to work out a way around enforcing the concerned resolution.

PTA'S INITIATIVES FOR CONSUMERS

While building up the edifice of consumer protection, PTA looked at the best international practices that have been carried out for remediation of consumer grievances and protection of their rights. Coupled with the same, the Authority initiated a comprehensive consultation process with the industry in order to come up with benchmarks to ensure non discriminatory provision of services, fair commercial practices and effective redressal mechanism for the telecom consumers. These efforts were initiated couple of years ago, the present Chairman took over. Over the preceding years, a number of Regulatory initiatives have also been carried out by PTA for the protection of consumer interest.

Consumer Protection Regulations, 2009

Consumer Protection Regulations, 2009 notified in March 2009 now, place the telecom licensees under an obligation to establish comprehensive consumer complaint lodging and redressal mechanisms at their respective ends besides ensuring fair commercial practices. In the light of the said Regulations, complaint lodging mechanisms at licensees' end have been established and are working in line with the stated obligations ever since.

Consumer Protection (Amendment) Regulations 2010 issued towards the later part of 2009 following the pull back of SMS Bundle packages by few cellular operators just before the fall of Eid. It was realized that the operators were not carrying out their respective commitments with regard to provision of value added services. Since the matter of value added services was not specifically detailed in the scope of Consumer Protection Regulations 2009, therefore the said regulations were amended and notified accordingly.

Measures against Spam, Unsolicited, Obnoxious and Fraudulent Communications

The PTA had been observing over a year that more than 40% of consumer complaints comprised of misuse of service and fake prize scams. It was felt that a regulatory framework was required in order to establish technical support systems and formulate redressal measures at the licensees' end in order to protect the victims of such activities. To counter the spam, unsolicited, obnoxious and fraudulent communications, PTA issued anti spam regulations in 2009. The Anti Spam Regulation 2009 is intended to protect consumer's from the misuse of the service. Under these regulations, PTA has approved technical guidelines that would be helpful to stop fraudulent transfer of money/credit balance of consumers. For proven cases of fraudulent and obnoxious communication, warnings will be issued followed by blocking of number and handset of these who fail to comply with the warning. A black list of user antecedents of those involved in obnoxious activities will be maintained and habitual criminals shall be denied of telecom facility in future. While dealing with unsolicited communication a "Do Not Call" register is being established, where registration of telemarketers would be done and consent would be sought from consumers for receiving telemarketing/promotional communication. For obnoxious communication, technically feasible features e.g. call/SMS barring facility is to be made available for the consumers. In order to chalk out modalities to control menace of spamming and unsolicited telemarketing, a detailed SOP will be in place by end September 2010.

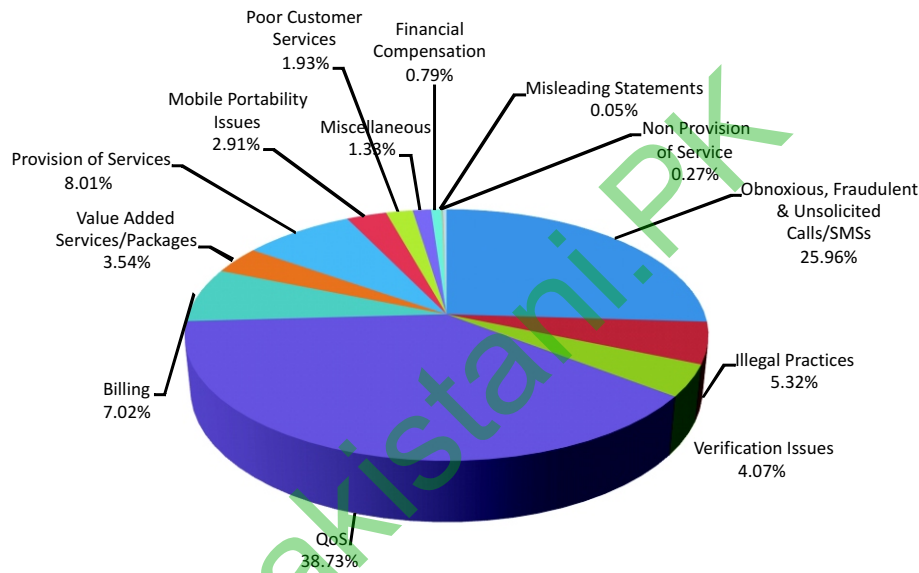
COMPLAINTS MANAGEMENT

PTA along with its licensees i.e. all telecom operators overhauled the complaint handling procedures and a Complaint Lodging and Redressal of Grievances Mechanism was launched on the 24th July 2009 by PTA. The exercise resulted in expanded modes of lodging complaints with more efficient, consumer friendly and dedicated complaint

handling staff. Based on the principles of accessibility, cost effectiveness and efficiency, the said system offers telecom consumers speedy and accountable complaint handling system at the operator's end in order to answer their respective queries and for the redressal of their grievances.

To provide further conveniences to telecom consumers, PTA has launched the 668 facility whereby consumers are able to know about the number of active subscriptions against

Figure - 26
Nature wise Consumer Complaints
Jan - Jun 2010



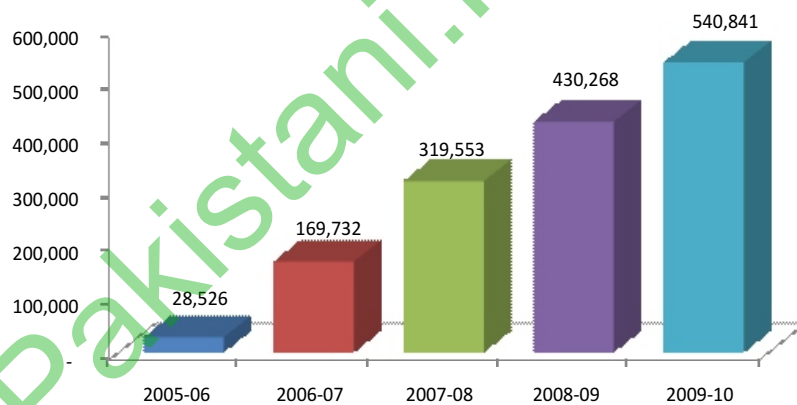
their CNICs by sending text message to a short code '668'. So far PTA has received more than 3500 correspondence from the consumers on the said project. Written guidance has been provided to these consumers with respect to correction of SIM usage record. With the Complaint Lodging and Redressal of Grievances Mechanism in place now, the Authority receives on average 1800 complaints per month. PTA received over 24,711 complaints during July'09-June'10 out of which 95% have been resolved on average. The complaints were received for all the services including mobile, fixed line, WLL, broadband and LDI services. There are around 13 broad categories in which complaints were received. Highest number of complaints belonged to QoS issues, billing, service provision and misuse of service etc. PTCL being the largest telecom operator, providing array of services in most parts of the country, receives maximum complaints followed by Mobilink and Ufone. One of the relatively new categories of complaints is number portability where delay in porting of numbers is the main issue. Similarly another important area of concern for Authority is customer care services where a lot is required to be done at the operators end. The Authority receives a large number of complaints on obnoxious, unsolicited & fraudulent calls/SMSs. In FY 2009-10 approximately 4500 complaints were received under the category which is about 40% of the total complaints received in all categories against all operators. In order to reduce the number of complaints in this category, PTA has taken up initiatives including issuing of regulation on measures

against Spam, Unsolicited, Obnoxious and Fraudulent Communications Regulation 2009. Also a detailed SOP on the Spam Regulation [2010] has been issued. Similarly an effective awareness campaign for mobile consumers and a warning against indulging in fraudulent, obnoxious and unsolicited call and SMS has been launched. It is expected that once the strategy adapted by PTA would come into full force, the number of complaints in the category of misuse of service would be reduced.

IMEI BLOCKING

PTA launched IMEI blocking facility in 2006 to prevent the stolen, lost, snatched mobile phones from being used by the culprits on any cellular network in Pakistan. For this purpose, the mobile operators installed Equipment Identity Register (EIR) system which enables a stolen or snatched cell phone to be blocked through its International Mobile Equipment Identity (IMEI) which is a unique number identity of every cell phone in the world. Since the launch of this facility on 30th Sept 2006, a significant drop in the mobile related crimes has been seen. A total of 540,841 IMEIs have been blocked since the start of the service. PTA has not only provided the blocking facility but if the stolen/lost handset is recovered, the set can be unblocked by providing necessary details to the concerned department. A detailed SOP exists for such unblocking and a total of 31,851 handsets have been unblocked so far.

**Figure - 27
IMEI's Blocked**



SPECIFIC CONSUMER ORIENTED ISSUES

PTA has a mandate to safeguard consumer interests, in this regard some value added services/promotions were particularly reviewed by the Authority and licensees were directed to bring the same in line with applicable regulations. In response to complaints made by subscribers, a discrepancy was found between the service contract of one operator and the MNP timeframe. The case has been taken up by the Authority in view of Consumer Protection Regulations and MNP Regulations. Resultantly, all companies have been directed to remove the contractual obligations against MNP and a directive has been issued to proceed with such complaints. Similarly, PTA also received lots of complaints about the activation delays in service delivery of the different packages. The matter was discussed with the operators and as a result, the services improved significantly. Complaints were also received on withdrawal of few packages from an operators within a

very short notice for which PTA issued instructions to the company for safeguarding the consumer's interest. Consequently, operator provided the complainants with adjustments as per PTA's directions in this regard. PTA received complaint that 18 cell sites of an operator had been shut down in Rawalpindi region due to a bilateral dispute over rents between site owners and the company. PTA took up the matter with the company which announced rebates for the 343 affected subscribers. Similarly and operator printed misleading statement on its prepaid cards regarding free balance checking facility whereas all companies are charging for the said service. PTA pointed out the discrepancy to the operator and the matter has been dealt with by the company.

Quality of Service Surveys

Quality of Service (QoS) generally determines the standing and status of country's telecom services; therefore, a special emphasis is exerted to keep the QoS of telecom companies at a satisfactory level. PTA has devised QoS standards on international footings for all of its licensed telecom services and included in the actual license of the companies to ensure smooth enforcement of such standards. These standards are recorded in the form of Key Performance Indicators (KPIs) and post-survey analysis is carried out on the basis of scores against each KPI. To achieve this objective, PTA regularly conducts QoS surveys through its various offices across the country using state-of-the-art tools and techniques. During FY 2009-10, QoS surveys have been conducted by the Authority to check the performance of the telecom services against the given KPIs. Mobilink services are continuously monitored in order to ensure quality as per the license standards. The QoS survey of mobile operators is conducted throughout the year across all over Pakistan including AJ&K by PTA. It is carried out by using the state-of-the-art QoS Monitoring Equipment (NEMO Tool) which automatically makes calls, measures quality and analyzes results. During the Quarter of October to December 2009, QoS survey of all mobile companies was carried out in all the major cities of Pakistan.

Broadband QoS Survey

In pursuance of PTA's role as a safeguard of consumer interests and in context of rising broadband subscribers, PTA carried out the first ever Broadband QoS Survey of all wireless and wireline service providers throughout the country. The survey was conducted during March-July 2010 based on the KPIs and methodology already prepared by PTA. Based on the survey results, PTA ranked the Broadband Service Providers (BSPs) in the country.

The ranking of the broadband service providers has been done in two categories: Technology neutral and Technology wise. The ranking is based on the four parameters i.e. service availability, service retain ability, round trip time & bandwidth as per the methodology. However, in order to rank the operators from the consumer perspective, tariff@less than Rs. 2000/- per month is used as baseline.

Wi-Tribe has been found the top performer in technology-neutral as well as Wireless Broadband services despite being the youngest BSP among all the competitors. Wateen is the runner-up in technology-neutral category while PTCL broadband has been ranked third in the same rankings. CyberNet is the top performer in wireline broadband services followed by PTCL and Comsats. Wi-Tribe holds the first position in terms of wireless broadband technologies while Wateen and WorldCall are ranked second and third respectively.

Broadband Service Provider QoS survey provides an insight on the comparative performance of top broadband companies in the country. Such information is useful for the consumers in choosing the better option and also provides an opportunity to the operators to improve their services and gain consumer confidence.

CONSUMER FORUMS

To create awareness among the consumers about telecom services, PTA holds Consumer Forums across the country where large numbers of consumers are invited. These forums provide an opportunity to consumers to have dialogue with regulator on all telecom issues. During the reported year, PTA organized such forums in, Lahore and Quetta. The said forums resulted in drawing a large presence from the industry, renowned consumer groups, media and general masses. PTA stands committed towards protecting consumer rights and in this regard suggestions and comments from media, consumer groups and general consumers are always encouraged.

Consumer Forum in Lahore

Pakistan Telecom Authority organized a Telecom Forum entitled "Together for Consumer Rights" on 15th October 2009 at Lahore. SIM Information System 668' was also launched

Table - 8
Top-5 Broadband Service Providers
Technology Neutral

Rank	Service Provider	Grade
1	Wi-Tribe	A
2	Wateen Telecom	B
3	PTCL Broadband	B
4	LINK dot Net	C
5	World Call (Wireless)	D

Table - 9
Top-4 Broadband Service Providers
(Wireline)

Rank	Service Provider	Grade
1	CyberNet Broadband	A
2	PTCL Broadband	B
3	COMSATS Broadband	C
4	LINK dot Net	D

Table- 10
Top-4 Broadband Service Providers
(Wireless)

Rank	Service Provider	Grade
1	Wi-Tribe	A
2	Wateen Telecom	B
3	World Call (Wireless)	D
4	PTCL (EVDO) Broadband	E

in this forum. Under this system, consumers can check the number of SIMs issued against his/her name by using this service. Mr. Naguib Ullah Malik, Secretary IT & Telecom was the chief guest while Chairman PTA, Dr. Mohammed Yaseen moderated the Forum. Member (Technical) PTA, Dr. Khawar Siddique Khokhar, renowned poet Mr. Amjad Islam Amjad, representatives of Lahore Chamber of Commerce, Cellular Mobile and Fixed Line sectors, telecom consumer groups, academia and the media community also participated in the event. President Pakistan Consumers Association, Kokab Iqbal and representatives of Cellular, Fixed Line and Broadband Services gave presentations during the Forum. Telecom consumer related issues and difficulties faced by telecom users in general were discussed whereas initiatives and measures taken by PTA to address the issues were also highlighted. During the forum, “SIM Information System - 668” initiative taken by PTA was very much appreciated. PTA retreated its stance that it would continue taking measures to facilitate consumers in resolving their issues. In this regard PTA has revamped complaint handling mechanism of mobile companies, PTCL and other telecom operators.



Consumer Forum in Quetta

PTA organized another telecom Consumer Forum with theme “Together for Consumer Rights” at Quetta. State Minister for Industries and Production, Dr. Ayatullah Durrani was the chief guest on this occasion while Chairman PTA, Dr. Mohammed Yaseen moderated the Forum. Consumer Representative, Mrs. Suraiya Allahdin, representatives from IT & telecom industry, telecom consumer groups, renowned social workers and

academia also attended the event. Presentations were delivered by PTCL, mobile and WLL operators on this occasion to highlight their respective telecom developments in the region. PTA efforts for telecom developments in Baluchistan were very much appreciated in this forum. It was informed to the consumers and other stakeholders that fiber optic is being laid from Baluchistan to Iran and Afghanistan to connect all these countries with Baluchistan.



4

Building Bridges and Capacities

CREATING AWARENESS

One of the cornerstones of any telecom regulatory body's success pertains to the extent of knowledge it imparts to the masses about telecom developments and ICT proliferation in the country. To create awareness among the masses, PTA remained pro-active throughout the year and organized various national and international events. These events attracted large audience from various walks of life which made the events successful. Such international events are instrumental in creating mutually beneficial awareness among the local telecom stakeholders and the international telecom experts as both these groups get educated about latest and upcoming developments of each other's spheres.

SEMINARS AND WORKSHOPS

Expert Forum on “Mobile 2.0 Applications and Conditions”

PTA in collaboration with LIRNEasia (a Sri Lanka based ICT policy and regulation think tank) organized a 2-day expert forum on “Mobile 2.0 Applications and Conditions” on 26-27 April, 2010 in Islamabad. Delegations comprising of 40 telecom experts, members of the Asian regulatory agencies, researchers, representatives from IT and telecommunication sector and media persons from 20 countries including Sri Lanka, Malaysia, Bangladesh, India, Bhutan, Thailand, Philippines and others attended the forum. This expert forum aimed at providing an open platform to the telecom experts from around the world to share their views, ideas and research regarding latest developments in various paradigms of cellular mobile services. The event also focused on the opportunities for delivery of more-than-voice services (such as m-payments, m-

government, m-commerce) through mobile platforms, explore the possibility of using mobile as the “triple play” in the developing world. Number of experts from various countries presented their research work in this seminar and shared their experiences



with regulator and operators in Pakistan. Experts presented the cases of various countries' experience of using mobile services for health, education and commerce that educated the local stakeholders. Audience were apprised of the efforts of the Government of Pakistan for the development of telecom services in Pakistan.

The forum was perceived to be a huge success which provided a platform to invite deep dialog among participants by using the extensive research already done by LIRNEasia in emerging Asia and Pakistan's experience of successful growth in telecom sector.



Seminar on 3G in Islamabad & Karachi

To create awareness among general masses, PTA has organized a number of introductory seminars keeping in view the importance of 3G services which will ensure availability of a number of data intensive value added services such as real-time access to medical records, on demand TV, e-education, cloud computing, video calls, real-time weather forecasts, and advisory for farmers etc. 3G licensing has long been an important area of discussion in telecom circles, therefore, PTA joined hands with renowned telecom companies to arrange such events where representatives of telecom operators, telecom vendors, solution providers, academia, media and other dignitaries shared their stance on 3G prospects.



The first of such events was a seminar on 3G mobile broadband jointly hosted by PTA, Qualcomm and Central Asian Cellular Forum (CASF) held at Islamabad under the banner of “Connecting Pakistan Through 3G Mobile Broadband” in June 2010. The objective of this seminar was to deliberate upon the regulatory, policy and technical challenges in connecting Pakistan through 3G Mobile Broadband. The participants were of the view that 3G can act as catalyst in the proliferation of broadband and it can bring positive growth in all segments of the national economy. The speakers also urged the mobile operators to give serious consideration to the early launch of 3G technology.

PTA also arranged another seminar in collaboration with HUAWEI on “Demand for 3G and Beyond” at Karachi in August, 2010. The event was attended by CEOs of cellular



mobile operators, WLL and other company representatives. The event highlighted the significance of 3G licensing for the growth of broadband, developments in e-Government, e-commerce, e-health and to overcome digital divide. A large number of participants from telecom industry, content and application developers, bankers, civil society, journalists, chamber of commerce, academia etc were also present. Telecom experts from across the globe focussed on the benefits of 3G to the e-services, encourage indigenous software houses and local content development.

Second National Workshop on Telecom Reporting for Media

Personnel

PTA organized 2nd National Workshop on telecom reporting for Media Personnel on 22nd April, 2010 in Islamabad. The participants included officials of PTA and representatives from print and electronic media. The objective of this workshop was to apprise the media persons on the mandate and responsibilities of the telecom regulator as well as on the regulatory environments in telecommunications sector of Pakistan. This workshop aimed at enhancing the skills of media professionals on telecom reporting. PTA officers informed the journalists about the steps taken by PTA for its own improvement and the improvement of telecom sector in the country.



Gold Medals for Best Research Projects in IT & T

Continuing the tradition of awarding gold medals to distinguished students, PTA awarded gold medals with cash prizes to 12 students of various educational institutions of the country for best research projects on IT and telecom for the year 2009. The event was attended by faculty members of the universities, parents of the awardees and representatives of the industry.



The gold medals were awarded on the basis of a competition among accredited national universities called by PTA in April 2009. A total of 18 research projects were received from different universities which were later on scrutinized and evaluated by a committee constituted by PTA through a transparent procedure. On the basis of highest obtained marks, four research projects were selected for the award of Rs. 50,000/- each and gold medals were awarded to twelve members of the teams who proposed these projects.



CAPACITY BUILDING

Capacity building is the process of increasing organization's ability to achieve the organizational mission in an effective and efficient manner. It also involves developing strategies or actions that an organization takes to ensure that it has the resources needed to succeed in achieving the stated objectives, goals and targets. This ongoing process enhances the abilities of its employees to identify and meet organizational challenges.

Capacity building involves a variety of activities, including the building of skills in the work force to cope with change and adding to the capacity of officials to pace with the changing environment. PTA continued to build capacity of its staff through trainings.

Training & Development

In order to further develop the professional competence of the employees in their respective fields, the Authority makes arrangements for local and international trainings of its officers and officials. There is a criteria laid down by the Authority according to which the officers and officials are trained for improving their competence and becoming

more efficient and effective for the organization. Keeping in view the importance of Training and Development, PTA ensures that this remains a continuous and ongoing process.

Foreign Trainings

To polish the managerial and professional skills of its officers, PTA provides foreign trainings to its officers on the latest and emerging technologies. It is intended that each officer of PTA attends at least one foreign training, during the year depending upon relevant opportunities. Other than professional trainings, officers are also sent on workshops / meetings / seminars which are held in different countries. This also provides the officers an opportunity to interact with the employees and representatives from the telecom regulators / service providers of other countries. Paucity of funds hindered the training of employees abroad therefore, foreign training and workshop participation of PTA officers was arranged by partner organizations like South Asian Telecom Regulator Council (SATRC), South Asian Federation for Infrastructure Regulation (SAFIR), South Asian Middle East and North Africa Council (SAMENA), International Chamber of Commerce (ICC) and others.

Furthermore, PTA has also signed MoU with International Telecommunity Union (ITU) for establishment of a Centre of Excellence (CoE) to provide training to the manpower for the enhancement of capacity building. Pakistan Telecommunication Authority was entrusted to carry out activities under Policy and Regulation Node within the Asia Pacific Region and so far PTA with the collaboration of International Telecommunity Union (ITU) has conducted various online training courses which have been broadly appreciated by the member countries within the region. During this financial year, PTA sent 20 officers abroad on various trainings, workshops, meetings, seminars and international training events.

Local Trainings

PTA also arranges trainings for its employees at local institutions like LUMS, NUST, IBA, and FAST etc. Various in-house trainings are also provided to PTA employees in disciplines involving IT and managerial skills. This helps the employees to remain updated with the latest tools for better performance. In this regard more than 250 employees have been trained during 2009-10 in different educational and professional training institutes and in-house training arrangements.

5

Challenges for the Regulator

Advancement in information and communication technologies is transforming this world into an information society. The gateway to this society is through an expanded and upgraded national telecom network, which determines the level of accessibility to information by the general public.

The entire framework and licensing regime for 3G Licensing has been formulated by Pakistan Telecom Authority and would shortly be issued to the mobile operators upon the approval from the Government and the MoIT&T.

Convergence

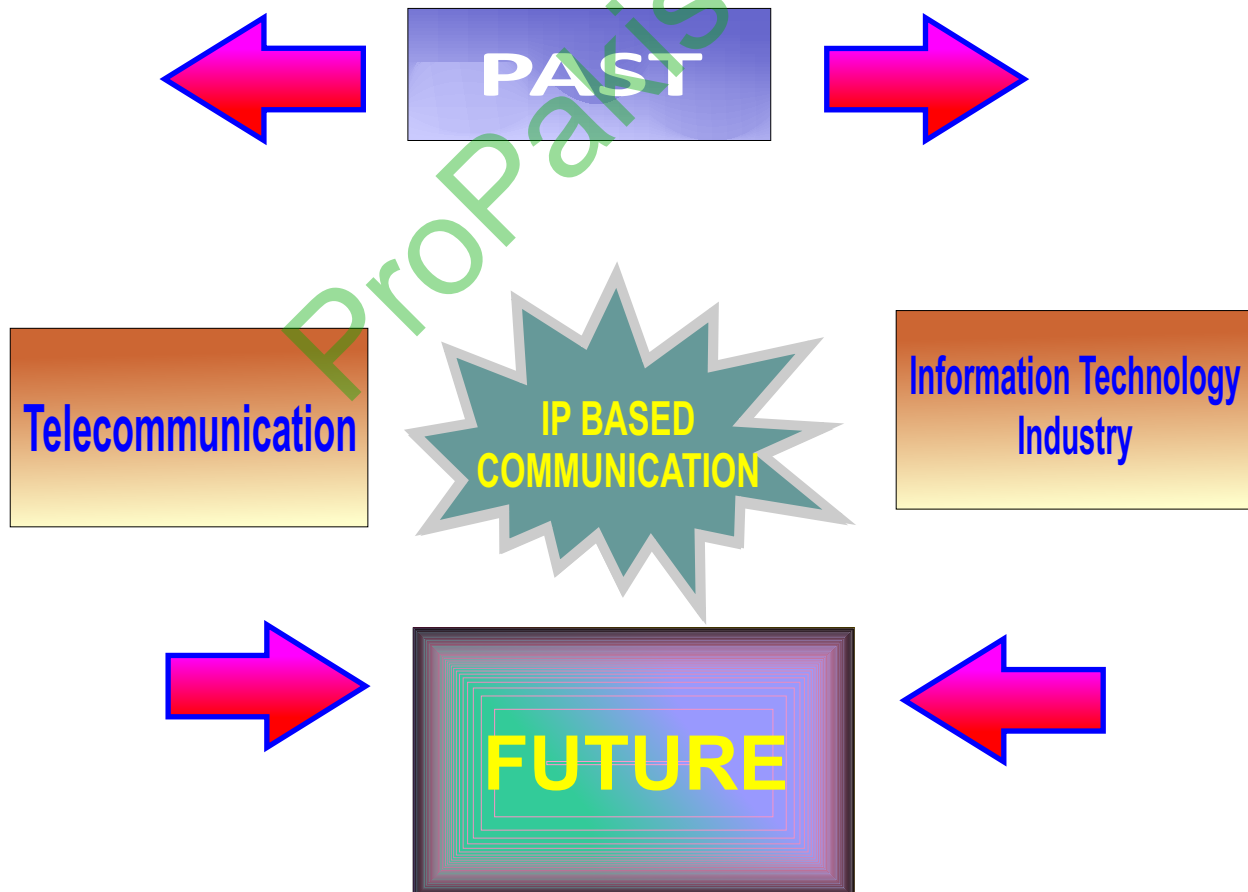
The telecom reform process attempts to facilitate innovation, product development and expansion in network capabilities with emphasis on ease of use. Traditionally, service providers have been employing different types of networks to deliver voice, video and data, and end-users have typically used different equipment to receive these services.

Today, technological developments have led to convergence of voice, data and video technologies. For a habitual consumer convergence is the availability of telephony, data/Internet, and media (TV and radio) services through the use of one device. Extended applications of Internet Protocol (IP) such as VOIP provide a common platform for all these services, where-in the internet services are contiguously provided over the enterprise network facilities of digital loop carriers.

At the heart of this advancement are the national telecom regulators as the key implementers of the policies of reform. Convergence raises several issues that regulators will have to address:

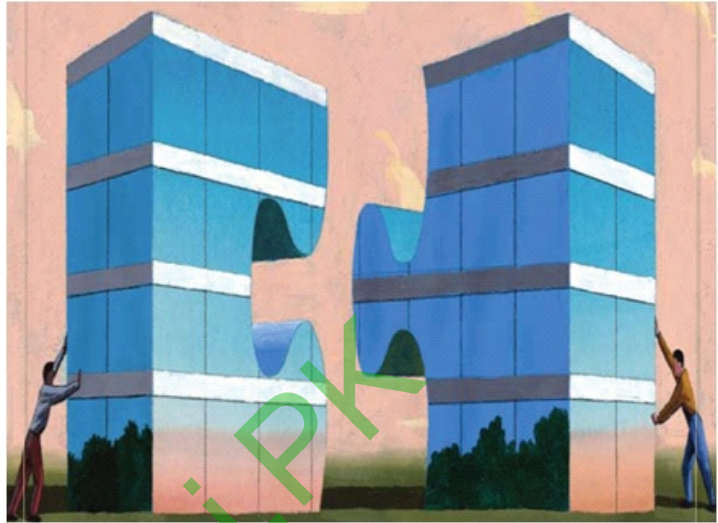
- *In this era of convergence, more and more policy-makers are demanding that licenses be adapted to achieve policy goals without hindering market development and technological advancement. This can be implemented by establishing a unified (service neutral) and technology-neutral license that allows operators to provide multiple services under one license using any kind of technology;*
- *From a regulatory perspective, convergence in the ICT sector and the move to NGN raise a number of issues. First, multiple service-specific authorizations can be troublesome as service providers offering a complete bundle of services are at a greater advantage than those providing just one service, therefore a regulator's objective of providing a level playing field might be more difficult to implement in the new scenario because they hamper service providers' ability to take advantage of efficiencies and economies of scale;*
- *Service providers are looking for regulatory certainty in light of the significant investments they must make to upgrade their equipment and to build new infrastructure. Transition to a regulatory framework designed to respond to an IP-based environment must be carefully managed in order to avoid discouraging service providers from investing;*

Huge responsibility lies with PTA as the regulator since the regulatory framework it defines, will determine the new market structure and will either help the industry to thrive or decline.



Mergers in Telecom Industry

Only a few years ago, Pakistan's Telecommunication industry was ranked by the UK's Informa Telecom & Media (www.informa.com) as one of the fastest growing markets in the world in terms of net subscriber additions, in the third quarter of 2006. With the global economic downturn, it is expected that our telecom industry would move towards consolidation and few mergers are also expected.



With decreasing barriers to international trade, more and more telecom services are expanding across a number of countries. This has also led to mergers and joint ventures among firms headquartered in different parts of the world. Internationally, most of the merger activity is visible in industries that have undergone or are in the process of deregulation. Deregulation often leads to increased competition in the market and may introduce structural changes. Firms become more competitive, efficient and responsive to consumer demands as now the markets are more open to new entrants, new product lines and innovation in existing products and services. Typically, firms in such industries focus on providing a wide range of products and services.

Technology is one of the major drivers of merger activity. Rapid change in technology requires market players to be highly responsive otherwise they risk losing their competitive edge or their market position. Often times, incumbent service provider, threatened by new technology, attempts to acquire or merge with new competitors instead of developing its own technology or modifying its infrastructure and equipment. As increased responsiveness to new technology is vital for survival of a company, merger or consolidation is viewed as a plausible strategy to counter this change.

A merger scenario in any industry leads to restructuring of the entire market, creating a new market leader while at the same time, dropping others to lesser ranks. Moreover, the concept of achieving economies of scale and improving the bottom-line by increasing the size of the firm is quite prevalent and often proves to be a major motivating factor behind mergers especially in times of economic downturn.

Mergers in Pakistan's Perspective

Pakistan's telecom industry is comprised of too many players struggling to gain share in a market which is not growing as fast as it was in the past. The pace of cellular growth in the

industry has slowed down as in FY 2009-10, the industry added nearly 9 million users as compared to 25 million users in FY 2008-09.

Many industry analysts believe that mergers could prove quite helpful in improving the bottom-line and the overall returns in the industry. One of the most powerful boosts to industry returns could be vertical consolidation, a merger that involves integration across different segments of telecom industries; voice, data, local, long distance etc. This would result in economies of scale, infrastructure convergence, leading to tremendous cost savings. Moreover, service providers would gain more market share and increased level of customer satisfaction by providing a wide range of services through a common platform. In addition, the service provider would benefit from back office synergies, leading to further cost savings. Horizontal merger, on the other hand, had lead to wider network coverage, costs savings on back office functions, more focus on network expansion, no multiple infrastructure deployment, more market share and economies of scale due to bigger size.

However, a number of concerns are raised on mergers, consolidation and joint ventures as they can result in a direct loss of competition and most of the times, lead to higher prices. Other negative effects include monopolization of the telecommunication products and services, limited innovation and high unemployment.

NEW TECHNOLOGIES

WiMax

WiMAX is an abbreviation for Worldwide Interoperability for Microwave Access, there is a fixed and mobile standard for Wimax; the standards for fixed (IEEE 802.16d) were defined in 2004; the mobile standard (IEEE 802.16e) has been recently finalized and it also goes by the IEEE name 802.16. WiMax has the potential to do to internet broadband what cellphones have done to basic telephony. In the same way that the landline connections are being relinquished or sparingly settled upon by the users in favor of the mobile technology, the WiMAX would replace conventional dial-up internet, cable and DSL, providing users with high-speed internet on the go.

WiMAX is the next generation of competing wireless technology comparable to 3G and wire-line one, which provides broadband internet access at faster rate than the DSL or Dial-up connection. Besides, it is capable of supporting applications - such as multiplayer interactive gaming, triple play with TV, Broadband and phone, streaming media and its content's downloads, VoIP, teleconferencing and media content downloads.

Currently, the only technology catering to high-speed wireless Internet is WiFi which within a distance of meters. WiMAX, on the other hand, is capable of delivering higher speed (bandwidth) and across a distance of many kilometers for consummating point to

point connection which is mobile cellular type, WIFI hotspots or wireless data access. For developing countries like Pakistan, current WiMAX networks support roaming with 3.5 GHZ Bandwidth which has been conferred by Pakistan Telecom Authority to companies with the objective of providing immense benefits to the developing country. Cost incurred on account of infrastructure and equipment deployment which is also known as the Consumer Premises Equipment (CPE) charge, is still a subject of much deliberation. Theoretically speaking, improved performance, coverage and are major appealing factors of this technology.

Broadband companies namely Wateen, Wi-Tribe, Link Dot Net and DVCom are providing WiMAX services in the major cities of Pakistan. WiMAX has been quite well received in the developed parts of the world but in Pakistan, the acceptance has been a little slow PTA remains totally committed to its mission of providing greater access to 4G Wimax USB modem based deployments and other communication modules with 3.5 GHZ coverage footprints. at regulated prices.

Third Generation Technologies

Third generation (3G) systems promise high-speed communication services, including voice, fax and Internet, with efficient seamless global roaming capability. The International Telecommunications Union (ITU) defined the third generation (3G) of mobile telephony standards IMT-2000 as “a revolution/evolution option to a major 2G network or its equivalent to facilitate growth, increase bandwidth, and support more diverse applications” with performance levels clearly in access of those obtainable from 2G. Thus, 3G technology brings a new solution of more innovative and diverse applications and services (e.g. multimedia entertainment, infotainment and location-based services, among others) for service providers. With better roaming capability, broader bandwidth and high-speed communication, it allows operators to be more responsive to emerging user demands.

Next Generation Networks (NGN)

Next Generation Networks can be viewed as a communication network that allows unfettered access to all communication products and services, irrespective of the service provider or network connection. In an NGN environment, it is expected that the consumers will be able to access their voice, data, video, TV and new emerging media applications over a single network and also change their Service Function profiles on the go. Round the globe many countries have advanced much ahead with its NGN deployments. In November, 2004, China Mobile completed the cut-over of the Soft-switch in their long- distance tandem network, the ever largest one in the world. Brazil started approximately four years ago. India showed some activities during 2007 and 2008 while NGN deployments started in 2005 in Pakistan but appreciable activity has been noticed during 2008 & 2009.

NGN can be categorized into two broad types: Core Network and Access Network.

IP is at the core of an NGN network consisting of various routers and switches. All the main stream operators in Pakistan have started migration of their core network legacy to NGN. The incumbent PTCL, having the largest fixed line network has transformed 10% of its network to C5 NGN, followed by Ufone, Telenor and Mobilink having 100%, 75% and 70% respectively of their network being migrated to R4 architecture. Zong and Warid also have significant NGN components deployed. Major LDI's, Wateen, WorldCall and Telecard and other small operators have significant NGN components deployed however wireline networks are still in legacy. The Access Network component of the NGN refers to the segment which connects the end user premises to the nearest NGN deployment by service provider. NGN can be delivered over various technologies like Fiber, Coaxial and Copper. Fiber deployment is under progress rapidly as PTCL has already installed 1600 FTTC PoPs in 12 cities. The operators and stakeholders are of the view that Fiber at the access level of NGN is matchless but its high cost and maintenance, high Right of Way (ROW) charges and above all, the user affordability concerns overshadow its performance and advantages in our market.

Regulatory Implication from NGN

In an NGN environment, new type of interconnection arrangements are required relating to different types of networks and network components.

- *Moreover, non-geographic networks (Satellite, ADSL) are available to all users instantly and therefore, require unified licensing regime in which a technology neutral license is issued to service providers, thus enabling them to provide bundled services.*
- *The operation of Universal Service in NGN environment is slightly different from the conventional System of operation. In the new scenario, operators need to define what services should contribute to the universal service, irrespective of the network technology.*
- *Efficient spectrum management becomes even more crucial in an NGN environment as demand for network resources increases. Regulators would need to focus on modulation and compression techniques to widen the spectrum range.*

Annexures

PROPakistan.PK

Annex - 1

PAKISTAN TELECOMMUNICATION AUTHORITY
BALANCE SHEET
As at June 30, 2010

	2010 Rupees	2009 Rupees		2010 Rupees	2009 Rupees
Total due to Government of Pakistan - Federal Consolidated Fund	32,765,811,231	29,622,719,507			
Payments made to Government of Pakistan Federal Consolidated Fund - to date	(41,251,058,869)	(41,051,058,869)			
Due from Government of Pakistan - Federal Consolidated Fund	(8,485,247,638)	(11,428,339,362)			
Long Term Loan	57,614,450	57,584,222			
Total payable against Initial License Fee- Pakistan	89,431,845,916	90,261,223,242			
Less: Transferred to current portion - to date	21,930,353,097	14,311,169,730			
Amount transferred to current portion	(10,542,487,087)	(5,842,487,087)			
Payments made to Public Account - to date	8,468,682,643	8,468,682,643			
Net Amount transferred to current liabilities	(10,028,767,386)	(10,028,767,386)			
Provision for doubtful receivables of Initial License Fee	68,015,212,520	71,765,773,213			
Long Term Payable Against Initial License Fee - Pakistan	1,553,991,926	2,004,544,652			
Total payable to AIK & GB	2,401,237,032	2,120,693,406			
Less: Transferred to current portion - to date	(2,120,693,406)	(1,469,954,194)			
Amount transferred to current portion	280,543,626	650,739,212			
Payments made to Governments of AIK & GB - to date	1,273,448,300	1,353,805,440			
Net Amount transferred to current liabilities	180,117,851	225,454,375			
Long term payable to AIK & GB	151,453,993	114,350,960			
Deferred Grant	151,453,993	114,350,960			
Deferred Liabilities	151,453,993	114,350,960			
Current Liabilities	7,722,488,456	8,468,682,643			
Payable to Public Account against Initial License Fee - Pakistan	24,368,340	650,739,212			
Payable to AIK and GB - net	13,391,285,817	9,484,573,824			
Payable to Public Account against USF, R&D and APC for USF	(9,087,659,408)	(8,135,797,775)			
Less: Receivable from Operators against USF, R&D and APC for USF	4,303,626,409	1,348,776,049			
Net payable to Public Account against USF, R&D and APC for USF	429,917,694	6,166,142,243			
Taxation - net	49,233,378	15,838,456			
Accrued and other liabilities	12,529,634,277	16,650,178,603			
	73,722,233,753	78,736,807,451			
Contingencies and Commitments	16	16			
The annexed notes 1 to 32 form an integral part of these financial statements.					

Member (Finance)

Chairman



PAKISTAN TELECOMMUNICATION AUTHORITY
INCOME AND EXPENDITURE ACCOUNT / STATEMENT OF COMPREHENSIVE INCOME

For the year ended June 30, 2010

	<i>Note</i>	2010 <u>Rupees</u>	2009 <u>Rupees</u>
Revenue	25	2,507,480,287	2,228,217,562
Expenditure			
General and administrative expenses	26	533,881,705	463,478,798
Provision for doubtful receivable	27	-	170,202,745
Audit fee		300,000	300,000
Financial charges		4,022,786	9,495,857
		538,204,491	643,477,400
Amortization of deferred grant		<u>(28,343,913)</u>	<u>(23,107,690)</u>
Operating surplus		1,997,619,709	1,607,847,852
Other income	28	<u>29,708,518</u>	<u>120,344,809</u>
Surplus for the year		2,027,328,227	1,728,192,661
Less: Provision for taxation			
- Current year	14	(715,722,195)	(664,438,392)
- Prior		2,178,563,039	(10,630,457,579)
		1,462,840,844	(11,294,895,971)
Net surplus / (deficit) for the year transferred to Federal Consolidated Fund		<u><u>3,490,169,071</u></u>	<u><u>(9,566,703,310)</u></u>

The annexed notes 1 to 32 form an integral part of these financial statements.

Member (Finance)

Chairman

PAKISTAN TELECOMMUNICATION AUTHORITY
CASH FLOW STATEMENT
For the year ended June 30, 2010

	<u>2010</u> <u>Rupees</u>	<u>2009</u> <u>Rupees</u>
Surplus for the year before tax	2,027,328,227	1,728,192,661
Adjustments for non-cash items:		
Depreciation on property, plant and equipment	69,504,814	60,123,459
Amortization on intangibles	1,059,924	1,062,612
Provision for gratuity	23,807,566	25,310,746
Provision for pension	459,822	998,570
Provision for doubtful debts	-	170,202,745
Amortization of deferred grant	(28,343,913)	(23,107,690)
Gain on sale of property, plant and equipment	(7,250)	(4,307,903)
Loss on foreign currency translation	3,005,148	9,297,531
Operating surplus before working capital changes	2,096,814,338	1,967,772,731
Changes in assets and liabilities		
<i>(Increase) / decrease in assets</i>		
Advances, deposits, prepayments and other receivable	16,956,760	(6,426,385)
Creditors, accrued and other liabilities	33,394,922	5,642,760
Due from Government of Pakistan	(547,077,347)	(278,309,152)
Fees receivable including initial license fee - net	2,715,640,646	4,657,913,638
<i>(Decrease) / increase in liabilities</i>		
Payables to Public Account against USF, R&D and APC for USF	3,443,505,465	947,026,610
Payable to Government of AJK & GB	(464,737,511)	56,542,545
Contributory provident fund payable	17,093,254	10,501,160
Cash generated from operations	7,311,590,527	7,360,663,907
Income taxes paid	(8,669,406,865)	(4,929,609,534)
Gratuity and pension paid	(4,257,609)	(12,190,823)
Net cash used in operating activities	(1,362,073,947)	2,418,863,550
CASH FLOWS FROM INVESTING ACTIVITIES		
Purchases of property, plant & equipment	(80,591,789)	(123,951,062)
Purchases of intangibles	(587,900)	(473,395)
Proceeds from sale of property, plant & equipment	2,560,101	4,868,296
Cash used in investing activities	(78,619,588)	(119,556,161)
CASH FLOWS FROM FINANCING ACTIVITIES		
Long term loan repaid / received	(2,974,920)	3,662,339
Deferred grant adjusted / received - net	(16,992,611)	97,446,778
Cash used in financing activities	(19,967,531)	101,109,117
Net (decrease) / increase in cash and cash equivalents	(1,460,661,066)	2,400,416,506
Cash and cash equivalents at beginning of the year	4,081,493,786	1,681,077,280
Cash and cash equivalents at end of the year	2,620,832,720	4,081,493,786

Member (Finance)

Chairman

Annex - 2

SIGNIFICANT MARKET PLAYERS OF PAKISTAN (SMPs)

S. No.	Relevant Markets		SMP Operators
	Product / Service Market	Geographical Market	
Retail Level Markets:			
1.	Fixed Local Loop (LL) Telecommunication Market	14 Regions of Pakistan	PTCL
		3 Regions of AJK & GB	SCO
2.	Fixed Long Distance & International (LDI) Market	Pakistan	PTCL
		AJK & GB	SCO
3.	Retail Broadband Market	Pakistan	PTCL
		AJK & GB	SCO
Wholesale Level Markets			
4.	Domestic Leased Lines Market	Pakistan	PTCL
		AJK & GB	SCO
5.	International Leased Lines Market	Pakistan	PTCL
6.	IP Bandwidth Market	Pakistan	PTCL
		AJK & GB	SCO
7.	Individual Fixed Interconnect Market	Pakistan	All LL Operators
		AJK & GB	All LL Operators
8.	Individual Mobile Interconnect Market	Pakistan	All Mobile Operators
		AJK & GB	All Mobile Operators
9.	Call Transit Services Market	Pakistan	PTCL
		AJK & GB	SCO
10.	Wholesale Broadband Access Market	Pakistan	PTCL
		AJK & GB	SCO

Annex - 3

CHANGE OF NUMBERING PLAN

Old Plan [7-digit]		Current Plan [8-digit]	
Karachi			
Area Code	Subscriber Number	Area code	Subscriber number
021	Axx xxxx (A=2-8, x=0-9)	021	3Axx xxxx (A=2-8, x=0-9)
021	Bxx xxxx (B=9, x=0-9)	021	9Bxx xxxx (B=9, x=0-9)
Lahore			
042	Axx xxxx (A=2-8, x=0-9)	042	3Axx xxxx (A=2-8, x=0-9)
042	Bxx xxxx (B=9, x=0-9)	042	9Bxx xxxx (B=9, x=0-9)

PROPakistani.PK

Annex - 4

TELECOM REVENUES*(Rs. Million)*

	2005-06	2006-07	2007-08	2008-09	2009-10
Cellular	89,896.3	133,131.9	182,122.2	212,423	236,047
Local Loop	71,185.9	68,368.2	63,693.1	62,568	61,464
LDI	7,199.6	15,567.4	21,982.6	47,969	47,067
WLL	12,453.5	2,644.9	2,704.0	2,670	2,880
VAS (Estimated)	13,827.0	15,901.1	8,048	8,179	10,202
Total	194,562.3	235,613.4	278,549.6	333,809	357,712

PROPakistani.PK

Annex - 5

FOREIGN DIRECT INVESTMENT

(US\$ Million)

	2005-06	2006-07	2007-08	2008-09	2009-10
FDI in Telecom	1,905.1	1,824.2	1,438.6	815.0	373.62
Total FDI	3,521.0	5,140.0	5,410.0	3,720.0	2,199.44
Telecom (%) Share	54.1	35.5	26.6	21.9	17.0

PROPakistani.PK

Annex - 6

TELECOM INVESTMENT*(US\$ Million)*

	2005-06	2006-07	2007-08	2008-09	2009-10
Cellular	1,420.9	2,584.5	2,337.7	1,229.8	908.8
LDI	50.5	602.8	403.9	276.8	183.1
LL	0.3	40.6	342.1	57.4	22.5
WLL	259.4	747.0	52.8	82.1	23.0
Total	1,731.1	3,974.8	3,136.4	1,646.1	1,137.4

Annex - 7

CELLULAR SUBSCRIBERS

	Mobilink	Ufone	Zong	Instaphone	Telenor	Warid	Total
2003-04	3,215,989	801,160	470,021	535,738			5,022,908
2004-05	7,469,085	2,579,103	924,486	454,147	835,727	508,655	12,771,203
2005-06	17,205,555	7,487,005	1,040,503	336,696	3,573,660	4,863,138	34,506,557
2006-07	26,466,451	14,014,044	1,024,563	333,081	10,701,332	10,620,386	63,159,857
2007-08	32,032,363	18,100,440	3,950,758	351,135	18,125,189	15,489,858	88,019,812
2008-09	29,136,839	20,004,707	6,386,571	34,048	20,893,129	17,886,736	94,342,030
2009-10	32,202,548	19,549,100	6,704,288	0	23,798,221	16,931,687	99,185,844

Note: Financial year ends on 30th June

Annex - 8

CELL SITES BY CELLULAR OPERATORS

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Mobilink	1,164	2,392	3,935	5,522	7,339	7,903	7,952
Ufone	327	808	1,094	1,644	3,471	4,893	5,713
Instaphone	211	211	211	211	211	211	
Zong	248	218	872	1,163	2,328	4,688	5,448
Telenor		403	1,738	3,255	5,017	6,123	6,594
Warid		505	855	1,930	3,152	4,341	4,419
Total	1,950	4,537	8,705	13,725	21,518	28,159	30,126

ABBREVIATIONS

3G	3rd Generation
ADSL	Asymmetric Digital Subscriber Line
AJK	Azad Jamu & Kashmir
ALF	Annual License Fee
AMPS	Analogue Mobile Phone System
APC	Access Promotion Contribution
APT	Asia Pacific Telecommunity
ARPU	Average Revenue Per User
ASP	Application Service Provider
BOP	Bottom of Pyramid
BTRC	Bangladesh Telecommunication Regulatory Commission
CASF	Central Asian Cellular Forum
CCK	Communication Commission of Kenya
CDMA	Code Division Multiple Access
CED	Central Excise Duty
CEOs	Chief Executive Officers
CMOs	Cellular Mobile Operators
CMPak	China Mobile Pakistan
CNIC	Computerized National Identity Card
CoE	Centre of Excellence
CPD	Consumer Protection Directorate
CPE	Customer Premises Equipment
CPP	Card Pay Phone
CVALS	Class Value Added License Service
DCNS	Data Communication Network Services
DSL	Digital Subscriber Line
DWDM	Dense Wavelength Division Multiplexing
EDGE	Enhanced Data rates for Global Evolution
EIS	Electronic Information System
EoI	Expression of Interest
EVDO	Evolution-Data Optimized
FAB	Frequency Allocation Board
FAC	Fully Allocated Cost
FDD	Frequency Division Duplex
FED	Federal Excise Duty
FNO	Foreign Network Operators
FTTH	Fiber to the Home
FWT	Fixed Wireless Terminal
GDP	Gross Domestic Product
GHz	Giga Hertz
GMDSS	Global Maritime Distress Safety System
GMPCS	Global Mobile Personal Communication Systems
GoP	Government of Pakistan
GSM	Global System for Mobile
GSMA	Government System for Mobile Association
GST	General Sales Tax
HSDPA	High Speed Data Packet Access
ICC	International Chamber of Commerce
IFIC	International Frequency Information Circular

IP	Internet Protocol
ISP	Internet Service Provider
IT	Information Technology
IT & T	Information Technology & Telecommunication
ITU	International Telecommunication Union
Kbps	Kilo bits Per Second
LDI	Long Distance & International
LL	Local Loop
LRIC	Long Run Incremental Cost
LUMS	Lahore University of Management Sciences
MHz	Mega Hertz
MIC	Millicom International Cellular
MNP	Mobile Number Portability
MoIT	Ministry of Information Technology
MoU	Memorandum of Understanding
MPLS	Multi Protocol Label Switching
MVNO	Mobile Virtual Network Operators
NGN	Next Generation Networks
NOCs	No Objection Certificates
NTC	National Telecommunication Communication
NUST	National University of Science & Technology
OFAN	Optic Fiber Access Network
PC	Personal Computer
PCOs	Public Call Offices
PP	Plenipotentiary Conference
PRS	Premium Rate Services
PSDN	Public Switch Data Network
PT & T	Pakistan Telegraph& Telephone
PTA	Pakistan Telecommunication Authority
PTCL	Pakistan Telecommunication Company Limited
PTML	Pakistan Telecom Mobile Limited
QoS	Quality of Service
Qtel	Qatar Telecom
RIO	Reference Interconnect Offer
RRB	Radio Regulatory Board
SATRC	South Asian Telecommunication Regulators Council
SBO	Services-Based Operator
SCO	Special Communication Organization
SDH	Synchronous Digital Hierarchy
SMP	Signification Market Power
SMS	Short-text Message Service
SOP	Standard Operating Procedure
TAR	Total Accounting Rate
TDD	Time Division Duplex
TIP	Telephone Industries of Pakistan
UAE	United Arab Emirates
UAN	Universal Access Number
UK	United Kingdom
UMTS	Universal Mobile Telecommunications System
UN	United Nations
USA	United States of America
VAS	Value Added Services
VAT	Value Added Tax
VoIP	Voice over Internet Protocol
WAP	Wireless Access Protocol
WiMax	Worldwide Interoperability for Microwave Access
WLL	Wireless Local Loop
WOL	World Online
WRC	World Radio-communication Conference
WSIS	World Summit on Information Society



Economic Affairs Team

Dr. Muhammad Saleem
Mr. Muhammad Arif Sargana
Ms. Malahat Rab
Mr. Abdul Rehman
Mr. Waqas Hassan
Mr. Muhammad Riaz

Director General
Director
Deputy Director
Assistant Director
IT Officer
Admin Officer

Photography by: Mr. Azhar, PTA

Pakistan Telecommunication Authority

2009-10