CHAPTER I

INTRODUCTION

1.1 Background

Economic development has been one of the most popular slogans in almost all the developing countries all over the world. Similarly, achievement of high rate of economic growth, reduction of income disparities and poverty and improvement of living standard of people are some of the development strategies towards which most of the government efforts have been directed in developing countries.

It is known that government needs more revenue for overall economic development and state welfare. Besides this, for meeting day-to-day expenditure, government also requires some sources of income, which is called revenue. These are the challenging tasks, which demand increasing necessity of regular expenditure in general and development expenditure in particular. However, resource mobilization is very low compelling the government to depend on foreign assistance heavily.

Government collects revenue from taxable and not taxable sources. Tax is a key source for revenue mobilization. Tax is compulsory contribution, as prescribed by law, to the government for a common benefit upon the residents of the state. Taxes are major fiscal policy instruments and important government policy tools, have an important role in increasing the rate of capital formation and thereby a high rate of economic growth can be achieved. Increase in taxes may be directed to increase in saving through the postponement of consumption. The increase in saving means a higher volume of resource is available for making useful and productive investments. Taxation may also play a dual role. On the one hand, taxation may be used to make the maximum volume of resource available to the public sector. On the other hand, taxation may be used to promote useful investment in the private sector and to prevent the resource from being dissipated over speculative and unproductive investment as well as over lavish and luxurious consumption. Thus, taxes in developing countries are the severe means of raising revenue.

In least developed countries like Nepal, role of indirect tax is seen to be more important. And VAT is the most important innovation of the second half of the twentieth century, which is considered as an effective means to collect revenue as a reformed sales tax of indirect tax system.

The concept of VAT in Nepal was introduced in early 1990s.Nepal government indicated its intention to introduce VAT in the eighth plan subsequently the finance minister declared to introduced a two -tier sales tax system to make the base of implementing VAT from the fiscal year 1992/93.A VAT task force was created in 1993 under the financial assistance of USAID in order to make necessary preparation for the introduction of VAT. The VAT task force prepared the draft of VAT legislation.

The parliament of Nepal enacted "Value Added Tax Act 1995{2052}", ssubsequently VAT regulation was made in 1996; although the act was passed in 1995 its implementation was delayed due to political instability and strong opposition from business community. VAT with single rate of 10% has been fully implemented with effect from 16 November 1997.It has replaced sales tax, hotel tax, contract tax and entertainment tax.

VAT is a new tax system for Nepal, VAT has been justified in the light of government fiscal imbalance and need for extra revenue mobilization through an efficient tax system. The government of Nepal has been increased VAT to 13% with its effect from 15 February 2004 (Magh ,1 ,2061).the value added tax its name implies a tax in the value added to a commodity or service. Its special characteristics being that it falls on the value added at each stage of production and distribution.

1.2 Statement of the Problem

After introducing the liberalization policy of the government, many banks, business organizations and institutions are established rapidly. Nepalese economy is persistently suffering from general poverty and stagnation.

The per-capita GDP of Nepal is just $ 556 on current price in FY 2009/10(Economic survey 2010/11) and more than 24% of the population survive on less than one dollar a day. Similarly the economic performance of the country in major area is also disappointing.

In this situation there is no alternate of VAT in place of existing sales tax system, which is less productive and narrow base. The VAT would broaden the base and increase revenue elasticity. "VAT" regime is extremely challenging in a burgeoning economy like Nepal where with long open boarder, a large segment of the economy is to be monetized.

But the problem is that most of the general public don’t know the concept of VAT even the businessman have not clearly understood it, in such situation government should abolish such problems and make VAT remarkable.

1.3 Significance of the Study

VAT can play an important role in the process of development. Developing countries like Nepal need higher revenue to fulfill various responsibilities. VAT is the newest form of sales taxation. It has implemented since 1997 in Nepal. There is need of deeper and wider study about VAT in Nepal.

In this context many empirical and theoretical studies has been conducted to examine the various problems, prospect of VAT in Nepal. Many studies that have been undertaken at different period of time will be direly beneficial to policy maker, private sector, researcher, and general people.

Policy makers will be able to identify the areas needed for improvement and it will provide a clear idea and knowledge to those persons. Similarly it will help the researcher to carry out their research a step ahead about VAT. For such stand points the studies have great significance about VAT.

1.4 Objective of the Study

The basic objective of this study is to analyze the composition of VAT in different sector of economy and its contribution to the total revenue collection after its introduction in Nepal. However, the specific objectives of this study are as follows:

a. To analyze theoretical aspects of VAT and review its contribution to government revenue.
b. To examine the trend of revenue collection before and after the implementation of VAT.
c. To evaluate the existing major problems with VAT.
d. To recommend for making VAT effective and efficient.

1.5 Limitations of the Study

To examine the various issues of VAT in Nepal and their option the existing evidence facts and general requirement for a VAT have been examined in details and then the conclusion are made.

The following are the main limitations of the study:

a. The study is very specific on VAT.
b. Due to time and budget constraints, the data from selected area will be taken.
c. This study is mainly concentrated on the government efforts to make VAT effective.
d. The study will be performed with in limited time and resources.
e. This study does not cover the administrative efficiency and its collection procedure.

To make this study short, sweet and a reflecting eye of Nepalese VAT system the study is limited in specific area. It provides spaces for further studies which can also be conducted on other sectors related to the topic.

1.6 Research Methodology

1.6.1 Introduction

The main objective of the study is to examine the effectiveness resource mobilization through vat in Nepal major components of VAT system in Nepal. Research methodology describes the method and process applied in the entire aspect of the study. This study will be undertaken to observe as how VAT is contributing to the total revenue of the country. For this study, exploratory and descriptive research design will be applied

1.6.2 Research Design

This study seeks to analyze the Effectiveness of Resource Mobilization through VAT in Nepal. To achieve the objective, analytical research design will be adopted in this study. In other words, the research design of the study will be descriptive design for the use of primary and secondary data.

1.6.3 Nature and Types of Data

Since this study aims to assess the Effectiveness of Resource Mobilization through VAT in Nepal. The data and information in this study will collected both from primary and secondary sources. Primary data will be collected through questionnaires distributed and interview. In this empirical study through questionnaire, its distributed to selected respondents will categorized in few categories. While the secondary data are taken as follows:

a) Published document from ministry of finance as economic survey.
b) Publication of ministry of finance, Budget speech.
c) Publication of Inland Revenue Department, Annual Report.
d) Others were: Economic journal, Abstracts Article, Newspaper etc.
e) Dissertation related to VAT available at central library of TU.

1.6.4 Data Gathering Procedure

After the identification of sources of data, the required data for the study will be gathered through the following procedures:

a) First of all nature of data will be identified

b) The required data will be collected with relevant resources.

1.6.5 Tools And Techniques of Data Analysis

For the analysis of data, mathematical and statistical methods will be used. The data collected from above mentioned various sources will be tabulated so as to obtain desired outcome. The collected information will be compiled and tabulated in different headings. Hence, the data will be processed by using relevant statistical tools.

To make research objective practicable, to find accurate result different statistical tools are used. The different statistical tools in the process of analysis will be:

a) Simple percentage.

b) Trend line and Pie charts.

c) Analysis of time series and Coefficient of Correlation

1.7 Organization of the study

Keeping above objectives in mind, the present study has been organized in the following five chapters.

Chapter I Introduction :- Background, Statement of problems, Objectives of the study, Significance of the study, Limitation of the study, Research Methodology of this study, Organization of the study

Chapter II :- Theoretical Analysis of VAT:- Introduction, concept of vat, Types of VAT, Methods of computation of consumption type of VAT, Principles of VAT, Structure of VAT in NEPAL, Operation of VAT in NEPAL

Chapter III Review of Literature :- Introduction, International context, Nepalese context.

Chapter IV Research Methodology :- Types of Research, Population and Sample, Source of Data Collection processing and analysis procedures.

Chapter IV Presentation and Analysis of Data :- Secondary data, Major Finding.

Chapter V Summary, Conclusion and Recommendations

CHAPTER II

THEORETICAL ANALYSIS OF VAT

2.1 Introduction

This chapter is devoted to the theoretical analysis of VAT. It has been divided into seven sub-headings. They are: concept of VAT; Types of VAT; Methods of Computation of VAT; Principles of VAT; Structure of VAT in Nepal; Operation of VAT.

2.2 Concept of Value Added Tax (VAT)

VAT is a broad-based tax as it also covers the value added to each commodity by a firm during all stages of production and distribution. It is a modern tax system to improve the collection of taxes, to increase efficiency and to lessen tax evasion. It is also regarded as the backbone of income tax system in Nepal.

2.3 Types of VAT

There are three types of VAT which are as follows:

- The consumption type
- The income type
- The gross National product type

2.3.1 The consumption Type

There is no discrimination is made with respect to capital or consumable goods under this type of VAT. Whatever is purchased for the use of business is traded at par. this implies that full credit of inputs is provided it is indeed the most superior form of VAT and is universally practiced. The tax base under this type is the total private consumption, be it durable or non-durable consumption. Consumption does not imply its true consumption but only expenditure for consumption. Since no discrimination is made, this system is neutral and does not lead to alteration or substitution between methods of production.

2.3.2 Income Type

When capital goods used for method of production are not fully deductible but a portion of the production is only relevant to a particular period is allowed to deduct and the remaining portion is carried over for the next period, then it termed as income type of VAT. Here the capital equipments are divided over a period on the basis of their useful life. Such method is called depreciation. Since the tax base equals to private personal income type of VAT. Similarly, since only a portion of capital purchases are allowed for input tax credit, this type of VAT includes two categories all purchase of capital goods as current expenditure. This type of VAT is suffered within the same difficulties as we face in calculating income for a particular period. As a result not many countries Practice this type of VAT.

2.3.3 Gross product Type

Under this type of VAT, no input tax credit for capital goods used in production are allowed i.e. there is cascading effect. Corollary to this, it can be said that this type of VAT provides incentives for labor intensive production. Here the principle of neutrality of tax is defeated. That is why, of all the types, this is the uncommon and is rarely practiced in any country, it has only academic value.

From an economic growth perspective both the income and gross product VAT has an anti-investment bias. The distinction between the purchase of capital goods and intermediate goods is not needed under consumption type VAT where as it is essential under income type and gross product type of VAT.

2.4 Methods of Computation of Consumption type of VAT

The net tax base under a VAT system is the value added by the business entities. In practical sense value added is the difference between sales and purchases by business firms. The specific modalities on how the tax basis established and the liability computed will influence the administration of VAT.

There are principally three methods of calculation to ensure VAT base:-

2.4.1 Addition Method:-

Under this method the tax base is obtained by adding the incomes produced by the firm, "In other words the tax base is computed by adding the payments made by the firm to factors of the production employed in turning out the product, such as the wages, interest, rent, royalties and the profits". This method is appropriate for the income type of the VAT that includes in its base the rewards to all.

Table No. 1.1

Calculating VAT liability under Additional Method

Stage of production and distribution					
Items	Primary Producer (in Rs.)	Producer (in Rs.)	Whole Seller (in Rs.)	Retailer (in Rs.)	Total (in Rs.)
Wages	1000	200	300	120	1620
Rent	400	60	130	80	670
Interest	200	50	90	60	400
Profit	600	190	230	190	1210
Value Added VAT	2200	500	750	450	3900
Liability 13%	286	65	97.5	58.5	507

Additional : T = t (wages + rent + interest + profit)

2.4.2 Subtract Method :-

Under this method value added tax is determine as net turnover, which is obtained by subtracting the cost of the materials from the sales proceeds. Thus the VAT is levied on the amount, which is derived by subtracting purchases from the sales. This method is appropriate for the consumption variant of VAT.

Table No. 1.2
Calculating VAT liability under subtraction method

Stage of production and distribution	Net purchases price A (in Rs.)	Sales Price B (in Rs.)	Value Added B-A = C(in Rs.)	VAT liability @ 13%(in Rs.)
Primary product	-	3000	3000	390
Producer	3000	3600	600	78
Wholesaler	3600	4500	900	117
Retailer	4500	5700	1200	156
Total	11100	16800	5700	741

Subtraction method T = t (output - input)

2.4.3 Tax Credit Method

Credit approach is also known as the indirect subtraction technique or invoice method. Tax liability of a firm is determined based upon its sales value, after deducting its VAT paid on its purchases more obviously, to the firms total sales, without any deduction. Whatever there is applied the tax rate from which tax paid on its inputs is deducted. For this, since the tax on sale must be stated on invoices to provide documents evidence for the credit claimed by the registered buyers. More clearly, the VAT liability is calculated by deducting tax on inputs from the tax on outputs during a taxable period, under this method or net VAT liability = tax on sale - tax paid on purchases. Under this method, excess of input tax over the output tax is refundable or can be claimed as a tax credit, generally, value added tax is not to be included in the base. Calculate of VAT payable in there method may be expressed as follows. (Khadka, 1989)

Table No. 1.3
Calculation of VAT liability under Tax Credit Method

Stage of production and distribution					
Items	Primary Producer (in Rs.)	Producer (in Rs.)	Whole Seller (in Rs.)	Retailer (in Rs.)	Total (in Rs.)
Purchase	-	3000	3600	4500	11100
Tax on purchase	-	390	468	585	1443
Sales	3000	3600	4500	5700	16800
Tax on sales	390	468	585	741	2184
Net VAT liability 13%	390	78	117	156	741

Tax credit method T = t (output - input)

2.5 Principles of VAT

There is no doubt that VAT is levied on consumption and consequently final burden of the tax is shifted to the consumers. In the age of globalization and liberalization, the world has been narrowed as a small village. Goods and Services can be provided broadly either domestically or by importing from other countries. When two countries are involved in trade, the analysis of cross border trade agreement should be exercised with cordial bilateral approach and becomes necessary. To impose VAT in the economy, the following two principles of VAT have to be considered clearly.

2.5.1 Origin Principle

In this principle, tax is levied at the place, where it is produced or rendered irrespective of whether the product have been consumed or not. In this principle, preference is given to imported goods or services over domestic production because all exports are treated as taxable where as all imports are treated as non-taxable. These sort of principle may be beneficial where common trade exists like European Union; otherwise rest of the countries do not prefer this principle.

2.5.2 Destination Principle

Contrary to the earlier, under destination principle, tax is imposed at the place where it is consumed irrespective of where it is produced or rendered. Neither it prefers imported goods or services nor the domestic goods or services. Equal preference is given to both imported and domestic products. In this ground, it is assumed neutral principle and with the purpose to boost the exporting goods, many countries prefer to apply this principle of taxation.

2.6 Structure of VAT in Nepal

2.6.1 Coverage

Nepal has adopted a broad-based consumption type VAT using the tax credit method. Under this system tax is levied on all types of goods and services, both imported and domestically produced except those specifically exempted by law. It is desirable to make the commodity coverage of VAT as wide as possible. So, all goods and services should be brought into the VAT net unless there is strong justification for their exclusion. In the general practice in the international arena, is to tax all goods, except those specifically exempt. In the case of services, there are different practices, however in a developing country like Nepal the service sector is rather unorganized and not many services seem to be attractive from the revenue point of view. That is why some economist recommended a selective approach rather than an integrated approach in the cases of service.

2.6.2 Exemption

Exemption is granted when a particular product or transaction is desired to exclude from the tax base on the grounds of administrative complexity, social welfare and equity. Certain goods, service or transactions such as products of agriculture or forestry financial services, very small vendors are exempted basically due to the administrative reason. Similarly, exemption is given to basic necessities like foodstuffs to improve equity aspect by introducing progressivity in VAT. However, exemption is not an effective measure to achieve progressivity because some of the rich may spend relatively large which some of poor may spend little on necessities depending on their habits, choices etc. In the similar manner, there are some goods and services such as goods for children, educational and medical services, cultural activities etc. Which demand exemption to encourage their production and consumption? However, exemption needs to be minimized since it creates several undesirable effects. Firstly, a VAT system with many exemptions gives an incentive to produces as well as consumers to divert their resources from taxed to tax-exempt goods and a service creates inconvenience to taxpayers. Further, firms selling both exempt and taxable goods must claim only the portion of credits that is equal to the ratio of taxable to total sales, which increases burden to taxpayer. Fourthly, tax evasion is easier under many exemptions. Lastly, it is clear that there will be loss of revenue by exemption. It is, therefore, desirable to limit exemptions only to those goods or services or transactions that are extremely difficult to bring into the tax net from the administrative point of view. (Aaron, 1981:7)

2.6.3 Zero-rating

Zero rating simply means that VAT is levied at a zero percent rate on some selected goods and services. The provision of Zero-rating in VAT is guided by the two basic purposes, to promote social welfare and to stimulate the exportable industrial products. If zero-rating is applied, credit for VAT paid on inputs can be claimed and thereby a full rebate is obtained. Thus, it is the total relief from the burden of VAT.

In most of the country's exports are zero-rated so that the exporter is able to get the refund of the tax paid on his purchases that he has used for producing the exportable items. As zero-rated items or transaction are within the tax net, although effectively they do not attract any VAT a purchaser will obtain a repayment of input tax borne on his purchase of goods and services, meaning that zero-rated items or transactions don't bear any tax. So it is better to choose zero-rating instead of exemption if the objective is the full exemption. Zero-related goods do not bear any tax at all while exempted goods may bear a tax element in its price. Further, differentiation between these two aspects is based on the administrative work. Business enterprises concerned with the zero-rated goods and services are the formal member like all other VAT registered members and hence they have to fulfill all the formalities associated with the

VAT operation. But business enterprises having the tractions of only exempted goods and services have no concern with the VAT administration.

2.6.4 Rates

VAT can be levied both with single positive rate or multiple rates. Generally VAT with single positive rate is desirable in order to make VAT system simpler, because multiple rates makes tax administration more complicated, under this system there is a need to classify commodities into different groups according to their rates. Moreover, in a developing country like Nepal many small vendors, who may not be sufficiently literate, sell a number of commodities. They may not be able to apply properly the different rates to various goods they sell.

Multiple rates make the tax system inefficient from the economic point of view. It gives incentive to producers to divert their resources from higher - rated to lower rated industries to save on tax payment. The multiple rates create scope for tax evasion that may result in considerable revenue loss.

On the other hand single rates makes VAT less costly, easy to comply and easy to administer.

2.7 Operation of VAT

2.7.1 Registration

The provision of registration is mentioned in the section 10 of value added tax Act, 2052. According to this section every person (vendor already engaged in any transactions of the time of commencement of value added tax is enquired to apply for the registration within 90 days from the commencement of the Act. Similarly, every person wishing to engage into a transaction after the commencement of the act is leaguered to apply for registration prior to beginning to engage in such transactions. However vendors involving in business of goods and services that are free from value added tax need not register for the purpose of this tax. It means vendors have in taxable goods and services are required register their transaction to Inland Revenue Development. But small vendors failing below the prescribed transactions are not compulsorily required to register for value added tax. For this purpose value added tax laws have prescribed the level of registration threshold. The existing level of registration threshold is Rs. 2 million of annual transactions.

3.7.2 Deregistration

A VAT registration may be cancelled by anyone whose total taxable sales for four consecutive calendar quarters is not more than 2 million rupees and who has been registered for a full fiscal year or by persons who no longer has a commercial activity because of bankruptcy, receivership, or cessation of the business, death and so on.

3.7.3 Obligations to VAT Registrants

VAT registrants are required to:

- ✓ Submit VAT return and pay tax within the 25th day of the following month.
- ✓ Provide their customers with a tax invoice
- ✓ Maintain Purchase Book, Sales Book, and VAT Account.
- ✓ Keep their VAT records for a period of 6 years
- ✓ Inform the IRD of changes to the business including new address, telephone number or a reorganization of a partnership within 15 days.
- ✓ Put their Certificate of Registration in the premises where customers may easily see and read it,
- ✓ Allow tax officers to enter the business to examine the business records and the stock on hand.

(Source: http://www.ird.gov.np/information)

2.7.4 Tax invoice

A VAT registrant must issue VAT bill while selling or supplying goods or services. Such bill is known as tax invoice. The tax invoice require the name and address of the seller and the purchaser, the seller's PAN number and invoice number, the date of transaction and description of the sale including the number of items purchased, the unit cost of any item and mention of any discounts given. The tax invoice is a crucial document for VAT as it establishes the seller's liability for tax and the purchase entitlement to credit. It is however, not necessary to specify the format and content of the tax invoice, taxpayers may be allowed to prepare format of tax invoice according to their requirement.

The tax invoice must be prepared in three copies the first copy should be clearly identified as tax invoice. The original copy is to be given to the purchaser, the second copy for audit purposes while the last copy is for use by the seller in preparing record of the transaction.

Tax officers may grant permission for a VAT registrant to issue an abbreviated invoice for retail sales below the value of Rs.5000. The main difference between the two tax invoices is that on abbreviated invoice does not require the name and address of the purchaser. The registrants have the right to request detailed tax invoice, as they will not be able to claim input tax credits with abbreviated invoices. Inland Revenue Department may order tax payer to issue invoices by using cash machine or computer. The procedure in such case shall be as prescribed by the Director General of IRD. IRD will have anytime access to the database of the taxpayer.

2.7.5 Accounting

Value added tax is levied on value added at each stage of selling and distribution activities of taxable goods or services. It is taxed on the basis of transaction of taxable goods and services. The effectiveness of VAT depends upon the record and accounting of the transactions. So the VAT registrant are required to keep clear accounts of their transactions of purchase the registrar exemption for this purpose the registrants person has to maintain records of the Following information, document and details;

a. Information as per VAT account.
b. Records relating to trade accounts cash, receipts and payments.
c. Tax invoices and abbreviated tax invoices issued by registrants.
d. Tax invoices and abbreviated tax invoices received by registrants.
e. All document relating to his imports and exports.
f. Books of purchase and Sales

The VAT account is a monthly summary showing the course of the figures of viewed in the VAT return. All the registered taxpayers are required to maintain following accounts.

a. A purchase book
b. A sales book
c. A VAT accounts

a. Purchase Book

Vat registrants are required to maintain an account of their business purchase to VAT purpose. They have to record of Purchase by invoice. At the end of each accounting period VAT registrant must total the amount of taxable purchase/ imports tax, exempt purchase / imports and the tax paid on purchase / imports

b. Sales Book

Similarly, VAT registrants are required to maintain account of their sales for VAT purpose like purchase; sales are also to be record per invoice basis. At the end of each accounting periods VAT registrants are required to total the amount of taxable purchase and tax collect on sales. If they make both taxable and exempted purchase and sales they are then required to calculate the proportion of input tax they are entitled to the tax period.

c. VAT Account

It is a monthly summary of taxable purchase and sales and VAT paid on purchase and changed or sales.

2.7.6 Refund of VAT

Tax refund is the basic essences of VAT, so it must function properly. It input tax of registered person exceeds his output tax for month the person is allowed to adjust this excess amount of tax against any outstanding amount in allowed to adjust this excess of input tax may be available to adjust for the next month. The remainder of the excess of input tax may be available to adjust for the next month. A registered person may claim, for refund amount of remaining excess after adjusting for a continuous period if six months. However any registered person whose export sales is 50 percent or more of the person's total sales for a month may claim for the refund of the amount remaining excess after adjusting any outstanding amount of the period. In the course of refunding the amount of tax, the tax official is required to investigate immediately the evidence submitted by the taxpayers and to refund the tax within 30 days of the date of registration of the claim. If it is necessary to reinvestigate the evidence so received, it is done without delay and refunded within 15 days. If it is not refunded within 60 days from the receipt of refund claim; the government has to pay back the amount of the refund along with the interest at the rate of 15 percent on the amount that is due.

The VAT laws has made the provision for tax refund in the case of purchase of goods and services by foreign diplomats, international organization and those purchased through literal and multilateral agreements and in the case of wrongly paid tax. To obtain tax refund, foreign diplomats are specified organizations can directly submit a claim each month of the Inland Revenue Department. In order to get a tax refund bilateral and multilateral projects and the person who has wrongly paid tax have to submit their claims within three years.

2.7.7 Audit of VAT

Audit in VAT system is a selective review of the tax payer books of account and other records including year -end statements, balance-sheets and profit and loss accounts to ensure that the major area of purchase, sales and stocks are sustainably correct and that the taxpayer has filed a perfect return. The purpose of VAT audit is to find our according to the law and regulations, the actual VAT liability of tax payers. A VAT audit, which is based on the principle of self - assessment by taxpayers, may be integrated with that of income tax or may be conducted separately. However, the integrated audit is more desirable and popular. The types of a VAT audit may be divided into field audit and office audit where the former includes advisory visits, verification of records and fraud investigation and the latter includes desk audits checking the return for arithmetical accuracy and completeness. The office audit is desirable to check each return for probable inaccuracy, as a basis for selecting accounts for audit.

2.7.8 VAT Number

VAT number is issued from Inland Revenue Office after registered in VAT. VAT number must be assigned to each tax payer for identification. After provided the number, the registration certificate is issued to all taxpayers. Each taxpayer should display his VAT registration certification at his business place in the case of all other places of business, copies of this certificate shall be displayed so that inspectors and consumers can early know whether the vendor is registered or not.

2.7.9 Tax Return and Payment

Taxpayer must file VAT return and pay the tax within 25 days of the end of each tax period. In the case of import, VAT must be paid at the customs points together within the import duties by all sort of importers, whether registered or not. It is the liability to pay VAT by the seller or the importers, but purchasers will give to be made liable to pay VAT in such circumstances where it will be difficult or impossible to level VAT on sellers. If tax is not paid within the determined period, he will be the subject to the additional 10 percent tax as penalty.

Tax is returned when deductible tax is more than collect tax on sales. This increment tax is adjusted in the next month and so on remains increment according to sec 24 of VAT Act, 2052 and Regulation rule 39 after 6 month. It is adjusted if there is left any amount again, that amount is returned to the registered person after giving a letter of application according to sec 24 of VAT Act.

2.7.10 Penalties

VAT has been mentioned above, penalties are useful measure to encourage firms to file and pay on time and hence to recoup revenue losses due to malfunctions of tax payers. Actually, penalties are designed to punish the taxpayers who do not follow the legal provisions of the VAT system. Penalties are considered essential, as they create an incentive to taxpayers to deter evasion and not compliance, for smooth functioning and producing a full revenue potential of a VAT system. However, penalty taxes become inequitable if they are imposed heavily on some defaulters but not on others, so all defaulters should be treated equally.

CHAPTER III

LITERATURE REVIEW

3.1 Introduction

In the course of the study, various books, articles, dissertations and other reference materials were reviewed. This chapter includes the review of existing empirical literature briefly in the subject of various developing countries including Nepal. The reviewed materials are classified into two sub- headings: International context and Nepalese context.

Tax reform to strengthen the country's fiscal system has become one of the seriously raised concerned in many developing countries in modern time. The adoption of VAT in a country's tax system is the outcome of an attempt to reform the existing tax system in almost all developing countries since 1960's.
Various studies are done on VAT throughout the world. And their findings are easily found on various books, research papers, seminar papers, and reports of the international institution, issues of the journal and article and so forth. In the context of Nepal, some studies related to VAT have been carried out but all of these were conduced almost before the implementation of VAT and have focused on the theoretical soundness of VAT. Here attempt has been made to review them.

3.2 International context

In this part, various books, articles and other reference materials related to VAT published by international renowned persons and organization were reviewed.

W V Siemens first recommended VAT in 1919 for Germany to replace the 'Multi-stage Sales Tax' in order to avoid the undesirable effects, particularly cascading the vertical integrating, for the later Tax. Despite of serious consideration by the German Government, it was decided to reduce the rate of

‘Multi-stage sales tax’ instead of applying VAT. The concept of VAT developed further in 1945 by a tax mission to Japan led by Prof Carl. S. Shoup (1948). This mission recommended the Fuka-Kachi-Zehi (VAT) for Japan in order to avoid the undesirable and unintended effects on the Japanese enterprise and turnover taxes in place at that time.

Carl S .Soup (1969), in his book "public Finance" considered value added tax as the latest and probably the final stage in a historical development of general sales tax, imposed on the values added by business firms. He explained VAT on the difference between sales proceeds and the cost of material purchased from other firms which is the tax base of a VAT. The firm further added value by proceeding or handling these purchased items with its labor forces, machinery building and capital goods.

VAT had eliminated the uneven impact of turnover tax and the manufactures and whole- sales taxes. Considering both closed and open economy he had classified the following three types of value added tax:-

i) Grass product value added tax (In closed economy.
ii) Income type of VAT (In closed economy)
iii) Capital Exemption types of VAT

a. Wage types of VAT
b. Consumption type of VAT

After distinguishing the type of VAT he stated the superiority of consumption type in practice, his main statement about VAT;

- VAT is very fast growing tax in the field of taxation.
- It is revenue productive and neutral but somewhat regressive and complex, so challenging for developing countries.

- Discussing the incidence of VAT in an open economy "if demand is not inelastic, there remain the possibility of exporting some of tax to non-resident factor owner".
- Differentiate incidence of income type of value added tax is presumably progressive, since the tax includes in base the net return from investment, but "incidence of VAT itself without reference to some other tax is meaningless."

He concluded that "VAT is superior even than retail sales tax for benefiting consumer in depressed area by differential tax rates."

George E. Lent, Milka Casanevra and Michele Guerard (1993), held a study on "value added tax in developing countries", following the adoption of value added taxes by western European countries many developing countries had been giving increased attention to this form of tax as a means of rationalizing their sales taxes and improving their revenue.

A VAT applies only through the manufacturing stage or the wholesale stage does not offer the advantage of non interference with market process to the some extent as one that covers all sectors of economy including retailing and services. The tax by a business is computed by applying the relevant tax rate to total sales during a given period and deducting from the resulting figure, the amount of tax paid by the firm on its purchase of intermediate product and capital equipment (in the consumption variant). This procedure requires that invoices show the amount of tax paid on the value added at earlier stage.

The study was proposed "to examine the applicability of VAT in developing countries. After the empirical study of VAT structure of seven developing countries i.e. Brazil, Equador, Ivory coast, Morocco, Senegal and Uruguay in 1973 and drown the principle feature of VAT's in developing countries. Applying comparative analytical methodology and covering the issues such as, revenue importance of VAT, problem of administration, comparison of VAT with other forms of sales tax, they consider VAT, "only with a tax". As is usually true of broadly based general sales tax, the VAT makes a substantial contribution to government more elastic and revenue productive by a lower rate, ease in cross-checking or but in control and superior even then retailer sales tax on the ground of neutrality and to reduce tax evasion but to few extent it is regressive and its complexity in administration are its chronic problems.

Lastly the conclusions derived from above grounds are:

i. VAT system in Brazil, Equator, Ivory cost, Morocco, Senegal and Uruguay are representative of various forms that, this type of tax has taken.
ii. VAT system in developing countries differ in some respect from the European model of a comprehensive neutral and uniform tax on the consumption good and services there by showing the adoptability of tax structure to different economic and social condition.

Analysis show mainly:

a. On the basis of laws enacted in those seven countries, it is not possible to construct a model of value added tax in developing countries.
b. Developing countries are apt to limit the range of VAT by excluding the most troublesome sector (farmer's retailers etc) because they pose difficult problems.
c. As with sales tax revenue generally VAT revenue in developing countries can be expected to increase at faster rate than the rate of growth of the economy.
d. Fundamental difficulty in administrating VAT in developing countries is the problem of coping with 'small tax payers which include large number of retailer's service enterprises and farmers.'

e. In comparing other types of sales tax value added technology permit greater precision in elimination of 'cascading' including the remission of taxes on export and is less subject to tax evasion.

Recommendation made on the ground of the study as the condition of adoption of a retail VAT on developing countries are:

- Size of retail unit: only sales tax carried to the retail level can be truly neutral in their effects on the organization of production and distribution and on the current price.
- Adequacy of record maintains and bookkeeping by firms is in dispensable.
- Unless administrative service is strong or can be strengthened it will not be advisable to take additional burden which VAT poses.
- Previous experience: inadvisable for any developing country to adopt a VAT at retail level without previous experience with a sales tax.
- Level of tax rate: that would justify introduction of VAT rather than alternative form of sales tax.

The degree fulfillment of above condition determines the comparative success of implementation of VAT against other sales tax.

IMF staff (1973), undertook a study in developing countries at the time when the introduction of VAT was gaining a pace in developed as well as in developing countries. The study examine the applicability of VAT is seven developing countries. Which have adopted the VAT considering the fact that many uncertainties a rise in the introduction of any major new tax especially with which developing countries have limited experience? According to the study "The most important feature of VAT in developing countries is its conceptual basis such as taxable base exemption treatment of small trader's etc. problem of implementing a VAT in developing countries depends largely upon the ability in those countries to administer it. The administrative efficiency is also influence by the structure of VAT employed and the economy's social and economic environment.

Although the study shows the VAT as a revenue raiser, the key problem should also be viewed from the angle of taxpayer's compliance, as the cost of during business tend to increase with VAT because of the need to adopt new accounting procedures.

Finally, the study assures that VAT produces between 10 to 30 percent of government revenue of the seven developing countries and the VAT revenue in these countries is expected to increase at fast rate than the rate of the growth of the economy.

Musgrave and Musgrave (1976), in their book "Public Finance in Theory and Practice" had preferred the latest type of VAT as more applicable and reliable one for both efficiency and quality, which was similar to the retail sales tax and seemed to be more practical for poor countries. Likewise the invoice method for calculation was more preferable and did have the advantage of the value added approach.

Regarding, the problem of VAT, Musgrave and Musgrave remarked "A sales tax may be imposed on either single or multiple form. If the later one is implemented in the value added (rather than turnover) sense, it turns to be equivalent to a corresponding single tax. At each and every stage the value of product is increased and this price rises accordingly, which is the 'Value added' the tax base.

"Due and Friender Lander (1977), in their book" Government Finance: Economics of public sector" showed that among indirect taxes, VAT is the best one, as the latest form of sales tax.. It usages has expanded rapidly because of boarder coverage.

This tax offers much greater revenue potentiality as compared to other type of sales taxes. The base of tax being value added. It is defined as the difference between the sales of firm's product and the some of the amount paid by the firms for produced goods parched during the period and which is equal to the sum of factor payments made by the firm. VAT is subjected to objections common to all consumption related sales taxes mainly on the ground of equity e.g. regressively. On the other hand advantages or good features of VAT are a major source of revenue it can be used as a supplement to income tax and especially in underdeveloped countries where effective operation of high income tax is difficult. It may be the key element to raise revenue. But its administrative complexities are burdensome in developing countries. The tax credit method is a simple method which facilitates cross checking in auditing.

Evaluating VAT as a form of sales tax, its merits are outlined as:

i) VAT produces no economic disturbance or distortion or loss of efficiency, if properly designed.
ii) There is greater ease in excluding producer's goods from tax.
iii) Cross check audit is easier. As a sales tax, the optimal form of VAT;
    a. Must not create the negative effect in consumer's choice and purchase
    b. Should equitable i.e. proportional level of burden for all income groups.
    c. Cost of both administration and compliance must be minimized.
    d. Must be neutral among various method of organization and conduct of production and distribution.
    e. More revenue productive considering on the above ground.

The author accepted that the main visualized problem of VAT in developing countries is "the administrative complexity". However, they conclude, "it is undoubted that the idea of VAT from sales tax in many countries."

Choi (1983), examined and evaluated the value added tax in Korea from its introduction to its effects on the economy in his paper, "value added tax in the

Republic of Korea, "VAT, in people Republic of Korea, was introduced in 1977 as a part of large tax reform with the objective of the simplifications of tax structure and its administration. Introduction of VAT was also guided by revenue consideration. The characteristics of Korean VAT were of general type as had been adopted by European countries. The effect of VAT on the economy had been lesser than its supports had claimed in its favor or its opponents had feared would result from its introduction. The VAT didn't have a major impact on the price increase that, it should a good impact on the investment and VAT encouraged exporter more than the previous tax system. One of the most controversial issues of VAT was its regressive ness. Studies found that the VAT in Korea was more or less regressive with respect to income. In its overall evaluation, VAT in Korea has worked relatively well, in some cases much better than its designers and tax payers had anticipated. The VAT has broadened tax base, reduced evasion, increases revenue and solved many problems associated with previous taxes.

However, the VAT may be simple in theory. The Korean experience with VAT during past seven years had made it clear that it was not so simple in practice. It created a host of problems that gave rise to voluminous paper work more or less arbitrary distortion in trade and consumption and equalities in the distribution of Tax burden. The proper assessment of several problem areas relating to VAT including coverage rate structure, special tax payers, co-ordination with direct taxation etc. will help other countries to learn from Korean experience.

Due and Meyer (1988), in their research Bulletin "Dominican Republic value Added Tax" examined the VAT in Dominican Republic, Ignoring the hostile reactions of business sector, labor union and even political parties VAT was introduced in 1983 in Dominican Republic. The increased record- keeping requirement became the main issue in the medium and small sizes business dominated economy of Dominican also the belief that VAT was responsible for inflation become another obstacle, but the inflation was due to other reasons. There was general agreement that the enforcement of the tax hadn't been adequate mainly because of lack of personal, evasion was wide speared, many firms failed to register. The overall evolution of the tax in the country, therefore remained rather negative while the tax has brought additional revenue, the inadequate enforcement and failure to extend it to the commercial sector as planned, and the use to making shift, distorting system in the latter have resulted in serious failure to attain the advantage of complete value added tax. The experience of the country with the tax provides a warning to other developing countries not to attempt to use a value added tax expending beyond to import and manufacturing sectors without careful consideration of the ability of the wholesale and retail sector to operate the tax and general attitude of these sectors toward the tax.

Wallow Ahmnadand (1989), in their research working paper, 'Tax reform package on VAT for Pakistan" analyzed and compared the consequences of different options such as the single rate VAT with selective exercise and some exemptions (or Zero rating) and multiple VAT rate. The authors used their own methods for the tax reform analysis. In the first step they described the existing taxes and then, examined the consequences of the tax changes on households, resulting government revenue and also implications for production. The work showed that instrument can be designed to increase revenue and at the same time, protect the poor. A value added tax supplemented with selective excise would have made Pakistan's tax system more buoyant and reduced the production distortions inherent in Pakistan's current tax system and no at the expense of the poor.

An IMF occasional paper (1991), entitled "value added tax; Administrative and policy issues", edited by Alan A Trait brought out the beauty of the VAT and briefly reviewed the reasons why the VAT is chosen as the main sales tax. The study was concentrated on the policy concerns on the basic illustration of some theoretical as well as empirical proofs.

The study clearly depicts three main groups of reason to adopt a VAT: revenue, neutrality and efficiency.

Revenue

VAT would generate more revenue with less cost than taxes it replaces "Traditional income and sales tax have been meeting public resistance and the VAT provides a new buoyant revenue base, typically yielding more than initial estimates at the case of Indonesia, Korea, New Zealand, Portugal and Tunisia shows". Because of broad coverage this tax offers much greater revenue potentiality as compared to other types of taxes. According to the study the VAT contributes 12 to 30 percent of revenues in most countries.

Neutrality

"The VAT is non distortion provided there are little exemption and little zero rating. VAT on investment should be fully credited and this frequently is an improvement over the taxes replaced that often taxed capital goods. "VAT is a neutral with respect to the choice of methods of production and distribution. Since the taxes are levied only on the value added at each stage in the system, tax liability remains the same regardless of the system of production and distribution. Total tax paid on given commodity depends on the rate of the tax and on the total value added (i.e. the final price) of that commodity but not on the number of stages through which it has passed so the tax is considered vertically neutral except for a negligible element of discrimination. It also does not discriminate the production whether it is capital intensive or labor.

Efficiency

A significant characteristic of an ideal tax system is efficiency. An efficient tax system is one that doesn't cause any distortion in production and consumption in other words such a tax system doesn't bring any unintended and undesirable effect in the methods of production and distribution or in consumption. Rather it avoids probable distortion of the optimum allocation of resources.

In this connection Editor Alan A. Tait writes "The VAT has often replaced inefficient distortion and badly administrated taxes".

The introduction of VAT provides an opportunity to sweep away the cobwebs and revamp a substantial part of the tax administration.

John F. Due and Fransis Greony (1991), wrote successful story of VAT in their paper, "Trinida and Tabago: The Development of VAT; development of VAT was carefully planned and it went through the several phases from 1986 to 1989. The tax performance committee was established in 1987. The first task of the committee was to review the current tax system and develop a preliminary recommendation in direction of reform. The studies showed that the existing tax system was an urgent need of revision for several aspects. The value added tax was put forward as an alternative. Further the issues such as choice of rate structure, exemption, tax administration etc, were resolved or the final adoption of VAT. The structure of VAT was drafted in final paper after the careful examination of several issues including revenue and equity with development of analytical models. After so many detailed works, it was finally drafted and passed by the legislation in 1989.

The VAT was well received and also welcomed by the business community. One year's experience showed that the operation was reasonably satisfactory. It yielded the previously expected and forecasted results. For its success, there were several reasons such as careful planning of tax structure and administration, a close co-operation between the government and business sector, the extensive publishing programme, the coordinated reform in purchased tax and income tax, and selection of competent persons. There were several things can be taken as suggestion from Trinidad and Tobago for the introduction and operation of VAT in other developing countries as well.

World Bank Staff (Bogetic and Hasson 1993) undertook a cross-section analysis on "Determinants of value added tax Revenue" using data from 34 countries to answer certain key question: what empirical relationship emerges from existing data on VAT revenue and VAT rates for countries with a single VAT rate? How much on average can one percent increase in the VAT rate be expected to raise VAT revenue as measure by VAT to GDP ratio? What key determinants of VAT revenue emerge from a cross-country analysis of the full sample of countries? Is there a statistically significant difference in VAT revenue performance between countries with a single VAT rate and multiple VAT rates?

The result of their regressions generally confirm the conventional views on the key variables influencing VAT revenue performances the rates, the base and rate dispersion. The rate and base coefficients are significant and with the expected positive sign in all of the estimated versions of the model. An estimated model is used with appropriate caveats to predict VAT revenue potential in countries (such as Bulgaria) that are thinking of introducing a single rare VAT. They also find that other thinks being constant VAT generates higher revenue in countries with a single VAT rate than in countries with multiple VAT rates. The difference in the estimated models for the two country groups is statistically significant, indicating a structure/change. However this change in the pattern of VAT revenues can't be explained exclusively in terms of differences in rate structure. A satisfactory explanation must include other factors such as the base and tax administration capacity. The suggestions of that analysis are: to provide superior revenues, VAT should be levied in a single rate on as broad base as possible. And tax administration and enforcement must be tough to ensure compliance.

3.3 Nepalese context

In this part, various books, dissertations, articles and other reference materials related to VAT published at Nepalese context were reviewed for researcher purpose.

Dr. Rup B. Khadka (1989), published a book entitled “VAT in Asia and Pacific Region”, after analyzing the VAT system in this region, he has stated, “VAT is the recent innovation in the field of taxation, which is levied on the value added goods and services, and is shifted forward completely to the consumers”. The main objective of the study is “to examine the structure and operation VAT in the Asian Pacific countries”. This also explores the possibility of introducing VAT in Nepal. He lastly developed a VAT proposal for Nepal. He concluded mainly as followings:

- ✓ The broad base of VAT makes more revenue productive as well horizontally equitable.
- ✓ Even though it is complicated to administer, it provides self-policing nature and catch-up facilitation to the tax administration.
- ✓ Asian Pacific countries, such as China, Indonesia, Korea, New Zealand, the Philippines, and Taiwan have operated VAT from 1989 where it has been introduced as a part of large-scale tax reform. With some exceptions in China, all Asian Pacific countries adopted the consumption type of VAT with tax credit method for computation of VAT base. The New Zealand VAT has been considered as the best in the world.

A study on “Value Added Tax in Developing Countries” by IMF staff, Lent, Cascenegra and Guerard examines the applicability of VAT in seven developing countries (Brazil, Ecuador, Ivory Coast, Malagasy, Morocco, Senegal and Uruguay) considering the fact that uncertainties may arise in introduction of any major new implementation especially with very limited experiences. According to the study, the most important feature of VAT in such countries is its' conceptual basic such as taxable base (value- added) exemption, treatment of small traders etc. Problems of VAT depend on the administrative capacity in the developing countries. Economic and social atmosphere also plays vital role to make comprehensive tax base of VAT.

A VAT applies only through the production or wholesale stage does not generate the advantage of non-interference with market process to the same extent as one that covers other all sector of economy including retailing and services. The study shows that,

- ✓ Developing countries have limit range of VAT based by excluding the most troublesome because they have their own difficulties.
- ✓ VAT produces between 10 to 30 percent of government revenue of seven developing countries; the revenue of VAT is expected to increase at faster rate than the rate of growth of the economy.
- ✓ There are fundamental difficulties in VAT operation administration in developing countries. The problem is the treatment of small taxpayers, which includes large numbers of retailers' service enterprise and farmers.
- ✓ It is not possible to construct a mode of VAT in developing countries, on the basis of laws enacted in those countries.
- ✓ Value-adding technique has greater precision in elimination the 'cascading' if there exists the remission of tax-off on exports and is less subject to tax evasion.

Dahal, M.K. (1991) in an article, "Tax structure and policy" stated that an efficient and successful tax administration could improve the tax structure raising the productivity of tax yields. Administrative constraints lead to faulty tax structure and heavily reliance on easy way to administer taxes is costly for developing countries. Tax administration is not possible to change in the same manner that one can change the exchange rate. Moreover, the state pf corruption in all tax offices is a sensitive issue that is beyond calculation and cannot be improved easily. Perhaps, developing countries have neglected this central issue while reforming the tax system. Nepal is no exception to it. While proposing a tax reform in a developing economy like Nepal, the focus should be on raising the productivity and responsiveness should be made to increase the contribution of progressive direct taxes in order to maintain equity in the tax structure. This needs efficient, dynamic and honest people in the tax administration.

B.R. Lekhi (1995) stated that VAT as its name implies, is a tax in a value added to a commodity or a service. It means that the value added tax is imposed on the value that business firms add to the goods and services that is purchased from other firms. It also adds value by processing or handling these purchase goods with its own labour force or machinery, building or other firms. However, the value added tax belongs to the family of sales tax.

A value added tax is a tax not on the total value of the commodity being sold, but on the value added to it by the last trader. The trader, therefore, is not liable to pay a tax on gross value but on the net value, i.e. the gross value minus the value of the commodity purchased from the other firms. In this way, value added tax implies a tax, which is paid by all sellers of goods and services.

The author pointed out some points in favour of value added tax, which are:

1. VAT is supposed to be neutral in the form of production and commercialization.
2. VAT is simpler as compared to other indirect taxes.
3. There is less possibility of evasion of tax in VAT.
4. It is easy to investigate the large size of the firms.
5. The VAT encourages the exports of the country.
6. VAT is based on cross check and cross audit.

7. VAT being levied and collected in small fragments at different stages of production and distribution, it is burdensome.
8. It leads to efficiency.
9. It avoids cost-casting effect.
10. It encourages investment.
11. Burden of tax is shared by all factors of production like wages, interest, rent and profit. Thus it encourages productivity.

The author pointed out some points in against of value added tax, which are:

1. VAT is not easy to adopt (mainly in underdeveloped countries)
2. Shortage of efficient management
3. Inflationary in nature, leaving consumers with less disposable income
4. It is claimed that VAT is not fully neutral tax.
5. Not economical (mainly for small firms).
6. Possibility of tax evasion
7. Lack of public operation
8. Distributional inequality, i.e. it leads to regressive-ness.
9. Difficult to adopt I underdeveloped countries
10. Rup Bahadur Khadka (1998), in his book entitled “VAT in Nepal” has described the theoretical background and the development of VAT in Nepal. Preparation and status of VAT are also addressed in this book. Since it is the collection of the publ

Dr. Rup Bahadur Khadka (1989), an expert of Nepalese tax system in his book entitled "VAT in Asia and the Pacific Region" wrote that VAT is the most recent innovation in the field of taxation . It levied on the value added of good and services. The tax is broad based on it cover the value added to each commodity by a firm during all stage of production and distribution.

This book had covered all aspects of VAT including the nature of VAT, reasons for the growing popularity of VAT, development of VAT etc. This apart, the report examines all structure and operation of VAT in Asia Pacific Region which also explores the possibility of introducing VAT in Nepal. Probably he is the person observer of VAT aboard and the firstly proposed VAT for Nepal with micro studied of Nepalese economy and system.

Ministry of Finance (1995), conducted a study by preparing a 'Task Force' headed by Prof. Madhan K. Dahal reviewed the Nepalease tax system. It mainly analyzed the magnitude of the Nepalese tax system and recommended various measures for the tax reforms.

The study was depended on theoretical base and the study reached the conclusion that "There is no possibility of any other great measure to introduce a tax rather than introducing VAT in Nepal".

The major findings of the study are:

i. The necessity of VAT in Nepal
    a. To increase the revenue collection by boarding the tax base.
    b. To make the tax system more buoyant
    c. To discourse the tendency of tax evasion
    d. To make the system efficient
    e. To promote the export.
ii. The existing tax system of Nepal generates less amount of revenue, so alternatives for the system should be searched. In this context the VAT appears as the best alternatives.
iii. Some aspects for consideration of VAT are price level, equity, the condition of tax payers and small vendor.
iv. IV A special consumption tax on luxuries goods sold be introduce as a supplementary tax for the VAT.
v. There most be fully and detailed preparation before implying VAT.

Dr. Khadka (1996), in his paper "A VAT for Nepal" had focused on the purposed structure, operation and administrative setup of a VAT for Nepal and necessary steps to be taken for its early introduction. In its purposed structure the coverage of VAT should be made as broad as possible covering all business transactions. Exemption should not be granted unless there is a specific reason to do so, such as administration and equity. Zero rating should be limited to exports and tax rates should be single in order to avoid complications and inefficiency in collection.

The purposed operation of VAT requires that the tax payers above a threshold limit should be registers. The vendor should issue an invoice for each sale, keep a clear account of his purchased and sales (separate accounts for zero rated, exempted and positives rated goods) and VAT liability should be calculated of its taxable sales. Tax credit method should be used as a method of computation of the tax, and tax payment and refund period should be within one month. Then sales tax and excise department should be restructured drastically to administer a VAT. Officer level post should be increased considerably and extensive training should be provided including the operation of computer system. A VAT implementation team including experts and persons from every field should be set up. A detailed preparation should be considered as a prerequisite for introduction of VAT. A comprehensive VAT education programme must be launched to educate the taxpayers.

Nepal Chamber of Commerce (1997) made a study to analyze the possible effects of VAT on Nepalese economy makes some observation. The observations are:

a. Adverse effect on price level.
b. Increase in the price of imported goods would hit the import business and re-export of imported goods leading to a decline in the revenue from import tax.

c. The account keeping requirement of the VAT would increase the tax compliance cost and cost of doing business, it would adversely affect the small traders.
d. Adverse effects on domestic production due to the abolition of protection policy under VAT
e. VAT would be unjustifiable on social ground; it would aggravate the income distribution.
f. Negative effects in revenue collection and
g. Changes of failure of a VAT in Nepal are great because the present administration is incapable for handling a VAT.

The study concluded that VAT in Nepal should not be implanted in haste. A partial VAT on some commodities should be implemented on experimental basis to know its pros and cons and after that a full VAT might be considered.

Nepal chamber of commerce organized a nationwide discussion programme on VAT. According to a report of the discussion programme, various views expressed about VAT in Nepal may be summarized on follows,

i. Government machine is not capable for implementing a VAT
ii. The business community has no confidence in the administration because it has failed to Implement many other taxes effectively and fulfill its own commitments even previously.
iii. VAT will hamper genuine trade and as consequence illegal trade will prosper. Rise in the price of domestic products will make them less competitive. Import and re-export of imported goods will get a negative impact leading to decline in government revenue.
iv. VAT will inhibit the growth of newly developing trade activities in the country.
v. The modern account or keeping system is required but difficult due to the raise in costs of doing business.

vi. There will be a sharp price rise if a VAT is introduced, consumer will be badly affected due to price rise. Nepalese markets in boarder area will dry up die to VAT.

It is concluded that it is not possible to implement a VAT in Nepal and if implemented it will have adverse effect on the economy.

Babu Ram Subedi (1998), in his Thesis; "Applicability of value added tax in Nepal," showed that the sales tax however is providing a considerable bulk of revenue but it has suffered from narrow base and cascading and pyramiding effects are creating distortion without generating potential amount of revenue. Nepal's tax effort ratio of 10.8 percent is perhaps the lowest in the world, next to Bangladesh. Elasticity and buoyancy elements of Nepalese Structure are very low.

The existing Nepalese sales tax system is not efficient, generates less of the potential amount of revenue and it is far from equality norms. Cascading pyramiding are overall problems making room for vertical integration, distortion and tax evasion. To reduce such inefficiencies it is necessary to move towards VAT system and initiate administrative reforms. VAT is considered neutral among the factors of production and will be helpful to enhance investment.

He analyzed that the most serious problems for implementing VAT in Nepal is the administrative inefficiencies, non-qualified intelligent, low trained man power, non-standard accounting systems etc. But above that VAT is considered in a broad based tax. Potential advantage of it can not be attained fully if the tax is not extended retail level. Nepal has a grain economy where a large number of small retailers are spread over the kingdom without proper accounting habits.

He concluded rate structure plays prominent role for efficiency and the success and failure of a tax. Multiple rates seem complex and less effective Since it reduces regressively of the VAT and the single rates proves highly simple to handily but to high degree of regressively, a dual rate may prove moderate way to solve both problems.

Narayan P. Silwal (1999), in his book " Value Added Tax: A Nepalese Experience" had expressed his practical experience about VAT. The book covers all the aspect of VAT. In writer's word "VAT is an all stages non cascading tax system. It extends to all levels of production and distribution. Similarly, it covers all stages and services. Any discrimination in taxing goods or services or exempting any of them renders VAT ineffective." The book gives main focus on Nepalese tax system. The book clearly analyze why the government of Nepal introduced VAT. Government of Nepal announced retail level sales tax of the rate if 10 percent covers a whole range of goods and services. There was no procedural law to administer it. When retail sales Tax introduced in Nepal, literacy level was just manger and billing and record keeping was fanciful. In this situation, required revenue could not take place, which in turn into the development expenditure. So that a modern efficient and neutral tax likes VAT was therefore preferred to get rid of past anomalies.

The writer expressed a version by borrowing government declaration that “The government of Nepal does not have the option of doing nothing. Major changes must he make in order to make tax administration fair efficient and effective. The hostility, harassment and corruption that currently exist between the taxes efface and the business community must end if Nepal is to have a modern tax system. The business wants the system changed and willing to pay reasonable tax but they want the system transparent and fair."

Narayan Silwal suggested that factors affecting VAT design should also take into consideration. A poorly designed VAT accompanied by weak administration would just drain the treasury. So, utmost care is necessary while designing VAT. According to him the following fact were considered while deriving a VAT in Nepal.

- Tax base issues
- Rate structure issues
- Exemption issues
- Threshold issues

Finally, the author reached in conclusion that the introduction of VAT provides an opportunity to sweep away the cobwebs and revamp a substantial part of the tax administration. In every country where it has been implanted properly, the VAT has proved itself as revenue productive tax. However the benefits from VAT depend upon its coverage.

Dr. Khadka (2000),in his latest book." The Nepalese Tax System" explained about the necessity to introduce VAT in Nepal. There are several reasons to introduce VAT in Nepal. One of the important reasons was to develop as table source of revenue by broadening the tax base; moreover it will help to become less dependent on international trade taxed for its revenue in the future. Since, it will not be in a position to levy import duties on trade that take place with in the South Asian Association for Regional Co-operation (SAARC) region after the implementation of the South Asian Free Trade Arrangement (SAFTA). Nepal has been the member of world Trade Organization (WTO) which will also have to be considered in this context.

Dr. Puspa Raj Kandel (2004), in his book "Tax laws and Tax Planning in Nepal" stated that VAT is a sales tax in advanced form. It is imposed on different stages. It is the tax imposed on added value of goods and services. The value is added in the form of profit, rent, wages, salary etc. In his book he pointed out the following characteristics of a full- fledged VAT system:

- It is an indirect tax.
- It is based on added value.
- It is a broad- based tax.
- It is based on self-assessment system.
- It avoids cascading and pyramiding.
- It has the self-policing and catching up benefit

Iswor Kumar Shrestha (2004). In his article" Appeal system in VAT ACT 2052" published in the journal "Rajaswa" identified the problem of VAT Act System; taxpayers do not want to show the transparency in their transactions. They do not want to keep the accounts; they all want to register the firm under small-scale business. Taxpayers generally show the low productivity and high wastage ratio. Likewise they show the large amount of discount allowed to customers. Issue of billing is the serious problem of VAT system in Nepal. Shortcoming of VAT implementation indicated in his study was, not giving the information of preliminary tax assessment, not examining the accuracy of data faulty explanation of act. No adopting the administration circular, not verifying the stock and not conducting link audit, he further suggested what is to be done for correcting the mistake. Billing procedure should be developed scientifically through the help of computer. Taxpayer should be provided education for keeping accounts to make a ware about billing procedures. An equal punishment standard should be made in the field of tax administration and judicial administration. Consumer should be provided education for their right and duties.

Amrit P. Shrestha (2006), in his Thesis "Assessment of VAT in Nepal" stated that;

- The primary objective of VAT implementation was to avoid the problems inherent to manufacture's sales or cascading turnover. The system has been universally accepted because of its growing popularity, catch-up effect, self policing, free of cascading and pyramiding and being a broad based tax.

- VAT is broad based tax that is directly related to the list of exemption and threshold. The list of exemption in Nepal is so long that it narrows the tax base.
- Refund process mechanism is to attract investment and to promote exports.
- In Nepal compliance rate is very low compared to registration figure, which means revenue is not being collected significantly.
- Excise duty is an important source for VAT but it has not been effectively administered.
- Widespread leakages are normal practices due to lack of professionalism, integrity, technically competent and international orientation.

In this way, various books, dissertations, reports, articles and other reference materials have been reviewed while preparing this dissertation. But there are not sufficient study/reports conducted in such particular topic that VAT as a tool of revenue mobilization in Nepal. A few works have done earlier but they are not able to explain explicitly the real picture of revenue collection from VAT, its trend and its relation with total revenue, total tax revenue and total indirect tax revenue. This study is unique and original issued papers, the government has already addressed many recommendations provided earlier. Different aspects of VAT have also been analyzed in his book entitled “The Nepalese tax system”. In his own words “Tax compliance is very poor in Nepal and different taxes are not being fully paid as per the law. There is an advantage of the situation. There is lack of coordinating approach and long-term strategies. Several tax measures were introduced in 1997/ 98 without any consideration and their possible effect”.

In an article entitled “Status of VAT implementation Necessity Realized” published in the rising Nepal on 14 Nov, 2002 by Rup Bahadur Khadka concludes that the number of VAT registrations was 4959 in the first year of VAT implementation against 2045 sales tax registrations, which has increased almost to 27000 by mid November 2002. This indicates that there has been substantial increase in the tax base in terms of number of taxpayers. VAT refund system has also becoming gradually effective. As there was no belief of taxpayers on the refund mechanism, no taxpayers applied for the refund on the first fiscal year of VAT implementation. But after publicity regarding the tax system, the trust of the taxpayers regarding this process gradually increased. Then, they started applying for the refund. The refund amount increased to RS 1710 million 2001/02 from RS. 70 million in 1998/99 of the total returns, the share of credit, debit and zero returns was 39 percent, 32 percent and 24percent respectively at the end of the fiscal year 2001/02.

S.K. Singh (1996) in his book “Public Finance in theory and Practice” stated that administration of VAT does not require firms to calculate Value Added Tax. VAT is administrated by invoice method. He found the merits of VAT as neutral and efficient resource allocation, neutral between different goods and services, neutral between business, neutral between different types of production and distribution. Since neutrality is important and neutrality in produced in goods is possible in VAT system because it does not distort any one of the above.

The author has explained that VAT at single rate with exemption of food stuffs, farmers, housing, finance, health, education, charities, newspaper, books, and periodical may be levied in such a way as to make the entire system of taxes, benefit the goods to deal more progressively and the cross audit features of VAT provide this facility to reduce tax evasion and demerits. VAT may raise price at the time of replacement. Author further stated that VAT being complex tax, individual and small firms do not maintain proper records. Accumulation of inventory is likely to higher smooth tax payment. Regarding the VAT in developing countries, the main requirements to introduce VAT are described as: (a) Ability to administer VAT, determines the feasibility. (b) Small business and compliance are also other problems which should be created very carefully in developing countries while introducing VAT. (c) Successful introduction of VAT depends largely on previous experience of multiple stage sales tax or general sales tax.

Narayan Prasad Silwal, (1999) has expressed his practical experience about VAT in his book “VAT a Nepalese experience”. It covers all aspects of VAT. In author’s word “VAT is in all stages non-cascading tax system. It extent to all levels of production and distribution, similarly it covers all aspects of VAT. In author’s word “VAT is in all stages non- cascading tax system. It extent to all levels of production, and distribution, similarly it covers all stages and services. Any discrimination in taxing goods or services or exempting any of them renders VAT ineffective”. Mr. Silwal suggests that factor affecting VAT design take also into consideration. A poorly designed VAT accompanied by weak administration would just drain the treasury. So almost all cases are necessary while designing a VAT. According to him, Tax base issues, Rate structure issues, Exemption issues and Threshold issues were considered while designing a VAT in Nepal. Finally, Mr. Silwal reached a conclusion that introduction of VAT provides and opportunity to sweep away to cub webs and revamp a substantial part of the tax administration. In every country, where it has been implemented properly, the VAT has proven itself as a revenue productive tax. However, benefit from VAT depends upon its coverage.

Narayan Silwal, in an article “Effect of VAT on revenue: a pre and post VAT appraisal” visualizes a scenario of Nepalese economy. In general, he analyzes VAT very precisely after its implementation in particular. The performance of VAT in the first 15 months (November 1997 – January 1999) is mixed. The first three months of the information was considered to be a grace period. There were only 3000 taxpayers on which 2045 were the converted ones from the sales tax. About 400 million worth of stocks of sales tax were carried over from old system. At present the total registrations are just over 7900 of which only 4% contributes to 80% of interval VAT collection. Further segregation of internal collection reveals that 20% collection is coming from Nepal Telecommunication Corporation, 40% from excisable producers, producers like cigarettes, beers and liquor manufacturers and their distributors and only 40% from the other traders and industries. Thus, the accumulated credit in the system by the end of the15 months was around one billion rupees.

In an article named as “VAT: its possibility, problem and suggestion” published in Rajashwo, a writer named Narayan Raj Tiwari, has discussed historically and quantitatively on VAT in Nepal. He has reviewed that “VAT is a new source of tax revenue, for 30 years, it has been approved practically by more than 100 countries”, empathetically discussed on VAT features, which are as follows,

- ✓ Its base is very modern principal
- ✓ Its nature is more informative
- ✓ It has non-cascading effects
- ✓ It hooks the market price
- ✓ It accelerates the speed of revenue collection
- ✓ It makes leakage less tax system

A study made by Nepal Chamber of Commerce (1997) also analyzed the possible effects of VAT in Nepalese economy in 1997. Pushpa Raj Karnikar headed the team. The main findings of the study report were as follows:

- ✓ VAT affects adversely in price level.
- ✓ Increase in the price of imported goods and ultimately increase the cost of production, thereby reducing the export business.
- ✓ Requirement of bookkeeping is complicated.
- ✓ It would finally affect the small traders.

- ✓ It is untimely to implement.
- ✓ It would be unjustifiable on social ground.
- ✓ Present administration is incapable for handling VAT.
- ✓ Computerization system is not sufficient and it is new concepts for the tax administrators.

The study report suggested for a partial VAT on some commodities. It was in favor of phase wise implementation of VAT. The study analyzes negative impact of VAT neglecting its positive impact.

Raghu Bir Bista, (1999) in his dissertation entitled "VAT in Nepal: Its issues and effects" has concluded that VAT is applicable and feasible in Nepal in order to reduce the resource gap by mobilizing additional resource to meet the estimated revenue collection by broadening the tax bases to control the tax leakage, smuggling, unofficial trade and corruption through transparency account based cross checking, although Nepal has many issues, Problems and constraints relating administration, politics, economy, and society. It the government operates the VAT administration with effectiveness and efficiency; the effect on VAT in all sectors will be positive and favorable.

Based on the review of literature above, it can be concluded that VAT is neutral in its effects, and cross check audit easier with VAT. It promotes exports, and broadens the tax base, hence VAT is revenue productive. However VAT would be more problematic in developing countries where tax administration is weak, so it should be implemented after full preparation. As a reform of indirect tax, most of the efforts in VAT were held only on the theoretical background.

CHAPTER IV

RESEARCH METHODOLOGY

4.1 Introduction

This chapter is devoted to the research methodology applied in the study to achieve the goal set out. The study is based on secondary sources of data. Different statistical tools are used to analyze the data. In this study Simple Percentage, Analysis of Time Series and Coefficient of Correlation methods are used to analyze the data. This chapter is divided into four sub-headings: research design; nature and sources of data; data processing and tools for analysis.

4.2 Research Design

The analytical research design is used for analyzing and interpreting the data acquired from the secondary sources and descriptive research design also has been applied for the conceptualization and description of the problem.

4.3 Nature and Sources of Data

The study is based on secondary data and the source of secondary data is as follows:

a) Published document from ministry of finance as economic survey.
b) Publication of ministry of finance, Budget speech.
c) Publication of Inland Revenue Department, Annual Report.
d) Other relevant data for the study are Economic journal, Rajaswa Bajar, Abstracts Article, Newspaper etc.
e) Dissertation related to VAT available at central library of TU.

4.4 Data Processing

The data collected from above mentioned various sources have been tabulated so as to obtain desired outcome. The collected information has compiled and tabulated in different headings. Hence, the data are processed by using relevant statistical tools.

4.5 Tools for Analysis

To make research objective practicable, to find accurate result different statistical tools are used. The different statistical tools in the process of analysis are:

a) Simple percentage.

b) Trend line and Pie charts.

c) Analysis of time series and Coefficient of Correlation

Under the Analysis of Time Series effort has been made to analyze trends in composition of VAT in Nepal. On the basis of 10 years of data, the revenue amount of VAT from domestic product and import has been forecasted.

Let the trend line be,

$y_c = a + bx$

Where,

yc = Total amount of domestic product/import product of VAT

b = Constant which is the change in y corresponding to the change in x by one unit

a = Constant which is computed y value when x = 0

x = Time in the case of time series analysis

Formula to be used:

$$a = \frac{\sum y}{n}$$

$$b = \frac{\sum xy}{\sum y^2}$$

The coefficient of correlation 'r' deals with the statistical technique which measures the degree of relationship or association between the variables. This analysis will reflect the relationship between VAT and total revenue, VAT and total tax revenue and VAT and total indirect tax revenue to show the contribution of VAT in this particular term. Karl Pearson's correlation coefficient 'r' is used to find out the relationship among these mentioned variables. The following formula is used to calculate 'r'

$$r = \frac{N.\sum dx.dy - \sum dx.\sum dy}{\sqrt{N\sum dx^2 - (\sum dx)^2}\sqrt{N\sum dy^2 - (\sum dy)^2}}$$

CHAPTER V

ANALYSIS OF REVENUE STRUCTURE OF NEPLEASE TAX SYSTEM

5.1 Introduction

This chapter is devoted to the analysis and presentation of secondary data. Data obtained from various sources have been tabulated and presented in graphs and charts and analyzed to reach at some findings. This chapter has been divided into two sub-headings. They are: analysis of revenue structure of Nepal and Trend and Correlation analysis of VAT.

5.2 Analysis of Revenue Structure of Nepal

Nepal has been facing growing resource gap rapidly. Despite over five decades of planned development efforts, Nepal has been suffering from resource constraint, massive poverty, rapid population growth, increasing frictional seasonal and educational unemployment, aggressive dependence on agriculture, subsistence living standard and poor infrastructure. Most of the national economic activities are dependent upon agriculture and large portion of GDP originating from agricultural sector remains out of the tax net.

To solve the above mentioned problems Nepalese government has practiced deficit budget. Government deficit budget is defined as the excess of spending over its revenues. Fiscal deficit has been increasing continuously due to growing expenditure and low revenue performance in Nepal. In addition, the country has also been facing the increasing burden of foreign loan.

Table-5.1

Trends of Resource Gap in Nepal

(Rs.in million)

Fiscal Year	Total Expenditure	Total Revenue	Resource Gap (A)	Foreign Grants	Resource Gap (B)	Foreign Loan	Resource Gap (c)
(1)	(2)	(3)	(4)= (3-2)	(5)	6=(4+5)	(7)	8=7+6
1990/91	23549.8	10729.9	-12819.9	2164.8	-10655.1	6256.7	-4398.4
1991/92	26418.2	13512.7	-12905.5	1643.8	-11261.7	6816.9	-4444.8
1992/93	30897.7	15148.4	-15749.3	3793.3	-21956.0	6920.9	-15035.1
1993/94	33597.4	19580.8	-14016.6	2393.6	-11653.0	9163.6	-2459.4
1994/95	39060.0	24575.2	-14484.8	3937.1	-10547.7	7312.3	-3235.4
1995/96	46542.4	27893.1	-18649.3	4825.1	-13824.2	9463.9	-4360.3
1996/97	50723.7	30373.5	-20350.2	5988.3	-14361.9	9043.6	-5318.3
1997/98	56118.3	32937.9	-23180.4	5402.6	-17777.8	11054.5	-6723.3
1998/99	59579.0	37251.0	-22328.0	4336.6	-17991.4	11852.4	-6139.0
1999/2000	66272.5	42893.8	-23378.7	5711.7	-17667.0	11812.5	-5854.8
2000/01	79835.1	48893.6	-30941.5	6753.4	-24188.1	12044.0	-12144.1
2001/02	80072.2	50445.5	-29626.7	6686.1	-22940.6	7698.7	-15241.9
2002/03	84006.1	56229.8	-27776.3	11339.1	-16437.2	4546.4	-11890.8
2003/04	84006.1	56229.8	-27776.3	11339.1	-16437.2	4546.4	-11890.8
2004/05	89442.6	62331.0	-27111.6	11283.4	-15828.2	7629.0	-8199.2
2005/06	102560.4	70122.7	-32437.7	14391.2	-18046.5	9266.1	-8780.4
2006/07	110889.2	72282.1	-38607.1	13827.4	-24779.7	8214.3	-16565.4
2007/08	133604.6	87712.1	-45892.5	15800.8	-30091.7	10053.5	-20038.2-
2008/09	161349.9	107622.5	-53727.4	20320.7	-33406.7	8979.9	-24426.8
2009/10	219661.9	143474.5	-76187.4	26382.8	-49804.6	9968.9	-39835.7

Source: Budget Speech of Various Years, MOF, GON

The table shows that the resource Gap (A) has reached to 49804.6 million in F/y 2009/10. Up to F/y 2002/03 the gap trend is fluctuating but afterwards, it has increased rapidly. At the beginning of the study the share of foreign loan was greater than foreign grants, but after F/y 2001/02 the share of grants has been increased and share of loans has been diminished. The overall resource gap is being increased in recent years.

5.2.1 Share of Tax and Non-Tax Revenue in Total Revenue

The composition and magnitude of total revenue as well as tax revenue and non-tax revenue is visualized in the following table and Graph.

Table 5.2

Share of Tax Revenue and non-Tax Revenue in Total Revenue

(Rs. In million)

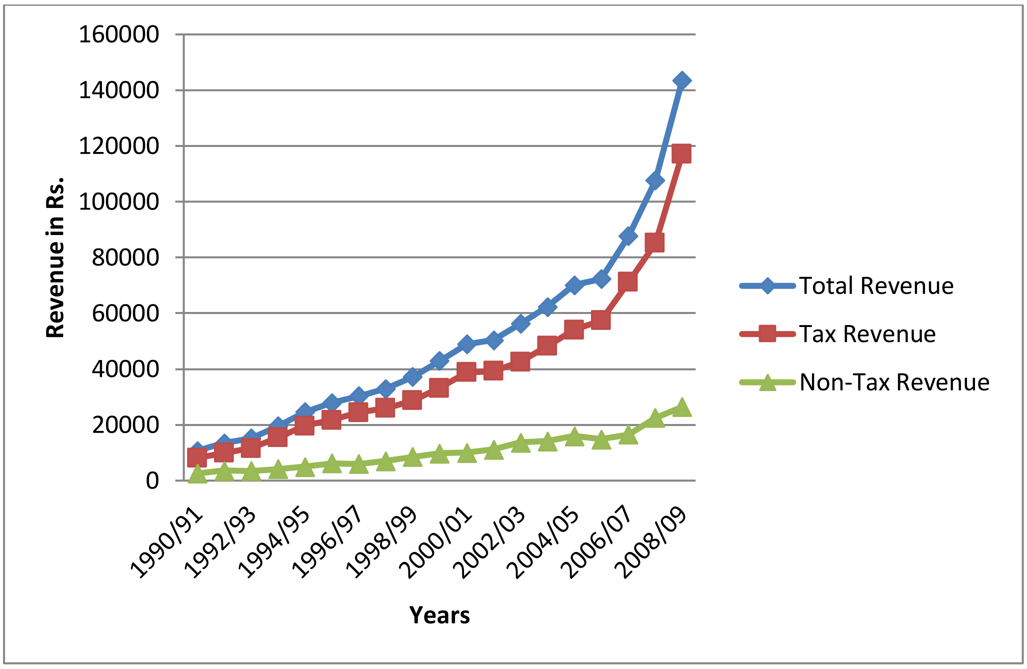
Fiscal Year	Tax Revenue		Non-Tax Revenue		Total Revenue	
	Amount	%	Amount	%	Amount	%
1990/91	8176.4	76.2	2553.5	23.8	10729.9	100
1991/92	9875.6	73.1	3637.1	26.9	13512.7	100
1992/93	11662.5	77.0	3485.9	23.0	15148.4	100
1993/94	15371.4	78.5	4209.4	21.5	19580.8	100
1994/95	19660.0	79.99	4945.2	20.01	24575.2	100
1995/96	21668.0	77.7	6225.1	22.3	27893.1	100
1996/97	24424.3	80.4	5949.2	19.6	30373.5	100
1997/98	25939.8	78.8	6998.1	21.2	32937.9	100
1998/99	28753.0	77.19	8498.0	22.81	37251.0	100
1999/2000	33152.2	77.29	9741.6	22.71	42893.8	100
2000/01	38865.1	79.49	10028.58	20.51	48893.6	100
2001/02	39330.6	78.0	11114.9	22.0	50445.5	100
2002/03	42587.0	75.7	13642.8	22.3	56229.8	100
2003/04	48173.0	77.3	14158.0	22.7	62331.0	100
2004/05	54104.7	77.2	16018.0	22.8	70122.7	100
2005/06	57430.4	79.43	14851.7	20.57	72282.1	100
2006/07	71127.0	81.09	16585.1	18.91	87712.1	100
2007/08	85155.5	79.12	22467.0	20.88	107622.5	100
2008/09	117051.9	81.58	26422.6	18.42	143474.5	100

Source: Economic Survey of Various Years, MOF, GON

This table shows the tax revenue, Non-Tax Revenue and Total Revenue, which is in amount as in percentage since 1990-91 fiscal years to 2008-09.

In this table, in all fiscal year total revenue gradually rises, but in the fiscal year of 2006/07 to 2008/09 total revenue grows fastly compare to above mentioned fiscal year's total revenue.

Figure: 5.1 Composition of Total Revenue



It is clearly known form the above table that the share of tax revenue is more than the share of non tax revenue in every year. In average the tax revenue contribute about 78 percent and 22 percent is contributed by non-tax revenue.

5.2.2 Composition of Tax Revenue

Tax revenue constitutes of two components i.e. direct tax and indirect tax. "Generally the tax on consumption is known as indirect taxes where as taxes on income and capitals are known as direct taxes. Tax structure of any country is composed of both directs well as indirect taxes". (Agrawal: 1978:245)

In Nepalese context indirect tax structure constitute; custom duty, excise duty, sales Tax/VAT etc. Similarly, direct taxes constitute; land tax, Income tax, properly tax vehicle tax etc.

5.2.2.1Structure of Direct Tax

Direct tax is actually paid by the person on whom it is imposed legally. The impact or money burden and the incidence are on the one and same person. The magnitude of direct tax on the economy depends upon the economic development and economic growth, it means as the economic growth increases, per capita income of the country's people automatically raises and the magnitude of direct tax goes up.

The contribution of direct in total tax revenue is lesser than the contribution of indirect tax in Nepal, because of slower economic development. The table 5.3 shows the composition of direct tax to the total GDP, to the total revenue, to the total tax revenue and its percent-based contribution on those above mentioned economic parameters.

Table 5.3
Trend and Composition of Direct Tax Revenue
(Rs. In Million)

Fiscal Years	GDP Amount	Total Revenue Amount	Tax Revenue Amount	Direct TAX			
				Amount	As% of GDP	As % of TR	As% of TTR
1990/91	120370	10729.9	8176.4	1369.7	1.13	12.76	16.75
1991/92	149487	13512.7	9875.6	1595.2	1.06	11.80	16.15
1992/93	171474	15148.4	11662.5	2036.2	1.18	13.44	17.45
1993/94	199272	19580.8	15371.4	2855.3	1.43	14.58	18.57
1994/95	218175	24575.2	19660.0	3849.3	1.76	15.66	19.57
1995/96	248913	27893.1	21668.0	4585.0	1.84	16.43	21.16
1996/97	280513	30373.5	24424.3	5234.0	1.86	17.23	21.42
1997/98	300845	32937.9	25939.8	6013.0	1.99	18.25	23.18
1998/99	342036	37251.0	28753.0	7297.0	2.13	19.58	25.37
1999/2000	379488	42893.8	33152.2	8555.0	2.25	19.94	25.80
2000/01	411275	48893.6	38865.1	10159.4	2.47	20.77	26.14
2001/02	422807	50445.5	39330.6	10597.5	2.50	21.07	26.94
2002/03	456675	56229.8	42587.0	10105.8	2.21	17.97	23.72
2003/04	495589	62331.0	48173.0	11912.6	2.40	19.11	24.72
2004/05	548484	70122.7	54104.7	12265.4	2.23	17.49	22.66
2005/06	611118	72282.1	57430.4	11787.0	2.35	19.92	26.07
2006/07	675484	87712.1	71127.0	16726.8	2.47	19.07	23.51
2007/08	755262	107622.5	85155.5	20147.0	2.66	18.72	23.66
2008/09	910160	143474.5	117051.9	29097.4	3.19	20.28	24.86

Source: Budget Speech of Various Years, MOF, GON

The table 5.3 shows that, the contribution of direct tax to GDP has been increasing in each fiscal year. At the beginning the study the contribution was about 1.13 percent, but towards the end of the study it increased to about 3.19 percent. This increasing trend of direct tax is not somehow satisfactory as it increases very slowly. Similarly direct tax contributes approximately one-fifth to total revenue and one-fourth to the total tax revenue.

5.2.2.2 Structure of Indirect Tax

Indirect tax is imposed on one person but it is paid either partly or wholly by another person. In the case of indirect taxes, the impact and incidence of tax are on different persons. Before the implementation of VAT, sales tax, contract tax, hotel tax, entertainment tax wee indirect taxes, but the VAT came into existence having merged all these four types of taxes in case of Nepal. The contribution of indirect tax has always been very high and significant. The following table shows the contribution of indirect tax to total GDP, to the total revenue, to total tax revenue and its percent based contribution to those above mentioned economic parameters.

Table 5.4
Trend and composition of Indirect Tax Revenue

(Rs. In Million)

Fiscal Year	GDP Amount	Total Revenue Amount	Tax Revenue Amount	Indirect Tax			
				Amount	As % of GDP	As % of TR	As % of TTR
1990/91	120370	10729.9	8176.4	6806.6	5.65	63.43	83.25
1991/92	149487	13512.7	9875.6	8280.4	5.53	61.27	83.85
1992/93	171474	15148.4	11662.5	9626.3	5.61	63.54	82.55
1993/94	199272	19580.8	15371.4	12516.0	6.28	63.91	81.43
1994/95	218175	24575.2	19660.0	15865.0	7.27	64.55	80.43
1995/96	248913	27893.1	21668.0	17083.0	6.86	61.24	78.84
1996/97	280513	30373.5	24424.3	19191.0	6.84	63.18	78.58
1997/98	300845	32937.9	25939.8	19927.0	6.62	60.50	76.82
1998/99	342036	37251.0	28753.0	21456.0	6.27	57.60	74.63
1999/2000	379488	42893.8	33152.2	24597.0	6.48	57.34	74.20
2000/01	411275	48893.6	38865.1	28705.7	6.98	58.71	73.86
2001/02	422807	50445.5	39330.6	28733.1	6.79	56.95	73.06
2002/03	456675	56229.8	42587.0	32481.2	7.11	57.76	76.28
2003/04	495589	62331.0	48173.0	36260.4	7.31	58.17	75.28
2004/05	548484	70122.7	54104.7	41839.3	7.62	59.66	77.34
2005/06	611118	72282.1	57430.4	45643.4	7.47	63.15	79.47
2006/07	675484	87712.1	71127.0	54399.9	8.05	62.02	76.48
2007/08	755262	107622.5	85155.5	65008.5	8.61	60.40	76.34
2008/09	910160	143474.5	117051.9	87954.5	9.66	61.3	75.14

Source: Economic Survey of Various Years, MOF, GON

Budget Speech of Various Years MOF, GON

The table 5.4 shows that the economy is heavily depends upon the indirect tax, which contributes about 5.53 to 9.66 percent of total country's GDP and three-fourth of total tax revenue.

5.2.3 Tax/GDP Ratio

The relationship between total revenue and GDP is known as revenue effort ratio. Similarly, the relationship between tax and GDP is known as a tax effort ration. The tax/GDP ratio is the indicator which shows the utilization of taxable capacity, which depends upon the ability of people to pay or the ability of the government to collect. In Nepal the tax/GDP ratio is very low and it is marginally increasing. The tax/GDP ratio is shown in the following table 5.5.

Table 5.5
Tax/GDP Ratio

(Rs. In million)

Fiscal Year	GDP	Total Revenue	Total Tax Revenue	Tax Effort Ratio
1990/91	120370	10729.9	8176.4	6.8
1991/92	149487	13512.7	9875.6	6.6
1992/93	171474	15148.4	11662.5	6.8
1993/94	199272	19580.8	15371.4	7.7
1994/95	218175	24575.2	19660.0	9.0
1995/96	248913	27893.1	21668.0	8.7
1996/97	280513	30373.5	24424.3	8.7
1997/98	300845	32937.9	25939.8	8.6
1998/99	342036	37251.0	28753.0	8.4
1999/2000	379488	42893.8	33152.2	8.7
2000/01	411275	48893.6	38865.1	9.4
2001/02	422807	50445.5	39330.6	9.3
2002/03	456675	56229.8	42587.0	9.3
2003/04	495589	62331.0	48173.0	9.7
2004/05	548484	70122.7	54104.7	9.8
2005/06	61108	72282.1	57430.4	9.3
2006/07	675484	87712.1	71127.0	10.5
2007/08	755262	107622.5	85155.5	11.3
2008/09	910160	143474.5	117051.9	12.9

Source: Economic Survey of Various Years, MOF, GON

Tax/GDP ratio is increasing each study period. Initially it was 6.8 percent, which increases about 12.9 percent at the end of study period, but the increasing trend is not satisfactory.

5.2.4 Composition of VAT Revenue

Nepalese VAT is of consumption type and method used for deduction is tax credit method. Further VAT is subjected to destination principle, current threshed limit is 2 million and it is subjected to flat rate of 13 percent with zero percent rates on exports. Some selected goods are completely out of VAT net base, basically due to the administrative complexity and equity consideration. More than 60 percent of total VAT revenue comes from import and remaining is from other components.

The biggest virtue of VAT is that it is revenue buoyant and highly instrumental for resource mobilization especially an economy with an acute shortage of resources. VAT has been adopted in Nepalese economy including entertainment tax, hotel tax, contract tax and sales tax, since 1997 and has been established itself as a best instrument of resource mobilization.

5.2.4.1Contribution of Sales Tax/VAT in Total Revenue

It means the portion of sales tax/VAT revenue to the total revenue collected by the government. The share of Sales tax/VAT to total revenue is shown in following table 5.6

Table 5.6
Contribution of Sales Tax/VAT in Total Revenue

(Rs. in Million)

Fiscal Year	Total Revenue	Sales Tax/VAT	% of VAT Revenue in Total Revenue
1990/91	10729.9	2026.1	18.88
1991/92	13512.7	2840.7	21.02
1992/93	15148.4	3438.2	22.69
1993/94	19580.8	4693.1	23.96
1994/95	24575.2	6031.7	24.54
1995/96	27893.1	6431.3	23.05
1996/97	30373.5	7126.5	23.46
1997/98	32937.9	7122.6	21.62
1998/99	37251.0	7882.2	21.15
1999/2000	42893.8	9854.9	22.97
2000/01	48893.6	12382.4	25.32
2001/02	50445.5	12267.3	24.31
2002/03	56229.8	13459.7	23.93
2003/04	62331.0	14478.9	23.22
2004/05	70122.7	18885.4	26.93
2005/06	72282.0	21610.7	29.90
2006/07	87712.2	26095.6	29.75
2007/08	107622.5	29815.7	27.70
2008/09	143474.5	39700.9	27.67

Source: Economic Survey of Various Years, MOF, GON

As indicated in above table 5.6, sales tax revenue was 18.88ss percent of total tax revenue in F/Y 1990/91. It in increased to 27.45 percent in fiscal year 1997/98,but when VAT is introduced the contribution of VAT to total tax revenue increases more rapidly than of sales tax, as with in the period of 9/10 years it has been increased about more than 9 percent. In the F/y 2008/09 the contribution of VAT in total tax revenue is about 27.67 percent.

5.2.4.2 Share of Sales Tax/VAT in Total Tax Revenue

The percentage contribution of Sales tax/VAT revenue in total tax revenue is presented in following Table.

Table 5.7
Share of Sales Tax/VAT in Total Tax Revenue

(Rs. Million)

Fiscal Year	Total Tax Revenue	Sales Tax/VAT	% of VAT Revenue in Total Tax Revenue
1990/91	8176.4	2026.1	24.77
1991/92	9875.6	2840.7	28.76
1992/93	11662.5	3438.2	29.48
1993/94	15371.4	4693.1	30.53
1994/95	19660.0	6031.7	30.68
1995/96	21668.0	6431.3	29.68
1996/97	24424.3	7126.5	29.17
1997/98	25939.8	7122.6	27.45
1998/99	28753.0	7882.2	27.41
1999/2000	33152.2	9854.9	29.72
2000/01	38865.1	12382.4	31.85
2001/02	39330.6	12267.3	31.19
2002/03	42587.0	13459.7	31.60
2003/04	48173.0	14478.9	30.05
2004/05	54104.7	18885.4	34.90
2005/06	57430.4	21610.7	37.62
2006/07	71127.0	26095.6	36.68
2007/08	85155.5	29815.7	35.01
2008/09	117051.9	39700.9	33.92

Source: Economic Survey of various Years, MOF, GON

As indicated in above table 5.7, sales tax revenue was 14.77 percent of total tax revenue in F/y 1990/91. It increased to 27.45 percent in fiscal year 1997/98, but when VAT is introduced the contribution of VAT to total tax revenue increases more rapidly than of sales tax, as with in the period of 9/10 years it has been increased about more than 9 percent. In the F/y 2008/09 the contribution of VAT in total tax revenue is about 33.92percent.

5.2.4.3 Share of Sales Tax/VAT in Total Indirect Tax

The following Table shows the share of Sales tax/VAT in total indirect tax.

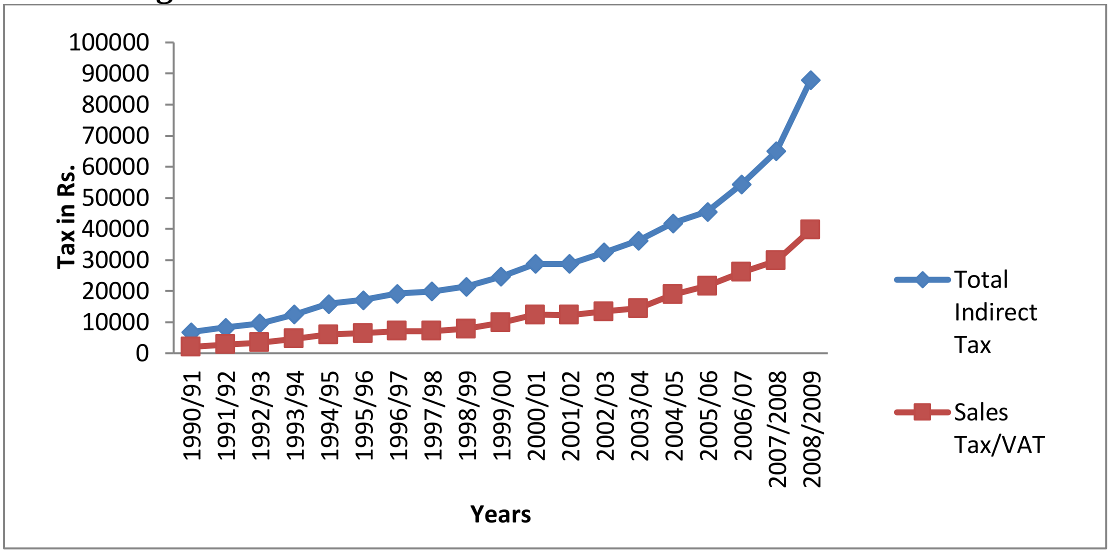
Table 5.8
Share of Sales Tax/VAT in Total Indirect Tax

(Rs in million)

Fiscal Year	Total indirect Tax	Sales Tax/VAT	% of VAT Revenue n Total Indirect Tax
1990/91	6806.6	2026.1	29.76
1991/92	8280.4	2840.7	34.30
1992/93	9626.3	3438.2	35.71
1993/94	12516.0	4693.1	37.49
1994/95	15865.0	6031.7	38.01
1995/96	17083.0	6431.3	37.64
1996/97	19191.0	7126.5	37.13
1997/98	19927.0	7122.6	35.74
1998/99	21456.0	7882.2	36.73
1999/2000	24597.0	9854.9	40.06
2000/01	28705.7	12382.4	43.13
2001/02	28733.1	12267.3	42.69
2002/03	32481.2	13459.7	41.43
2003/04	36260.4	14478.9	39.93
2004/05	41839.3	18885.4	45.13
2005/06	45563.8	21610.7	47.42
2006/07	54399.9	26095.6	47.97
2007/08	65008.5	29815.7	45.86
2008/09	87954.5	39700.9	45.14

Source: Economic Survey of Various Years, MOF, GON

Figure: 5.2 Shares of Sales tax/ VAT in Total Indirect Tax



According to figure provided in table 5.8 the contribution of sales tax/VAT in total indirect tax is reasonable as the increasing trend is satisfactory.

5.2.4.4 Share of Sales Tax/VAT in Total GDP

As shown in Table 5.9, the share of sales tax in total GDP is 1.68 in the year 1990/91 and the VAT is 2.36 in the FY 1997/98. It is slightly increasing and reaches up to 4.36 in the year 2008/09.

Table5. 9
Share of Sales Tax/VAT in Total GDP

(Rs in Million)

Fiscal Year	GDP	Sales Tax/VAT Revenue	% of VAT Revenue in total GDP
1990/91	120370	2026.1	1.68
1991/92	149487	2840.7	1.90
1992/93	171474	3438.2	2.00
1993/94	199272	4693.1	2.35
1994/95	218175	6031.7	2.76
1995/96	248913	6431.3	2.58
1996/97	280513	7126.5	2.54
1997/98	300845	7122.6	2.36
1998/99	342036	7882.2	2.30
1999/2000	379488	9854.9	2.59
2000/01	411275	12382.4	3.01
2001/02	422807	12267.3	2.90
2002/03	456675	13459.7	2.94
2003/04	495589	14478.9	2.92
2004/05	548484	18885.4	3.44
2005/06	611118	21610.7	3.53
2006/07	675859	26095.6	3.86
2007/08	755262	29815.7	3.95
2008/09	910160	39700.9	4.36

Source: Economic Survey of Various Years MOF, GON / Budget Speech of Various Years MOF, GON

5.2.5 The Structure of VAT Revenue

The revenue collection from VAT can be divided into two major components as domestic and imports. The following table shows the trend in composition of VAT revenue.

Table 5.10
Structure of VAT Revenue

(Rs. in Million)

Fiscal Year	Total VAT	Domestic Product		Imports	
		Amount	%	Amount	%
1997/98	7122.6	2100.9	29.49	5021.7	70.51
1998/99	7882.2	2812.7	35.68	5069.5	64.32
1999/2000	9854.9	3725.7	37.80	6129.2	62.20
2000/01	12382.4	4744.7	38.31	7637.7	61.69
2001/02	12267.3	4609.07	37.57	7658.23	62.43
2002/03	13459.7	4831.1	35.89	8628.6	64.11
2003/04	14478.9	5604.1	38.70	8874.8	61.30
2004/05	18885.7	6614.9	35.02	12270.5	64.98
2005/06	21613.043	8150.502	37.71	13462.541	62.29
2006/07	26095.599	9631.330	36.91	16464.269	63.09
2007/08	29815.703	10808.241	36.25	19007.462	63.75
2008/09	39700.921	13918.493	35.06	25782.428	64.94
2009/10	54920.856	20379.831	37.11	34541.025	62.89

Source: Annual Report of IRD, 2009/10

The above table shows that about one third of total VAT revenue comes through domestic product and two third from imports. Thus, we can say that our VAT revenue is highly depends upon the import. But for the healthy economic development in this era of globalization we should have more domestic VAT revenue.

5.2.5.1 The Status of Revenue Collection of Inland Revenue Department

The tax revenue collected by IRD in FY 2009/10 under different headings is depicted in table 5.11.

Table 5.11

The Status of Revenue Collection of Inland Revenue Department (in FY 2009/10)

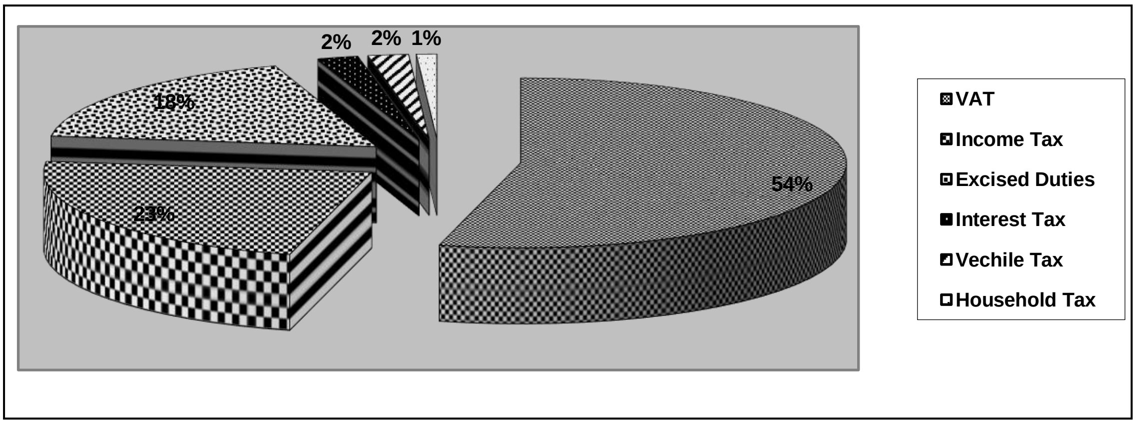
(Rs in million)

Types of revenue	Target	Actual	Percentage
Tax revenue	150245.640	156294.922	104%
Direct tax	45798.0	41750.183	91%
Income tax	32909.3	30457.895	93%
Household tax	1359.6	897.042	66%
Interest tax	2029.1	2466.39	122%
Indirect tax	104447.64	114544.749	110%
Vat	51560.0	54920.856	107%
Excise duties	18641.9	24306.107	130%
Non- tax	28967.41	23650.898	82%
Total tax revenue	179213.05	179945.820	100%

Source: Inland Revenue Department, 2009/10.

Figure 5.3

The status of revenue collection of IRD (FY 2009/10) in Pie Chart



The given diagram 5.3 shows the revenue contributed from five different sources of tax revenue. Out of total revenue more than 47 % is covered by VAT. And the second largest revenue is collected is collected from income tax which has got the share of 29% in total. Excise duty has also contributed slightly lesser than income tax i.e. 21% but interest tax have got the equal share of contribution where as the least contribution of 2% is made by household i.e. 1%.

5.2.5.2 VAT collection (Domestic only) in Fiscal Year 2009/10

VAT collection from domestic activity talks about the income of Govt. through VAT. The percentage contribution of different sub headings under the domestic economic activity to the total domestic VAT collection is shown in table 5.12

Table 5.12
VAT Collection (Domestic Only)

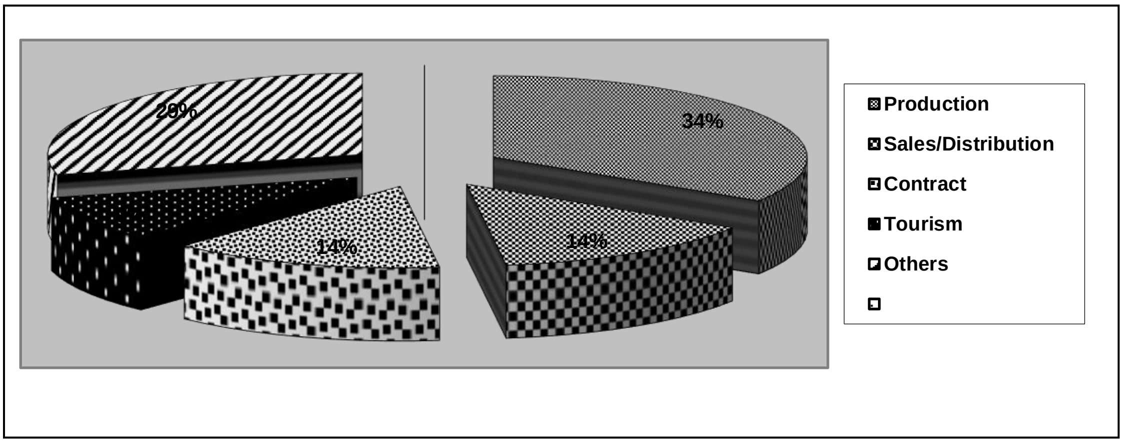
(Rs. in Million)

Headings	Amount	Growth Percentage
production	6016.115	31.50%
sales/distribution	3299.2	17.28%
contract	2192.454	11.48%
tourism	938.855	4.92%
others	6649.862	34.82%
Total	19096.486	100%

Source: Inland revenue Department 2009/10

Figure 5.4

VAT collection (Domestic only) in FY 2009/10 in pie chart



The above figure 5.4 reveals the share of contribution to total domestic VAT revenue. In the figure, five different sources have their own percentage value. The greater portion of VAT is collected from others activity where as least contribution is made by tourism industry and its share is 4.92%. Sales and contract have got equal lot i.e. 17.28% but second biggest contribution made by is production activity. In conclusion production sector has prominent role in VAT revenue collection and it should be increased.

5.2.5.3VAT Registered Tax Payers

All the tax payers of production, import, wholesale and retail level whose transaction is above the threshold and whose do the transaction of VAT imposed goods and services, are compulsorily required to register in VAT. The number of registrants was 2045 at the time of introduction of VAT in 1997, but in F/y 2009/10 the number of registrants reaches to 82433. The trend of VAT registration is shown in following table 5.13

Table 5.13

The Trend of VAT Registration

S.N.	Fiscal Year	VAT Registrant	Percentage Increment
1.	2001/02	25149	-
2.	2002/03	29872	18%
3.	2003/04	31174	14%
4.	2004/05	39776	16%
5.	2005/06	46831	18%
6.	2006/07	52965	13%
7.	2007/08	59775	12.86%
8.	2008/09	69653	16.53%
9.	2009/10	82433	18.35%

Source: Annual Report of IRD, 2009/10.

5.2.6 Prospects for Revenue Mobilization

5.2.6.1 Existing Situation on Revenue Mobilization

VAT is desired to achieve the goals of neutrality, revenue productivity, fairness and transparency etc. It is modern and effective tax system which checks the loopholes, such as under valuation, non- recording and unauthorized trade. It discourages such issues and problems existing in the sales tax system. That's why VAT is considered to be the best fiscal tool for revenue mobilization, especially in an economy with acute shortage of resources.

As Nepal is a member of the WTO network, the collection of custom revenue as a major source of revenue is low.

On the other hand, there is less possibility of collecting huge amount of income tax because of low per capita income of the Nepalese people; therefore VAT is only one alternate. Because of all these factors Nepal has already adopted broad based consumption type VAT, using tax credit method. Despite the preliminary resistance, VAT is currently well received by customers as well as the business and industrial communities. There has been made a progress in revenue mobilization .The following table 5.14 provides the glimpse of Nepalese structure of taxation and contribution of VAT in revenue mobilization.

Table No 5.14

Structure of Nepalese Taxation and Contribution of VAT in Revenue Mobilization

(Rs in million) **F/Y**	**Total Revenue**	**Total Tax Revenue**	**Total Non-tax Revenue**	**Direct Tax**	**Indirect Tax**	**VAT Revenue**	**% increase in VAT**	**% share of VAT in TR**	**% share of VAT in TTR**	**% share of VAT in TIT**
1997/98	32937.9	25939.8	6998.1	6013.0	19927.0	7122.6	-0.05	21.62	27.45	35.74
1998/99	37251.0	28753.0	8498.0	7297.0	21456.0	7882.2	10.63	21.15	27.41	36.73
1999/00	42893.8	33152.2	9741.6	8555.0	24597.0	9854.9	25.0	22.97	29.72	40.06
2000/01	48893.6	38865.1	10028.5	10159.4	28705.7	12382.4	25.6	25.32	31.85	43.13
2001/02	50445.5	39330.6	11114.9	10597.5	28733.1	12267.3	-0.93	24.31	31.19	42.69
2002/03	56229.8	42587.0	13642.8	10105.8	32481.2	13459.7	9.7	23.93	31.60	41.43
2003/04	62331.0	48173.0	14158.0	11912.6	36260.4	14478.9	7.6	23.22	30.05	39.93
2004/05	70122.7	54104.7	16018.0	12265.4	41839	18885.4	30.4	26.93	34.90	45.13
2005/06	72282.1	57430.4	14851.7	14399.6	45563	21610.7	14.4	29.93	37.62	47.42
2006/07	87712.1	71157.0	16585.1	16727.0	52146	26095.6	20.7	29.75	36.38	50.04
2007/08	107622.5	85155.5	22467.0	20147.0	65008.5	29815.703	14.26	27.70	35.01	45.86
2008/09	143474.5	117051.9	26422.6	29097.4	87954.5	39700.921	33.15	27.67	33.92	45.14

Source: Budget Speech of Various Years, MOF, GON, According to the table 5.14, in the initial period of VAT implementation, i.e. in Fy 1997/98, total collected VAT revenue was Rs. 7122.6 million. Due to the lack of proper cooperation of private sector, and because of misunderstanding about VAT, the percentage increased in VAT in comparison of previous fiscal year remained negative. However the share of VAT in total revenue, total tax revenue and total indirect tax remained 21.62, 27.45 and 35.74 percentage respectively. In Fy1998/99, 1999/2000and 2000/01 the VAT revenue increases by 10.63, 25.0 and 25.6 percent respectively but in fiscal year 2001/02 it decreases by 0.93 percent, However, the increment in VAT revenue thereafter remained 9.7, 7.6, 30.4, 14.4, 20.7 in following fiscal years respectively. The share of VAT revenue in total revenue, total tax revenue and total indirect tax in Fy 2008/09 remained 27.67, 33.92 and 45.14 percent respectively.

From above analysis, we can conclude that VAT has been playing a significant role in revenue mobilization .The contribution of VAT revenue in total revenue, total tax revenue and total indirect tax is in increasing trend and there is significant progress in Revenue mobilization.

5.3 Trend and Correlation Analysis of VAT

The analysis with the help of statistical tool is performed in this part taking 10 years data (2000/01 to 2009/10) includes the following statistical tools.

Trend analysis

Coefficient of Correlation

5.3.1 Trend Analysis (To Estimate the Trends in Composition of VAT Revenue)

Under this topic effort has been made to analyze trends in composition of VAT in Nepal. On the basis of 10 years of data, the revenue amount of VAT from domestic product and import has been forecasted.

Here, in case of this study, each domestic VAT and import VAT at a time is considered as the main variable and denoted by y, x is 't' base year, here all the years are denoted by t. The following table shows the trend values of domestic product VAT and import VAT from FY 2000/01 to 2009/10.

Table No. 5.15
Trend Value of Domestic Product VAT and Import VAT

Year (t)	Yc = a + bx (trend value of domestic product VAT)	Yc = a +bx (Trend value of import VAT)
2000/01	2127.817	3300.355
2001/02	3639.242	5996.445
2002/03	5150.667	8692.535
2003/04	6662.0915	11388.625
2004/05	8173.517	14084.715
2005/06	9684.942	16780.805
2006/07	11196.367	1476.85
2007/08	12707.792	22172.985
2008/09	14219.217	24869.075
2009/10	6801.413	27565.165

Source: Appendix 1 and 2.

Therefore by the help of trend analysis we find the value of domestic product VAT and import VAT for past ten years. By adopting same formula of trend we can get the future trend value of domestic product and import product VAT which will reflect the trends in composition of VAT. Following table reveals the trend value of domestic and import VAT for next 8 years.

Table No. 5.16
Trend of Domestic Product VAT Revenue and Import VAT Revenue for Next 8 Years

(Rs. in million)

FY	Trend value of domestic product VAT	Trend value of import VAT	Total VAT*	% share of domestic product VAT on total VAT	% share of import VAT on total VAT
2010/11	17242.067	30261.255	47503.322	36.30	63.70
2011/12	18753.49	32957.345	51710.835	36.27	63.73
2012/13	20264.99	35653.435	55918.425	36.24	63.76
2013/14	21776.34	38349.525	60125.865	36.22	63.78
2014/15	23287.77	41045.615	64333.385	36.20	63.80
2015/16	24799.19	43741.705	68540.895	36.18	63.82
2016/17	27822.04	49133.885	76955.925	36.15	63.85

Source: Appendix No. 1 and 2.

* = Obtained by addition of Column 2 and 3.

From the above computation we can conclude that both total VAT revenue and its composition component are in increasing trend, however, share of revenue from domestic product in total VAT is continuously increasing, in contrary the share of VAT revenue from import is continuously decreasing in total VAT revenue.

In the above table we can see that the trend value of total VAT revenue is Rs. 47503.322 million which has been calculated by adding domestic trend value and import trend value. The contribution of domestic VAT revenue in total VAT revenue is 36.30% where the contribution of import is 63.70%. The share of import in total VAT revenue is continuously decreasing and in Fy 2017/18 it is estimated to be 63.83% where share of revenue from domestic product will be 36.17%.

5.3.2 Correlation Analysis

The coefficient of correlation 'r' deals with the statistical technique which measures the degree of relationship or association between the variables. To fulfill the purpose of this study, this statistical tool has been used. This analysis will reflect the relationship between VAT and total revenue, VAT and total tax revenue and VAT and total indirect tax revenue to show the contribution of VAT in this particular term.

Under this chapter, Karl Pearson's correlation coefficient 'r' is used to find out the relationship among these mentioned variable. The value of coefficient of correlation is calculated in between –1 to +1. The negative value of 'r' signifies negative relationship between the variables i.e., increase in one variable, causes decrease in another and vice-versa.

5.3.2.1 Correlation between VAT and Total Revenue

The coefficient of correlation 'r' between VAT and total revenue measures the degree and relationships between these two variables. The purpose of computing coefficient of correlation between VAT and total revenue is to find out whether VAT is significantly contributed in total revenue or not.

To find out the Karl Pearson's correlation 'r' between VAT and total revenue, VAT (y) is assumed to be independent variable and total revenue (x) is assumed to be dependent variable. The assumption is made that total revenue will decrease or increase as increase or decrease in VAT. The correlation between VAT and total revenue is shown in the appendix No. 3. The value of r is calculated in between –1 and +1. The negative value of r" signifies the opposite relationship between the variable i.e. increase in VAT will lead decrease in total revenue and vice-versa. While positive value of 'r' shows the positive/similar relationship between the variables. The value of r, r^2, PEr and 6PEr between VAT and total revenue is given below:

r = 0.99

r^2 = 0.98

PEr = 0.00424

6PEr = 0.025422

From the above value of r', r2, PEr and 6PEr, it is found that the coefficient of correlation 'r' between VAT and total revenue is 0.99. This shows the highly negative relationship between VAT and total revenue. The value of coefficient determination $r^2 = 0.98$. It means that there will be the variation in total revenue 2% due to VAT and remaining 98% by other factors, moreover r is higher than the probable error (6PEr) . Therefore the value of r is not significant. It can be concluded that there is significant relationship between VAT and total revenue. In another words, VAT has contributed a significant amount in total revenue of Nepal.

5.3.2.2 Correlation between VAT and Total Tax Revenue

To identify the impact and contribution of VAT in total tax revenue, correlation between these two variables should be calculated. To find out the Karl Pearson's coefficient of correlation 'r' between VAT and total tax revenue, VAT (y) is assumed as independent variable and total tax revenue (x) is taken as a dependent variable. The correlation between VAT and total tax revenue is shown in appendix No. 4. The value of r is calculated between +1 to –1. The negative value of r signifies the opposite relationship between the variables and vice-versa.

$r = 0.99$

$r^2 = 0.9801$

PEr = 0.00424

6PEr = 0.025422

Here, the coefficient of correlation between VAT and total tax revenue is 0.99. It seems to be near -1. This shows that there is positive relationship between VAT and total tax revenue. The value of coefficient determination (r^2) is equal to 0.9801 which implies that there will be the variation in total revenue 0.0199% due to VAT and remaining due to by other factor. And 'r' is higher than 6PE so that it can be made conclusion that the value of r is significant. VAT has contribution on total tax revenue.

5.3.2.3 Correlation between VAT and Total Indirect Tax

Correlation between VAT and total indirect tax reflects the contribution of value added tax on total indirect tax. The value of correlation coefficient along with other necessary instrument of correlation shown in the appendix No. 5

The following are the respective value of :

r = 0.99

r^2 = 0.9801

PEr = 0.00424

6PEr = 0.025422

Here, the coefficient of correlation between total indirect tax and VAT is 0.99, which is near to +1. Then it shows the positive relationship and if VAT increases total indirect tax will also increase. The value of coefficient of determination is r^2 = 0.9801, it means that there will be the variation of 98.01% in total indirect tax due to VAT and remaining is due to other factors. However, the value of 6PEr is less than r so value of r is significant. It can be said that VAT has major contribution on total indirect tax.

5.3.3 Conclusion of Trend and Correlation Analysis of VAT

Through the analysis of time series, we can conclude that there will be higher potentiality in VAT revenue. So government must pay higher attention in VAT for effective resource mobilization. After analyzing the coefficient of correlation between VAT and total revenue, VAT and total tax revenue and VAT and indirect tax, we can conclude that VAT has contributed a significant percentage in total revenue, total tax revenue and total indirect tax. Because they have higher positive relationship (near about one) similarly, there is more than 90% variation due to VAT in total revenue, total tax revenue and total indirect tax revenue. And all these relationship are significant as r > 6PEr everywhere. So VAT has significant contribution in government revenue. And all these relationship are significant as r > 6PEr everywhere. So VAT has significant contribution in government revenue.

5.4 The major findings

On the basis of previous chapter and data presentation and analysis some important findings can be drawn. The major findings are viewed below.

i. VAT is an advance form of sales tax. it has been spread all over the world within a short span of time. It has gain huge popularity that any tax had gained earlier in the history of taxation in such a short period.
ii. From the study, it is found that, there are lots of the traders, businessmen and general public do not have any clear idea about VAT and its aspects. They have been facing many problems such as pricing problems, main training account problem and more over billing problem. Businessmen and traders are not encouraged by the government and tax administration.
iii. Non-registration of business is no problematic most businessmen above the threshold level have now registered. The implementation of problem of registration, collection, tax refund and miscellaneous.
iv. There has been a notable increase in the number of registration. During the year 2001/02 the total number of registrants was 25149 while in the fiscal year 2009/10 the total number of registrants was 82499.
v. In my research work, I found that percent of indirect tax to GDP fluctuates from 5.53% to 9.66% and then indirect tax and total revenue fluctuates from 57.34% to 63.43% and then indirect tax and T.T.R goes to 73.06% to 83.25%.
vi. Tax effort ratio (tax/GDP ratio) lies between 6.58% to 12.4%.
vii. Contribution of Vat is 18.88% to 27.67% of Total Revenue.

viii. Contribution of Vat is 24.77% to 33.92% of Total Tax Revenue.

ix. Contribution of Vat is 29.76% to 45.14% of Total indirect Tax.

x. VAT comes from domestic product is 29.49% to 37.39% and from import is 61.69% to 70.51%.

xi. The status of Revenue collection of IRD of in FY 2009/10 shows target of Total Revenue, Interest Tax, Indirect Tax, VAT, Excise duties, Total Tax Revenue got achieve more than 100% and especially about VAT was got 107% of its target.

And Direct Tax, Income Tax, Household Tax and Non Tax was not got their target nearly but these are not in very poor condition.

xii. Domestic collection of VAT was grown 37% in FY 2009/10.

xiii. Percentage share of Domestic product VAT Revenue and Import VAT Revenue on total VAT revenue of FY 2016/17 will get 36.15% and 63.85% respectively.

xiv. In the implementation of VAT in Nepal many problems arise which are as challenges in application of VAT. Narrow tax base, weak public conscious level, improved tax administration, political instability, geographical barriers, open boarder and unauthorized trade exist as problems in the implementation of VAT in Nepal.

CHAPTER VI

SUMMARY, CONCLUSION AND RECOMMENDATION

6.1 Summary

VAT is most recent innovation in the field of taxation system. VAT is tax based on goods and services. The base of VAT is the value addition that takes place during process of production and distribution. Since this tax is based on consumption the burden of this tax has to be borne by the consumer. VAT is based on self- assessment system. Under the self assessment system a taxpayer is required to keep a proper account of his all business transaction. Therefore, the returns files by the taxpayers by assessing their tax liability have to be accepted by the tax administration not only in principle but also in practice. VAT has done away with administrative procedures such as taking approval of price for purpose of sales tax, submission of annual statement of accounts tax assessment by the tax officers stamping of invoices, submission of invoices to the tax office along with the tax returns etc.

VAT is transparent tax system that is based on taxpayer's transaction. VAT is not only transparent in itself but also demands transparency in other tax system as well unless even such an environment is created ,VAT can not be implemented effectively. In order to make VAT effective, it is essential to create an environment in which invoice are issued properly, accounts are maintained accurately ,tax is based on transaction, there is acceptance of the taxpayers correct account and competition among industrialist and businessman is established with respect to tax. Until and unless such situation is not created, VAT implementation will not be easy and pressure will be created in some or another way.

Comparing VAT with other forms of Tax it is so far superior on many grounds Such as economic efficiency, revenue productivity and administrative simplicity. However retail level and wholesale level both will generate equal revenue with similar coverage and rates if VAT can be implemented effectively along with Its different provisions like exemption, threshold, Zero-rating. Avoidance of pyramiding and cascading effects and providing cross auditing, Self policing and catch up effects are the most favorable features of VAT which make it superior even than retails sales tax. VAT has crossed its tenth years of implementation. At the beginning of its implementation the political instability and frequent change in government, VAT could not fully implemented where the tax awareness is minimal, improper tax accounting system, smuggling, under valuation etc tax leakages take place.

Nepalese VAT is a consumption type and method used for calculation is tax credit method. The VAT is subjected to destination principle, the current threshold limit is two million and it is subject to flat rate of 13 percent with zero percent rates on exports. Some special selected goods are totally out off VAT net, basically due to the administrative complexity and equity consideration.

The overview of Nepalese VAT system shows that VAT contributes about 4 percent to total GDP, about 30 percent to total revenue, about 37 percent to total tax revenue, and about 50 percent to total indirect tax. VAT a premier indirect tax to Nepalese tax Structure is composed of two components: domestic and import. About 63% of VAT revenue is generated from import and rest is generated by domestic product. The number of VAT registrants has been increasing gradually and it reaches 82423 in FY 2009/10.

Naturally, to introduce new system replacing old one would be surrounded by many complications and opposition, even if the new one is improved one. Because of many other reasons before introduce any new system it will be better if it is implemented after adequate preparation, and the implementation of VAT does not seem effective in Nepal till now as the gap between the potential and actual VAT is large and widening every year. Lack of proper practice of invoicing, the inefficiency of tax authorities, lack of conscious consumer, effective implementation of threshold, Lack of co- ordination between custom and VAT offices, corruption, lack of transparency are the threat for effective implementation of VAT. Due to lack of expert manpower, administrative difficulties, poor auditing system are creating negative impact on VAT. Very low level of public consciousness not issuing proper bills is other problems faced by the Nepalese government in the process of VAT implementation. It is expected that after the implementation of VAT, problems of tax evasion, undervaluation will be automatically abolished as it is transparent and all transactions would be recorded in computer.

If the agriculture is brought under VAT net and if the provision of zero rates is removed than adequate revenue could be mobilized through VAT which helps for economy and the Nepal could be independent for development activities.

6.2 Conclusion

Value added tax puts greater significance in revenue mobilization in Nepal. Generating revenue means collecting taxes. There are various forms of tax system in Nepal. The decision to introduce VAT seems to be best for the country.

Introducing of VAT in Nepal is both compulsion and necessity. It can not curtail its development projects for which more revenue required. The narrow tax base of the previous sales tax failed to generate the minimum required amount because it included only the import and manufacturing unit. Income tax however has some potentiality for revenue generation; the rates of income tax are slowly increasing because the Nepalese per capital income is very low. As Nepal has entered in to the WTO, shall need to reduce the custom duties drastically so the only one alternate is the introduction of VAT.

VAT was introduced in Nepal as the part of the national tax reform. VAT is supposed to be moving toward its goal. The biggest virtue of VAT is that it is revenue buoyant and highly instrumental for revenue mobilization especially in an economy with acute shortage of resources.

The trend of overall revenue in Nepal shows the continuous increase over the period as well the resource gap of the government seems to be increasing terribly. The share of tax revenue is significantly higher 81.10 percent of total revenue as against the non tax revenue 18.90 percent of total revenue in fiscal year 2009/10. The share of indirect Tax is always dominant from the very beginning. At present the share of direct tax and indirect tax are 23.50 percent and 76.50 percent of total tax revenue respectively. Indirect tax is composed of custom duty, excise duty, Sales tax/VAT etc. But among them the share of VAT is more. In FY 2009/10 it contributes 50.04 percent of total indirect tax.

Through the analysis of time series, we can conclude that there will be higher potentiality in VAT revenue. So government must pay higher attention in VAT for effective resource mobilization. After analyzing the coefficient of correlation between VAT and total revenue, VAT and total tax revenue and VAT and indirect tax revenue, we can conclude that VAT has contributed a significant percentage in total revenue, total tax revenue and total indirect tax revenue because they have higher positive relationship (near about one). Similarly, there is more than 90% variation due to VAT in total revenue, total tax revenue and total indirect tax revenue. And all these relationship are significant as r > 6PEr everywhere. So VAT has significant contribution in government revenue. And all these relationship are significant as r > 6PEr everywhere. So VAT has significant contribution in government revenue.

It can not be concluded that the revenue collection trend is satisfactory, through VAT in Nepal as it is found that the percentage of VAT on Total GDP is almost constant. The single positive rate of 13 percent should be changed into multiple rates to collect more revenue. Further the successful implementation depends on the strong, fair, capable administration.

Thus, VAT can be entrenched as an integral part of the Nepalese tax structure in the long run if the issues mentioned above are taken seriously and solved accordingly.

6.3 Recommendation

Nepal has implemented VAT since 1997. VAT act, rules and regulations have been setup in the line of international standard. Since the implementation of VAT is a great jump from the traditional tax system to a modern one, several things are still lacking to be done for the successful implementation of VAT in Nepal. The following recommendations have been made to make VAT effective and more efficient.

- There should be close cooperation between the private sector and government sectors for the successful implantation of VAT system.
- VAT collection from import is remarkably higher than domestic production; such high dependency on import is not good therefore the government should take an effective step to encourage domestic production.
- Special incentives should be provided to small business person to increase registration trend.
- A restorable threshold limit should be maintained and exemption and zero rating in VAT system must be avoided from tax act.
- VAT training programs especially for small traders, who have no knowledge about accounting system, invoice and reporting system as well as personnel should be kept at the top most priority.
- The tax administration should be very watchful to prevent any kind of fraud and the evasion.
- Border should be effectively controlled to prevent illegal trade.

- Most of the national economic activities are dependent upon agriculture and large portion of GDP originating from agricultural sector remains out of tax net thus VAT should be levied on agriculture sector.
- The government should published tax related information regularly through
  Radio, Television, Magazines, Newspapers, journals etc.
- Tax system can be rationalized by lowering the tax rates and extension of tax base.
- Providing various facilities to VAT registrants can increase VAT compliance .The tax administration should reward the genuine man and punish the fraud businessman.
- Focus should be given on transparency and accountability.

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Appendix-1

Trend Value of Domestic Product of VAT

2000/01 – 2009/10

Year (t)	**Domestic product (y)**	**x = t - 2005.5**	x^2	**xy**	$y_c = a + bx$
2000/01	4744.7	-4.5	20.25	-21351.15	8929.229+1511.425x (-4.5) = 2127.817
2001/02	4609.07	-3.5	12.25	-16131.745	8929.229+1511.425x(-3.5)= 3639.242
2002/03	4831.1	-2.5	6.25	-12077.75	8929.229+1511.425x (-2.5) =5150.667
2003/04	5604.1	-1.5	2.25	-8406.15	8929.229+1511.425x (-1.5) =6662.0915
2004/05	6614.9	-0.5	0.25	-3307.45	8929.229+1511.425x (-0.5) =8173.517
2005/06	8150.502	0.5	0.25	4075.251	8929.229+1511.425x (0.5) =9684.942
2006/07	9631.330	1.5	2.25	14446.995	8929.229+1511.425x (1.5) =11196.367
2007/08	10808.241	2.5	6.25	27020.603	8929.229+1511.425x (2.5) =12707.792
2008/09	13918.493	3.5	12.25	48714.723	8929.229+1511.425x (3.5) =14219.217
2009/10	20379.831	4.5	20.25	91709.24	8929.229+1511.425x (4.5) =6801.413
	$\sum y$ = 89292.267	$\sum x = 0$	$\sum x^2$ =82.5	$\sum xy$ = 124692.567	

Here, the trend line is supposed to be:

yc = a + bx

Where,

y = Dependent variable

x = Derivation from source convenient time periods

b = Slope of trend line

a = y-intercept

And,

$$a = \frac{\sum y}{n} = \frac{89292.267}{10} \quad b = \frac{\sum xy}{\sum x^2} = \frac{124692.567}{82.5}$$

$$= 8929.227 \quad = 1511.425$$

Then, we can easily compute the trend value for each year by putting appropriate amount in the formula. The value of x is computed in the table.

Estimated trend value of domestic product VAT 2010/11 – 2017/18

Year (t)	x = t – 2005.5	y_c = a + bx
2010/11	5.5	8929.229+1511.425x (5.5) =17242.067
2011/12	6.5	8929.229+1511.425x (6.5) =18753.49
2012/13	7.5	8929.229+1511.425x (7.5) =20264.99
2013/14	8.5	8929.229+1511.425x (8.5) =21776.34
2014/15	9.5	8929.229+1511.425x (9.5) =23287.77
2015/16	10.5	8929.229+1511.425x (10.5) =24799.19
2016/17	11.5	8929.229+1511.425x (11.5) =26310.62
2017/18	12.5	8929.229+1511.425x (4.5) =27822.04

Appenedix-2

Trend Value of Import on VAT

Fy	Import (y)	**x = t - 2005.5**	**x^2**	Xy	yc = a +bx
2000/01	7637.7	-4.5	20.25	-34369.65	15432.76+2696.09 x(-4.5) =3300.355
2001/02	7658.2	-3.5	12.25	-26803.7	15432.76+2696.09 x(-3.5) = 5996.445
2002/03	8628.6	-2.5	6.25	-21571.5	15432.76+2696.09 x(-2.5) = 8692.535
2003/04	8874.8	-1.5	2.25	-13312.2	15432.76+2696.09 x(-1.5) = 11388.625
2004/05	12270.5	-0.5	0.25	-6135.25	15432.76+2696.09 x(-0.5) = 14084.715
2005/06	13462.5	0.5	0.25	6731.25	15432.76+2696.09 x(0.5) = 16780.805
2006/07	16464.3	1.5	2.25	24696.45	15432.76+2696.09 x(1.5) = 1476.85
2007/08	19007.5	2.5	6.25	47518.75	15432.76+2696.09 x(2.5) = 22172.985
2008/09	25782.4	3.5	12.25	90238.4	15432.76+2696.09 x(3.5) = 24869.075
2009/10	34541.1	4.5	20.25	155434.95	15432.76+2696.09 x(4.5) = 27565.165
	$\sum y$ =154327.6	$\sum x = 0$	$\sum x^2$ =82.5	$\sum xy$ = 222427.5	

Estimated Trend Value of Import

2010/11 – 2017/18

Year (t)	x = t – 2005.5	y_c = a + bx
2010/11	5.5	15432.76 +2696.09x 5.5 = 30261.255
2011/12	6.5	15432.76 +2696.09x 6.5 = 32957.345
2012/13	7.5	15432.76 +2696.09x 7.5 = 35653.435
2013/14	8.5	15432.76 +2696.09x 8.5 = 38349.525
2014/15	9.5	15432.76 +2696.09x 9.5 = 41045.615
2015/16	10.5	15432.76 +2696.09x 10.5 = 43741.705
2016/17	11.5	15432.76 +2696.09x 11.5 = 46437.795
2017/18	12.5	15432.76 +2696.09x 12.5 = 49133.885

So, here to identify the trend line, least square method of time series analysis has been used, as per the formula of trend line:

Where, $a = \frac{\sum y}{n} = \frac{154327.6}{10} = 15432.76$

$b = \frac{\sum xy}{\sum x^2} = \frac{222427.5}{82.5} = 2696.09$

Then, can easily compute the value of trend for each year by putting appropriate value for each which has been done in the above table.

Appendix-3

Calculation of Correlation Coefficient between VAT and Total Revenue

Fy	Total revenue (x)	dx = x – 62331	dx^2	VAT (y)	dy = y –14478.9	dy^2	dx.dy.
1999/00	42893.8	-19473.2	377804743.8	9854.9	-4624	21381376.0	89877612.8
2000/01	48893.6	-13473.4	180563718.8	12382.4	-2096.5	4395312.25	28171509.1
2001/02	50445.5	-11885.5	141265110.3	12267.3	-2211.6	4891174.56	26285971.8
2002/03	56229.8	-6101.2	37224641.4	13459.7	-1019.2	1038768.64	6218343.04
2003/04	62331	0.0	0.0	14478.9	0.0	0.0	0.0
2004/05	70122.8	7791.8	60712147.2	18885.4	4406.5	19417242.25	34334566.7
2005/06	72282.08	9951.08	99023993.2	21610.7	7131.8	50862571.24	70969112.3
2006/07	87712.1	25381.1	644200237.2	26095.6	11616.7	134947718.9	294844624.4
2007/08	107622.5	45291.5	2051319972	29815.7	15336.8	235217434.2	694626677.2
2008/09	143474.5	81143.5	6584267592	39700.9	25222	636149284.0	2046601357.0
	$\sum x=$ 742007.68	$\sum dx=$ 118697.68	$\sum dx^2=$ 10176382160	$\sum y=$ 198551.5	$\sum dy=$ 53762.5	$\sum dy^2=$ 1108300882	$\sum dxdy=$ 3291929774

This table provides us following necessary calculations to find out correlation coefficient between VAT and total revenue.

$\sum x = 742007.68$ $\sum dy = 53762.5$ N = 10 Years

$\sum dx = 118697.68$ $\sum dy^2 = 1108300882$

$\sum dx^2 = 10176382160$ $\sum dx.dy = 3291929774$

$\sum y = 198551.5$

$$r = \frac{N.\sum dx.dy - \sum dx.\sum dy}{\sqrt{N\sum dx^2 - (\sum dx)^2}\sqrt{N\sum dy^2 - (\sum dy)^2}}$$

$$= \frac{10 \times 3291929774 - 118697.68 \times 53762.5}{\sqrt{[10 \times 10176382160 - (118697.68)]}\sqrt{[10 \times 1108300882 - (53762.5)]}}$$

$$= \frac{26537813720}{296099.109 \times 90512.996}$$

r = 0.99

$r^2 = 0.9801$

$$\text{P.E.} = \frac{0.6745(1 - r^2)}{\sqrt{n}}$$

$$= \frac{0.6745(1 - 0.9801)}{\sqrt{10}}$$

P.E. = 0.00424

6 x P.E. = 0.025422

Appendix – 4

Correlation between VAT and Total Tax Revenue

Rs. in million

Fy	**Total tax revenue (x)**	**dx = x – 48173**	**dx^2**	**VAT (y)**	**dy = y – 14478.9**	**dy^2**	**dx.dy.**
1999/00	33152	-15021	-225630441	9854.9	-4624	21381376.0	69457104
2000/01	38865	-9308	-86638864	12382.4	-2096.5	4395312.25	19514222
2001/02	39331	-8842	-78180964	12267.3	-2211.6	4891174.56	19554967.2
2002/03	42587	-5586	-31203396	13459.7	-1019.2	1038768.64	5693251.2
2003/04	48173	0	0	14478.9	0.0	0.0	0.0
2004/05	54105	5932	35188624	18885.4	4406.5	19417242.25	26139358
2005/06	57430	9257	85692049	21610.7	7131.8	50862571.24	66019072.6
2006/07	71127	22954	526886116	26095.6	11616.7	134947718.9	266649731.8
2007/08	85155.5	36982.5	1367705306	29815.7	15336.8	235217434.2	567193206
2008/09	117051.9	68878.9	4747302865	39700.9	25222	636149284.0	1737263616
	$\sum x=$ 586977.4	$\sum dx=$ 105274.4	$\sum dx^2=$ 6341121295	$\sum y =$ 198551.5	$\sum dy=$ 53762.5	$\sum dy^2=$ 1108300882	$\sum dxdy=$ 2777484529

This table provides us following necessary calculations to find out correlation between VAT and total tax revenue:

N = 10 years $\sum y$ = 198551.5 $\sum dx.dy$ =2777484529

$\sum x$ = 586977.4 $\sum dy$ = 53762.5

$\sum dx$ = 105274.4 $\sum dy^2$ =1108300882 $\sum dx^2$ =7184428625

As we know,

$$r = \frac{N.\sum dx.dy - \sum dx.\sum dy}{\sqrt{N\sum dx^2 - (\sum dx)^2}\sqrt{N\sum dy^2 - (\sum dy)^2}}$$

$$= \frac{10 \times 529747026.8 - 105274.4 \times 53762.5}{\sqrt{10 \times 6341121295 - (105274.4)^2}\sqrt{10 \times 1108300882 - (53762.5)^2}}$$

$$= \frac{22115030360}{246498.655 \times 90512.996}$$

r = 0.99

r^2= 0.98

$$\text{P.E.} = 0.6745 \text{ x } \frac{1 - r^2}{\sqrt{n}}$$

$$= 0.6745 \text{ x } \frac{1 - (0.98)}{\sqrt{10}}$$

= 0.00424

6PE=0.025422

Appendix - 5
Correlation between VAT and Indirect Tax

Rs. in million

Fy	Total ind. tax (x)	dx = x – 36260.4	dx^2	VAT (y)	dy = y – 14478.9	dy^2	dx.dy.
1999/00	24597	-1163.4	-136034899.6	9854.9	-4624	21381376.0	53931561.6
2000/01	28705.7	-7554.7	-57073492.092	12382.4	-2096.5	4395312.25	15838428.55
2001/02	28733.1	-7527.3	-56660245.29	12267.3	-2211.6	4891174.56	16647376.68
2002/03	32481.7	-3778.7	-14278573.69	13459.7	-1019.2	1038768.64	3851251.04
2003/04	36260.4	0.0	0.0	14478.9	0.0	0.0	0.0
2004/05	41839.3	5578.9	31124125.21	18885.4	4406.5	19417242.25	24583422.85
2005/06	45563.8	9303.4	86553251.56	21610.7	7131.8	50862571.24	66349988.12
2006/07	54399.9	18139.5	329041460.3	26095.6	11616.7	134947718.9	210721129.7
2007/08	65008.5	28748.1	826453253.6	29815.7	15336.8	235217434.2	440903860.1
2008/09	87954.5	51694.1	2672279975	39700.9	25222	636149284.0	1303828590.0
	$\sum x$= 445543.9	$\sum dx$= 82939.9	$\sum dx^2$= 3681404855	$\sum y$ = 198551.5	$\sum dy$= 53762.5	$\sum dy^2$= 1108300882	$\sum dxdy$= 391923157.8

From the above calculation we find, the following necessary data to calculate Karl Pearson's correlation coefficient (r)

N = 10 Years $\sum y$ = 198551.5 $\sum dx.dy$ =2136655609

$\sum x$ =445543.9 $\sum dy$ =53762.5

$\sum dx$ = 82939.9 $\sum dy^2$ = 1108300882 $\sum dx^2$ =4209499276

As we know,

$$r = \frac{N.\sum dx.dy - \sum dx.\sum dy}{\sqrt{N\sum dx^2 - (\sum dx)^2}\sqrt{N\sum dy^2 - (\sum dy)^2}}$$

$$= \frac{10 \times 2136655609 - 82939.9 \times 53762.5}{\sqrt{10 \times 3681404855 - (82939.9)^2}\sqrt{10 \times 1108300882 - (53762.5)^2}}$$

$$= \frac{16907499720}{187659.17 \times 90512.996}$$

= 0.99

r^2 = 0.98

Calculation of P.E.

$$P.E = 0.6745 \times \frac{1-r^2}{\sqrt{N}} = 0.6745 \times \frac{1-(0.98)}{\sqrt{10}}$$

P.E. = 0.00424

6PE = 6 x 0.00424 =0.025422