AN ASSESSMENT OF REGULATORY FACTORS AFFECTING INDUSTRY PERFORMANCE IN THE TELECOMMUNICATIONS SECTOR: A CASE STUDY OF THE POSTAL AND TELECOMMUNICATIONS REGULATORY AUTHORITY OF ZIMBABWE (POTRAZ).
I dedicate this dissertation to my wife Grace and my sons Blessing and Admire. They have been a source of inspiration in my life.
I TauraiLazarus-Makuvise declare that this dissertation is truly my own original work, that all reference sources have been accurately reported and acknowledged. This document has not previously, in its entirety or in part, been submitted to any University in order to obtain an academic qualification.
I wish to thank in particular:

1. My supervisor, Dr G. T. Hapanyengwi, for his guidance and advice that contributed immensely to the quality of this research.

2. My wife Grace and sons for the support they offered me during the administering of this research.

3. The members of staff at POTRAZ who helped me with provision of some secondary data needed in the research.

4. My immediate superior at POTRAZ and the Technical Services Department for the support and advice they offered.

5. My colleagues in the Master of Business Administration Degree (MBA) programme.

While all of the above mentioned people deserve credit for the project’s quality, I take the full responsibility for any errors or omissions.
Studying industry performance and the regulatory frameworks in the telecommunication sector helps the regulatory body to be more efficient and effective in improving industry performance. This study focused on assessment of regulatory factors affecting industry performance in the telecommunication sector. There have been conflicts among players in the telecommunication industry where the regulator was blamed for failing and even delaying in intervening to settle crucial matters.

The research was qualitative in nature and employed research methods to solicit views on telecommunication regulations from the selected key stakeholders. The respondents were from POTRAZ, mobile operators (Telecel, NetOne and Econet), the fixed telephone operator (TelOne) and data service providers (Africom and Powertel). Ministry of ICT, Postal and Courier Services Officials and customers were also interviewed. Face-to-face in-depth interviews were held. A total of ninety seven from an expected one hundred and seventy interviews were successfully carried out.

Through content analysis the research established that there were sour relationships between POTRAZ and telecommunication operators due to violations and abuses that were in existence. The evidence showed that there was non-compliance by the operators to regulations. The study also revealed that telecommunication operators were not happy with regulations that did not promote their operations.

On the basis of the above findings it was concluded that the telecommunication regulations do not create a level playing field. This undermines the provision of greater confidence in the regulatory decisions that should be made objectively on impartial and consistent basis, without conflict of interest, bias or improper governance. Thus, it is recommended that the telecommunication industry should practice good corporate governance. There is an opportunity that access to information and provision of quality service can be enhanced through infrastructure sharing. It is also recommended that the regulatory authority should consider the possibility of applying punitive measures where there is lack of compliance by operators. An area of further study is recommended and should focus on the impact of the change in the regulation of the telecommunications industry from rate-of-return regulation to more flexible incentive-based regulations.
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<tr>
<td>4G</td>
<td>Fourth Generation network and services</td>
</tr>
<tr>
<td>BSAT</td>
<td>Broadband Solutions and Technology</td>
</tr>
<tr>
<td>CAFÉ</td>
<td>Corporate Average Fuel Economy</td>
</tr>
<tr>
<td>CEI</td>
<td>Comparably Efficient Interconnection</td>
</tr>
<tr>
<td>CZI</td>
<td>Confederation of Zimbabwe Industries</td>
</tr>
<tr>
<td>EAC</td>
<td>East African Community</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FCC</td>
<td>Federal Communications Commission</td>
</tr>
<tr>
<td>FWA</td>
<td>Federal Wide Assurance</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>GPRS</td>
<td>General Packet Radio Service</td>
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<td>HF</td>
<td>High Frequency</td>
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<tr>
<td>IAP</td>
<td>Internet Access Provider</td>
</tr>
<tr>
<td>IBA</td>
<td>Independent Broadcast Authority</td>
</tr>
<tr>
<td>ICASA</td>
<td>Independent Communications Authority of South Africa</td>
</tr>
<tr>
<td>ICT</td>
<td>Information Communication Technology</td>
</tr>
<tr>
<td>ICTPCS</td>
<td>Information Communication Technology, Postal and Courier Services</td>
</tr>
<tr>
<td>ISP</td>
<td>Internet Service Provider</td>
</tr>
<tr>
<td>ITU</td>
<td>International Telecommunications Union</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>NNR</td>
<td>National Numbering Plan</td>
</tr>
<tr>
<td>NRC</td>
<td>Nuclear Regulatory Commission</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<tr>
<td>POTRAZ</td>
<td>Postal and Telecommunications Regulatory Authority of Zimbabwe</td>
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<tr>
<td>PTC</td>
<td>Post and Telecommunications Corporation</td>
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R & D  Research and Development
SADC  Southern Africa Development Corporation
SATRA  South African Telecommunications Regulatory Authority
SCR  Sim-Card Registration
SNO  Sustainable Nanotechnology Organisation
TCRA  Tanzania Communications Regulatory Authority
UHF  Ultra High frequency
USA  United States of America
USF  Universal Services Fund
VHF  Very High Frequency
VOIP  Voice over Internet Protocol
WTDC  World Telecommunication Development Conference
Technological advancements in the telecommunication industry and the spread of the internet and broadband communications (such as GPRS, 4G, FWA and VoIP), have generated growth in the demand for wireless services (www.prepaid.wireless.guide.com). Modern technology is now being used in the communication industry globally, thus migration from fixed telephone to mobile communication and use of Wi-Fi and WiMAX. This has created a need for government to develop policies on the most efficient and competitive way of providing both existing and new services.

This dissertation dealt with issues pertaining to industry performance in the telecommunication sector due to regulatory factors. Its main focus was on the economic and social consequences caused by regulatory reforms for the purpose of improving sector performance within the telecommunication industry. Findings of the research are of utmost importance to the government, telecommunication regulator, academics and all the operators in the sector.

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Based on the comparative experience of African countries over the 1990s, the research provides the much needed regulatory level playing field that promotes fair competition arising from market forces determining the market environment situation (Mhoshi et al, 2013). The scope of the research was on the implementation of an effective regulatory framework. That promotes economic growth, increased investment, lower prices, and better quality of service, higher penetration rate and more rapid technological innovation in the sector.
Using the PESTLE model the researcher looked at the key points affecting the environment within which telecommunication companies operate.

The telecommunication industry cannot operate in total isolation from the political environment, thus have a bearing on the stability of such an environment. Developments and direct foreign investment in the telecommunication sector come about due to the prevailing political willingness of the ruling government. The political situation was marked by a quasi-stable environment brought about by Government of National Unity that had been ruling the country for five years before the 2013 elections. The Indigenization Act remained a thorny issue in some sectors of the economy and the telecommunication sector does not operate in isolation. It is a policy issue that in Zimbabwe there are supposed to be three telephone mobile operators and one fixed telephone operator, thus restrictions prevail in licensing of more players. All these issues affected the flow of capital into the country, growth becomes slow and the speculative attitude and uncertainty limited the companies from spending on capital projects which directly impact businesses.

The relative stable political environment had enabled the economy to grow by an average of 6% between 2009 and 2012 (CZI, 2012). Prices had largely stabilised and the annual inflation averaged 3.1% and compared favourably to regional averages of around 8-15%. Telecommunication services rates have remarkably gone down though a lot still needs to be done. Basing on regional comparisons, mobile service rates, interconnection charges and roaming rates are way too high for consumers to benefit from such services. The economy had recorded a real growth per year in 2010 and 2011 of more than 9%, though faced with economic, infrastructural, regulatory deficiencies, policy uncertainty and ongoing indigenization pressures. The economic performance of the country has an impact on the disposable income of the working class and the nation at large, thereby the current
situation prohibits usage of the necessary ICT services hence affecting the revenues of the telecommunication operators.

Zimbabwe information and communication technology (ICT) industry is growing and moving in line with global trends. According to the Millennium Development Goals (MDGs), Target 8F, telecommunication operators are urged to co-operate with players in the private sector and make available the benefits of new technologies, particularly information and communication. The tele-density penetration rates are among the highest in Africa. Data and voice technology service rates are declining due to competition among numerous suppliers who are largely indigenous. Facilities such as e-banking, surfing on the internet and communicating through Facebook, WhatsApp, Twitter and Skye have become a common feature using mobile cellphone handsets.

The use of technology is growing for both businesses and consumers. Services such as internet and voice are becoming an absolute must for business to compete and make decisions on time. The cycles for changing technology and new services are becoming shorter thereby demanding continuous investment into the business. On that background the industry is growing and demand for telecommunications services and products is also growing at an alarming rate. The industry is becoming hyper competitive with the telecommunications companies fortifying their networks to compete with each other. Differentiation is becoming important for this market.

POTRAZ as the Regulatory Authority in the telecommunication industry has been facing some challenges before 2013 elections. Among them was lack of clarity concerning which Ministry they reported to between Ministry of Transport, Communication and Infrastructural Development and the Ministry of ICT, Postal and Courier Services. Handling of issues was fragmented and prolonged resulting in poor regulatory decisions and at times delays in settling crucial matters. Such existence of conflicting policies affects the desired performance of the sector.
Whilst the economy has stabilized, the decade of long economic decline has left the government incapacitated to undertake social responsibilities. Vulnerable social groups like the elderly, the handicapped, underprivileged and the unemployed do not enjoy any social benefits as per their expectations. It is a human right for everyone to have access to communication services regardless of location. The International Telecommunications Union (ITU) an arm of the United Nations that oversees the provision of all telecommunication services has an obligation to see that globally people have access to communication and ICT services. Through the Universal Services Fund (USF) POTRAZ has an obligation to oversee that all corners of the country have access to communication services by licensed operators in the sector. This is an area that a lot still needs to be done.

Similarly, local government municipalities and state enterprises like Zimbabwe Electricity Supply Authority are failing to deliver basic but essential services such as consistent supply of clean water and electricity for both domestic and industrial use. Social networks in the telecommunications sector and its impact on the society also falls short in service access and delivery to the vulnerable groups. Due to the explosive growth in knowledge, according to the United Nations there has to be universal access to basic communication and information services.

In line with the Millennium Development Goals (MDGs) and SADC protocols, the country is putting measures to ensure a clean environment. For instances, measures have been put in place to limit the use of unrecyclable plastic materials and the limiting of the importation of motors vehicles that could cause air pollution. Because of the ever changing telecommunications industry, new opportunities for growth need to be created in line with the regulatory framework and international best practice.

The telecommunication industry has various license categories that companies apply for and pursue their business ventures in line with their capabilities, financial strength, the availability of frequencies and spectrum and the price of the spectrum. The current telecommunication categories and license holders are listed in table 1.1.
<table>
<thead>
<tr>
<th>Telecommunication Industry Players</th>
<th>Internet Service Providers</th>
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<tbody>
<tr>
<td><strong>GSM Mobile Operators</strong></td>
<td><strong>Internet Access Providers</strong></td>
</tr>
<tr>
<td>• Econet Wireless</td>
<td>• Africom</td>
</tr>
<tr>
<td>• NetOne</td>
<td>• Powertel</td>
</tr>
<tr>
<td>• Telecel</td>
<td>• Liquid Telecom</td>
</tr>
<tr>
<td><strong>Fixed Voice Operators</strong></td>
<td>• CommIT.</td>
</tr>
<tr>
<td>• TelOne</td>
<td>• Apticks</td>
</tr>
<tr>
<td>• TeleAccess</td>
<td>• Telecontract</td>
</tr>
<tr>
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<td>• Dandemutande</td>
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<tr>
<td>• Africom</td>
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<td>• Powertel</td>
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<tr>
<td>• CommIT.</td>
<td>• Zimbabwe Online</td>
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<tr>
<td>• Apticks</td>
<td>• Mweb</td>
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<tr>
<td>• Telecontract</td>
<td>• Ecoweb</td>
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<tr>
<td>• Dandemutande</td>
<td>• Utande</td>
</tr>
<tr>
<td>• Datacomm</td>
<td>• Yo Africa</td>
</tr>
<tr>
<td>• Aquiva Wireless</td>
<td>• BSAT</td>
</tr>
</tbody>
</table>

Source: POTRAZ Database (2014)

The number of new players in the industry is indicative of the growth in this sector. The industry structure in Zimbabwe has three Mobile Voice Operators, sixteen Internet Access Providers and two licensees for fixed voice (POTRAZ Newsletter, November 2012).

The speed of change in this industry is immense as witnessed by the effects of Facebook and Google and also the changes in hardware pieces such as the sizes of computers, laptops and mobile handsets. Some companies can actually close down if they are not strategically structured to compete as witnessed in other industries. Organizations are being overtaken by technology such as Zimpay. Kodak the photograph company also suffered a serious attack as a result of new changes and innovations and their failure to adjust to these changes (Ernst and Young Business Risk Report-Telecommunications, 2009).
Below is an analysis of the industry using Porter’s 5 Forces framework


Internet Access Providers (IAP) license holders can now do both voice and data as they are permitted to provide Voice over Internet Protocol (VoIP) thereby encroaching into the services being provided by the voice operators. Such operators as Africom and Liquid Telecom are emerging as big threats to the four industry giants Econet, TelOne, NetOne and Telecel. These Internet Access Providers (IAPs), holders have built converged networks which offer all the services that are being offered by the traditional telecommunications companies and at very much reduced prices.

This comparison just shows how aggressive the competition has become in both products quality and pricing.

The industry has four dominant players Econet, NetOne, TelOne and Telecel in the area of provision of voice and data services but predominantly voice. Econet
commanding the biggest market share. Laggards in product launches like TelOne have suffered huge financial losses and capital erosion due to the intensity of competition.

<table>
<thead>
<tr>
<th>Year</th>
<th>Users (thousand)</th>
<th>Penetration Rate (%)</th>
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<tbody>
<tr>
<td>2000</td>
<td>50</td>
<td>0.4</td>
</tr>
<tr>
<td>2001</td>
<td>100</td>
<td>0.9</td>
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<td>2002</td>
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<td>2004</td>
<td>820</td>
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<td>1,000</td>
<td>7.7</td>
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<td>2006</td>
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<td>10</td>
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<td>12</td>
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<td>2008</td>
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<td>2010</td>
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Source: POTRAZ Database (Economics, Tariffs and Competitions)
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<tr>
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<th>NetOne</th>
<th>Econet</th>
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<td>2004</td>
<td>130.152</td>
<td>122.139</td>
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<tr>
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<td>166.000</td>
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<td>2006</td>
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<td>215.488</td>
<td>477.000</td>
<td>849.186</td>
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<td>2007</td>
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<td>257.785</td>
<td>340.000</td>
<td>678.148</td>
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<td>451.000</td>
<td>347.000</td>
<td>3,200.000</td>
<td>3,998.000</td>
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<td>2011</td>
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<td>1,662.952</td>
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<td>2013</td>
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<td>2,333.739</td>
<td>8,720.869</td>
<td>13,633.167</td>
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Source: POTRAZ Database (accessed 7 October 2014)

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<tr>
<td>2005</td>
<td>5.1</td>
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Source: POTRAZ Database (accessed 7 October 2014)

Developments in technology are such that more and more user friendly, low cost equipment is coming into the market reducing the traditional amounts needed for capitalizing the telecommunications business. This has a direct impact on the end
price to the user. Buyers are therefore demanding hardware and software at reduced prices thereby adversely affecting those telecommunication companies that outlaid capital at higher costs.

Following the convergence of data and voice services, buyers now have even more options from where to get services and also terminals to use for those services. Buyers can now enjoy voice using their computers and headphones or video calls directly from the computer thus the use of the actual phone hardware is diluted by the availability of such new options. The terminals themselves are changing with new iPad and tablet laptops coming in, that can be used for both voice and data.

The size of an organisation sometimes affects the processes of decision making and again in this industry it is not easy, to just decide to depreciate to zero investment that has not been sweated for in terms of revenue. The role of suppliers in this case has really changed where the models have started to take new shape, new and latest inventions and upgrading should be part of the current contract. The contracts that are being negotiated by the industry these days have changed so much and this is meant to address the new market changes.

The rapid changes in technology have resulted in closer relationships between operators and their equipment and service providers. Issues relating to cost, renewals, replacement, upgrades, back-up services and generally the protection of the purchaser in the procurement of core network equipment has become paramount. For instance the Chinese suppliers have recently been able to negotiate better terms than their European counterparts. The industry has had suppliers such as Ericson, Siemens, and Alcatel as the major players but their act in the past two years has seriously been challenged by Huawei and ZTE, which are Chinese aggressive suppliers who are providing more aggressive financing models.

The threats of substitutes in the telecommunications industry have primarily been from within the industry wherein new innovative products are replacing older products. For instance, postal services have been replaced by electronic services, whilst fixed phone services are under threat from mobile networks. Similarly, the
software that launched the first mobile network has since evolved over at least four
generations. On the social network there is now WhatsApp, Skype, Facebook and
Twitter among others. The hardware in use has seen substitutes that are new, low
cost and better performing. Operators in the industry are therefore always under
pressure to keep themselves abreast of changes to ensure that substitute products
do not push them out of business.

Post and Telecommunications Corporation (PTC) was the postal and
telecommunications market regulator before the establishment of POTRAZ. In terms
of the Postal and Telecommunications Act [Chapter 12:05] of 2000, POTRAZ is
mandated by law to issue licenses in the postal and telecommunication sectors and
thus assuming the regulatory functions previously held by the incumbent operator.
POTRAZ was established in terms of the above-mentioned Act and it started
operating in 2001.

POTRAZ’s vision is “to be a world class, fair and competitive regulatory environment
with universal communications services throughout Zimbabwe by 2020” and its
mission is “to regulate the communications sector and promote sustainable
development and provision of universal communication services”. Values of the
organization are honesty, integrity, team work, empathy and transparency.

POTRAZ is mandated by law to issue licenses in the postal, radio-communication
and telecommunications sector and to set terms and conditions for the licenses
issued throughout Zimbabwe. It also sanctions and effects any license amendments
in accordance with set legislations. POTRAZ performs numerous functions, among
them:

• Monitoring the provision of postal and telecommunications services throughout
  Zimbabwe.
• Licensing of all postal and telecommunications systems and services in Zimbabwe.

• Allocating the radio frequency spectrums in Zimbabwe.

• Ensuring that the quality of postal and telecommunications services meet acceptable standards.

• Promoting and encouraging the expansion of postal and telecommunications services.

• Advising government on postal and telecommunication matters.

• Representing the country regionally and internationally on matters pertaining to postal and telecommunication.

• Weeding out unlicensed and illegal operators with a view to create a level playing field.

• Providing protection where consumers’ rights are violated.

POTRAZ is responsible for ensuring that all people in Zimbabwe are adequately provided with postal and telecommunications services. These services must be provided uniformly. All operators contribute to the Universal Services Fund (USF) that is used to finance provisions of services in remote and under serviced areas. This is in line with United Nations on universal access to communication and information services.
Figure 1.3: POTRAZ’s Organizational Structure as at year 2014

(Source: POTRAZ’s Corporate Services Department 2014)

Microsoft Encarta college dictionary (2007; 1478), defines telecommunications as the science and technology of transmitting information electronically by wires or radio signals with integrated encoding and decoding equipment. In Zimbabwe Telecommunications services consist of; Public Fixed telecommunication services, National Mobile Cellular services, Public Data Network services, Internet Access Provider services and Private Telecommunications services. In Zimbabwe companies which offer telecommunication services include TelOne, Econet, Telecel, NetOne, Africom, ZOL, PowerTel, ZARNet, ComOne, Telcontract, Ecoweb, Zimweb, AfricaOnline to mention a few.
The role of ICTs in economic development and their contribution to GDP is now firmly recognized worldwide. The world’s radical technological developments in miniaturization, electric communications and multi-media in respect with good regulation hold the promise of drastic improvements in our own telecommunications industry. The Acting Director General of POTRAZ Engineer Buxton Sirewu highlighted that, “all the three mobile operators’ subscribers surpassed the 13,5 million subscribers mark with Econet having the highest number of subscribers standing at 8,720.869subscribers as at September 2014” (POTRAZ Subscriber Database). However, the fixed operator TelOne registered a negative growth as indicated by the number of main lines in operation that have decreased. TelOne was issued a license to operate a mobile network by POTRAZ, a development that made it the fourth player in a field dominated by Econet Wireless, NetOne and Telecel.

There have been conflicts amongst the players in the mobile telecommunication industry where the regulator was condemned for delaying intervening and settling crucial matters.

Moreover, the consumer protection framework in the form of regulatory notices, circulars and directives reflects that consumer protection is not satisfactorily attained and maintained according to the background. Therefore, the researcher proposed to investigate the impact of regulation on the performance of the sector.

The research was aimed at determining the factors responsible for the poor performance by telecommunication operators in the communications sector and to identify best practice, powers and specific actions required by the regulator to implement policy issues efficiently and effectively. The prime objective was to establish the impact of regulation on the performance of the telecommunication industry of Zimbabwe.
The objectives of the research project were:

1. To identify the potential effects of regulation policies on telecommunications industry performance
2. To establish ways on how POTRAZ as the regulatory body can enhance industry performance of the telecommunications sector
3. To explore on the effectiveness of POTRAZ as the regulatory body
4. To provide recommendations in light of study findings.

**Research Questions**

1. How can sound regulatory policies be implemented to achieve best international practices and regulatory actions that would improve performance of companies in the telecommunication sector?

Research questions for this study were as follows:

1. What are the effects of regulation in regard to industry performance in the telecommunication industry of Zimbabwe?
2. What ways can POTRAZ as the regulator apply to enhance industry performance in the telecommunication industry?
3. How is POTRAZ effective in its regulating activities?
4. What are the recommendations that would improve industry performance in the telecommunication industry?

The study proposed that the regulation framework in the telecommunications sector of Zimbabwe was not promoting high performance in the industry. This is because of increased dominance by big players in the sector that calls for comprehensive reforms including reduction of entry barriers to new players. Sector performance suggests that powerful players dictate pace thereby blocking or delaying reforms and complicating decision making by the regulator. Changes on the industry structure
however promote product and service improvement, innovation and consequently increase sector performance and quality of service delivery.

The research study would benefit the government, the regulator POTRAZ, all telecommunication operators and the consumers of the services. The industry at large would benefit because obstacles in development within the sector would be minimised hence creation of a conducive environment by well spelt out regulations. Most importantly this would add value to the country’s gross domestic product (GDP).

Telecommunication agents and consumers, including the business community, government and the sector operators benefit from the research study. Academically, this research saw the necessity to raise debate on this new concept and stimulate further research on the subject matter and explore its practical applications in this important sector of the economy. There is not much which has been done in the studies of regulatory impact on the performance of an industry.

The research study covered the telecommunications sector which is regulated by POTRAZ, and the study took three months to complete. All the mobile telephone operators that are licensed by POTRAZ; Econet, Telecel and NetOne as well as the fixed telephone operator TelOne were the companies under study. Regional offices of the above operators were considered for market coverage, meaning that at least two branches per region were studied in such locations. Senior management of operators were the respondents. The regulatory body POTRAZ was also under spotlight and was the main area of study for the purpose of ascertaining the effects of the regulatory factors in the sector.

The research study mainly consists of five chapters and each chapter specifically focuses on particular issues that gradually builds up to a comprehensive research outcome.
Chapter one covered the introductory part of the research study by laying down the foundation and also providing the research objectives. The background of POTRAZ has been provided as well as the statement of the problem, research proposition, the justification and scope of the research. In the next chapter the study is taken further by focusing on the relevant literature review exploring on the regulatory factors that hinders industry performance.
CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction
This chapter reviews the main insights from scholarly literature and empirical studies on regulation as experienced in developing and developed countries, focusing on context of telecommunication reforms, ICT for rural development, elements of an effective regulator and global telecommunication performance trends. Thus, the chapter reviews ways to enhance telecommunication industry performance by way of regulation.

2.1 Purpose of Literature Review
There is no universally accepted theory of learning thus the purpose of literature review is to sharpen and deepen the theoretical framework of the research that is, to analyse different theories related to a topic and finding any knowledge gap (Onwuegbuzie et al. 2012). Literature review is a means to an end, namely to provide background to and serve as motivation for the objectives and hypotheses that guide your own research (Perry et al. 2003, p660). Bhattacharyya (2009, p24) further highlighted that, literature review therefore, familiarizes the researcher with the latest developments in the areas of research as well as in related areas, degree of agreement on the topic, contrasting perspectives and viewpoints on the topic, if any. The World Bank (2004) established that there were a number of researches on developmental matters including regulations. According to Minogue, 2005, there are many forms of regulations and these have changed with time. Between 1960s and 1980s, failures in the market were caused by direct government involvement in productive activities. This was achieved through promotion of industries by cutting down on imports and promotion of direct investments in agricultural activities to feed the industries.

2.2 Regulation Theory
There are more researches that were done on the theory of economic regulation since the nineteenth century (Laffont and Tirole, 2006; Newbery, 2009). According to Levy and Spiller (2007), failures of the market due to a number of factors including
increase in production opportunities, lack of market information, distorted distribution of wealth and income as well as unfair market dealings brought about regulations. Levy and Spiller, (2007) pointed out that market failures may be more obvious, and public regulation is more strong in developing countries (Stiglitz, 2008).

According to Kessides (2004), networked infrastructure industries such as electricity, telecommunication and water have historical advantages due to their existing infrastructure acquired over a period of time. Restructuring in such sectors and privatisation to some extent including diversification have propelled such institutions to realise efficient and effective regulation strategies. Service costs have stabilised due to the economies of scale enjoyed, thus resources are channelled to other needy areas.

According to Majone (2008) regulatory state is the outcome of certain characteristics that have to do with organisational arrangements that promote the aspect of quality in government. An oversight politically on policy that deals with regulation has negative impact on governance of such regulations. It is a fact that there are government regulations and transactions within the market and the functionality of such markets is based on regulations that regulate and control a given sector. Regulation is assumed to provide important economic and social benefits including environmental benefits.
Expected economic performance is viewed by some special interest groupsto be affected by some regulatory interventions and thus negatively impacting on the regulatory outcomes. Special interest groups may lobby for some changes in the legislation for the purpose of personal benefits (Stigler, 2006; Peltzman, 2008). They went on further to say, because of economic distortions; regulatory functions in line with government policy may not achieve the intended objectives. Some regulations may be damaging to the extent that businesses are forced to bring their concerns to the attention of the authority. Regulation is an essential tool for supporting the sustainability of the economy and protection of human and property rights.

Hampton, (2005) articulated terms to better regulation and these are accountability, consistency, targeting rules and proportionality. These were adopted commonly across OECD. Economic improvements are the expected results of conforming to attributes of good regulation and economies stand to enjoy increase in productivity levels and more business start-ups leading to GDP growth.

Regulatory impact assessments promote efficiency in informed decision making and this is achieved through consultations with all concerned stakeholders (Kirkpatrick and Parker 2012). The other tool for success is the adoption of administrative simplification and burden reduction. A level playing field is created in the sector and
regulation becomes more efficient and effective. Compliance and improved sector performance is realised.

![Diagram of regulatory objectives and economic and welfare gains](image)

Source: Kirkpatrick and Parker (2012)

Some regulatory regimes have implemented certain assessment frameworks to establish their relevance and impact of their regulatory decisions in sector performance. The framework of Stern and Cubin (2005) is made up of six important aspects and these are role clarity and objectives, autonomy, involvement, accountability, openness and predictability in terms of assessing the regulatory impact, (Stern and Cubin 2005).

According to the World Bank (2002), regulatory institutions that are strong stand to have better market performance as compared to weak institutions. Jacobs, (2004, p4) put it out that, “Asia’s governments rely too much on under-equipped and unsupported independent regulators to carry out tasks that are beyond their capabilities”. According to the African context studies in regulation are fragmented according to specific sectors without proper consultation and coordination and such
determinations are not well structured to achieve the intended goals and objectives. The World Bank went on to express the need for states to improve their regulatory regimes and the issue of building institutions and capacity effectively so as to supervise the private sector.

2.4 Relationship between the Regulator and Telecommunication Operators

2.4.1 The Resource Based Theory of Innovation Regulation

According to Blackman and Srivastava, (2011, p30) generally regulation entails implementation of policy issues at a more operational level for the purpose of achieving intended goals and objectives as set by legislation. By the nature of their mandate, regulators are the authorities that come up with regulations for enforcement thereby implementing law. Telecommunication operators consist of the licenced operators that hold valid licenses issued by the regulating authority and have a responsibility to provide products and services to customers as stipulated in their license documents and above all should comply with the rules and regulations as set by that authority.

2.4.2 Licensing

According to ITU(2004, p25), the common licensing objectives are for; allocation of scarce resources, expansion of networks and services, privatisation or commercialisation, regulatory certainty, establishing a competitive framework, consumer protection, regulating market structure, generating government revenue and the evolving role of licensing. The document is issued by a regulating authority after all necessary license requirements are fulfilled and such a document legalises the license holder to carry out business as stipulated in the license document. No organisation is allowed to operate without a valid license and whoever operates without a license would be committing an offence and is subject to prosecution.

A prospective applicant for a license should gather all the necessary information and carry out an appropriate sector research so that there are no delays in applying and processing of the license. Important ground work should be done and this includes putting together all the necessary resources to start operations as soon as the
license document has been processed by the authority. The regulator has the responsibility to process a license within a reasonably acceptable time frame provided the applicant has submitted all the requirements. Speedy processing is highly recommended because any delays would scare away potential investors.

Due to the unfair competitive environment and some unscrupulous actions in the market, enforcement of regulations creates a level playing field for players in the sector, (Blackman and Srivastava, 2011, p30-31). There are many types of abuses including tempering with customer property. Illegal operations by an unlicensed operator negatively affects the sector in so many ways in addition the illegal operator would be evading paying tax to the state and also getting a share of the market. There is also compromise on the quality of service and illegal telecommunication connections can be carried out. Big organisations that are classified as market leaders tend to employ tactical strategies to push competitors out of business. They can play around with pricing schemes and even refusing to share infrastructure with competitors.

As mentioned earlier on the authority has the responsibility to regulate, monitor, enforce and bring to book any operator that is non-compliant to regulations in the sector. Operations by unlicensed operators affect the licensed operators because they would have invested huge amounts of capital in their businesses, paid license fees and also paying tax to the state. The authority must flush out all violators and protect the licensed operators.

Spectrum management is done by the authority and any illegal operation in radio frequencies and communication of the two way radios on unassigned channels brings about interference. Illegal operators tend to charge low prices in their business transactions as a way to take many customers and this negatively affects the licensed operators who would have channelled a lot of resources in innovation and business expansion. These illegal operators distort market share by charging way below cost, which is unfair business practice.
Violators in the sector deliver poor quality products and services and the penalties they face once they are prosecuted are not that deterrent. To a certain extent licensed operators tend to diversify in their operations by venturing into services that are not regulated by the authority. Provision of such services may come in with poor service delivery and this becomes a challenge to the regulator.

An effective regulator is the vehicle to ensure credible market entry, as well as compliance with and enforcement of existing regulations. According to International Atomic Energy Agency Vienna, (2006), to be effective, the regulator needs to be independent and independence is not simply a separation of reporting lines within government but the guarantee of freedom from influence in decision making through the law. Effective regulators have robust processes to determine their staffing levels and the competence, qualifications and experience of their staff. Effective regulators need to be able to measure the impact of their regulatory activities on the performance of the industry they regulate. For regulators to be effective, they must deliver sustained regulatory excellence thus, some regulators have effective quality management systems and continuous improvement programs.

Blackman and Srivastava (2011, p14): Independence is a critical attribute for a regulator to be effective. Effectiveness, however, has additional dimensions in broad sense, an effective regulator is structurally and financially independent. But the real effectiveness of the regulator will depend on how it achieves regulation functionality, ideally in an independent and autonomous manner. In addition, an effective regulator should demonstrate other characteristics, including accountability, transparency and predictability.
The WTO Reference Paper, which requires countries to establish a regulator separate from the operator, has prompted many countries to establish a structurally independent regulator that separates the function of regulating the telecommunication market from that of supplying services. Providing a regulator with structural independence reduces the possibility of political or industry capture. When a regulatory body bows to external pressure from operators or other government entities, it often lacks independence and its decisions are neither objective nor transparent.

According to Saunders, et. al (1983), government institutions have proved to be failures in providing the much needed communication services to society and as such, states have resorted to engaging the private sector to come on board and complement government effort. It was realised that market competition had to be maintained and promoted in the sector so studies in regulatory research started in the 1990s,(Simpson, 1998). As a result of markets becoming competitive from monopolistic states due to new players coming into the system, regulation was to be put in place as a monitoring measure to curb unfair practices and to ensure quality service was provided.
Research and advancement particularly convergence in communication, information and technology including broadcasting have opened opportunities for institutions to be innovative and provide the much needed products and services (Blackman and Srivastava, 2011). The developments benefit both the community and businesses by having access to communication and information, realisation of economic development, affordable prices and profit operating business entities.

Not many studies have dealt with issues to do with regulation and innovation but most tend to have concentrated on governance and strategic management areas. According to Fagerberg Srholec, (2008) regulation in terms of innovation is considered to be a concept, which is somehow new and much needs to be done. A regulator should be an enabler and facilitator because technology is moving fast from the traditional belief of control regulator, (Gouldson Bebbington, 2007). The regulator should be considered as an entity that is capable to create an enabling environment and also take a positive role in participating and take a leading role in innovation.

According to Jacobs (2004), resources in developing countries negatively affect the roles and expectations of regulators. Political interference reduces regulators to passive stance and this is a major concern since innovation is affected. This is especially the case when regulators are regulating state-owned enterprises where there is interference from politicians. Advancement in technology can only be achieved if regulators join hands with sector institutions, together with government support financially and politically in focusing on innovation in communication.

According to KPMG (2011) there are numerous benefits that are realised like cuts in infrastructure spending, low network operation costs, enhanced focus on service innovation and low entry barriers. It is essentially a cost cutting measure to share infrastructure and as such resources are put to other investment opportunities there by realising institutional growth and national development. Telecommunication operators can share mobile telephone towers, assembling of passive equipment and
also hang their antennas on masts of their competitors; this is achieved through operator agreements. These are commendable new business models aimed at achieving sustainability.

There is what is called passive infrastructure sharing and active infrastructure sharing. Sharing of the towers, power supply, generators, batteries and air conditioners, fire extinguishers, assembling of passive equipment, masts and other passive accessories is classified as passive infrastructure sharing. On the other hand sharing of active infrastructure entails the sharing of spectrum, transceivers, microwave equipment, antennas and switches.

Sharing of GPRS service nodes, links connecting elements of network, switching centres and transmission equipment is backhaul infrastructure sharing.

According to Hasbani et al (2007), infrastructure sharing started way back in Europe in 2001 with the licensing of 3G (Third Generation). In Tanzania there is a major telecommunication vendor who made a ground-breaking move by building passive infrastructure in the underserved areas. Vodacom, Millicom, Zantel and Celtel the four mobile operators share the infrastructure (Hasbani 2007, p10). Consequently regulators may decide to provide approval for sharing, actively encourage sharing or mandate access. Regulatory decisions should be based on an analysis of the competitive impact of infrastructure and in line with good regulatory goals, for example transparency, efficiency, non-discrimination and independence.

Recognising the public and environmental benefits of site and mast sharing, the EU has actively encouraged this activity since the first mobile licences were issued. Site and mast sharing was only mandated in a limited number of countries, such as Cyprus, India (limited to Delhi and Mumbai) and Norway (limited to incumbent operator Telenor offering co-location).
Some case studies on telecommunications reform in developing countries, such as Laffont and Tchéchén'Guessan (2001), show that although a regulator is powerful in law, in practice it can be very weak faced with the so-called regulated firms. For example, without strong enforcement powers vested in the regulator, a dominant incumbent operator will be able to deny interconnection to entrants on reasonable terms and physically restrict access or provide technically inferior service to its rivals' customers. The main reason for this is that the incumbent operator stands in the bottleneck of the telecommunications value chain, restraining opportunities for new players because of its dominant position (Melody, 1997).

Prieger (2002) studies a period of decreased stringency in the economic regulation of telecommunications providers and finds that reduced compliance uncertainty allowed market innovation to increase by 60% to 99%. The regulation Prieger studies is the requirement that large telecommunications carriers, those that control local telephone networks submit “comparably efficient interconnection” (CEI) plans to the Federal Communications Commission (FCC) whenever they introduce a new telephony service. The CEI plans theoretically allow smaller rivals to offer similar services on the local networks. Between 1992 and 1995, the FCC did not require firms to submit CEI plans, and Prieger uses this as a natural experiment to study the effects of stringency on telecommunications innovation. He develops a regression model that tests the effect of regulatory delay on the introduction of new services. Overall, his results indicate that telecommunications firms would have introduced 62% more services during his analysis period had the more stringent CEI regulation not been effected.

Likewise, Prieger (2007) uses a regression model to examine the effect of compliance uncertainty due to regulatory delay and finds that reduced regulatory delay increased market innovation. His analysis focuses on state telecommunications regulations in Illinois, Indiana, Ohio and Wisconsin. As a proxy
for innovation, he uses introduction dates of innovations by the firm Ameritech (now part of AT&T). The introduction of a new service required Ameritech to petition the public utility commission in each state, which resulted in regulatory delay. Prieger finds that the reduction of the average length of regulatory delay in the late 1990s contributed to faster introduction of new products from Ameritech.

Ai and Sappington (2002) study the impact of the change in the economic regulation of telecommunications firms from rate-of-return regulation to more flexible incentive-based regulations and found out that it resulted in an increase in market innovation. Beginning in the late 1980s, telecommunications regulators began switching from rate-of-return regulation of carriers, in which firms are required to charge a price equal to their cost of capital plus some specified rate of return, to incentive-based regulations, such as earnings sharing regulation, which requires the firm to share earnings with its customers. Ai and Sappington’s regression analysis indicates that the change in regulatory regimes contributed to increased network modernization and process improvements measured by lower operating costs. Similarly, Schmalensee and Rholfs (1992) and Tardiff and Taylor (1993) both found out that the change in regulatory regimes resulted in an increase in total factor productivity, a measure of technological innovation. On the other hand, Shin and Ying (1993) found out that service costs increased under incentive regulation, indicating that market innovation may not have occurred (Kridel et al., 1996).

Kahn et al (1999) examined the Telecommunications Act of 1996 and argues that the economic regulatory overhaul, designed to promote competition among telecommunications carriers, created barriers to market innovation. First, they argue that the previous, less flexible rate-of-return system actually offered greater incentives for market innovation, because carriers could incorporate their research and development (R&D) expenditures in their capital costs. This allowed them to undertake large-scale and risky R&D activities, that is, radical innovative activities that are harder to justify in a highly competitive market. Secondly, Kahn et al. attacked the stringent regulation that requires larger regional carriers to share their local wired telephone networks with local competitors.
KPMG (2010) argue that social regulation had a positive impact on both market innovation and social innovation in the USA automobile industry. They study the impact of the flexible performance-standards-based regulatory regimes that were implemented in the 1960s and 1970s, including the introduction of stringent emissions standards with the Clean Air Act Amendments of 1970, the corporate average fuel economy (CAFE) standards enacted by the Energy Policy and Conservation Act of 1975, and the stringent safety standards implemented by the National Traffic and Motor Vehicle Safety Act of 1966. Importantly, Atkinson and Garner argue that these disruptive environmental standards brought the American auto industry more in line with customer demand for lighter, more fuel-efficient automobiles, helping it compete with already-efficient Japanese vehicles, which began arriving on the domestic market in the 1960s. Hence, Atkinson and Garner argue that, not only did the environmental performance standards brought about social innovation in the form of reduced emissions in the short term, but those same innovations also allowed USA automakers to retain market share. Meaning that, over the long term as the regulations became integrated into the global market, those social innovations evolved into market innovations. Sperling et al. (2004) stated that the stringent regulations also forced automobile firms to spend less money on annual style changes.

Nevertheless, Atkinson and Garner emphasize that the success of these social regulations very much depended upon the nature of the auto industry at the time. For example, the regulations came at a time when the vehicle market was experiencing a pronounced change in customer demand combined with increased competitiveness due to globalization that is social regulation implemented through performance standards is certainly not unequivocally advantageous.

Gerard and Lave (2005) examine the same disruptive performance standards as Atkinson and Garner (1987) but argues that their success at promoting social innovation was mixed and quite costly for the automobile industry. They explain that USA automobile firms succeeded in developing moderately radical catalytic converter technology to reduce hydrocarbon and carbon monoxide emissions. But by
1977 they had not yet met the stringent standards of the Clean Air Act Amendments. Moreover, nitrogen oxide emissions remained more than twice as high as their target. Meeting the stringent standards required the development of a three-way catalyst technology, but this required even more radical engine and technological improvements, and thus a heavy R&D investment. In fact, after the development of the catalytic converter, Gerard and Lave argues that both industry R&D intensity and patenting dropped sharply in 1975, although the authors are uncertain as to whether this was due to severe economic pressure or because firms sensed that the enforcement of further emission reductions did not have political support.

Congress was faced with the possibility of an industry-wide shut down and instead chose to reduce the stringency of the standards by lowering the emissions targets and allowing for some waivers.

Pilkington and Dyerson (2006) examined the development of electric vehicle technologies and found that, while emissions regulations effectively promoted incremental social innovation in internal combustion engine vehicles, they did not produce the radical innovations required for the commercialization of electric vehicles in fact they produced “duds.” The authors use international patent data as a proxy for innovation and recognize a correlation between regulatory stringency and technological capability. They speculate that regulation to promote zero-emissions vehicles (such as the electric car) failed because the stringency of the mandates were reduced after several years, thereby eliminating “any protected niche market to allow the nurturing of the new technology to a performance level that challenges the existing dominant design” (Pilkington and Dyerson (2006), p. 89).

Cohen (1979) and Marcus (1988) each study the effect of regulation on social innovation in the nuclear power industry. Marcus explains that flexibility helps promote social innovation. Through examining the safety regulations implemented by the Nuclear Regulatory Commission (NRC) following the 1979 Three Mile Island accident, he noted that regulations affected plants differently depending upon their prior safety records. The NRC took a less flexible approach to plants that had a poor safety record before the accident, while it took a more flexible approach to those with good safety records. By regressing human error events on the compliance
implementation strategy undertaken by each plant, Marcus noted that poor safety records resulted in less flexible regulation, which restricted plants’ implementation choices, and this in fact perpetuated poor safety performance in the future.

On the other hand, a good safety record allowed for a “zone of discretion” in implementation, which resulted in continued strong safety performance. Marcus goes on to note, “If poor performers are given more autonomy, their safety record is likely to improve” (p. 249). Cohen (1979) reviews NRC power plant licensing procedures and finds that they negatively impact market innovation through compliance uncertainty due to regulatory delays, although she suggests that this may be worth the social benefit of improved safety and quality.

Lyon (1996) noted that compliance uncertainty caused by economic regulation has a negative impact on market innovation. He examines the regulatory “hindsight reviews” that were adopted by regulators in the 1980s in response to a series of poor investments made by electric utilities. Hindsight reviews, assess whether a utility’s investment was “used and useful” and is a cost-effective source of power from which the regulator determines whether the utility’s investment should be disallowed. Lyon runs a simulation using data from coal-burning steam plants and finds that hindsight reviews can cause a utility to forgo investing in risky innovation and instead utilize more costly conventional technologies. Furthermore, utilities may cease making technological investments at all and instead switch to purchasing power from third-party producers.

According to Cui Shutian (2002), the policies and telecommunication regulation in China can be classified into two broad areas. These are developmental studies exploration that mainly focuses on detailed strategic policy matters and secondly studies for sustaining growth as per state policy in the communication industry. Literature has strived to understand the factors underpinning the evolution of the communication industry and government policy. In the 1990s, the telecommunication was given special recognition by the Communist Party, where liberalisation was largely an unintended by-product (Mueller and Tan, 1997).
Although it is called three network convergences by the Chinese government, there are essentially two networks in China, telecommunications and cable. This is because the public Internet is owned by telecommunications carriers and the programming part of television system is separated from the transmission part. In this section, we review the historical development of China’s networked industry and then turn to a survey of major institutions in China’s regulatory regime.

China’s telecommunications, cable and Internet networks have some key commonalities and share a similar pattern in their evolution (Cui Shutian 2002). The major players in each section are all owned by the government. The three sections have experienced explosive growth in the past twenty years and efforts have been made to introduce market competition into each section. While telecommunications industry is considered fairly competitive, cable remains to be a closed quasi-government system.

Facing the pressures from the Nationalist Party that fled to Taiwan and international capitalist forces, the young Chinese government chose to focus its limited resources in agriculture, heavy industry and the military. For the first thirty years, telecommunication had been the slowest sector in the national economy (Lu & Wong, 2003). From the 1950s to the 1970s, the management of China’s telecommunication was semi-military and highly centralized. Telecommunication was mainly considered as a tool for administrative and military needs. Home telephone service was a political privilege and a symbol of social status (Lu, 1994).

The 1980s saw a rapid take-off after being ignored for nearly three decades. Preferential policies and huge investments were made to help jump-start this industry (Wan, 2001). The rapid growth in 1980s did not resolve the institutional pitfalls of the old Posts and Telecommunication system. The then monopolistic Ministry of Posts and Telecommunications was criticized for its low productivity and poor management performance. Since 1990 series of industrial and regulatory restructuring exercises were carried out in order to achieve a competitive market.
As part of monopolistic environment, Tanzania Posts and Telecommunication Corporation as an authority was responsible for regulating the postal and the telecommunication services. It had the responsibility of allocating and managing spectrum and other associated regulatory functions, it was a highly monopolistic state, (Nielinger, 2004). Due to lack of alternative telecommunication providers, the network infrastructure deteriorated and led customers to install radio (VHF/HF/UHF) based communication systems for private communication after being granted license for the use of radio frequency spectrum by TPTC (Nielinger, 2004). The said frequency spectrum which is a rare resource of the nation was badly managed and resulted to interference for the few users.

According to Shirley (2001) the telecommunication sector was a source of general revenue for the government. However the source was eroded by the slow expansion of service, inefficiencies of the operators and very high prices for international calls. In addition, TPTC era saw poor quality of service accompanied with low worker productivity, needless to say that this trend was carried forward by TPTC successor namely TTCL. World Telecommunication Development Conference (WTDC) (Mureithi, 2003).

Admittedly, for the first time, most governments including the three East African Countries made a declaration to ensure that there was a telephone within easy reach by early part of the 21st Century (ITU, 1985). Equally, the shift was partly in response to pressure from Bretton Woods’s institutions and donors.

Increased overlapping of functions and the need to recognise technological convergence of broadcasting and telecommunication, led to the enactment of the Tanzania Communications Regulatory Authority Act No. 12 of 2003 (TCRA, 2003). TCRA aims at ensuring economies of scale, seeking uniformity in decision making, coordinating developments and saving resources. The Authority is responsible for enhancing the welfare of Tanzanians through:
• Promoting effective competition and economic efficiency;

• Protecting the interests of consumers;

• Promoting the availability of regulated services;

• Licensing broadcasting, postal and telecommunication sectors.

• Enforcing licence conditions in broadcasting, postal and telecommunication sectors.

• Establishing standards for regulated goods and services

• Regulating rates and charges (tariffs);

• Managing the radio frequency spectrum;

• Monitoring the performance of the regulated sectors; and

• Monitoring the implementation of ICT applications.

TCRA officially became operational in January 2004, the board and management team were appointed in mid-2004. It may be argued that the institution is fairly young and thus difficult to critically analyse its success and shortcomings. Equally, there is very little information on the institution. It is important to highlight the fact that as a regulator, TCRA should truly aim at formulating clear policies that articulates coherence and transparent telecommunication framework. The current practice of total confidentiality undermines the corporate governance principles and the privatization process. TCRA should strive towards the formation of a national advisory body as well as regional bodies in the wake of the EAC revival.

Liberalization

According to Laing (2004) South Africa’s road to telecommunication liberalisation began in 1991 when the telecoms arm of South African Posts and Telecommunication (SAPT) was separated from the controlling body into the company we know today, Telkom. This was followed by allowing, in 1993 and 1994, the introduction of two cellular service providers, Vodacom and MTN.
In 1994 South Africa signed the World Trade Organisation General Agreement in Trade and Services which then committed South Africa to the opening of its telecommunication market. The South African government however, after partial privatisation of Telkom, with 30% of the company being sold to investors, decided that allowing the monopoly to continue would be more beneficial to achieving their goals, increasing the number of phone lines, than allowing private businesses to enter into the market and thus introducing competition. This however was not the case and it is estimated that of the phone lines Telkom installed to meet government’s targets up to two thirds were disconnected soon after installation (Laing, 2004).

It is the opinion of Hsieh that, as important as deregulation in the telecommunications industry, is re-regulation (Hsieh et al, 2003). It is with this thought in mind that in October 1997, it was announced that the Independent Broadcast Authority (IBA) and the South African Telecommunications Regulatory Authority (SATRA) were to be merged into a single regulatory authority. It was not, however, until 2000 that they actually merged and became the main regulatory body, which is the Independent Communications Authority of South Africa (ICASA) (South African Consulate General, 2004). The key functions are to:

► Make regulations and policies for regulating the postal and telecommunication sector including broadcasting.

► Processing and issuing licences to postal and telecommunication operators as well as broadcasting.

► Monitor the environment and enforce compliance with license requirements.

► Handling customer complaints and dispute resolution among licensed operators.

► Planning, allocating, controlling and managing spectrum.

According to Laing (2004), in March of 2001 the Communications Minister Ivy Matsepe-Casaburri announced the intentions of the government to allow the introduction of a second network operator (SNO). This would compete with Telkom
and hopefully bring down prices, which had been rising constantly over the last decade and also promote checks and balances. This has not only resulted in making it difficult for poorer South Africans to make phone calls, but it also impacted negatively on the business environment where fixed lines are important for accessing the internet and email as well as making cheaper local telephone calls (Laing, 2004). In July of 2001 a second policy directive was issued announcing that a third network operator would be licensed and thus producing an even more competitive, customer-oriented telecommunications environment (Laing, 2004). Cabinet, however, backtracked on this decision on the 15th of August 2001 after much lobbying by existing network operators who feared to lose business after licensing more service providers (CTUF Press Release, 2001).

In November of 2001 Cel C, the third cellular provider was launched into the thriving cellular market which has been the “undisputed champion of the last decade” showing exponential growth. Although the amount of cellular subscribers had increased at this phenomenal rate the average talk time per subscriber has dropped steadily. This is as a result of the steadily increasing prices which customers were becoming less and less willing to pay (Laing, 2004).

On the 2nd May 2002 Telkom’s exclusive rights over services came to an end, SNO, which was awarded to a conglomerate made up of Eskom, Transnet, Nexus and Communitel and Two Consortiums, to appear (Laing, 2004)

This research is unique because all the previously done researches have been basically focusing on the international perspective of regulation, but this study gave more emphasis specifically to Zimbabwean regulation of the telecommunications sector. Thus issues raised were concerned on how POTRAZ per se can be effective enough to enhance performance of telecommunications services in Zimbabwe by achieving sustained regulatory excellence. Justification was done on how POTRAZ as the regulating company can be supportive and have effective quality regulation systems and continuous improvement programs but more needs to be done to develop international guidance in this area.
The main focus of this chapter was to dwell on relevant literature and to give an in-depth insight into the ways that were identified by other researchers and writers on how regulators can enhance industry performance of the telecommunications sector. The chapter focused on regulation vis-à-vis its effects, rural ICT development, regulatory effectiveness and the global performance trends of the sector. Regulation theories that are of relevance to the telecommunication industry were identified. The discussion also focused on why the sector should be regulated as well as the relationship between the regulator and the telecommunication operators. Some regional and international telecommunication regulators’ experiences were discussed as case studies. Regulation ultimately affects economic growth, pointing to the fact that there is need for well-structured and doctored regulatory framework that promotes the economic activities and encourage investor confidence. Due to the fact that there are different sectors in an economy it entails that these sectors should have coherence in regulations since they all have an impact on the economy.
Methodology is the analysis of and rationale for the particular method or methods used in a given study (Jankowicz 2004, p74) but the scope of research methodology is wider than research methods. Thus, in a way, research methodology deals with the research methods and takes into consideration the logic behind the methods used. It can be safely said that, research methodology is the heart of every research. According to Tulu (2010); the research methodology defines what the activity of research is, how to proceed, how to measure progress, and what constitutes success. In addition, research methodology is a science that studies how the research is done scientifically as highlighted by Chilisa and Preece (2005, p98) that research methodology is a scientific and systematic way to solve research problems. Also it defines the way in which the data was collected in a research project and instruments that were used.

The chapter deals with the research design and data collection techniques that were employed for the research to take place in addressing the research problem as outlined in Chapter One. The research design mainly focused on the research philosophy, approaches, strategies, time horizons, classification of research purpose or strategy, and lastly the population for the research. On the other hand, data sampling techniques involved determining the sample size, sampling method and the primary and secondary sources of data.

Bryman, (2006) defines a research design as a series of advance decisions that, taken together, comprise a model of how the investigation to answer research questions will be conducted. The research design is used to obtain evidence to answer research questions. Research design aims to provide the most valid accurate answers possible to research questions. There is need to match research design with research questions.
Leedy (2001:20), defines research design, “as a basic plan for a piece of research and includes four main ideas which are strategy, conceptual framework, question of what will be studied and tools and procedures to be used for collecting and analysing empirical materials. It is a plan that guides the researcher in the collection, analysis and interpretation of observations”. From another dimension Gerber (2003) propounded that, a research design is a detailed plan utilizing how observations will be made. According to Chilisa and Preece (2005) a research design is generally a basic plan of strategy of a research and logic behind it, which then makes it possible and valid to draw more general conclusions. Research design is in fact the conceptual structure within which the research is conducted (Walliman and Kumar 2005:40). Bernard Phillips has described the research design as a “blue print for the collection, measurement and analysis of data”. Thus, in this regard it follows that a research design provides a strategic programme by which the researcher is guided in his/her attempt to analyze and interpret the observed facts.

A combination of two research designs was used in this study that is: the exploratory research design and the conclusive research design. The exploratory research design was used to ‘explore’ on the subject matter at hand and was carried out by using survey of existing literature (secondary data analysis), survey of experienced individuals (expert surveys) and analysis of selected case studies. Furthermore, conclusive research design was used focusing on the ‘descriptive survey method’ since it is one of the best methods of collecting cross sectional data from relatively large number of subjects at a particular time. Also, research design for descriptive studies strives for economy and safeguard against errors in each of the components of the design (Gupta and Rangi 2009:3.9). Hair et al (2006) postulated that descriptive research is research based on using a set of scientific methods and procedures to collect raw data and create data structures that describes the existing characteristics. According to Chilisa and Preece (2005:100) “a survey systematically gathers information about a situation, an area of interest, a series of events, opinions, behavior, interests or practices”. They further argued that survey research is descriptive and that is the reason why survey and descriptive research is used interchangeably.
Gupta and Rangi(2009) presented the following advantages and disadvantages of a descriptive research design:

3.1.1 Advantages

- Data collection may be spread over a large number of people over a large geographic area from almost any source.
- It can be used to describe and to make predictions related to particular phenomena.
- It focuses on the accurate description of the variables in the problem such as ‘access to telecommunications services remains a challenge in the rural areas’.
- Provides a simple and straightforward approach to a study.

3.1.2 Disadvantages

- Tendency for bias as respondents tend to respond in a way they feel will please the researcher.
- The data collected might be too much, making data loading and analysis difficult in the absence of a computer.

In regard to some of the demerits mentioned above; they were controlled by ensuring that the research instruments were pre-tested for validity. Open-ended questions were given to respondents that allowed them some freedom of expression and thus, reduced subjectivity and that a representative sample was utilized in order to enhance analysis of study findings.

The study was primarily designed to ascertain from the Regulator (POTRAZ), consumers and key players, the operators in the telecommunications industry about the perceived impact of regulation in enhancing industry performance of the telecommunications sector. However the researcher collected data using both primary and secondary data collection methods. These included questionnaires, interviews and desk researches using other case studies and journals.

Saunders et al. (2009) identified the quantitative and qualitative methods of carrying out a research and said that quantitative research is the positivist approach and qualitative research is the phenomenological approach. A Positivist researcher uses
a mathematical and statistical method to evaluate the results while the phenomenologist uses descriptive and non-mathematical procedures when interpreting and explaining the research. Dubois, Joliber, and Muhlhancher, (2007) go on to say that the qualitative and quantitative analyses are sometimes seen as in opposition to each other. Qualitative analysis takes as a starting point a subjective approach that portrays an individual as a complex being while the quantitative approach portrays the individual as a logical agent, whose behaviour is determined by certain variables which have to be identified by empirical studies undertaken on a large scale.

The quantitative approach is persuasive in the business and management research and in this study the deductive approach was used but the interview data was well suited for the inductive approach. This approach was used because the researcher wanted a more complete understanding of the topic researched and come up with the best possible analysis for accurate results. The research also focused on key areas and specific area questions. These key areas were the segments, the needs and also the drivers and barriers.

3.2.1 Segments: what are the different stakeholders in the telecommunication sector?

3.2.2 Needs: What are the needs of each group of stakeholders in the provision of telecommunication services? What telecommunication needs are met and those not being met for each segment?

3.2.3 Drivers and Barriers: what are the driving factors affecting industry performance in the telecommunication sector? What are the barriers for positive telecommunication industry performance?

Thus, the type of this research was of a quantitative and qualitative nature. The study enabled the researcher to make a critical enquiry as well as the search for meaningful evidence that revealed the realities of regulation in enhancing industry performance of the telecommunications sector. Quantitative information was used, which enabled the researcher to achieve objectives of the study. Birn (2002:264) postulated that, “the conclusions reached in qualitative research are the product of
According to Saunders, Lewis and Thornhill (2007), the nature of knowledge and success in development of that knowledge relates to research philosophy. In carrying out a research study there appears to be knowledge development relating to that specific area of study. There may be specific research questions or problems to be addressed, through carrying out a research study. In the process of carrying out the research study there is ultimately new knowledge that is developed. Positivism, interpretivism, phenomenology and realism are the four exclusive classes in view of knowledge development. The research philosophy, according to the researcher was considered on the assumption that its importance would add value to the research strategy and the methods chosen in carrying out the study. It could be a modest ambition in trying to answer research questions but new knowledge development is realised in the area of study. Theoretical assumptions in research studies assist in establishing the appropriate research methods.

In view of the above scenario this research explores more use of the quantitative approach, the phenomenology philosophy was highly used in trying to address the research questions. Quantitative research design was employed in this research study to assess the attributes on regulation framework of the industry. This means that the researcher obtained views of stakeholders in the industry about the objectives of the study. The quantitative research design was employed to try and obtain the whole picture of the performance of the sector and how it is affected by the regulatory framework of POTRAZ.

According to Saunders et al. (2009, p600), research strategy consists of the general plan that is used by the researcher in answering research questions. Clear research questions, data collection methods, expected constraints together with appropriate
objectives is an effective research strategy. There are a number of different research strategies that include the grounded theory, archival research, participatory enquiry, case studies, surveys, experiments, ethnography, action research, longitudinal research and cross section research just to mention a few (Easterby-Smith et al 2008; Collins and Hussey, 2009; Saunders et al. 2009). Saunders et al. (2009) went on to mention that, research questions, knowledge concerning the area of study, available resources and clear objectives lead to the appropriate research strategy. He went on to say an advantageous strategy should be the best option among various research strategies.

According to Soy, Susan K. (2006), a case study research generally tries to answer one or more questions which begin with "how" or "why." These questions should be targeted to a limited number of events or conditions and their inter-relationships. Literature review was conducted by the researcher with the view of formulating relevant questions for the study. A case study research excels at bringing an understanding of a complex issue or object and can as well extend experience or add strength to what is already known through considerations of previous researches.

Due to the complexity of the research study the researcher used the case study research strategy for the purpose of achieving the objectives of the study. Case study research is considered to provide the best desirable outcomes in terms of getting in-depth information and data that is highly necessary for a study. This is because case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. The case study research strategy helped the researcher to access representatives at POTRAZ, the telecommunication operators, ministry officials and the general public and gets their personal views for data collection. All the relevant information and data was availed to the researcher through various data collection methods. Given the limited availability of resources at the disposal of the researcher the case study strategy managed to achieve the expected results.
According to Babbie (2007, p48), population is a collective term used to describe the total quantity of things of the type which is the subject of a study. Saunders et al. (2009): defined population as an entire collection of cases or elements in which a researcher is interested to investigate. On another dimension, Best and Kahn (2010) defines a population as any group of individuals that have one or more characteristics in common that are of interest to the researcher.

In the same vein, target population is the population about which information is desired or the population that was actually surveyed in the study concerning its geographical area. The study population consisted of POTRAZ officials, telecommunication companies that includemobile operators (Telecel, NetOne and Econet), the fixed telephone operator (TelOne) and data service providers (Africom and Powertel). Ministry of ICT, Postal and Courier Services Officials and customers were also part of the population. It was impossible for the researcher to collect information from all subjects in the population because of time and financial limitations. So the target population was established using stratified sampling procedures with ninety seven subjects from strata A, B, C and D.

The population of the study consisted of the following:

1. Management in the Mobile Telecommunication Companies
2. Management at Tel-One (fixed telephone operator)
3. Management at Data service companies
4. Customer Representatives
5. Officials from the Ministry of ICTPCS
6. Management at POTRAZ.
### Table 3.1: Research Population Sources of Participants

<table>
<thead>
<tr>
<th>Source</th>
<th>Population Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTRAZ</td>
<td>10</td>
</tr>
<tr>
<td>Telecommunication Operators</td>
<td>100</td>
</tr>
<tr>
<td>Min of ICTPCS</td>
<td>10</td>
</tr>
<tr>
<td>Consumers</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total Population</strong></td>
<td><strong>170</strong></td>
</tr>
</tbody>
</table>

#### 3.6 Sampling

According to Bhattacharyya (2009, p391) a sample is a subset of a population from which data is collected and then used to estimate parameters of the total population. Also Erasmus and Dyke (2004) highlighted that, a sample is group selected from a large population with the aim of yielding information about the population as a whole. Hence, by observing the characteristics of the sample, one can make certain inferences about the characteristics of the population from which it is drawn. A small, but carefully chosen sample can be used to represent the population. Such sample size reflects the characteristics of the population from which it is drawn and the rationale behind sampling is that by selecting a representative sample, the researcher may draw conclusions about the entire population, (Cooper and Schindler, 2001).

#### 3.6.1 Sample Size

Leedy (2001) justified that, a sample size of 30% or more of any population under study is regarded as a true reflection of the population. So, due to the constraints of time and resources, a sample size of 57% of the target population was selected that means 97 respondents’ were chosen from the target population to constitute the sample population under study. Seven (7) POTRAZ officials were chosen out of 10 POTRAZ managers. It was on the basis that the7 officials were the relevant personnel to provide information relating to telecommunications regulating, Information Communication Technology (ICT) and on Economics, Tariffs and
Competition. Furthermore, 61 respondents were obtained from telecommunications companies, 4 from the ministry and 25 respondents as customers or consumers. The sample size was considered to be reasonably large to capture the relevant data required.

<table>
<thead>
<tr>
<th>Source of Participants</th>
<th>Population Size</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTRAZ</td>
<td>10</td>
<td>10(0.70) = 7</td>
</tr>
<tr>
<td>Telecommunication operators</td>
<td>100</td>
<td>100(0.61) = 61</td>
</tr>
<tr>
<td>Ministry of ICTPCS</td>
<td>10</td>
<td>10(0.40) = 4</td>
</tr>
<tr>
<td>Consumers</td>
<td>50</td>
<td>50(0.50) = 25</td>
</tr>
</tbody>
</table>

3.6.2 Probability sampling

Probability and non-probability sampling techniques were used in this study; that is Stratified sampling, Convenience sampling and Purposive sampling. According to Onwuegbuzie, A. J. and Leech, N. L. (2007c) probability sampling involves the selection of a sample from a population, based on the principle of randomisation or chance. It is more complex, more time-consuming and usually more costly than non-probability sampling, (Gay, L. R. and Airasian, P. 2003). As units from the population are randomly selected and each unit's probability of inclusion can be calculated, reliable estimates can be produced along with estimates of the sampling error and inferences can be made about the population. The following are the most common probability sampling methods:

Simple random sampling is the easiest method of sampling and it is the most commonly used. In a simple random sample of a given size, all such subsets of the frame are given an equal probability (Gay, L. R. and Airasian, P. 2003),
Proportionate stratified sampling is a probability sampling technique whereby the researcher divides members of the entire population into different homogeneous subgroups or strata before sampling, then randomly selects the final subjects proportionately from all the strata. This technique was used to determine the sample size of each stratum which was proportionate to the population size of the stratum. Proportionate allocation uses a sampling fraction in each of the strata that is proportional to that of the total population. In this study three strata were developed; A, B, C and D which consisted of POTRAZ, Telecoms operators, Ministry Officials and consumers respectively.

Where the population embraces a number of distinct categories, the frame can be organised by these categories into separate strata. A sample is then drawn from within these strata using any one of the different sampling methods for each stratum and the sampling method can vary from one stratum to another, (Gay, L. R. and Airasian, P. 2003). Some examples of strata commonly used are states, age, sex, religion, academic ability or marital status.

Cluster sampling divides the population into groups, or clusters, Krishnaswamy et al. (2006). From a given population there is random selection of clusters meaning to say there is inclusion of all units from the selected clusters as a sample. The unselected clusters would not be part of the sample so they will be represented by the clusters selected.

This is sometimes called interval sampling meaning to say a gap exists or there is an interval between the selected samples. It involves the selection of every element of the population such as every 5th person of the population under study, Krishnaswamy et al (2006). In this case, it is first necessary to know the whole population size from which the sample is being selected. The appropriate sampling interval is then calculated by dividing population size, by required sample size.
In non-probability sampling, there is an assumption that there is an even distribution of characteristics within the population. The difference between non-probability and probability sampling is generally that non-probability sampling does not involve random selection and probability sampling does. It does mean that non-probability samples cannot depend upon the rationale of probability theory, Dooley (2004).

Non-probability sampling methods can be useful when descriptive comments about the sample itself are desired (Gay, L. R. and Airasian, P. 2003). They are also quick, inexpensive and are convenient.

According to Gupta et al (2009:1.13), convenience sampling is done where information is collected from people who are conveniently available and these people are chosen randomly to be part of a sample. For example: colleagues, relatives, neighbors or friends. Thus, the researcher had freedom of choosing any respondent based on his/her convenience and respondents become part of the sample because they happen to be at the right place and at the right time. This was done to acquire information from the interested consumers of ‘telecommunications’ services.

Purposive sampling is done where certain specific people are deliberately made part of the sample and Judgmental sampling is done where the choice is made of subjects who are so placed as to provide the best information (Gupta and Rangi 2009:1.12). In other words Judgmental sampling is a type of purposive sampling where those respondents are deliberately made part of a sample, by virtue of their position, knowledge or any other criteria, which meet research purpose.

Thus, the selection of participants from stratum A, B and stratum C was done primarily through judgmental or purposive sampling technique. This is because the researcher arbitrarily selected sample members to conform to some criterion in-terms of accessibility and the personnel who can provide the best information to achieve the objectives of the study. For example, data was collected from
telecommunications ‘tariffs and competition’ departments of POTRAZ, which had the relevant information for the research.

This approach is usually used when a sample is taken based on certain judgments about the overall population. The researcher used his judgement to select the respondents of the study. Factors that were considered are mainly the demographics like length of service, level of education and the employment level of the target population. The researcher also targeted the most experienced staff to collect reliable data. In conducting this study the researcher used the judgemental sampling technique.

In case study, data can be collected using a number of methods. Gillham, (2000) mentioned that there is the possibility of using more than one method in data collection. He went on to say that the main method is the case study and the sub methods include interviews, observations, document and record analysis and many others.

According to Leedy (2001:54), defines a research instrument as “a tool that is used to gather data and to enable the researcher to find solutions to the problem under investigation”. They were used with the aim of trying to get the best reasons why phenomena is the way it is. In this study questionnaires and interviews were used to gather data from respondents.

Webster (2008:32): “a questionnaire is a series of questions asked to individuals to obtain statistically useful information about a given topic”. A questionnaire can also be defined as a structured instrument that has a list of questions in which the respondent will answer or fill in (Birn 2002). According to Leedy (2001) the questionnaire should have a title, clear and decisive direction and also should be attractive to the participants’ attention. When properly constructed and responsibly administered, questionnaires become a vital instrument by which statements can be made about a particular phenomenon.
The study used questionnaires because; questionnaires enabled the researcher to gather standardized data, not expensive (cost effective). Data collected through questionnaires is easy to analyze and to draw conclusions easily from them. It is also a valuable method of collecting a wide range of information from a large number of individuals (respondents) in great detail (Milne 1999). However, questionnaires are associated with low response rates but to overcome this, reminders were sent to respondents. Also, Birn (2002:89) highlighted that, the limitations of questionnaires are that the respondents will see the whole questionnaire before starting and might refuse to complete it if they find the task daunting. To overcome these shortcomings the researcher used a combination of closed and open ended questions.

The questionnaires were used on POTRAZ officials, Ministry Officials, managers of telecommunications operators and telecommunication consumers, to fill in the appropriate gaps in a bid to get reliable information. Thus four types of questionnaires were developed for POTRAZ, Ministry, Telecommunication operators and consumers. The researcher believes that, the management of POTRAZ, operators, ministry officials and consumers of the telecommunications services gave reliable information about the study since properly and carefully designed questionnaires were used.

3.7.2 Interviewing

An interview is a conversation between two or more people (the interviewer and the interviewee) where questions are asked by the interviewer to obtain information from the interviewee Tulu (2010, p19). Qualitative research interview seeks to cover both a factual and a meaning level, though it is usually more difficult to interview on a meaning level (Kvale, 2004). Interviews are particularly useful for getting the story behind a participant’s experiences. The interviewer can pursue in-depth information around the topic. Interviews may be useful as follow-up to certain respondents to questionnaires, for example, to further investigate their responses (McNamara: 2000). The interview was chosen for its flexibility since it allows for free flow of ideas. It also brings the researcher and the interviewer at the same level of understanding (Melluvile and Godhar: 2008). In addition the interview allows the researcher to clarify a question and probe for more information. Trust and rapport can be built between the interviewer and interviewee making it possible to obtain information.
The interview allows for rephrasing of questions to obtain relevant information. Appointments for interviews could be made and largely confirmed by writing so as to reduce unnecessary costs, which would result from unavailability of respondents. The researcher chose the semi structured interview to verify facts on regulation and it was easier for respondents to clarify unclear issues. However, unlike questionnaires, interviews are time consuming especially if used for a large number of people but to overcome this, the researcher had to follow his time schedule to finish on time.

According to McNara (1999), for the purpose of understanding and getting more appropriate answers to questions, interviews are more ideal. This is because the interviewer would get an opportunity to probe more and get deep information, which would be quiet relevant to the research under study. All interview methods are important but the most appropriate method in relation to the research should be considered.

There is the face to face interview whereby the interviewer and the interviewee converse on an interactive platform. Adjustments on how to ask and what to ask can easily be made for the purpose of maximising on getting all the required data. Face to face interviews were very helpful when interviewing all the subjects.

The other method is the use of focus groups and this involves a group of people in large numbers, it could be a community group, organisation members, club members or a select group to be interviewed. The other methods are interviews using the telephone network and also the postal system. Interview guides were used for this study. In fact interviews were considered appropriate as explained above.

Firstly, the researcher was cleared by POTRAZ before carrying out the study and permission was granted by the Director General of POTRAZ. The researcher distributed the questionnaires to subjects that formed the sample among POTRAZ officials and telecoms operators. With the permission letter from POTRAZ it was easy to get sufficient responses from different telecoms operators after questionnaires were sent. The questionnaires were collected in person and attempts
were made in following up on non-response. A contact number was provided in the case a respondent had any questions or any clarifications.

For the interviews, the researcher firstly made appointments with the management of POTRAZ after which face-to-face interviews were conducted at specified times to gather in-depth information. The data was collected from POTRAZ, telecommunication operators, ministry officials and from telecommunication consumers based in Harare. The researcher also utilized secondary data already in existence from research projects (case studies), POTRAZ’s publications, newspapers, journals and textbooks. Conclusively, the researcher gathered primary data using questionnaires and semi-structured interviews (see Appendices section).

Leedy and Omrod (2001) suggested some guides on the analysis of data in case studies as shown below in stages;

- Details on the case to be organised – orderly presentation of the relevant facts
- Data classifications – identification of classes for assisting in coming up with reliable groups and do some comparison of views.
- Individual clarifications – scrutinising explicit forms, manifestations, incidences and other data to establish the relationship to such a case.
- Identification of patterns. The data and their interpretations are scrutinised for underlying themes and other patterns.
- Creating combined generalizations – conclusions are drawn that may have implications beyond the specific case.

Having gathered and collected the data, data analysis on research findings was done using inductive method to arrive at a decision in coming up with a general principle. Thus, the researcher analyzed the data and it was ready for presentation in the form of tables, pie charts and graphs. A thorough analysis and interpretation of the meaning of the data was done to establish any conditions or relationships that exist.

The data collected using mainly the questionnaires was analysed using the following.
coding (grouping together of similar responses and assigning of codes) of open ended or unstructured questions

Reliability refers to the consistency of findings, that is, whether one would get the same results if the study was repeated, Saunders M. et al (2009). According to Trifunovski and Trifunovska (2010), reliability is often used in quantitative studies which are connected to positivism. Unreliable results mean that they are variable and results change from time to time if a study is repeated.

Research validity refers to whether or not the research instrument measures what the researcher intends to measure Keats (2000). In any research, it is important to say what is valid in so far as the findings are concerned. Fisher C. et al (2007:294) says that "... it is important to say something that is meaningful. That is valid. Valid means true." This can be achieved by ensuring that:

- Interpretations and conclusions are derived from research findings.
- Appropriate research techniques have been competently used.
- Conclusions are used as a guide in managerial and organisational practice.

Given the following constraints, time, cost, huge subscriber base, the following strategies were used: case study, and action research. The research was also limited in terms of time to collect data from different stakeholders.

The chapter explained the various options that were identified for the purpose of the study and explained more on the appropriate methodology, approaches and reliable methods that were used for the investigation study. The chapter focused at the research design; population, sample size, sampling procedures; research instruments; data presentation and analysis. Having analyzed the data, the
researcher presented the findings in the form of tables, charts and graphs in the next chapter. The next chapter will present the research findings and discussions.
In this chapter the researcher presents the research findings from the questionnaires and the in-depth interviews. These findings are analysed through the use of descriptive statistics in content analytic tables. The results in the tables are explained, followed by a discussion of the implications and the link to literature. The results were analysed based on concepts discussed in the literature review.

The researcher managed to interview seven top managers of POTRAZ, thirty four managers from the mobile operators who are Telecel, Econet and NetOne. There were also other respondents including eighteen managers from TelOne, five managers from Africom and four managers from Powertel. Four ministry officials were interviewed bringing the total number of interviews to seventy two. Out of the expected 120 interviews sampled by the researcher from the population only seventy two were successfully carried out. This gave a response rate of about 60%.

<table>
<thead>
<tr>
<th></th>
<th>POSSIBLE</th>
<th>ACTUAL</th>
<th>SUCCESS RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management questionnaires</td>
<td>10</td>
<td>10</td>
<td>100%</td>
</tr>
<tr>
<td>Management interviews</td>
<td>10</td>
<td>7</td>
<td>70%</td>
</tr>
</tbody>
</table>

**Average response rate:** \[
\frac{100 + 70}{2} = 85\%
\]

Table 4.1 depicts that, the response rate from POTRAZ’s management was absolutely 100% from questionnaires that were administered and the response rate for interviews was 70%. Therefore, the average response rate was 85% and this can be attributed to the fact that, the researcher had permission granted by the Director General of POTRAZ and the researcher was welcome to do the study at POTRAZ.
The researcher approached management with a letter of permission to carry out the study and the participants felt comfortable to respond.

Table 4.2 shows that the response rate for questionnaires was 61% for telecommunication operators with 50% response rate for consumers. This result could be attributed to the fact that the researcher had established some good relations with the respondents and also the questionnaires were meaningful, simple and well aligned to address their expected needs.

Figure 4.2 shows that, from 150 questionnaires sent, only 86 were returned. This effectively means that 64 questionnaires were not returned. That is, the average successful response rate was 57.3% with the other 42.7% owing to no response and refusals from respondents who did not want to participate in the study. However the researcher only analysed those questionnaires that were responded to.
The data from this research study was presented in tables and figures for easier analysis and interpreting, that’s why the researcher opted for this method of presentation because of its inherent advantages.

Figure 4.3 shows that, the majority of 7 respondents that is 70% were males and 3 respondents (30%) were females who participated from POTRAZ’s management team. This could mean that POTRAZ is gender biased since figure 4.3 presents a gender inequality scenario. However, this can be attributed to the fact that, many management posts are reserved for men due to the inherent gender gap in workplaces as highlighted by Conover (2007).

Table 4.3 shows that 80% of the respondents are post graduates with 20% respondents that are holders of degrees in various disciplines. This seems to suggest that POTRAZ is headed by people who are well qualified and have the
ability and capability to manage the Regulator´s functions efficiently and effectively. This result is consistent with Blackman and Srivastava (2011) who highlighted that effective regulators are concerned with high qualifications and experience of their staff. Thus, all the respondents were thought to have provided useful data in the research project.

<table>
<thead>
<tr>
<th>Time</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 4 years</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Between 4 and 8 years</td>
<td>5</td>
<td>50%</td>
</tr>
<tr>
<td>More than 8 years</td>
<td>3</td>
<td>30%</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4.4 shows that only 20% of the respondents have served POTRAZ for less than four years, with 50% having served between 4 and 8 years with the other 30% of the respondents having served POTRAZ for more than 8 years. These responses show that almost all the respondents among POTRAZ´s management have served POTRAZ for a reasonable period of time to understand its core activities in a way to provide useful information on how the regulator can enhance industry performance of the telecommunication sector.

<table>
<thead>
<tr>
<th>Demographic Variable</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>7</td>
<td>70%</td>
</tr>
<tr>
<td>Agree</td>
<td>3</td>
<td>30%</td>
</tr>
<tr>
<td>Undecided</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Strongly Disagree</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 4.5 above indicates that the dominant view of 7 respondents(70%) from POTRAZ management showed that they strongly agreed that POTRAZ was able to enhance industry performance of the telecoms sector with the least view of 3, which
is 30% also agreeing to the same imposed fact. This is consistent with the fact that POTRAZ does have the authority vested in it by the Postal and Telecommunications Act (Chapter 12:05). However, if POTRAZ is able to improve and develop the sector, this seems to imply that, POTRAZ is not fully committing itself to develop the sector or is not doing what is best for the sector because the telecommunication sector is still lagging behind in terms of technological advances.

![Pie chart showing percentages]

Figure 4.3 above shows that, 50% of POTRAZ’s management pointed out that POTRAZ should promote competition to improve performance in the telecoms sector and this can be done by charging reasonable license fees, followed by 40% who thought that POTRAZ should upgrade and develop ICT’s for the benefit of the sector with 10% of the management suggesting that, POTRAZ should improve its monitoring and inspection of operations checking on services that are offered by telecommunication operators. From the dominant view, this implies that, there is great need for POTRAZ to promote competition in the sector and this is consistent with Lipsey and Chrystal (2007) who emphasized that, “competition is healthy for efficient operations and growth of any sector hence, this can be achieved by effective regulation so that operators will not engage in uncompetitive practices that will have negative effects on quality of services and growth of the sector”.

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The data obtained from table 4.6 expresses that, the success rate of Universal Services Fund (USF) is 75% with 25% success rate of the rollout plan. This scenario can be attributed to the fact that: POTRAZ has been successful in collecting 2% of Gross Annual Turnover from each licensed operator for Universal Services Fund (USF) of which the money is said to be used to develop underserviced areas.

![Bar chart showing success rate]

However the success rate (75%) of USF as shown on figure 4.5, is triggering justifications on why digital divide still exists in rural areas yet the USF policy is said to be successful. Thus, it can be well argued that, the reason for this digital divide can be attributed to the fact that, these funds are not used effectively. On the other hand, though POTRAZ licenses new and old telecommunication operators to rollout their services nationwide to reduce the digital divide in rural areas. The success rate of 25% of the rollout plan can be attributed to the fact that, due to liquidity problems the rollout plan is not effectively implemented by operators.
From table 4.7 above, all the respondents (100%) recommended effective use of USF and sharing of ICT infrastructure, with 70% suggesting for a research to be done to establish areas with little or no access to ICT's then work with operators to service those areas with 50% recommending that POTRAZ should co-operate with ZIMRA to lower duty on ICT equipment and 40% recommending that POTRAZ should penalize operators who fail to meet roll out obligations respectively. Since most of the respondents’ recommended effective use of USF and sharing of ICT infrastructure it therefore means that these suggestions can be viewed as more effective than others.
Figure 4.6 shows that all respondents support the idea that POTRAZ should decentralize its operations by opening other offices in other towns so that all people will have access to POTRAZ’s services since its offices are only found in Harare. This has been supported by various authors like Koontz (2004) who propounded that, decentralisation gives emphasis on care, caution and enthusiastic approach to the work which in turn results in increased efficiency and output. This is possible because it involves delegation of authority and responsibility which results in better co-ordination of regulatory functions.

Hence, 70% with the idea that POTRAZ should educate consumers about their rights and the role of POTRAZ in protecting them against unfair practices by service providers. Thus education and awareness of POTRAZ would be important. Fifty five (55%) suggested that POTRAZ should interact with other regulatory authorities for information sharing on how they regulate their sectors. The least, 15% indicate that POTRAZ should participate in training programs that are related to telecommunication regulatory functions.
Data shown above was obtained from telecommunication service providers through questionnaires. As shown in figure 4.7, 26% respondents were at a Diploma level, 61% respondents at a Degree level with 13% respondents which were at a Masters level. The figure seems to suggest that all the respondents had the ability to answer and articulate the requirements of the questionnaire, hence providing useful information for the attainment of research objectives.

Table 4.8 above, shows that only 13 of the respondents (21.3%) have served the telecommunication industry for less than four years, with 22 (36.1%) having served between 4 and 8 years. The other 26 of the respondents (42.6%) have served more than 8 years. The responses show that almost all the respondents among the management of Telecommunication service providers have experience in the sector to understand the effects of regulation policies in provision of their services, hence to provide useful information on how the regulator can enhance industry performance of their sector.
Figure 4.7 indicates that, of all the 61 respondents; only 6 of the respondents (10%) regarded POTRAZ as excellent in its regulating activities followed by 12 respondents (20%) who thought that POTRAZ’s regulation was good, with 28 responses (46%) under satisfactory and 15 opinions (24%) regarded POTRAZ’s regulation as poor.

From figure 4.7 it can be observed that, the dominant view of respondents did not either classify POTRAZ’s regulation as excellent or good and this can imply that, to a certain extent POTRAZ is less effective in carrying out its duties (regulatory functions). As a result POTRAZ should improve its regulation since regulation has a positive impact to the performance of the sector it regulates and this is supported by Gutierrez (2009). Gutierrez (2009) did a study on regulation impact and found that sound regulatory governance in telecommunications sector had a positive impact on network expansion and efficiency. Basing on his findings inefficient regulation can be said to be a catastrophe for rapid expansion of the telecoms sector and efficiency of that sector.
Figure 4.8 above shows that only 47% of the mobile network operators have benefited to a lesser extent with 32% from Internet service providers (ISPs) also befitting to a lesser extent from POTRAZ’s policies. Hence, the dominant view from these service providers depicts that, they have not yet benefited from the sector policies. This means that, regulations are only benefiting a few number of telecommunication service providers. However, the responses obtained from different operators pointed out that, the licensing (regulatory) framework of POTRAZ was not in line with modern technologies. However, this seems to imply that, telecommunication service providers are not happy with the current regulatory environment.
Figure 4.5.5 depicts that, 22% preferred rate of return regulation, 29% preferring the incentive regulation, and 10% preferring the earnings sharing regulation and the dominant percentage of 39% preferring the price cap regulation.

From the data provided above in figure 4.10 the least preferred regulation policy is the incentive regulation policy and this consistent with Averch and Johnson (2010) because in their analysis they showed that incentive regulation can lead to over investment in capital and inefficiency, and that the scheme has fallen out of favor with both operators, policymakers and academics. However, the dominant view (39%) preferred Price Cap regulation and this can be attributed to the fact that price cap regulation is the most widely accepted and preferred form of rules-price regulation around the world leading in the telecoms sector King (2006:46). The Price Cap mechanism, in the view of different authors, has the scope to go beyond the aims of providing an efficient method of equating costs and investment with prices and services. It can be a catalyst for competition, particularly in areas where communication is patchy. Higher productivity has also been achieved by telecoms companies after Price Cap regulation was introduced. Intven et al (2001:6) added that: “Good price regulation mimics the results of effective competition.
Table 4.9 indicates that all the respondents 31 (100%) showed that ICT has not been fully developed in rural and low income areas in Zimbabwe. Thus suggesting that, something should be done by the Regulator (POTRAZ) to create conducive environment for telecoms service providers to develop their services in those areas. However, this presents an opportunity for telecoms service providers to exploit the market gap in those areas.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Possibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low returns for investment</td>
<td>100%</td>
</tr>
<tr>
<td>Undeveloped ICT infrastructure</td>
<td>74%</td>
</tr>
<tr>
<td>Low literacy rate vs. adaptability</td>
<td>12%</td>
</tr>
<tr>
<td>Liquidity problems</td>
<td>89%</td>
</tr>
</tbody>
</table>

In the above table, data shows that there is lack of development in terms of ICT’s in rural areas due to a variety of reasons. Telecommunication operators have their own challenges and specific reasons why they shun investing in ICT’s in underserved areas. Table 4.10 indicates that, all the 61 (100%) respondents pointed out that, returns for investment in rural areas are very low hence no business minded person would go there. This can be attributed to the fact that service providers as rational investors would want to get returns on investment as quick as possible and this is consistent with investment appraisal techniques such as the Pay Back Period. Also, according to Meyers (2003:13), operators would want to invest in areas where the opportunity cost of capital exceeds the rate of investment on return. This is consistent with Hill (2008), who expressed the rate of return rule which states that “accept investments that offer rates of return in excess of their opportunity costs of
capital", thus opportunity cost of capital for an investment project is the expected rate of return demanded by investors.

From the response obtained in table 4.10, it was shown that 89% highlighted that liquidity problems is another major reason why operators are not interested in developing rural ICT for the provision of their services in those areas and this can mean that POTRAZ is not effective enough in financially promoting the sector. On the other hand, 74% respondents indicated that in rural areas there is undeveloped ICT infrastructure and this seems to imply that it is costly to provide telecoms services in rural areas as compared to urban areas. However, from the data provided in table 4.10 it can be safely said that, it is to a lesser extent that operators shun developing the rural ICT because of their literacy level in relation to adapting to Information Communication Technology (ICT).

Table 4.11 seem to suggest that POTRAZ is not effectively promoting and facilitating modern technological developments into the sector thus the sector is still lagging behind in terms of technological advances regionally and worldwide yet Universal Services Funds are being collected for the benefit of the sector.

<table>
<thead>
<tr>
<th>POTRAZ should regulate the sector in a way that will enable service providers to meet their needs and expectations at a reasonable cost</th>
<th>85%</th>
</tr>
</thead>
<tbody>
<tr>
<td>POTRAZ should promote and keep pace with technological developments since the telecoms sector is still lagging behind in terms of technological advances regionally and worldwide</td>
<td>100%</td>
</tr>
<tr>
<td>Proper regulation to be carried out in tandem with technological trends</td>
<td>90%</td>
</tr>
</tbody>
</table>

Table 4.11
Do consumers understand the purpose of POTRAZ? The question was answered by respondents as shown in the above chart, whereby the majority of the consumers proved their ignorance about the responsibilities of the regulator in the sector. From the Figure 4.11, most respondents (11, 44%) showed that they did not understand the purpose of POTRAZ, with 5 respondents (20%) indicating that they had an idea and only 9 (36%) indicating that they knew the purpose of POTRAZ. From these responses, most respondents indicated that they did not know the purpose of POTRAZ. This therefore means that, for any queries relating to telecoms services, consumers do not know where to report to thus; consumer’s rights can be violated by telecoms service providers without any queries forwarded to POTRAZ.
Figure 4.12 indicate that only 8 respondents (32%) accepted that POTRAZ was protecting their rights with the rest of 17 respondents (68%) showing that POTRAZ was not effective in protecting their rights as consumers of telecommunications services. The dominant view seems to imply that; consumer interests are being violated thus POTRAZ is not effective enough in protecting consumer rights. This is because consumer rights are provided under the Postal and Telecommunications Act (Chapter 12:05) of 2000 which states that consumers have rights to:

- Good quality and timely service delivery
- Clear and easily understandable telephone bills
- Information from service providers concerning the services they offer

And that it is the duty of POTRAZ to protect consumers against unfair practices. Hence, this might also mean that currently POTRAZ is not strictly monitoring the provision and quality of telecommunication services.
Figure 4.12, shows varied responses from consumers: with 13 (52%) highlighting that cross lines have been experienced over a long period of time with, 10 (41%) complaining about poor voice transmission and all 25 (100%) consumers complained about outrageous call and internet charges with 7 (26%) complaining about wrong text messages being delivered. This therefore means that, the quality of services offered which is poor, is not fairly comparable with the charges imposed by Telecommunication service providers and this should be a concern for POTRAZ.

Laffont and N’Guessan (2001), showed that although a regulator is powerful in law, in practice it can be very weak faced with the so-called regulated firms. For example, without strong enforcement powers vested in the regulator, a dominant operator will be able to deny interconnection to entrants on reasonable terms and physically restrict access or provide technically inferior service to its rivals’ customers.

The chapter has provided some findings and discussion on the factors responsible for the poor performance by telecommunication operators in the communications sector and to identify best practice and specific actions required by the regulator to implement policy issues. The chapter has provided findings on the impact of regulation on the performance of the telecommunications by exploring the role of the
regulator in the telecommunication industry. It has also provided findings on the relationship between the regulator and the operators which proves to be not good enough to enhance growth of the industry. The findings on the strategies that can be employed in the sector in order to ensure quality delivery of services was provided and opportunities of partnerships with foreign investors to ensure quality delivery of service. The next chapter presents the conclusions and the recommendations.
This chapter is a comprehensive summary of the whole research project as it focused on the summary of the study, conclusions, recommendations and areas for further study. Thus, major issues which raised concern for action were identified and recommendations were suggested.

The main objective of this study was to determine ways of enhancing the industry performance of the telecommunications sector through POTRAZ, to come up with effective regulation policy recommendations.

It followed that the researcher had to review literature from the main insights of scholarly literature and from empirical studies on regulation focusing on effects in developing and developed countries, context of telecommunication reforms, ICT’s for rural development, elements of an effective regulator and global telecommunication performance trends. This gave rise to an insight and wide mind to tackle the problem under study. Literature review assisted in the understanding of the research problem and on issues surrounding the “enhancement of telecommunication industry performance through regulation”. Hence, different authors revealed factors that could promote or hinder effective regulation. In the same vein, the researcher had to adopt a qualitative and quantitative approach with an exploratory and descriptive design, using questionnaires and face-to-face interviews for the collection of data. A descriptive survey method was employed as it was found to be most suitable because of its use of questionnaires. Hence, information was gathered from a total of 97 respondents which consisted of POTRAZ’s management, telecommunication service providers, ministry officials and consumers.

The data obtained was analysed and presented graphically thus in terms of mathematical representation of data in the form of tables and figures. The data
obtained was instrumental in the final analysis, discussion and recommendations for improvement and for areas of further research. The findings confirmed that the telecoms sector has not been fully developed for the benefit of the sector and the country as a whole.

5.2 Conclusion

5.2.1 The conclusions of the research were that:

5.2.1.1 The regulator is not doing the best for the betterment of the sector because the telecommunication sector is underperforming as compared with regional and international telecommunication players. There is a lack of appropriate sector regulation that enhances economic development and promotes socially desirable outcomes.

5.2.1.2 There is despondency by the sector players in the prevailing policy regulation and POTRAZ is considering shifting its licensing policies to be in line with international best practices. Hence, the National Numbering Plan (NNP) and Sim-Card Registration (SCR) policies by POTRAZ have proved to enhance the effectiveness of POTRAZ as administration of numbers proved easy and there was creation of space for the allocation of the remaining numbers for other telecoms services. Also, the Sim-Card Registration (SCR) have regularized the usage of lines and now calling patterns according to age can be studied and services offered in line with demographic data.

5.2.1.3 There are some challenges being encountered in accessing modern telecommunication services in rural and low income areas due to under-utilisation of Universal Services Funds (USF).

5.2.1.4 ICTs have not been fully developed in rural areas for the benefit of the poor and underserved areas. Liquidity problems and low returns hinder progress in rural ICT investments and development.
Due to POTRAZ’s centralised system of operation, monitoring and inspecting the quality and provision of the telecommunication services in the country proves to be less effective.

Consumer rights are being violated by the telecommunication service providers in respect to:

- Good quality and timely service delivery
- Clear and easily understandable telephone bills
- Information from service providers concerning the services they offer

There is no converged licensing framework in place, which is not in tandem with modern technological developments thereby exposing the telecommunications players lagging behind in terms of modern technological trends.

There have been some notable positive developments in the telecommunication sector since POTRAZ was established in 2001, but a lot more can be realised through improvement in the regulation policy.

In light of the above stated conclusions, this research recommends that:

POTRAZ should revisit its licensing model to be in tandem with current market and technological trends that are prevailing in the developed and other developing countries regionally and internationally.

The organization must have regulatory policies that promote technological development and competition hence improving the industry by allowing more players to come on board so as to increase competition and reducing collusion among current players. This would result in competitive prices for the benefit of consumers. However, the organization should adapt to change and adjust quickly as some of the regulation strategies or policies might no longer be doing any good to the telecommunication sector.
The scope of monitoring and inspections must be improved since consumer rights are being violated by telecommunication service providers. Hence effectively regulating the sector would protect consumers, such that operators would not engage in uncompetitive practices. Such practices would have negative effects on quality of services and growth of the sector.

Effective promotion and support of service providers to develop and expand their services areas with little or no access to ICTs. This can be done by financial support or encouraging operators to open ICT awareness centres in rural and low income areas as social responsibility. Also, by effective use of universal service funds (USF) towards the development of ICT access in rural areas and POTRAZ should educate the rural people about the benefits of ICT.

It is recommended that, POTRAZ should encourage operators to share infrastructure in the rural areas so that they can share the cost of providing services in the rural areas. This can be achieved by engaging operators and potential investors in a business dialogue to address areas of need thus enhancing performance of the telecommunications sector.

POTRAZ should enforce the upgrading of network since calls can drop at any time without compensation to the consumer. Also regulation on data services need to be revised since the services are quite expensive yet of a poor quality, thus, POTRAZ should ensure that subscribers get value for their money through enforcing quality services or by setting regulations to deter exploitation of consumers.

POTRAZ should be an independent regulator as independence is a critical attribute for a regulator to be effective. In addition, an effective regulator should demonstrate other characteristics, including accountability, transparency and predictability.

Lastly, it was observed that POTRAZ should consider the following:

- DECENTRALISATION: Opening other offices in other towns so that all people will have access to POTRAZ’s services.
• AWARENESS: Most consumers do not know the purpose of POTRAZ, thus education and awareness of POTRAZ is important.

• INTERACTION: Interaction with other regulatory authorities for the purpose of exchanging ideas on how they regulate their sectors, (consultations).

It is the hope of the researcher that, if the recommendations are effectively implemented, the current research problem will be either completely eliminated or remarkably reduced in its adverse impact on the development and improvement of the telecommunications sector in Zimbabwe. In conclusion, the researcher has suggested an area of possible research study in future.

The study was presented on “an assessment of regulatory factors affecting industry performance in the telecommunication sector” (case of POTRAZ). The research was not conclusive in establishing the total strategies in the enhancement of telecommunication performance improvement within the sector. However this research recommends an area of further study on the impact of the change in the regulation of the telecommunications industry from rate-of-return regulation to more flexible incentive-based regulations.


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My name is Taurai Lazarus-Makuvise, Graduate School Management student at the University of Zimbabwe, studying for an MBA. As part of the degree requirements, I am undertaking a study on “An assessment of regulatory factors affecting industry performance in the telecommunication sector: A case study of The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)”. Your cooperation, by answering the following questions, will be greatly appreciated and your responses will be treated with great confidentiality.

Please tick where applicable and fill in spaces where necessary. Your contribution and cooperation is greatly appreciated.

---

**SECTION A**

1. Gender: Female [ ] Male [ ]

2. Educational Qualification
   - [ ] ‘A’ Level
   - [ ] Diploma
   - [ ] Degree
   - [ ] Post Graduate
   - [ ] Others Specify

3. Department …………………………………………………………………………………

4. Position held ……………………………………………………………………………

5. Period of Service
   - [ ] 1 – 2 years
   - [ ] 3 – 4 years
   - [ ] 5 – 6 years
   - [ ] 7 – 8 years
   - [ ] 9 years and above

---

1. POTRAZ is able to enhance industry performance of the telecommunication
2. If your answer in (1) is agree or strongly agree, outline ways that can be applied by POTRAZ, to enhance industry performance of the telecommunications sector?

3. Comment on the effects of regulation towards the telecommunication sector performance.

4. Has ICT been fully developed in rural areas and low income areas in Zimbabwe?
   Yes  No

   If the above answer is no, suggest ways on how POTRAZ can facilitate the improvement of ICT in rural areas?

5. (a) Does POTRAZ license ‘new or old’ telecommunications operators do rollout their services nationwide to reduce the digital divide in rural areas?
   Yes  No

   (b) If your answer is yes classify the success rate of this policy to develop rural ICT
   Below 10%  11% - 35%
(c) Also classify the success rate of Universal Services Funds (USF) policy to develop rural ICT

<table>
<thead>
<tr>
<th>Class</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 10%</td>
<td></td>
</tr>
<tr>
<td>11% - 35%</td>
<td></td>
</tr>
<tr>
<td>36% - 60%</td>
<td></td>
</tr>
<tr>
<td>61% - 85%</td>
<td></td>
</tr>
<tr>
<td>86% - 100%</td>
<td></td>
</tr>
</tbody>
</table>

Provide brief notes about these policies, their success rate and what should be done to enhance their effectiveness…………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

6. Is POTRAZ ensuring that the quality of telecoms services meet acceptable standards?  
   Yes [ ]  No [ ]

If Yes briefly explain what has been done by the Regulator (POTRAZ) to ensure that quality services are provided.
………………………………………………………………………………………………
………………………………………………………………………………………………

7. What can be done to improve the effectiveness of POTRAZ outside the context of regulation?
………………………………………………………………………………………………
………………………………………………………………………………………………

Thank you for your cooperation.

Appendix 2

POTRAZ Interview Schedule of Questions
SECTION A

1. Department ......................................................................................................................................

2. Position held ......................................................................................................................................

SECTION B

1. Comment on the current performance of the telecommunications sector and the ability of POTRAZ to enhance the sector's performance.

2. Is POTRAZ currently doing anything to enhance industry performance of the Telecoms Sector?

3. What is your opinion about the current Regulation of POTRAZ and comment on the relationship between regulation and performance of the regulated sector?

4. Comment on the digital divide of telecoms services in rural and low income areas and on the ICT coverage in those areas.

5. What would you recommend POTRAZ to do as ways to facilitate the improvement of ICT in rural and low income areas?

6. (a) Can you please comment on the purpose of the “National Numbering Plan” and “Sim- Card Registration” regulation policies that were implemented by POTRAZ?

(b) What were the effects of these policies to POTRAZ’s regulation?

7. Recommendations to POTRAZ to create a better environment for the improvement and development of the telecommunications industry?

8. Was there a change in the telecoms sector performance after the introduction of POTRAZ?

9. Offer any other suggestions that will enable POTRAZ to improve its regulation.

Thank you for your cooperation.
My name is Taurai Lazarus-Makuvise, Graduate School Management student at the University of Zimbabwe, studying for an MBA. As part of the degree requirements, I am undertaking a study on “An assessment of regulatory factors affecting industry performance in the telecommunication sector: A case study of The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)”. Your co-operation, by answering the following questions, will be greatly appreciated and your responses will be treated with great confidentiality.

Please tick where applicable and fill in spaces where necessary. Your contribution and cooperation is greatly appreciated.

1. Gender: Female □ Male □

2. Educational Qualification
   ‘A’ Level □ Diploma □ Degree □ Post Graduate □ Others Specify □

3. How long have you been working for the organization: Period of Service
   1 – 2 years □ 3 – 4 years □ 5 – 6 years □ 7 – 8 years □ 9 years and above □
1. What is your opinion about the effectiveness of POTRAZ in its regulating activities?
   - Excellent
   - Good
   - Satisfactory
   - Poor
   - Terrible

2. (a) Specify which type of telecoms service provider:
   - Mobile network operator
   - Internet service provider

   (b) In relation to the type of your service provision, have you benefited from POTRAZ's policies?
   - To a greater extent yes
   - To a medium extent yes
   - To a lesser extent yes
   - Not yet benefitted

3. Which Regulation Policy would you prefer?
   - Rate of return regulation
   - Earnings sharing regulation
   - Incentive regulation
   - Price cap regulation

4. (a) Do you know and understand (ICTs) “Information Communication Technologies?”
   - Yes
   - No

   If the above answer is ‘Yes’ please answer the following questions:

   (b). There is a positive relationship between ICT and performance of the Telecoms industry?
(c). Do you think ICT has been fully developed in rural areas and low income areas in Zimbabwe?

a. Yes  

b. No  

If no, what could be the possible reasons and what should be done?

5. In the case of Mobile Network providers: Did the “national numbering plan of lines” from 091 to 077, 011 to 071, 023 to 073 and the “Sim-Card Registration” affect your performance?

a. Yes  

b. No  

If your answer is ‘Yes’ for question (5): how has this affected your performance?

6. Recommend POTRAZ on ways to create a better environment for improvement and development of the telecommunications industry?

Thank you for your cooperation.

Appendix 4
My name is Taurai Lazarus-Makuvise, Graduate School Management student at the University of Zimbabwe, studying for an MBA. As part of the degree requirements, I am undertaking a study on “An assessment of regulatory factors affecting industry performance in the telecommunication sector: A case study of The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)”. Your cooperation, by answering the following questions, will be greatly appreciated and your responses will be treated with great confidentiality.

Please tick where applicable and fill in spaces where necessary. Your contribution and cooperation is greatly appreciated.

**SECTION A**

**DEMOGRAPHY**

1. Gender: [Female] [Male]

2. Educational Qualification
   - ['A' Level]
   - Diploma
   - Degree
   - Post Graduate
   - Others Specify

3. Department ………………………………………………………………………………………………………

4. Position held …………………………………………………………………………………………………

5. Period of Service
   - 1 – 2 years
   - 3 – 4 years
   - 5 – 6 years
   - 7 – 8 years
   - 9 years and above
1. POTRAZ is able to enhance industry performance of the telecommunication sector.

   Strongly Agree
   Agree
   Undecided
   Disagree
   Strongly Disagree

2. If your answer in (1) is agree or strongly agree, outline ways that can be applied by POTRAZ, to enhance industry performance of the telecommunications sector?

   ……………………………………………………………………………………………………
   ……………………………………………………………………………………………………

3. Comment on the effects of regulation towards the telecommunication sector performance.

   ……………………………………………………………………………………………………
   ……………………………………………………………………………………………………

4. Has ICT been fully developed in rural areas and low income areas in Zimbabwe?

   Yes
   No

   If the above answer is no, suggest ways on how POTRAZ can facilitate the improvement of ICT in rural areas?

   ……………………………………………………………………………………………………
   ……………………………………………………………………………………………………
   ……………………………………………………………………………………………………

5. (a) Does POTRAZ license ‘new or old’ telecommunications operators do rollout their services nationwide to reduce the digital divide in rural areas?

   Yes
   No

   (b) If your answer is yes classify the success rate of this policy to develop rural ICT
(c) Also classify the success rate of Universal Services Funds (USF) policy to develop rural ICT

<table>
<thead>
<tr>
<th>Success Rate</th>
<th>Bar Graph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 10%</td>
<td></td>
</tr>
<tr>
<td>11% - 35%</td>
<td></td>
</tr>
<tr>
<td>36% - 60%</td>
<td></td>
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<tr>
<td>61% - 85%</td>
<td></td>
</tr>
<tr>
<td>86% - 100%</td>
<td></td>
</tr>
</tbody>
</table>

Provide brief notes about these policies, their success rate and what should be done to enhance their effectiveness.

6. Is POTRAZ ensuring that the quality of telecoms services meet acceptable standards?

Yes [ ] No [ ]

If Yes briefly explain what has been done by the Regulator (POTRAZ) to ensure that quality services are provided.

7. What can be done to improve the effectiveness of POTRAZ outside the context of regulation?

Thank you for your cooperation.

Appendix 5
1. Department

2. Position held

1. What is the impact of regulation on the performance of the telecommunication industry of Zimbabwe?

2. Is there harmony in the relationship between the regulator and the operators in the telecommunication industry?

3. Are there any efforts being instituted by your POTRAZ in order to improve regulator industry relationship?

4. How do you govern the relationship of telecommunication industry with other stakeholders in the industry?

5. How is the compliance of the telecommunications service providers to the regulations that bind them?

6. Which challenges do you normally face in governance of regulators and operators in the industry?

7. What are the problems that telecommunication companies are facing in working in harmony amongst them and what should be done to improve it?

8. Which strategies that can be employed in the sector in order to ensure quality delivery of services?

9. How does POTRAZ support industry in order to promote better performance by the operators in the industry?

10. Are the mobile services providers in Zimbabwe technically sound to provide the quality service expected by customers in the country?

12. Are there implications and potential benefits of infrastructure sharing in the sector?
13. What are the opportunities of partnerships with foreign investors to ensure quality delivery of service?

14. What conditions necessary to allow investors

15. What discourages investment?
My name is Taurai Lazarus-Makuvise, Graduate School Management student at the University of Zimbabwe, studying for an MBA. As part of the degree requirements, I am undertaking a study on “An assessment of regulatory factors affecting industry performance in the telecommunication sector: A case study of The Postal and Telecommunications Regulatory Authority of Zimbabwe (POTRAZ)”. Your cooperation, by answering the following questions, will be greatly appreciated and your responses will be treated with great confidentiality.

Please tick where applicable and fill in spaces where necessary. Your contribution and cooperation is greatly appreciated.

1. Do you understand the purpose of POTRAZ?
   - Not aware
   - Have an idea
   - Yes

2. Do you think POTRAZ is effective in protecting consumer interests of telecommunication services?
   - a. Yes
   - b. No

   If your answer is no, explain why or your queries as a consumer

   ……………………………………………………………………………………………………………………………
   ……………………………………………………………………………………………………………………………
   ……………………………………………………………………………………………………………………………

3. Do you know and understand (ICT) “Information Communication Technology?”
   - a. Yes
   - b. No
If yes, has ICT been fully developed in rural areas and low income areas in Zimbabwe?

a. Yes

b. No

If the above answer is no, what do you think should be done to improve rural ICT by POTRAZ?

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4. What would you recommend POTRAZ to do, to help create a better environment for improvement and development of the telecommunications services?

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Thank you for your cooperation.