ECONOMIC REVIEW

OCCASIONAL PAPER

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The Editorial Board expects applications of quantitative, econometric, and analytical tools and techniques as developed by the authors of the articles to draw on conclusions and suggestions to be most useful to the readers. The issue, as in the past, has incorporated analytical articles from the staff of the NRB and professionals from outside the NRB.

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ECONOMIC REVIEW: OCCASIONAL PAPER

Development of the Financial System and Its Impact on Poverty Alleviation in Nepal

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The article reviews briefly the financial and monetary developments in Nepal since the mid-fifties both in developmental and poverty perspectives. Particularly, the role of the banking sector in rural financing and specific poverty targeted programs is reviewed in detail. Impact analysis is made on the basis of availability of data. The article concludes that, in spite of the tremendous growth of the financial sector in the post-liberalization period, its penetration in the rural areas has declined. There seem to be no backward or forward linkages of this financial development with the real sectors of the economy and, consequently, to poverty alleviation. Though government and non-government micro-financing institutions and also the cooperatives have grown fast in the 1990s, they are also concentrated in urban areas. The plethora of targeted credit programs has made very little dent in the rural credit market. More than 80 percent of the borrowing households have still to depend on non-formal sources for their credit needs. Majority of the targeted credit programs have been unable to directly cater to the needs of the bottom 20 percent households because the poor lack other resources and knowledge to benefit from the saving-credit programs. Lastly, inadequacy of financial and monetary data for evaluating the impact of financial development on the economy as well as on poverty is noted.

INTRODUCTION

The overall economic objective of adjustment program in Nepal has been alleviation of widespread poverty, based on sustainable economic growth achieved through all-round liberalisation including in the financial sector. Monetary management, in principle, was geared to curbing inflation and stimulating growth.

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Nepal started to implement structural adjustment reforms from mid-eighties. The process was disrupted by Nepal-India trade and transit impasse and the subsequent political upheavals. It was accelerated significantly since 1991. Various authors have assessed the impact of such reforms on the economy. An emerging consensus is that the macroeconomic indicators such as balance of payments, fiscal deficit and financial indicators did improve. A significant progress has been made in human development indicators also. But the growth rate has remained sluggish and income poverty has hardly declined (HDR, 2002, Prennusi, 1999**;** Khan, 2000; NPC, 2002; Acharya and Khatiwada, 2003). Domestic saving rate has improved only marginally.

The Tenth Plan (2002/03 – 2006/07) proposes to continue the emphasis on reduction of poverty as the overriding objective of the Plan as in the Ninth Plan. An action plan for poverty reduction has also been prepared. The target is to reduce the population below poverty level to 30 percent by the year 2007. Liberalization of the economy for accelerated growth of the modern sector and concentration of government resources on physical and social infrastructure were the primary strategies envisaged in the Ninth Plan. The Tenth Plan proposes to continue this strategy. Increased market access to farm products through expansion of road network and improved distribution of fertilizer, seeds and agricultural extension services are seen as the basic interventions for accelerating agricultural growth and achieving poverty reduction. The broad-based privatization process and wide ranging external liberalization were, and are still, expected to lead to structural transformation of the economy and accelerated economic growth, generation of more employment and income for the poor and, eventually, reduction in poverty. The fact that the country failed to achieve the goal of poverty reduction during the Eighth or the Ninth Plan, in spite of these policies, is attributed primarily to factors external to the economy and lack of good governance.

Further structural reforms, however, are to be accompanied by targeted anti-poverty programs, primarily credit-based, on a wider scale and special focus on development of remote areas and special facilities to disadvantaged communities, so as to address the issues of increasing inequality of income and access to resources and opportunities. Mainstreaming women and other disadvantaged groups into the development process is outlined as a major strategy for poverty reduction. Good governance is also underlined as a necessary condition for achieving poverty reduction.

Nevertheless, the basic questions remain. The transmission-path of impulses from market oriented macro-economic structural adjustment to growth and from growth to poverty alleviation is still not worked out in reference to the specific features of the Nepalese economy. Past failures have not been analyzed adequately to design appropriate interventions. For example, the reform in the financial sector is an important part of the package designed to accelerate growth through redistribution of credit to the "more productive sector" and hence increase employment and income of the poor automatically. But the fact that the financial liberalization in the past has not led to redistribution of credit to more employment generation, rural sectors have neither been analyzed nor effective counteracting

measures thought out. This paper reviews the past financial sector developments in the country from a growth stimulation, increased access of the poor to financial resources and then poverty reduction.

II. FINANCIAL DEVELOPMENTS AND THE LIBERALIZATION PROCESS

The history of financial developments in Nepal may be divided in three phases, 1937-1956, 1956-1985 and post-1985. Nepal Bank Limited, the first commercial bank in the country, was established as a joint venture between the government (51 percent share) and the private sector (49 percent share) in 1937. That was the only bank and financial institution in the country until 1956. Before the establishment of the Nepal Bank Ltd, Nepalese nationals had to keep their savings either in cash or in the Indian banks. All external transactions were effected through Indian banks. Nepal had no central bank until 1956, when the Nepal Rastra Bank (NRB) was established. The central banking functions were shared between Reserve Bank of India and Revenue and Minting Department in the Ministry of Finance in Nepal.

NRB was established in 1956, and then on, the development of the financial system gained momentum. Within a decade, a number of institutions were established in the public sector. These included Nepal Industrial Development Corporation (NIDC), Agriculture Development Bank (ADB\N) and the Employees Provident Fund Corporation, Rastriya Banijya Bank, the Credit Guarantee Corporation, Nepal Insurance Corporation and the Securities Marketing Centre. Besides setting up new institutions, NRB partially subsidised branch expansion of the commercial banks between 1970 and 1989, because commercial banks tended to concentrate in urban areas to avoid higher cost of rural operations.

The banking habit expanded, banks were able to mobilise increased proportion of private savings and direct them for investment in newer forms of activities (Table 1). Between 1960 and 1970, both deposits with the banking system and total credit expanded rapidly.

Table 1. Selected Indicators of Banking and Monetary Developments (1960-2000)

Mid- July	Outstanding Rs. in Million				Percent Credit/ Deposit	Inflation Adjusted % Interim Period Annual Growth Rate	
	Deposit[1]	Credit[2]	Money- M_1	Broad Money-M_2		Deposit	Credit
1960	72	32	174	201	44.6	na	na
1965	130	107	446	490	82.4	na	na
1970	401	297	763	975	74.3	27.8	11.1
1975	1,166	1,222	1,338	2,064	104.8	12.3	20.3
1980	2,330	2,798	2,830	5,285	120.1	9.2	12.2
1985	8,536	5,489	5,480	12,297	64.3	18.3	4.4
1990	21,885	15,335	14,223	31,552	70.1	8.2	10.1
1995	61,046	46,915	32,985	80,985	76.9	10.4	12.5
2000	154,530	118,008	60,980	186,121	76.4	11.7	11.5

1. Excludes inter-bank deposits and government deposits, but includes foreign deposits.
2. Excludes investment in Government securities and includes foreign bills purchased and discounted.

Source: Acharya and Khatiwada, 2003.

NRB started its intervention in the credit market for the first time in 1966. In early years, interest rates were used primarily as instrument for mobilisation of financial resources and directing credit to specific activities. In 1975, the interest rates were drastically revised upwards with the objective of monetary management. The changes in interest rates led to significant increase in the collection of savings and fixed deposits and slowed down expansion of credit to a negative growth in real terms in subsequent two years. But the effect of interest rate rise was one short affair lasting only up to 1976/77.

In the next year, credit expansion rate galloped to nearly 28 percent in real terms while deposit collection decelerated to about 6 percent. By the end of 1979/80, credit/deposit ratio was up to 120.0 percent. The pressure on foreign exchange reserves, particularly Indian Rupee reserves, was turning acute. Deposit rates were revised upwards once again in 1982 to mop up the liquidity in the system for correcting the emerging balance of payment gap. A comprehensive rationalization of the interest rate structure with substantial upward revision in the priority lending rates was also effected. However, the balance of payment situation did not improve until the end of 1985 and the Nepalese Rupee was devaluated drastically in November 1985.

The financial system remained small, with limited penetration in the economy. It remained inefficient with high cost of financial intermediation, weak management, obsolete financing modalities, poor service delivery, dualism with the domination of informal financial market and low level of financial intermediation as indicated by relatively low proportion of M2 to GDP. While M1/GDP ratio indicates monetization of the economy, M2/GDP captures both monetization and penetration of the banking sector in savings mobilizations. Nepal lagged behind most of the Asian countries in fixed and savings deposit mobilisation (Table 2) and had a much lower ratio of M2 to GDP. In recent years, it is catching up fast.

Table 2. Financial Deepening in Selected Asian Countries, 1980, 1990 and 2000

Countries	M1/GDP(%)			M2/GDP (%)		
	1980	1990	2000	1980	1990	2000
Bangladesh	10.2	8.9	9.4	20.4	31.8	36.8
India	15.0	15.9	17.9	37.0	45.1	59.8
Nepal	12.1	14.3	16.7	22.6	31.6	50.9
Pakistan	28.5	29.7	27.6	41.6	39.1	46.5
Sri Lanka	14.0	12.3	9.4	32.0	28.5	38.2
Thailand	10.8	8.9	14.0	38.0	70.0	105.9
Malaysia	18.3	21.3	23.8	32.7	64.4	102.6
Indonesia	11.0	11.3	12.1	17.0	35.4	57.5
South Korea	10.1	8.9	9.2	33.2	38.4	68.1

Source: Acharya and Khatiwada, 2003.

The financial system reforms started in this background. Liberalisation of interest rates started in 1984 when commercial banks were given autonomy to fix interest rates over and above the NRB rates by 1.5 percentage points on saving and

1 percentage point on term deposits. The interest rates were completely liberalised in 1989 leaving them to the market forces.

Foreign capital was accepted in the banking business for the first time in 1984, with the establishment of the Nepal Arab Bank Limited, as a joint venture with foreign and local capital participation. The Commercial Bank Act (1974) had already set out regulations for licensing and supervision of the commercial banks in the private sector. The domestic private sector, it seems, was too weak to venture into banking on its own.

However, all these liberalisation measures and freeing of interest rates from NRB control did not result in reducing the lending rates or extending the banking facilities to new areas or to emergence of new kind of services. The commercial banks colluded to lower the term and fixed deposit rates without changing the lending rates. Banks remained with excess liquidity but did not make efforts to expand their operations by providing cheaper credit. This clearly was a move towards oligopoly in credit pricing, to exploit market imperfections for increasing the interest spread between loan and deposit rates.

On the other hand, a dearth of financial instrument was felt in the market. As a consequence, traditional informal financial activities such as *Dhikuri, Dhukuti* and other systems, characteristic to the rural economy, emerged in the urban areas as well. Initially such credit groups were small in nature and limited to special groups of family and friends. Once they started to capture the imagination of the larger number of people, and expand beyond family and friends, the risk of fraud emerged on a wide scale. The emergence of informal financial flows on a large scale became a matter of concern to the Government and the Central Bank. Measures were formulated to bring such flows within the policy net.

Further initiatives taken to promote financial development included establishment of the Housing Development Finance Company (1992) and five Grameen Bank (Bangaladesh) clones, the Regional Rural Development Banks (RRDBs) and permission to co-operatives and the non-government organisations (NGOs) to undertake limited banking transactions. Such authorisations were issued by the NRB to Credit Co-operative Societies, registered under the new Co-operative Act of 1992 and the NGOs, registered under the Social Service Registration Act of 1978, starting 1993. The main objectives intended to provide banking services and credit to the poor.

III.   *FINANCIAL GROWTH AND DEEPENING.*

Emerging Financial Structure

As a consequence of all these liberalization measures, the number and variety of financial institutions, their financial assets and variety of instruments have grown significantly. The number of financial institutions grew from 6 to 136 between 1980/81 to 2000 (Table 3). These 136 financial institutions, registered with NRB, have more than 1060 branches, but mostly concentrated in urban areas. The

emerging financial spectrum features several tiers of institutions catering to the various segments of the economy and the sections of the population. Inter-linkages among the various kinds and levels of institutions are still fluid and developing (see chart 1). With the growth in their number, financial institutions have also diversified their products and services.

The emerging institutions may be classified into three broad categories--formal financial institution, semi-formal financial institutions and co-operatives, and informal financial institutions. Chart 1 below presents a snapshot of the financial sector institutional scenario as of Mid-July 2000.

Commercial banks lend for short term trading, for meeting working capital needs of industries and business, and for consumption and social functions against sufficient collateral. They are directed by the NRB to provide credit to priority and deprived sectors. The Nepal Bank Limited and the Rastriya Banijya Bank dominate the banking system. These two older banks have branches in all the districts, but located mostly in the urban and town areas, or near the highways. Private sector banks operate only in larger cities and metropolis with concentration of business community and industries.

Table 3: Number and Total Assets of Banks and Financial Institutions (Mid-July 2000)

		Number of Institutions	*Total Assets* (In Million Rs.)	Percent Shares
Commercial Banks		13	210894.5	66.6
(State-owned)		(2)	(99658.5)	(47.3)
(Private sector)		(11)	(111236.0)	(52.7)
ADB/N		1	25652.6	8.1
NIDC		1	2527.5	0.8
Employees Provident Fund		1	22115.7	7.0
Finance Companies		48	13058.5	4.1
Co-operatives		34	1483.0	0.5
RRDBs		*5*	1549.3	0.5
Insurance Company*		13	4074	1.3
(State-owned)		(1)	(3163)	(1.0)
(Private sector)		*(12)*	(911)	(0.3)
Others*		20	35298.2	11.1
	Total	*136*	*316653.3*	*100.0*

* 1998/99
Source: NRB Economic Report, 1999/2000; Banking and Financial Statistics, 2000, NRB.

Commercial bank clients generally from upper and middle class are conscious about the credit availability. Further, the joint venture banks concentrate on export business and foreign transactions. They are dealing with the big business houses,

elite population, and institutions in education, health, consulting services, etc. and do not get directly involved in the priority lending.

The two development banks, NIDC and the ADB/N, are publicly-owned. The NIDC is currently unable to meet existing loan commitments and substantial parts of its portfolio are non-performing. ADB/N also has huge backlogs of overdues. The five RRDBs are focusing on micro-credit and displaying fairly high repayment rates though some of them have been adversely affected due to the deterioration in the law and order situation until some few months back. Three NGOs, namely, Nirdhan and CSD, and DEPROSC were replicating the Grameen model in their credit transactions, until recently. Two of them, Nirdahan and DEPROSC, have now converted themselves into development banks. Recently, a Rural Micro-finance Development Centre (RMDC) has been established as an apex wholesale rural credit institution, from which all rural financing institutions may borrow including ADB/N, RRDBs and other Grameen bank clones, Cooperatives and NGOs engaged in financial operations. However, public sector financial institutions and the non-formal smaller NGOs lack access to RMDC resources as a number of stringent prudential norms need to be fulfilled by the borrowing institution.

Chart 1. Current Structure of the Financial System

The number of finance companies has grown from none to 48 within ten years. They accept fixed-term deposits, usually at higher rates of interest, attracting the shallow fund in the informal market. They offer new and more flexible investment options and have developed various instruments. They lend for longer terms than the banks on hire purchase, housing and transport vehicles like trucks, cars, scooters, etc. They are associated with a cluster of family or business "houses" and banks as well. Most of the finance companies also are located and operate in urban areas. Only a few of them, established outside the Katmandu Valley, are providing a limited amount of rural and micro credit to their clients.

Including one Deposit Insurance and Credit Guarantee Corporation, which guarantees priority sector lending of the commercial banks, there were 13 Insurance Companies as of mid-July 2000. Eleven privately-owned insurance companies have been established and have grown rapidly. The only institution dealing with the provident fund, the Provident Fund Corporation, has captive funds collected from government and corporate employees.

Among the semi-formal financial institutions, Savings and Credit Co-operative Societies have most prominent role. As per NRB Report (2000), they numbered 1574, of which, 34 were authorised by the NRB for limited banking transactions. Others operate among their own members without NRB permit, which are allowed under the Co-operatives Act. There are about 25,000 NGOs promoting savings and credit groups. They lend limited amounts to such groups. Among the NGOs, only 25 were licensed by NRB as of July 2000, to operate banking transactions. There are 116 Postal Savings Bank outlets for collection of deposits.

Financial Deepening

The ratio of all financial assets to gross domestic product indicates financial deepening in the economy. Total financial assets as of mid-July 2000 is estimated at more than Rs 277 billion, which accounted for nearly 76 percent of GDP (Table 4). The ratio was 32 percent in 1990 and 29 percent in 1985, the year when the door for foreign participation in banking industry was opened. These figures indicate increasing role of financial sector in the Nepalese economy.

The commercial bank deposit and credit ratios to GDP measure the importance of the banking system in the economic activities of the country. The deposit/GDP ratio surged up to 42 percent as of mid-July 2000, which was only 10 percent in 1980 and 22 percent in 1990. The growth in credit/GDP ratio has been slower. This ratio reached 32 percent in 2000 from 12 percent in 1980 and 15 percent in 1990. Comparing the growth during the eighties and nineties, it is clearly seen that, while the deposit/GDP ratio grew much faster during the eighties, the growth of credit/GDP ratio was much faster during the nineties. Increasing credit to GDP ratio indicates that the role of credit is expanding fast as a source of funding for economic activities in the country. This is quite in consonance with the increasing role of non-agricultural sector in the economy, which depends more on bank credit than agriculture in developing countries.

Table 4. Selected Indicators of Financial Sector Growth

Description	1975	1980	1985	1990	1995	1999	2000
Population (in million)	12.9	14.6	16.3	18.1	20.3	22.4	22.9
Overall Financial Sector:							
Total Financial Assets (Rs. million).	2322	5594	13011	32426	109597	230238	277281
Total Financial Assets/ GDP (%)	14.0	24.0	29.3	32.5	52.2	69.8	75.9
Commercial Banking:							
Total Bank Branches(no.)	216	241	380	442	444	481	478
Popn. per Com. Bank Branch							
(in thousand)	59.58	60.58	42.89	40.95	45.72	46.57	47.91
Bank Assets (Rs. million)	2006	4542	10535	26854	83971	172458	210894
Bank Assets/GDP (%)	12.1	19.5	23.7	26.9	40.0	52.3	57.7
Deposit/GDP (%)	7.0	10.0	19.2	22.0	29.1	38.4	42.3
Credit/GDP (%)	7.4	12.0	12.4	15.4	22.3	30.1	32.3
Credit/ Deposit (%)	104.8	120.1	64.3	70.1	76.9	78.3	76.4
Pvt. Sec. Credit/Total Credit (%)	64.1	68.5	73.5	76.2	89.4	91.4	92.7
Financial Deepening:							
Money(M1)/GDP (%)	8.1	12.1	12.3	14.3	15.7	15.5	16.7
Broad Money(M2)/GDP (%)	12.4	22.6	27.7	31.6	38.6	46.3	50.9

* Including ADB/N.

\# Includes Com. Banks, NIDC, ADB, EPF, Finance Com, Co-operatives and RRDBs.

Source: Acharya and Khatiwada, 2003.

The ratio of private sector credit to total credit indicates the degree of privatisation of organised sector economic activities. In recent years, almost total bank credit has been channelled to the private sector indicating an increasing privatisation of the economy. During the 1980s, about 1/3 of the bank credit had gone to the government sector.

Liberalisation, however, has completely failed to streamline the commercial banking system in the country as expected. Overdue loans and inefficiency had been aggravated in the 1990s. The older and the larger of the commercial banks with their wide rural networks have been made to compete with the new trim banks with no rural operations. This has two unwanted consequences. On the one hand, it has allowed the new banks to make huge profits as their operating costs are much lower than that of the older banks. On the other, the economic viability of older banks is eroding faster as all their lucrative business such as the low-cost donor transactions and export financing have been cornered by the private sector banks, while high cost rural operations remain with them. Financial liberalisation process, it seems, should have been preceded by a thorough overhauling of the older banks and a decision to infuse private sector capital and management in the same. The two older banks have a high proportion of non-performing loans, which was around 18 percent of the total loan in 2000 (Article IV Consultation Report of IMF, 2001). As a consequence, the government has contracted out their management to foreign private sector parties. But recent evidences are indicating that the newer banks also have window-dressed their balance sheets to show higher performance than warranted by reality. Overdue has been reduced to a substantial extent by rescheduling.

Moreover, the commercial banks, domestic or joint venture, have shown little innovation and positive attitude in identifying new areas of saving and investment

opportunities. They have rather preferred to cater to the traditional larger urban savers and invest in safe and gilt-edged government securities and treasury bills. This kind of investment involves no additional administrative cost and is easily convertible into ready cash in the secondary window operated by NRB.

On the positive side, after 1990 when the financial sector entry was liberalised completely, the number of financial institutions and co-operatives has exploded. The micro-credit programs also have been redesigned to pay equal attention to savings and credit. The finance companies have introduced new instruments of savings and credit in the economy. The co-operatives are serving the needs of smaller urban and sub-urban borrowers and savers with their door-to door schemes and catering to a large section of the educated unemployed. However, all their activities are still concentrated in urban and sub-urban areas and hardly cater to the needs of the poor in urban or rural areas (NRB, 2001). Number of failures of co-operatives in recent months has also shown a severe lack of supervision and control of such micro-financing institutions.

IV. IMPACT ON POVERTY ALLEVIATION

The financial sector developments may affect the poor both directly and indirectly. This sector may help in alleviation of poverty directly by spreading deposit and credit facilities with innovative instruments for the poorer sections of the population and promoting investment in rural areas, where most of the poor live, and by participating in various anti-poverty credit schemes. Indirectly, monetary policies and financial sector developments may help the poor by facilitating employment intensive productive investment in the economy, controlling inflation and providing employment to the educated unemployed. The last has been listed among the indirect channels of transmission effects of financial activities because the poor are mostly uneducated and unemployable directly in the financial sector.

As far as inflation rate is concerned, it is really difficult to measure the effectiveness of monetary policy in managing price-level in Nepal, as in all open economies. Nepal's monetary policy acts on inflation rate, largely through the Indian Rupee reserve and exchange rate with that currency, in the long run. In the short run, the exchange rate with Indian Rupee is fixed. Because of the relative openness of the economy towards the Indian market and full convertibility of Indian Rupees in Nepal, the first impact of monetary policy is on Indian Rupee reserves, but with some lag (Khatiwada, 1981). As a consequence, in Nepal, demand for money has conventionally been estimated, taking inflation rate as an independent variable along with monetization rate and real GDP growth rates. Inflation rate has fallen throughout the nineties barring 1992, when both India and Nepal devalued their currencies substantially and it has remained more or less at a moderate level for the last decade.

Savings Facilitation

The previous section dealt briefly with the fact that there has been little innovations in the pattern of banking transactions as far as commercial banks are concerned. It would have been very useful to construct a fund flow chart to study from which sections of the population do the various kinds of institutions and the commercial banks derive their funds and where they invest. Adequate information is not available for such a construct. The following analysis tries to examine the relevant issues from available information.

Given the limited scale of organised financial market in relation to the overall economy, it is hard to judge about its impact on the overall savings rate. The average domestic savings rate improved from 10.7 percent in the late eighties to 14.6 percent in the late nineties. But given the much higher interest rate in the informal market and their predominating role in the credit market, formal sector interest rates and institutional expansion can hardly be taken as a determinating factor in overall domestic savings rate. The following regression results support this conclusion:

The equation below explaining the level of real domestic saving (RS) has been specified as:

$$\ln (RS) = c_0 + c_1 \ln RGDP + c_2 RI + U$$

Where RGDP is real gross domestic product, RI real interest rate & U an error term.

Estimation of the above equation for the period 1981-2001 reveals the following result:

$$\ln (RS) = -8.9 + 1.6 \ln RGDP + .01 RI$$
$$\quad\quad\quad (-4.7)^* \quad (9.5)^* \quad\quad (1.7)$$

$$\bar{R}^2 = 0.93, F = 76.6, DW = 1.84, \rho = 0.38$$

(Figures in the parentheses are t ratios, ρ is auto-correlation coefficient, and * means significant at 5 per cent level).

The regression result shows real income as the significant determinant of real savings. Interest rate also positively affects savings, but it does not have statistically significant impact. This is again consistent with the economic fundamentals of the country where saving propensity is governed more by the level of income (ability to save) than the incentives provided for bank savings (interest rate).

Liberalisation policies, especially the liberalisation of financial sector, and the promotion of capital market, however, might have added impetus to financial savings. A substantial increase in bank deposits in real terms as indicated by commercial bank term deposit/GDP ratio and deposits mobilised by emerging finance companies and co-operatives in this period support this conclusion.

Theoretically, demand for time deposits is determined by the level of income (ability to save) and interest rate on deposits (willingness to save in the form of

bank deposits). Accordingly, an equation explaining the changes in real time deposit (DRTD) can be specified as:

$$\ln (DRTD) = b_0 + b_1 \ln RGDP + b_2 RI + U$$

Estimation of the above equation for the period 1981-2001 reveals the following result:

$$\ln (DRTD) = -20.1 + 2.46 \ln RGDP + .06 RI$$
$$\qquad\qquad\quad (-3.7)^* \quad (2.5)^* \qquad (1.5)$$

$\overline{R}^2 = 0.60$, F= 13.3, DW= 2.2

(Figures in the parentheses are t ratios, and * means significance at 5 percent level).

The regression of changes in real time deposit against real output (RGDP) and real interest rate shows real output as the significant determinant of time deposits. Interest rate also positively affects time deposit collection at banks. But it does not have statistically significant impact on time deposit demand. This is once again consistent with the economic reality of the country where poverty and informal financial transactions predominate. Moreover, when there are limited financial instruments available for small savings in the formal financial market and there is a large unorganized market for credit, bank interest rate is less likely to determine the rate of deposit collection at the banks.

As regards the structure of the credit market, notwithstanding the number of financial institutions, commercial banks overwhelmingly dominate the formal credit market (Table 5). Finance companies have only about 5 percent of the credit-deposit transactions. Cooperatives or RRDBs play only marginal role. Therefore, it is most important to analyse commercial bank's lending portfolio in a poverty perspective.

Table 5: Role of Various Financial Institutions in the Credit Market, 1999/2000

Financial Institutions	Credit		Deposit	
	Million Rs.	Percent	Million Rs.	Percent
Commercial Banks	136184.8	81.8	154530.3	85.1
Agricultural Dev. Bank	12883	7.7	15803.3	8.7
NIDC	2242.9	1.3	315	0.2
Finance Companies	9057.9	5.4	9744.4	5.4
Co-operatives	875.1	0.5	1073.2	0.6
RRDBs	733.2	0.4	218.1	0.1
Total	*166545.3*	*100.0*	*181684.3*	*100.0*

Source: NRB, Economic Report, 1999/2000.
        NRB, Banking and Financial Statistics, 1999/2000.

The major issue is whether the commercial bank collective lending portfolio reflects the national priorities in terms of promoting pro-poor growth in the country. A second issue is whether they do lend to the smaller households and cottage level enterprises. With the financial liberalisation and proliferation of

saving-credit community groups, whether they lend directly to the poor has become secondary.

Overall Lending Portfolio of the Commercial Banks

It was stated earlier that Nepal's formal financial system caters largely to urban population and this urban bias has increased in recent years. The purpose-wise lending portfolio of the commercial banks did show a significant change in the pattern of lending in favour of agriculture and industry until 1989/90 (Table 6). In the 1990s, the share of agriculture in commercial bank lending portfolio has declined by 4.1 percentage points. Given the importance of agriculture for reduction in poverty, this is an issue of real concern. However, it is a positive trend that the share of industry in the overall lending of these banks is increasing significantly compared to other headings. It is also clear from the decline in the proportion of social and general purpose lending that smaller borrowers have been crowded out in the commercial bank lending, as most of the small borrowers borrowed pledging gold or landed property under this heading.

Table 6. Purpose-wise Outstanding Loans of the Commercial Banks (Mid-July)

Sector	1975	1980	1985	1990	1995	2000
Agriculture	0.1	0.9	3.2	13.0	12.1	8.9
Industry	5.1	12.0	18.8	32.4	39.1	45.1
Commerce	45.5	62.2	44.1	28.6	32.8	32.9
General Uses & Social	48.0	21.0	30.0	23.6	11.8	7.3
Other	1.4	4.0	3.9	2.5	4.2	5.7
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Source: Acharya and Khatiwada, 2003

The security-wise lending portfolio of the commercial banks also shows some significant changes in their lending patterns (Table 7). The importance of gold and rice and paddy loans has declined substantially, indicating a trend of declining rural lending as also declining marketable surplus of rural households in grains. Proportionately, the importance of other agricultural products, which includes wheat, oilseeds, potatoes and other cash crops, as security has increased in the bank lending portfolio. However, the huge bulge in unclassified lending reaching up to 42 percent in 1999 does not allow for a more realistic analysis of bank lending portfolio.

Table 7. Security-wise Lending Portfolio of the Commercial Banks (Mid-July)

Securities	1980	1985	1990	1995	2000
Gold and silver	16.8	20.0	12.6	5.3	2.2
Government securities	0.9	0.7	1.7	1.1	1.1
Non-govt. securities	2.4	4.3	5.2	1.5	1.5
Rice and paddy	7.4	6.2	3.0	2.2	1.3
Other agricultural products	4.5	5.9	12.7	10.5	9.0
Cloth, yarn, machinery & other goods	19.3	11.5	7.7	5.6	5.0
Export bills, purchase & credit	5.3	5.7	2.5	2.1	2.5
Import bills, LC & other foreign bills	11.4	6.6	8.7	9.9	6.6
Domestic bills, purchase & credit	2.6	1.7	0.6	0.4	0.4
Overdraft and guarantee	22.8	20.1	14.9	21.7	22.9
House and land	3.7	9.0	0.8	4.0	5.0
Miscellaneous	2.8	8.4	29.6	35.5	42.4
Total	*100.0*	*100.0*	*100.0*	*100.0*	*100.0*

Source: Acharya and Khatiwada, 2003

Rural Banking

Since the majority of the poor live and work in rural areas, the flow of credit to rural areas may be taken as one of the indicators of financial sector role in poverty alleviation. Until about the establishment of ADB/N and RBB, with direct incentive from NRB for commercial branch expansion, the commercial bank branches were concentrated in large cities and trading centers in the Terai. Their rural branch expansion gained speed after NRB introduced the incentive system for this purpose. Between 1980-1990, the commercial bank branches increased by 219. Of these, 146 branches were established in rural areas. The proportion of commercial bank's rural branches in total seems to have increased during 1980-1985 and 1990-1995, in spite of the discontinuation of subsidy from NRB and the financial liberalisation. However, between 1995-2000, it has come down by more than ten percentage points (Table 8).

Table 8. Rural / Urban Distribution of Commercial Bank Branches

Years	Total	Rural	Urban	Rural as % of Total
1977	216	141	75	65.3
1980	241	154	87	63.9
1985	383	267	116	69.7
1990	460	300	160	65.2
1995	444	310	134	69.8
2000	478	285	193	59.6

* Includes ADB/N's Commercial Banking Branches.

The declining trend in the proportion of rural in the overall deposit and lending portfolio of the commercial banks is already visible between 1985 and 1990 (Table 9). The figures are not available for later years.

Table 9. Rural /Urban Credit Operations of The Commercial Banks*
(In million Rs.)

Mid-July	Deposits				Credit & Investment			
	Rural	Urban	Total	Rural %	Rural	Urban	Total	Rural %
1977	341.2	1727.8	2069.0	16.5	217.4	1423.9	1641.3	13.2
1980	634.3	2627.2	3261.5	19.4	491.6	2689.6	3181.2	15.4
1985	1474.2	6617.3	8091.5	18.2	1534.0	4930.4	6464.4	23.7
1990	3213.2	18193.6	21406.8	15.0	2740.0	13269.5	16009.5	17.1
1995	na	na	61193.3	n.a.	na	na	48412.9	n.a.
2000	na	na	154943.0	n.a.	na	na	114292.1	n.a.

* Includes ADB/N's Commercial Banking Activities.
Source: NRB, 2001

Despite the branch expansion during 1980s, the financial sector still showed little capacity to absorb small urban or rural savings and serve the credit needs of the small borrowers, rural or urban. Hills and mountains have had few financial facilities for small savings mobilisation. In Terai areas bordering India, savings also flowed to the banks across the border, although Nepal offered higher nominal and positive interest rates. The commercial banks limited their operations to large amounts--both in acceptance of deposits and lending. As far as commercial banks are concerned, this problem has been aggravated by liberalisation of the banking sector.

The minimum balance requirements in some Kathmandu Valley banks make them unapproachable even to the middle class families in the Valley. Bulk savers also have ability to negotiate on interest rates, which small savers lack. More evidences are available that average households in rural areas can save smaller amounts. But the commercial banks have shown little interest in this kind of savings. Given the oligopolistic cartelling, they are over liquid and have no need to innovate for deposit mobilisation. The supervisory and regulatory capacity of the NRB lacks required strength in order to regulate the commercial banks and finance companies properly.

Thus, the formal financial system continues to have an urban bias. Its liberalisation has helped to intensify this bias. Most of the formal credit institutions are concentrated in the urban or sub-urban areas because majority of modern sector activities take place in the urban areas and resources are concentrated there. Lack of infrastructure has further impeded financial sector activities in rural areas. The banks and other formal financial institutions have not been in easy access to the rural or urban population at lower echelons of income distribution. Liquidity position of the banking sector has remained above 40 percent throughout the nineties. The flow of credit from the finance companies has been meeting the consumption needs of the urban population.

Direct Employment Generation by the Banking System

Complete information on financial sector employment is not available. Table 10 features only commercial bank information. Employment in the commercial banks during the 1990s has probably increased only marginally in spite of the increased number of institutions, because restructuring exercises in the older bigger banks with government participation have down-sized their workforce. Similarly, while employment in the financial institutions has declined in older financial institutions, it should have expanded in the new ones. Probably large number of people is employed in co-operatives and the NGO sector. Grameen model employs much larger number per unit of credit. But no information is available on their employees.

Table 10. Direct Employment in Major Commercial Banks

Banks	Officers*	Non-Officers **	Total
Nepal Bank Limited	1024	5225	6249
Rastriya Banijya Bank	636	5208	5844
Nepal Arab Bank	120	263	383
Himalayan Bank Limited	79	246	325
Nepal Bangladesh Bank	61	252	313
Nepal Grindlays Bank	44	220	264
Everest Bank Limited	29	138	167
Nepal SBI Bank	43	88	131
Nepal Indo-Suez Bank	41	58	99
Bank of Kathmandu	27	71	98
Total	*2104*	*11769*	*13873*

* Officers and above.
** Non-Officers including Messenger.
Source: Respective Institutions, Kathmandu, December, 2000.

V. TARGETED CREDIT PROGRAMS FOR POVERTY ALLEVIATION

In spite of the establishment of ADB/N and RBB, by 1975 it was clear that they also could not reach the small borrowers or marginal farmers with their regular lending programs based on collateral and traditional savings instruments designed to cater to larger creditors/depositors. This experience of bank lending was shared by other developing countries. A search was on for new models of banking for reaching the poorer sections of the population. Hence came the first targeted credit program-SFDP-in 1975.

NRB, along with subsidising commercial bank branch expansion, introduced the concept of compulsory priority sector lending for the commercial banks in 1974 (NRB, 1979; 1996). This practice still continues. Under this scheme, the commercial banks are required to lend certain proportion of their deposits or credit to the sectors defined as the priority sector. In the year 1974, commercial banks were required to invest at least 5 percent of their total deposit liability in "small

sector', latter redefined as "priority sector'. This percent has been changed many times since. The compulsory proportion for the priority sector relates to total loan portfolio since 1985. At present, the commercial banks are required to lend at least 12 percent of their loan portfolio to the priority sector, a quarter of which has to go to the deprived sector. The deprived sector comprises the households below officially defined poverty line.

The definition of the priority sector, however, has evolved through time, and currently it is quite broad including loans extended to ADB/N, RRDBs, co-operatives and NGOs by the commercial banks. Further, direct lending by the commercial banks for biogas plants, small hydro projects, captive generators, non-polluting vehicles, turbines etc. is also counted as priority lending. Moreover, credit under Production Credit for Rural Women (PCRW) and Micro-Credit for Women (MCPW), the first funded by various donor agencies including IFAD and second by the Asian Development Bank, also form part of this priority sector lending. Thus, the initial direct anti-poverty character of the priority sector lending requirement imposed on the commercial banks has been completely diluted except for the fact that within the 12 percent portfolio they are directed to lend at least a quarter (3.0 percentage points) to the deprived sector. The commercial banks, however, are allowed to count bulk lending to the RRDBs and other micro-lending institutions towards the fulfillment of the deprived sector requirements. Often, such lending comes back to the lending banks as fixed deposits.

The priority sector also comprised the Intensive Banking Program (IBP), operated on an area specific basis and based on the concept of project lending, and the Cottage and Small Industries (CSI) lending program, directed to the development of small-scale industries and funded by the World Bank between 1982 and 1991. IBP and CSI, nevertheless, may not be termed as micro-credit directed particularly to the poor. They helped grooming small entrepreneurs on a large scale and promoting employment to certain extent. But very little of such credit went to the poor directly.

Currently, there are several targeted credit programs in operation. These are mostly group-based credit programs, many of which require no tangible collateral. They individually cover limited areas but, in totality, might have significant influence in the unorganised credit market. An incomplete snapshot of their operation may be glimpsed from the table below (Table 11). Figures for total number of NGOs operating savings credit program in the country are not available. It is estimated that there are about 20,000 active NGOs in the country. All of them have some sort of saving-credit program operating through community groups. Similarly, a genuine cooperative movement has flourished with the liberalization of the financial system.

Thus, the financial market is clearly divided in two parts. The picture is very dualistic. The formal one comprising commercial banks and financial institutions caters mostly to the modern sector and the informal sector which comprises NGOs and co-operatives caters to the mass of the urban and rural small producers and consumers. The Agricultural Development Bank, the Grameen clones and the

NRB-registered NGOs seem to be playing an intermediary role catering to the needs of the agricultural and other small scale producers and consumers. ADB/N mobilises savings in urban as well and lends mostly for agriculture and agro-oriented enterprises under its development window. Grameen clones and NRB-registered NGOs may borrow from the commercial banks for further lending. No data are available on this kind of flow of funds. Therefore, we can not assess the efficacy of evolving financial structure to fulfill the financial needs of the economy as per the national priorities or poverty reduction. Only option is to review some of the targeted credit programs, which are seen as the major and primary interventions for poverty alleviation. Table 11 features information on their operations.

As of Mid-July 2000, major specialised credit institutions implementing micro-credit programs in the government sector, which includes SFDP (ADB/N) PCRW/MCPW and the Grameen clones in the government and non-government sectors, had lent a cumulative amount Rs. 11.6 billion since their start. They had organised 474 thousand men and women in slightly more than 105 thousand groups for micro-level income generating activities, and had induced them to generate group savings of Rs 481.9 million. Except for the SFDP groups, which could be mixed or involving only men or women, all other groups involve only women as members. Another Rs 426 million has been lent under UNDP-assisted Village Development Program (VDP) under Participatory District Development/Local Governance Programs (PDDP/LGP), which has been taken as a model for the operation of the proposed Poverty Fund. What is more important, this program has been able to mobilise larger amount of Rs 540 million from local savings.

Table 11. Targeted Credit Programs (Mid-July, 2000)

Programs/	Cumulative Coverage	No of Groups	Cumulative (Rs in '000)	
Institutions	Districts/VDCs	Borrowers	Disbursement	Savings
SFDP (ADB/N), 1999	75/587	21606/152595	5379664	66981
PCRW/MCPW, 1999	67/624	22346/113606	662974	53473
MCPW/NGOs,1999	17**/96	5872/19215	139273	51382
Grameen Bank Replications				
RRDBs	38/819	25989*/127107	4230305	220712
CSD+Nirdhan	17/405	14798/61786	1237283	89401
SFCL	31/105	8827/60626	380340	102046
PDDP/VDP	30/313	7311/198474	272000	130500
LGP/VDP	28/206	5509/39440	153900	410000

* 1999 figures.
** Twelve districts and 5 urban centres.

Sources: Agriculture Development Bank Paper 2000, Women Development Program, Progress Report, Women Development Division, 2001; Non-Bank Financial Statistics, Jan. 2001, NRB; LGP Annual Report, 2000; PDDP, the Year in Review, 2000; Economic Survey, 2000/ 2001,MOF, HMG.

These programs have shown that a substantial amount of resources can be generated from rural savings and credit schemes, which can be used for small-scale credit needs for facilitating income generation activities at the individual and community levels. This is of great importance in a country where most of the population is poor by international standards, and where existing domestic savings rates are very low.

SFDP was started by ADB/N in three sites in Nepal on experimental basis, with FAO funding, in 1975. Under SFDP, small and marginal farmers were organised in groups and could borrow from the ADB/N on group guarantee. Thus began the history of group-based micro-financing in Nepal. With resounding success in pilot sites, SFDP sites multiplied fast since 1980. A number of donors including the Asian Development Bank funded the program on a large scale. This fast expansion, often on political demand, led to severe delinquency problems later on and a search for new models started. SFDP also had a women's component started in 1982. This was merged with SFDP in early nineties. The Small Farmer Credit Ltds (SFCL) are federations of small farmer groups organised under SFDP. They function as co-operatives**.**

PCRW was also introduced in 1982. This was first of its kind, which aimed to mainstream women into the existing credit market. Objectives set were: (a) to increase the income levels of women from poor rural households by promoting their small-scale production activities through provision of credit, training, and other complementary inputs as a package for them, (b) to develop self-confidence among rural women so that they would be able to undertake community development activities by themselves, and (c) to develop an effective delivery mechanism to channel resources to women at the grassroots level using existing banking channels.

The program is operated by the Women Development Division (WDD), which was under the Ministry of Local Development until mid-July 2001. Since then it has been transferred to the Ministry of Women and Social Welfare. It maintains a Women Development Officer and a Women Development Section at the district level with a few staff and a few field workers at the village sites where the program operates. Although as of Mid July 2001, PCRW was operating in 67 districts, it is an area-based program covering small pockets in villages. At that date, it had covered 624 Village Development Committees (VDCs). Currently, the main source of fund of the program is from IFAD, channelled through commercial banks and ADB/N. UNICEF has been supporting the social component and the staff cost of the program. Overdue, which constitutes 18 per cent, is its main problem in operations. Non-regularisation of the PCRW administration is another major problem.

MCPW was initiated in 1994 by the Ministry of Local Development from the lessons learnt from PCRW. The project was, and is, supported by Asian Development Bank, whose fund has been canalised through Nepal Bank Ltd. and Rastriya Banijya Bank. The primary aim of the project is to improve the socio-economic status of women and mainstreaming of women in national development through credit and other training and support in social preparation. The project seeks participation of NGOs in the delivery of credit. The Women Development Division, which operates PCRW, is the executing agency for group formation and training of women beneficiaries, and institutional support to NGOs. The idea is to develop NGOs as financial intermediaries in the supply of credit. But it also funds

PCRW directly. MCPW is operated in 12 districts and involves 95 NGOs. The loan recovery rate, so far, has been 100 per cent in the program.

MCPW is aimed at lending to women's micro-enterprises on a larger scale than PCRW or RRDBs (to be discussed below). Under PCRW, maximum loan size is Rs 30,000. RRDBs, although not specific about their maximum lending size, keep lending per client below Rs 25,000. Under MCPW, loans may go up to 250,000 as these are directed primarily for micro-enterprise development rather than poverty alleviation per se.

RRDBs and Other Grameen Clones: Since early 1990s, five Regional Rural Development Banks, one each in five Development Regions of the country, have been established. Primary objective set for them was to provide institutional credit to those poorer households, which still remained outside the reach of other targeted credit programs. The primary goal was to reduce poverty. Credit is provided mainly to women from rural households around market centres. But not all borrowers from RRDBs or similar NGOs are poor by the Nepalese standard.

Under this model, credit is provided for micro-level income generating activities. They start with small loans and the size of the loan may expand with consecutive loan-cycle. The progress of the client is observed closely and loans are supervised intensively. Clients have to follow weekly repayment schedule, whether the projects generate weekly income or not. Clients with alternative sources of income have obvious advantage in this respect. But very poor can borrow and pay from their wage-income, as there is no limit on minimum size of the loan. This model of lending is successful only when there are nearby markets to generate weekly income, and operate in non-remote hill towns and Tarai areas and nearby foothills. These banks are financed mainly from the equity capital, group fund and borrowings from NRB and commercial banks.

A number of NGOs also implement savings-credit program along the *Grameen* model. But only specialised banking NGOs, modelled along the Grameen Bank of Bangladesh, Centre for Self-help Development (CSD) and Nirdhan, run large scale credit programs, and only their activities are recorded centrally. Hence this analysis covers only their lending operations. Two of such NGOs, Nirdhan and DEPROSC have converted themselves into development banks, by now. Both the Rural Development Banks and the NGOs working in the rural finance do not require tangible collateral.

Co-operatives: Credit co-operatives have emerged as the next important institutional form catering to the clients in agriculture related activities. As per the NRB Report (2000), there were 1574 such credit cooperatives in the country. Of them, only 34 had been registered with NRB as of the survey date (2002). From a survey NRB concludes that cooperatives are also concentrated in the Kathmandu Valley and urban areas, and more than one half of their lending is for trading. Table 12.and 13 below provides information on their financial operations.

Table 12. Selected Financial Indicators of the Credit Cooperatives, 2000 (Rs. in million)

Indicators	NRB Registered	NRB not Registered	Overall Average
Capital Fund	38.6	49.3	44.0
Deposits	270.0	264.0	267.0
Credit	221.7	268.3	245.0
Profit on Capital Fund (%)	18.7	13.7	-

Source: NRB, 2002. Projected from 10% Survey.

Table13. Distribution of Average Credit Flow from Credit Cooperatives by Sector, 2000

Indicators	NRB Registered	NRB not Registered
Agriculture	15.0	3.0
Services	8.0	15.0
Manufacturing	6.0	2.0
Trade	42.0	56.0
Others	29.0	24.0
Total (%)	*100.0*	*100.0*

Source: NRB, 2002. Projected from 10% Survey.

The cooperatives play substantial role in the agricultural economy (Table 14). Nevertheless, data on Sajha role in early 1990s are not available for a historical analysis of their transactions in the 1990s. A definite positive factor is that they have become people's institutions, from the government-patronized Sajha. Resource mobilization has accelerated in rural areas. Liberalization of the financial sector has definitely played a positive role in strengthening the role of people's cooperatives.

Table 14. Selected Indicators on all Cooperatives, 1999/2000

Purpose of Loans	Rs. Million	Percent
A. Total Transactions		
Agricultural Inputs	375.4	34.6
Consumer Goods	94.1	8.7
Agricultural Products	81.7	7.5
Construction Materials	52.9	4.9
Milk	480.2	44.3
Other	0.3	0.0
Total	1084.6	100.0
B. Credit	*1157.8*	
C. Share Capital	*400.0*	
D. Members (000)	*1030*	

Source: The Department of Cooperatives, as quoted in NRB, 2002.

Other Programs: Besides, other numerous government, non-government and INGO programs have adopted savings-credit as a necessary element of social

mobilisation. Even health-oriented mothers' groups might have their own savings-credit activities. Government has introduced one or other new credit programs intermittently to satisfy its political constituency. Finally, it has come to realise that all such programs can, and should, be managed under one umbrella in the form of the proposed Poverty Alleviation Fund. This Fund will adopt the modalities of operation at district level, developed by PDDP and LGP.

Explicitly stated objectives of the Participatory District Program (PDDP) and Local Governance Programme (LGP) are to assist government in developing a decentralised system of governance that promote self-reliance of local governments and communities. These programs have had large-scale donor funding during last five years. The only difference between PDDP and LGP is that the PDDP is under the NPC and the LGP is under the Ministry of Local Development.

What is relevant for the current analysis is the Village Development Programs introduced by them (VDP/ PDDP and VDP/LGP). From this year, VDPs have been extended to a total of 519 villages in 58 of Nepal's 75 districts. Both these programs are funded by UNDP and replicate exactly each other. They are supposed to build local capacities by strengthening village and district-level planning and management and mobilising local resources. But VDP has adopted savings-credit as its primary group organising principle. Theoretically, VDP is also experimenting with a bottom-up participatory process for development planning. VDP modalities of operation are:

- Social mobilisation of at least 80 percent of the households in the village into groups. Groups are ward-based and entry point is savings and credit. An office set up for social mobilisation at village level is funded for three years. Districts and VDCs are supposed to take over the office afterwards. The idea is to involve at least 80 percent of the households in this process. Both men and women are mobilised.
- Equipping local bodies with skills and expertise related to social mobilisation and at the household level, and planning, programming and implementation of social sector programs for poverty reduction.
- Providing seed capital and credit fund for community development, from which the community organisations may receive grant and group-members can borrow for individual enterprise.
- Mobilising local savings in community organisations.
- Establishment of a local trust fund at the district level to be managed by DDC, from which VDP groups may borrow. Until December 2000, with PDDP/LGP assistance, Local Trust Funds had been created in 39 districts, in which the DDCs act as the support organisation to promote and replicate the VDP.

Reaching the poorest of the poor and ensuring that the poorer sections of the population benefit more from the UNDP and government sponsored programs is still a problem to be solved in VDPs. Although, in contrast to earlier government and donor approaches in organisation of user groups, the VDP approach has taken the social mobilisation process to the settlement level and made it more

comprehensive and sustainable, it is still a shop-keeper approach. Those who want to come are welcome. Consequently, so far program effectiveness has been demonstrated only in already advanced VDCs in advanced districts, e.g. Syanjya, Rupandehi, Sunsari, Kaski, Kavre etc., which already have had a large number of flourishing groups mobilized under various other programs.

Whether channelling total resources to villages through the VDP process alone would address the poverty issue on a larger scale is yet to be seen. The social mobilisers are not required to do door-to-door canvassing for group formation. The whole process is based on the political structure of the VDC, which is dominated by the rural elite. But these groups are supposed to be the only functioning groups in the village encompassing all activities at the grassroots level. All government and non-government resources are supposed to be directed to the people of the village only through these groups. Two kinds of risk are inherent in such processes. One is the reinforcement of the village hierarchy. For example, no community organisation in VDP areas has been noticed to break the drinking water barrier for the *Dalit* caste children in the village schools. Secondly, they may fall under the trap of the village politicians, as they did under the old Panchatyat system, whereby the ward chairman used to be the ex-officio chairman of all user groups and tended to use the groups in his own or his group's interest.

The UNDP-supported program has supplanted all earlier village-level initiatives by the government as well as local and national NGOs, as there is no room for their participation in the VDP process. Even very successful PCRW groups are being abandoned in favour of VDP-organised groups. This could be a positive trend as PCRW had very limited scope and women had to go through regular banking procedures for credit. But this may also have contributed to increasing the delinquency of PCRW loans. Sustainability of VDP programs is yet to be proved. Until the end of 2000, in no VDP had the UNDP-funded structures been withdrawn completely.

Further experts (Vaidya and Paudyal, 1999) opine that the whole approach is paternalistic that assumes that Nepalese people are ignorant, childlike and can not come together for collective action. It kills indigenous initiatives and, instead of creating self reliance, fosters dependency.

VI.   OVERALL SOURCES AND ACCESS TO FORMAL CREDIT: AN IMPACT EVALUATION

The earlier programs, PCRW and SFDP/Women Development Program, were commended for their social components rather than for income generation per se (IIDS 1991-1992, Pradhan, 1995; Goonting, 1994). Social mobilisation, group formation, informal education and credit were felt to be powerful intervention strategies for reaching women effectively and for their empowerment across all sectoral programs. More recent programs focus primarily on credit as the organising principle, follow the clients closely, give increasing amount of credit with consecutive borrowings and have been found to help women economically to

a greater extent. The Rural Development Banks and the NGOs working in the rural finance do not require tangible collateral actually in practice. These schemes have been highly successful in terms of credit operations, since most of the institutions including the Rural Development Banks have more than 98 percent repayment rate. VDP, which encompasses the objective of bottom-up planning, is yet to yield tangible results as the district plans originating from even the PDDP/LGP districts are not fully integrated into the national planning and budgeting process (Acharya and Write, 2000) nor has the participatory process of annual planning and budgeting been institutionalized properly so far (IIDS,2002).

In spite of multitude of programs, as per recorded data, ADB/N remains the foremost rural and agricultural financing institution accounting for 56 percent of the total rural credit supply from formal channels. Commercial banks are the second largest institutional sources for rural credit. They account for nearly 39 percent of rural credit from the formal sources. But the cooperatives as a whole are coming up as the third largest group of lenders with a total outstanding lending of nearly Rs.1.3 billion. Even net of their loans of Rs. 667.6 million (primarily from the commercial banks and ADB/N), their outstanding credit is more than Rs 598 million. The role of the five Grameen models in rural micro financing has increased recently, but their share in outstanding rural institutional credit is still less than two percent. Moreover, since they borrow from the commercial banks for further lending, their lending is partially already accounted for in commercial bank lending. The share of financial intermediaries such as other NGOs and Savings and Credit Co-operatives in the total formal sector outstanding rural institutional credit is still negligible (Table 15).

NRB has completed three Rural Credit Surveys in Nepal so far. They provide a sort of time series data on access to credit in rural areas. Further, the 1995/96 National Living Standard Measurement Study (NLSS) by CBS provides some recent information on access to credit by expenditure quintiles. Tables 16-18 feature the relevant information.

Nepal Rural Credit Surveys and NLSS reveal no trend through time in the proportion of borrowing families. In 1969/70 only 38 percent of the rural families reported borrowing. In 1976/77, this proportion went up to 51 percent, coming down again to 39 percent in 1991/92. But the 1995/96 NLSS again reports borrowings by 63 percent rural households. The Rural Credit Survey of 1969/70 came towards the end of the land-reform decade. The land-reform package had also written off the old debts. This may account for the low proportion of borrowing households in 1969/70. The 1991/92 credit survey again reported lower proportion of borrowing households which was accounted for primarily by decline in the proportion of institutional borrowers. Compared to 1991/1992 the proportion of rural borrowers has increased by more than 24 percentage points as per the 1995/96 NLSS. Sourcewise distribution of borrowing households seems to have remained more or less the same in 1991/92 and 1995/96. However, 2.76 percent of the total sample households had borrowed from both formal and informal sources in 1991/92.

Table 15. Sources of Rural Credit Supply (Outstanding as of Mid-July 2000)

Institutions	Information Sources	Rs. in Million	Percent
Agricultural Development Bank	1	12883.1	53.25
Commercial Banks (Agriculture Only)	2	8863.7	36.64
Regional Rural Development Banks	3	733.2	3.03
All Cooperatives	4	1276	5.27
NRB registered NGO	5	10.5	0.04
PDDP	6	412.2	1.70
LGP	7	15.8	0.07
Total		*22918.5**	*100.0*

* There is a double counting to the extent of Rs 667.6 million because the cooperatives loans from commercial banks and ADB/N was Rs. 667.6 million.

Source: (1) Economic Survey, 2000/01 P.12 (2) QEB, Oct.2000, P.17 (3) NRB Non-Bank Financial Statistics, April 2001 P.28 (4) NRB Special Study Report on Cooperatives, 2001 (5) NRB Non-Bank Financial Statistics, April 2001, P..32 (6) Annual Report PDDP 20000 (7) Annual Report LGP 2000, Credit Capital invested by Local Trust Fund as of Dec.1999 is Rs.15.8 million. As of Dec.2000, the cumulative investment is Rs 52,46 million.

Another significant trend indicated by these figures is the fact that there has not been much change in the role of formal and informal sources of rural credit supply since 1969/70. The proportionate role of informal sources of supply of credit has remained above 80 percent throughout the period with the exception in 1976/77 (Table 16). Between 1969/70 and 1976/77, the role of banks had increased by more than six percentage points due to the concerted efforts for branch expansion of ADB/N and the commercial banks. On the other hand, by this time, the compulsory savings schemes was winded up and their assets and liabilities were taken over by the Sajhas (Cooperatives). This expansion of commercial bank supply of credit to rural areas continued through 1991/92, but seems to have declined subsequently as an aftermath of financial liberalization. Another point observed in 1991/92 was borrowings, particularly by smaller households from both informal and formal sources. About 2.26 percent of the sample households had reported doing so.

However, changes are noticeable in the role of various agents of credit supply within the formal and informal markets. In the formal sector the role of local sources such as ward committees and co-operatives has almost disappeared after 1976/77. In spite of the boom in Grameen bank replications and INGO/NGO credit interventions, they together account for only minuscule proportion of rural credit. On the positive side, the role of professional moneylenders, agricultural traders and the land lord/employer has declined significantly, while that of friends and relatives has increased. This is a positive trend if the friends and relatives did not charge exorbitant interest rates and lent on less stringent terms than the group of moneylenders.

Table16. Borrowings from Formal and Informal Sources in Nepal (in percent)

Details	Rural-- NRB Credit Surveys			NLSS, 1995/96		
	1969/70	1976/77	1991/92	Rural	Urban	Nepal
Percent of Borrowing Households	38.28	51.26	38.89	63.18	37.59	61.32
Sources of Credit: **Formal**	*18.01*	*24.03*	*20.30*	*16.19*	*25.40*	*16.28*
Agricultural Development Bank + Land Reform Savings Corporation	0.34	4.99	9.4	9.90	9.61	9.89
Commercial banks.	2.45	4.12	8.6	2.55	10.90	2.88
Grameen Type Banks	---	---	---	1.24	0.76	1.22
Ward/Village Committees	12.35	---	---	---	---	---
Others (including Co-operatives, NGO / INGOs and Local Groups)	2.95	14.91	2.3	2.50	4.13	2.29
Sources of Credit: **Informal**	*81.92*	*75.98*	*82.46*	*83.78*	*74.67*	*83.43*
Friends and Relatives	30.90	24.24	na	40.40	50.70	40.80
Moneylenders	43.42	36.36	na	31.6	16.00	31.00
Landlords/Employer	2.78	3.74	na	4.07	2.19	3.99
Merchants/Agricultural Traders/	3.27	11.16	na	4.76	3.91	4.73
Others	1.55	0.48	na	2.95**	1.87**	2.91**
Total	*100*	*100*	*102.76*	*100*	*100*	*100*

Source: NRB, Rural Credit Surveys, 1981, 1994; NLSS 1996, 1997 and (Data Reprocessed); Sharma and Nepal, 1997.

*   For calculation of these figures households which borrowed from both sources have been included in both groups since 2.76 percent of the sample households borrowed from both sources

** Includes NGOs/INGOs, local groups, etc.

Urban households had much higher access to the organised sector credit. Generally, female-headed households had lessor access to institutional sources (Acharya, 2000). A comparison of the Tables 16 and 17 figures show that only slightly lower proportion of small and marginal farmers had access to formal sources of borrowing than the average rural households. But the quintilewise figures from 1995/96 NLSS shows that much lower proportion of households in the lowest 20 percent income quintile had access to formal sources of credit compared even to the second quintile. On the other hand, the difference between the access of the average rural households to formal sources of credit and that of the second quintile households was not large (16.2 vs 15.1).

Table 17. Access to Sources of Borrowings of Small and Marginal Households

1968 RCS	NRB--- RCSs Small and Marginal Farmers			NLSS (1995/96) Consumption Quintiles	
	1969/70	1976/77	1991/92	Lowest	2nd Lowest
Formal	*15.23*	*16.86*	*16.43*	*8.28*	*15.06*
Banks	1.72	4.79	na	8.28	15.06
Co-operatives, Ward Committees, etc	13.51	12.07	---	---	---
Informal	*82.94*	*82.57*	*88.21*	*91.72*	*84.94*
Relatives and Friends	31.07	26.53	na	38.46	36.53
Moneylenders/Landlords/Traders	*51.87*	*56.04*	na	*49.61*	*45.90*
Others	1.82	0.56	na	3.72**	2.51**
Total	*100*	*100*	*104.64*	*100*	*100*
Percent Borrowing	*76.30*	*64.45*	*39.00*	*na*	*na*

Source: NRB, Rural Credit Surveys, 1981 and 1994 (Vol.IV.pp.70-98); NLSS 1996 and (Data Reprocessed).

* For calculation of these figures households which borrowed from both sources have been included in both groups since 4.74 percent of the small and marginal households had borrowed from both sources.

** Includes NGOs/INGOs, local groups, etc.

Further, households in the mountain areas had significantly less access to formal sources of credit, although larger proportion of households in this ecological region borrowed than household in hill or *tarai* areas (Table 18) in 1995/96.

Table 18. Access to Formal Credit Institutions by Ecological Regions, Rural only (Percent of the Total Sample Households)

Regions	Borrower Households-Overall				From Formal Sources	
	NRB---- Rural Credit Surveys			NLSS	NRB-RCS	NLSS
	1969/70*	1976/77*	1991/92	1995/96	1991/92	1995/96
Mountain	na	na	35.68	67.25	4	5.18
Hill	36.52	42.37	38.07	58.97	8	13.86
Tarai	39.13	54.87	41.05	61.31	9	14.32
All Nepal	*38.28*	*51.26*	*38.89*	*63.18*	*7.13*	*10.23*

*Borrowers by Sources are not available for these years.
RSC=Rural Credit Survey.

The greatest impact the formal credit institutions have made in the credit market is probably on interest rates. The land reforms in early sixties, however incomplete, included writing off debts more than ten years old. The *Muluki-Ain* fixed ten-percent limit on the interest rate for the informal sector lending. This seems to have left a significant impact on the interest rates until late sixties. The interest rates, specially, for the small and marginal farmers, seem to have shot up again to astronomical proportions by the end of seventies. Separate figures for various farmer or income groups are not available for the nineties. But the level and range have declined sharply in the mid-nineties compared to the early nineties (Table 19). This is probably due to the proliferation of community and self-help organisations' mutual lending activities.

Table 19. Interest Rates, 1969/70-1995/96

Years	Formal	Traders/Money-lenders		Period	Average Annual Inflation Rate
		Large	Small & Marginal		
1969/70	9-10	35	50	1960s	6.7**
1976/77	8-18	50/60	100/150	1970s	10.7
1991/92	15-20	60/84*		1980s	9.3
1995/96	14-25	24/37*		1990s	9.7

Source: NRB, Rural Credit Surveys, 1972, 1981; NRB Bulletins, NLSS 1996 (Data Reprocessed).
* Figures are not available for Small and Large Farmers or high and low income groups separately.
** 1965/66.

V. CONCLUSIONS

Failure of Financial Development to Inspire Wider Level Development of the Real Sector

Earlier financial development in Nepal was an induced phenomenon as in other developing countries. The central bank (NRB) came into being only in 1956. Government established several financial institutions in the government sector or as subsidiary of these institutions, as the domestic private sector was too weak to do so. In the early years, NRB intervention in the financial market was directed primarily to resource mobilization and directing credit to specific priority sectors. Only since 1975, monetary management became a major concern. However, financial growth was slow until about mid-eighties. Only after the liberalization process accelerated since early nineties, financial development has been remarkable.

The total financial asset in the economy has increased to an amazing 76 percent of GDP from a paltry minimum of 24 percent in 1980 percent; the broad money (M2), which includes money in circulation and savings and fixed deposits with the commercial banks, has reached 51 percent of GDP. But none of the expectations of liberalization, such as extension of the organized credit market to more rural areas, increasing access for smaller borrower or more efficient and productive use of financial resources seem to have been achieved. The sector is experiencing chaos. The institutional network has expanded to meet some consumption needs of the urban middle class but diversion of resources from the agricultural sector has been substantial as illustrated by the decreased flow of bank resources to agriculture. None of the non-bank financial institutions cater for the rural population. As a source of rural credit, the role of the organized institutional sector has declined in the last decade. While the financial sector with their international connections and quick money-transfer abilities are overflowing with public funds, the productive sectors are starving for credit.

The situation is explained by the supply-side conventional economics in terms of inadequate liberalization of the financial sector, particularly the existence of the two public sector banks with huge repayment problems, their widespread loss-making rural branches and priority sector investment requirements (Asian Development Bank, 1999). Nevertheless, the financial sector has grown fast during

the nineties in spite of these inefficiencies. What this line of argument seems to ignore is the specific geopolitical situation of the country, which limits its macro-economic policy options severely. Nepalese economy has been and is largely open to India. This puts severe limits to monetary, exchange rate, as also pricing and taxation policy options in Nepal (Khatiwada,1997; Acharya and Khatiwada, 2003). Conventional economic logic also ignores the huge opportunity for graft the privatization process provides to the political elite, given the inadequate institutional framework to control the fraud. It is becoming increasingly clear that inefficiencies of the commercial banks are attributable more to the political intervention and the oligopolistic tendencies in the financial sector, rather than the priority sector or the rural branches. The joint venture banks with practically no rural operations are also suffering from bad quality of their investment and credit. It is becoming public that their balance sheets are widely window-dressed.

What is of more concern from a growth and poverty alleviation perspective is the fact that there seem to be no backward or forward linkages of this financial development. On the other hand, the nexus between the political elite and the international financial capital might be getting tighter. Nepal is slowly being drawn into what Mander and Goldsmith (1996) call the "casino economy" controlled by the international financial giants with no evident benefit to the people around the world. Nepal seems to be no exception in this case. Jeffrey Sachs (2002) also notes how today's short-term financial markets are estranged from the economic fundamentals and primarily guided by a gambling mass psychology.

Limited Impact of Interest Rate and Monetary Policy on the Price Level

As in all open small economies, authorities have very little control over the price level. Nepal has a small manufacturing sector and most of its needs for the manufactures and developmental goods as well as for petroleum products have to be fulfilled through imports. Further, due to the open border with India, free convertibility of IRe in Nepal with NRe, and fixed exchange rate between Indian and Nepalese Rupees, the domestic prices of tradable in Nepal are largely a function of the Indian market. Money and monetary policy in this context become dependent variables rather than independent policy options.

Non-government Sector

Non-government sector financial institutions have grown fast in the 1990s, but they are mostly concentrated in urban areas. More than 80 percent of the borrowing households have still to depend on non-formal sources for their credit needs. In spite of the plethora of targeted credit programs, they have made very little dent in the rural credit market.

Cooperatives (financial and non-financial) are emerging as the major source of funding for rural credit. However, data on financial sector development are not

amenable to analysis of urban-rural funds flows and linkages. The data generation process established earlier has been disrupted.

Impact on Poverty

The impact of financial sector development on poverty alleviation is not visible directly in terms of diversification of sources of credit supply to the rural areas or the rural poor or financing of priority areas for national development. For the urban poor we do not have comparative data. But the booming financial sector, particularly expansion of lending portfolio to include hire purchase and housing must have fulfilled some unmet needs of the urban middle class. An in-depth analysis of its indirect role in poverty alleviation is yet to be made.

Majority of the targeted credit programs have been unable to cater to the needs of the bottom 20 percent households directly because they lack other resources and knowledge to benefit from the saving-credit programs. Indirect impact of these financial developments and credit programs on poverty alleviation is yet to be assessed. Micro-credit programs leave the bottom twenty percent of the income ladder untouched. Therefore, any serious package to eradicate poverty must contain other immediate training and related employment programs for this bottom 20 percent, besides micro-credit and land-based agriculture, from which only the middle 60 percent can benefit. Emphasis on education is a correct strategy. But it will yield benefit only in the medium and long-term. The poor need alternative survival sources in the mean time.

Lack of Information

Finally, data on the monetary and financial sectors, though gathered regularly, are amenable to only macro-level monetary analysis. They are grossly inadequate for evaluating the impact of financial development on the economy or on poverty. Particularly, financial flow chart between various segments of the financial market, informal sector interest rates, rural/urban disaggregation of commercial banking and financial sector activities, etc. are a minimum necessity for a meaningful evaluation of financial sector impact on the economy as also on poverty.

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ABBREVIATION AND ACRONYMS

ADB/N	Agricultural Development Bank/Nepal
CSI	Cottage and Small Industries
CSD	Center for Self-help Development
DDC	District Development Committee
GDP	Gross Domestic Product
HDR	Human Development Report
HMG	His Majesty's Government
IBP	Intensive Banking Program
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
INGO	International Non-governmental Organisation
LGP	Local Governance Programme
MCPW	Micro-credit Project for Women
NBL	Nepal Bank Limited
NGO	Non-governmental Organisation
NIDC	Nepal Industrial Development Corporation
NPC	National Planning Commission
NRB	Nepal Rastra Bank
Rs	Nepalese Rupees
PCRW	Production Credit for Rural Women
PDDP	Participatory District Development Programme
RMDC	Rural Micro Credit Development Centre
RRB	Rastriya Banijya Bank
RRDBs	Regional Rural Development Banks
SFCL	Small Farmers' Cooperatives Limited
SFDP	Small Farmer Development Programme
UNDP	United Nations Development Programme
US $	US Dollar
VDC	Village Development Committee
VDP	Village Development Programme
WB	World Bank
WDD	Women Development Division

Microfinance Against Poverty :
The Nepalese Scenario

Shalik Ram Sharma[*]

Microfinance institutions, both formal and informal, provide financial services which help in creating self-employment and income opportunities among the poor. NRB has made a number of innovative attempts for developing microfinance framework in the country. The article attempts to analyze the extent of the access provided, and the generation of employment opportunities, by the formal and semi-formal microfinance institutions/ programs in addition to identifying the problems faced in attaining financial sustainability by them. In view of the increasing need for microfinance services in terms of both the amount and coverage, NRB needs to enhance its capabilities to regulate, supervise and monitor large number of MFIs and also come up with innovative and suitable credit policies/regulations that would create an enabling environment for MFIs to grow and attain sound financial health. Some of the desired roles for HMG are demonstrating firm commitment towards poverty alleviation through action, stopping direct involvement in running and managing MFIs, stopping owning MFIs, and handing over presently owned shares of such institutions to the private sector through appropriate and transparent mechanism.

1. POVERTY PROFILE

The population below the poverty line in Nepal increased from 41.5 percent in 1984/85, last year of the Sixth Plan Period (1980/81–1984/85), to 49.0 percent in 1991/92. Realizing the need to address the ever-increasing poverty problem, the government aimed to increase the economic growth at a faster rate, reducing poverty and regional imbalances in its Eighth Plan. The government further intensified the financial reform process through the implementation of Enhanced Structural Adjustment Program (1992/93 – 1994/95) that had the objectives of promoting competition in the financial system, enhancing domestic savings, fostering efficient allocation of financial resources, and increasing flow of financial resources in the priority sector. Nepal Living Standards Survey conducted by CBS in 1996, fourth year of the Eighth Plan Period, revealed the population below

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poverty line being reduced to 42 percent. Having achieved some success in poverty reduction front during the Eighth Plan, the government implemented the Ninth Plan (1997/98–2001/02) with the sole objective of poverty reduction and fixed the target of increasing economic growth rate at 6.0 percent per year, and reducing the percentage of population below poverty line from 42.0 percent to 32.0 percent. The Plan had adopted the concept of reducing poverty through higher growth rate in agricultural sector and creating employment opportunities by deploying increased investments in water resources, tourism and industrial sectors, and had implemented policies and programs accordingly. Estimates based on the performance of the first three years of the Ninth Plan period indicated further reduction in the population below poverty line to 38 percent [NPC 2001]. The sources of some studies/surveys and their estimates of the poverty line and the proportion of population below such line in the past are presented in the following table:

Table 1. Population Below the Poverty Line

Source	Population below the poverty line (%)
1. National Household Survey of Income/Consumption Conducted in 1977, NPC	36.0
2. Multipurpose Household Budget Survey conducted in 1984/85, NRB	41.5
3. Estimates Made Prior to the Implementation of the Eighth Five Year Plan (1992/93 – 1996/97), HMG	49.0
4. Nepal Living Standards Survey conducted in 1996, CBS	42.0
5. Estimates Based on the Performance of the First Three Years of the Ninth Plan, NPC's Concept Paper on the Tenth Plan, February 2003	38.0

The Tenth Plan (2002/03 – 2006/07), which is currently under implementation, stipulates again the sole objective of poverty alleviation. The Plan has fixed the target of reducing the population below the poverty line from 38 percent to 30 percent [NPC 2001]. To achieve the Tenth Plan's objective of "poverty alleviation", a firm commitment from the government and the political parties is essential and all the efforts should clearly be geared towards increasing the outreach of the formal and semi-formal financial institutions engaged in microfinance services.

2. ROLE OF MICROFINANCE

"Microfinance", as defined by ADB's Microfinance Development Strategy [ADB 2000], is the financial service such as deposits, loans, payment services, money transfers, and insurance to poor and low income households and their microenterprises. Studies in Nepal and elsewhere [Rahman and Khandker 1994] have clearly indicated microfinance as a powerful tool for alleviating poverty.

MFIs in Nepal are serving primarily the microentrepreneurs who operate or are starting to operate very small enterprises, termed as microenterprises. Accesses of microentrepreneurs to microfinance services provide them with an important tool for improving their efficiency, productivity, and welfare while reducing risk. In other words, MFIs, both formal and informal, provide financial services which help in creating job opportunities to the microentrepreneurs, both wage and self-employment, and thereby generating income among the poor.

The informal financial markets in Nepal have been in existence for generations, whereas the first initiation of formal sector lending in rural Nepal began in 1956 with the establishment of credit cooperatives in the Rapti Valley of Chitwan district [Sharma and Nepal, 1997]. The Nepal Rural Credit Review Report [NRB 1994] revealed that, in 1991/92, only 39 percent of the rural households had borrowed, of which 86.82 percent[+] had borrowed from informal sources such as landlords, merchants/traders and friends and relatives, and 20.29 percent[+] from formal sources such as banks and financial institutions. Hence, in 1991/92, a year before the beginning of the Eighth Plan Period (1992/93 – 1996/97), the coverage of the formal financial sources was one-fifth and that of the informal sources was four-fifths. These findings clearly indicate dominance of informal sources in rural financial market in terms of outreach. This calls for an increased coverage of formal and semi-formal MFIs/Ps for poverty alleviation.

3. FINANCIAL MARKET

The prominent participants/actors in the Nepalese financial market can be categorized into three sectors: *Formal, Semi-Formal, and Informal*. The type of participants and their numbers by sector, as of mid January 2003 are as follows:

Formal Sector

- Commercial Banks [17]
- Development Banks including ADB/N and NIDC [10]
- Rural Microfinance Development Banks [11]
- Finance Companies (FCs) [55]

[+] Sum of these two figures exceeds 100, because 7.11 percent households had borrowed from both the sources.

- Savings and Credit Cooperatives (SCCs) [2,262 SCCs were registered by mid-July 2002, of which 34 had been licensed by NRB for limited banking activities, 391 were the members of Nepal Federation of Savings and Credit Cooperative Union (NEFSCUN), 107 were graduated as SFCLs under SFDP, and 82 were promoted under MCPW].
- Financial Intermediary Non-Governmental Organizations (FI-NGOs) [37 licensed by NRB under the Financial Intermediary Societies Act, 1998].

Informal Sector

- Savings and Credit Organizations (SCOs) [>12,000]
- Self-help Groups [Several]
- Landlords, Merchants/Traders, Goldsmiths, Friends and relatives [Several]

4. DEVELOPMENT OF MFIs

Rural Microfinance Development Banks

Two regional level rural microfinance development banks (also known as Grameen Bikas Banks), one each in the Eastern and the Far-Western Development Regions, were established towards the end of 1992. By June 1996, other three such banks, one each in the other three Development Regions, were also set up. These Grameen Bikas Banks represent an innovative outreach model patterned on the Grameen Bank of Bangladesh, which caters the financial needs of the deprived sections of the society in rural areas. HMG and NRB own majority shares of these banks. Later on, the private sector promoters set up Nirdhan Utthan Bank in 1998 and the Shwabalamban Bikas Bank in 2001, both of which are also grameen bank replicators. Deprosc Bikas Bank and the Chhimek Bikas Bank, established in 2000 and 2001 respectively, are also poverty focused microfinance banks, but don't follow the grameen bank pattern. However, all these nine MFIs provide *retail-banking services* to the deprived sections without physical collateral. With a view to provide wholesale loans and also strengthen the capabilities of the rural MFIs, the "Rural Microfinance Development Centre" was set up in 1998 under Asian Development Bank's initiatives and the Sana Kisan Bikas Bank in 2001 under GTZ's initiatives. Both are *second tier* institutions. The former provides wholesale loans to microfinance institutions, such as poverty focused development banks, SCCs and FI-NGOs, whereas the latter extends such loans mainly to the member SCCs. By January 2003, a total of 11 rural microfinance banks were in operation and all of them were licensed under the Development Bank Act, 1996.

Savings and Credit Cooperatives

Cooperative Act, 1992 was enacted in 1992. It provided legal framework for the cooperatives to function as people-based institutions. No Savings and Credit Cooperatives were established till 1993/94. It was only in 1994/95 that a total of 228 SCCs were registered. The number increased to 343 in mid-July 1996, 1,271 in mid-July 1999 and 2,262 in mid-July 2002. Of a total of 2,262 SCCs in mid-July 2002, 34 had been licensed by NRB under the Cooperative Act, 1992 to undertake limited banking activities.

Financial Intermediary Non-Governmental Organizations

In Nepal, Society Registration Act, 1978 allows non-profit welfare organization to register as an NGO. Enactment of Financial Intermediary Societies Act, 1998 enables such NGOs to provide financial services to the deprived section of the societies under group guarantee basis. However, the NGOs willing to undertake such functions will have to get license from NRB before they start the microfinance activities. Social Welfare council's estimate indicates the existence of 18,000 NGOs operating in the country [Kantipur, April 30,1996]. Of this total, 13 NGOs had taken license from NRB in 2000. The number of such FI-NGOs increased to 17 in 2001, and to 37 by January 2003. *The Financial Intermediary Societies Act, 1998 has made it obligatory on the part of FI-NGOs to provide financial services only to the people below the poverty line, that too under the group guarantee system*

5. DEVELOPMENT OF MFIS / PROGRAMS

The earliest initiatives for establishing microfinance services in Nepal could be traced to 1956 when the first 13 credit cooperatives were established in the Rapti Valley of Chitwan district under an executive order of the government and with the support of USAID/Nepal. The objective of such cooperatives was to provide credit to the flood-stricken people in the Valley. Before this, the credit needs of the rural sector were met completely by informal sources. In 1974, NRB directed the then two commercial banks to invest at least 5 percent of their total deposits in the "*small sector*". The activities to which credit was to be directed were collectively renamed the *"priority sector*" to cover agriculture, cottage industries, and the service sectors in 1976. At present, CBs are required to lend at least 12 percent (including deprived sector credit) of their total loan portfolio to this sector. *It was through this directive that the CBs were made to participate in rural lending for the first time in Nepal.* In 1990, NRB introduced the "*Deprived Sector Credit Program*" under which CBs are required to lend from 0.25 to 3.00 percent of their total loan portfolio to the hardcore poor. Failure to achieve the target attracted penalty on the shortfall.

A well-structured and specialized project entitled *"Small Farmer Development Project (SFDP)"* to cater the financial needs of the small farmers was initiated as a pilot project in November 1975 by ADB/N. This Project, which covers the entire country, aims at organizing "small farmers" into small credit groups and providing credit on a group guarantee basis. *It was in this project that the concept of group formation and group-based lending as an alternative to the physical collateral was introduced for the first time in Nepal.* A process of institutionalizing the small farmer groups into the *"Small Farmer Cooperative Limited"* has been initiated since 1993/94. The purpose of this initiative is to create locally-owned and managed MFIs that can take over the activities of SFDP on a self-sustaining basis. By mid-January 2003, 125 such SFCLs are in operations in 32 districts. In 1981, NRB introduced the *"Intensive Banking Program (IBP)"* under which the CBs were required to lend a certain percentage of their priority sector loan to the people below the poverty line as group-based lending. Under this lending program, loans are disbursed to the group members on group guarantee and the bank does not ask for any physical collateral. IBP was undertaken by NBL and RBB initially and later by Nabil. The Ministry of Local Development (MLD) in collaboration with UNICEF, NRB, CBs and ADB/N initiated the first women-focused socio-economic program "*Production Credit for Rural Women (PCRW)"* in 1982. This Program involved organization of poor women into small credit groups and appropriate skills training by the MLD staff and extension of group-based loans by the participating banks. This program is in implementation in 55 districts.

MLD initiated yet another project entitled *"Microcredit Project for Women (MCPW)"* in 1994 under ADB financial assistance. It had a provision of involving NGOs as financial intermediaries. The Project was implemented in 12 districts and five municipalities. The Project has promoted 82 CBOs into SCCs and helped 27 NGOs to be FI-NGOs by June 30, 2002. HMG established "*Rural Self-Reliance Fund"* in 1990 and contributed Rs. 10 million through the budget in the FY 1991/92. The government also contributed Rs. 10 million to the Fund in the following fiscal year. The Fund has a provision to provide wholesale loan to the SCCs and NGOs, who in-turn lend to the rural poor. HMG and the NRB, along with the formal financial institutions, established 5 regional grameen bank replicators, "*Grameen Bikas Banks*", one in each of the five development regions, and also a second tier institution entitled *"Rural Microfinance Development Centre (RMDC)"* during the 1992-98 period. During the same period, two more grameen bank replicators *"Nirdhan and CSD-SBP*" were also initiated in the NGO sector. These two NGOs, later on, promoted *"Nirdhan Utthan Bank*" and *"Swabalamban Bikas Bank*" as microfinance development banks. After the enactment of Cooperative Act, 1992 a total of 228 SCCs were registered by mid-July 1995; 343 SCCs by mid-July 1996; 1,271 SCCs by mid-July 1999; 1,971 SCCs by mid-July 2001 and 2,262 SCCs by mid-July 2002. Of the 1,971 SCCs and 2,262 SCCs that were in operation in FY 2000/01 and 2001/02 respectively, 19 municipality-based SCCs do not belong to MFI category because their lending policies do not match with the MFIs. The financial transactions of such 19 SCCs have not been

considered in this paper. Financial Intermediary Societies Act, 1998 has also enabled 37 FI-NGOs to undertake microfinance activities by January 2003.

6. OUTREACH AND CONTRIBUTIONS MADE BY MFIS/PROGRAMS IN POVERTY ALLEVIATION

Information presented in Table 1 above indicates that 38 percent of the population is below the poverty line as in mid-July 2000. Studies have also revealed that majority of the poor live in rural areas and depend heavily on agriculture and agro-based enterprises for their employment and income. In this context, it will be pertinent to review and analyze the contributions made by the formal and semi-formal microfinance institutions/program (MFIs/Ps) towards employment generation and access of formal and semi-formal sector credit to the households below the poverty line.

The MFIS/Ps, which were 13 in 1956 increased to 2,291 [nine microfinance development banks, 2,243 SCCs, including 125 SFCLs but excluding 19 municipality-based SCCs; 37 FI-NGOs, including CSD-SBP and DEPROSC; one SFDP; and one Deprived Sector Credit Program, including IBP, PCRW and MCPW] by mid-January 2003. Their information on outreach, cumulative loan disbursement, repayment, loan outstanding, and deposit mobilization are presented in Table 3 below. Of the 37 FI-NGOs, information of only 15 was available and included in the table. Similarly, information on SCCs (except SFCLs) and SFDP were available only for mid-July 2001. Therefore, *the data presented here would show contributions less than what is actually being made by the formal and semi-formal MFIs/Ps on employment generation and access to microfinance services as of mid-January 2003.*

Credit Disbursements and Outreach

In Table 2 it can be seen that 2,004 MFIs/Ps, combined together, had provided a total of Rs. 20,366 million of microcredit to 716 thousand micro-entrepreneurs by mid-January 2003. Loans were extended in agriculture, micro-enterprises, trade and service sectors. With the projects/activities financed under the institutional loans, the borrowers were able to generate Rs. 3,067 million equivalent of savings. The outstanding loan of the MFIs/Ps with the borrowers stood at Rs. 6,963 million by mid-January 2003. The coverage of the deprived population by the formal and semi-formal MFIs/Ps as in mid-January 2003 has been in the neighborhood of 716 thousand. The normal practice being followed by the MFIs/Ps is "one member, one household". With this practice, the outreach of 716 thousand population may be considered as equivalent to 716 households. Population Census 2001, National Report [CBS 2002] has estimated Nepal's population at 23,151 thousand [male: 11,563,921 and female: 11,587,502] and the number of households 4,253 thousand in 2001. The National Planning Commission [NPC 2001] has, on the basis of the performance of the first three year's of the Ninth Plan, estimated 38 percent of the

population below the poverty line. Thus, by assuming 38 percent of the population/households as those below poverty line, the population and the number of households falling below the poverty line is worked out at 8,797 thousand persons [38/100*23151000 = 8797000] and 1,616 thousand households [38/100*4253000 = 1616000] respectively by mid July 2001. *Therefore, it may be said that the formal and semi-formal institutions/programs had, by mid January 2003, provided access of microcredit to 44.31 percent [716/1616*100] of the households below the poverty line.*

Table 2. Credit Operations of MFIs/Ps (As of mid-January 2003)

S. N	Institutions / Programs	Cumulative No. of borrowers (In ' 000)	Cumulative loan disbursement (Rs. million)	Cumulative loan repayment (Rs. million)	Loan outstanding (Rs. million)	Savings collected (Rs. million)
1	Grameen Bikas Banks: 5 [As of mid Oct. 2002]	152	7,529	6,243	1,286	382
2	Nirdhan Utthan Bank	35	1,184	967	217	65
3	Swabalamban Bikas Bank	27	1,210	1,042	168	72
4	DEPROSC Bikas Bank	10	123	66	57	10
5	Chhimek Bikas Bank	3	55	23	32	5
6	Small Farmers Cooperative Limited: Number 125	69	1,829	849	980	165
7	Savings and Credit Cooperatives[*]: Number 1851 [As of mid July 2001]	160	1,896	701	1,195	2,237
8	CSD-SBP (An NGO)	2	66	54	12	4
9	DEPROSC (An NGO)	4	32	20	12	3
10	FI-NGOs[+]: Number 15 [As of mid July 2002]	12	58	27	31	-
11	SFDP: Number 242 Sub-Project Offices [As of mid July 2001]	166	6,384	5,344	1,040	78
12	Direct Lending of CBs Under Deprived Sector Credit Program[@] [As of mid July 2002]	76	NA	NA	1,933	46
	Total	*716*	*20,366*	*15,336*	*6,963*	*3,067*

Note: NA = Not Available

Sources: (1) Non-Bank Regulation Dept. and Microfinance Dept. NRB .

(2) Small Farmers Dev. Program, At a Glance, ADB/N

(3) Cooperative Department and the Respective MFIs.

This achievement is certainly praiseworthy, but given the need to provide formal microfinance access to all those below poverty line, a lot more efforts are still required. Nearly 56 percent of the poor households are yet to be covered. The achievement of the past falls below the expectations. One reason for low coverage in the past is that the number of MFIs in Nepal was not adequate to cater to the financial needs of the remaining poor households. Second reason is that their service areas were limited, and the third reason is that, though the number of such institutions stood at 2,298, excluding CBs, development banks and finance companies that do not provide microfinance services, in mid-July 2002, majority of them were in the business hardly for 1-2 years. Most were new entrants. So, there

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[*] Does not include the financial transactions of 19 Municipality based SCCs, whose lending policies and programs do not match with MFIs, and of 101 SFCLs operating in mid-July 2001.

[+] Does not include the financial transactions of the two NGOs: CSD-SBP and DEPROSC.

[@] Includes lending operations under IPB, PCRW and MCPW programs as well.

is a need to (i) identify, initiate, encourage, and assist more and more promoters to register MFIs, and (ii) strengthen the financial and institutional capabilities of the MFIs/Ps presently participating in microfinance market. A study undertaken in Bangladesh (Rahman and Khandker 1994) has also revealed that microcredit programs are highly successful in creating job opportunities and in reducing poverty. This, to some extent, is also true in Nepal. In this context, it is advised that HMG and NRB should (i) emphasize and encourage people in establishing new MFIs, (ii) strengthen the capital base and institutional capabilities of the participants in the microfinance market, and (iii) create enabling environment for MFIs to expand service area, cut down social and service delivery costs, and grow.

Table 3. Priority Sector and Deprived Sector Lending of Commercial Banks

Particulars		Mid-July 2001	Mid-July 2002
Six Months Prior Credit (Rs. million)		96935	104182
Priority Sector			
Required Lending:	**In Percent**	12	9
	In Amount (Rs. Million)	11632	9376
Actual Lending:	In Amount (Rs. million)	13117	16343
	In Percent	13.53	15.69
Excess/Shortfall:	In Amount (Rs. Million)	1485	6967
	In Percent	1.53	6.69
Deprived Sector			
Required Lending:	In Percent	0.25-3.00	2.25
	In Amount (Rs. Million)	2646	2344
Actual Lending:	In Percent	3.6	3.34
	In Amount (Rs. million)[(a)+(b)]	3492	3483
	(a) Direct Lending	1859	1933
	(b) Indirect Lending		
	[(I)+(ii)+(iii)+(iv)]	1633	1550
	(i) Share in Grameen Bikas		
Banks and RMDC		174	
	(ii) Loans to Grameen Bikas		
Banks		873	
	(iii) Loans to FI-NGOs and		
Cooperatives		556	
	(iv) Loans to ADB/N	30	
Excess/Shortfall:	In Amount (Rs. Million)	846	1139
	In Percent		1.09

Note: Required lending rate was lowered by 0.25 percent in both the Priority and Deprived sectors for the Fiscal Year 2001/02.

Source: Bank and Financial Institutions Department, NRB.

Employment Generation

A microenterprise survey conducted in the Uttarganga VDC of Surkhet district [Sharma et al. 1996] revealed that a microenterprise, at start, would on an average generate jobs for 2.10 persons. By sector, the average numbers of jobs created at

start varied from a minimum of 1.40 persons in trading[1] to a maximum of 2.40 persons in non-crop agriculture[2]. The average job creation was 3.31 persons in manufacturing[3] and 2.13 persons in services[4]. The survey report also revealed that a microenterprise, at start, would, on an average, require an investment of Rs 14 thousand. This amount includes mostly the fixed capital and also some portion of working capital. The finding that a microenterprise generating employment for 2.10 persons for a loan of Rs. 14 thousand of investment being based on the survey of one VDC can not be generalized for all Nepal. However, in the absence of such surveys conducted in all Nepal basis, the finding stated above may be taken as proxy for all Nepal. With this norm, it may be said that the formal and semi-formal MFIs/Ps have through their microfinance services helped create employment to 1,454,714 poor [Rs. 20,366,000,000/Rs. 14,000 = 1,454,714] by mid-January 2003. This figure does not include the loan amount disbursed by the CBs under the Deprived Sector Credit Program. So, if we add equivalent amount of the outstanding loans of CBs under Deprived Sector Credit Program (Rs. 1,933 million) to the cumulative loan disbursement of Rs.20,366 million, the number of jobs created would increase to 1,592,786 [Rs. 22,299,000,000/Rs. 14,000 = 1,592,786]. *Thus, based on the available statistics it may be said that the formal and semi-formal MFIs / programs had, by mid January 2003, helped create job opportunities to 18.11 percent [1,592,786/8,797,000*100 = 18.11 percent] of the population below the poverty line.*

7. PROBLEMS FACED BY MFIs/PROGRAMS IN ATTAINING FINANCIAL SUSTAINABILITY

MFIs have to be concerned with their financial sustainability because it is a precondition for reaching large numbers of microentrepreneurs with microfinance services over a sustained time period. Financial sustainability refers to a stage attaining which the MFIs become independent of continuing financial resources from governments, international agencies, or charitable organizations. In other words, it refers to the extent, to which a MFI, in addition to being financially viable, mobilizes its own financial resources internally, that is, through equity, deposits, and retained profits instead of depending on government or donor resources.

The first hurdle in reaching financial sustainability is attaining operational self-sufficiency. It refers to the extent, to which a MFI covers its expenses such as salaries and other administrative costs, depreciation of fixed assets, interest on borrowings and deposits (i.e., cost of loanable funds), and provisioning for loan

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[1] Trading in edible oil, fresh vegetables, foreign goods, goat and pig, and paddy.
[2] Vegetable farming, dairy buffalo, fishery, and goat raising.
[3] Liue making, pottery, iron products, cement tiles, carpet weaving, goldsmith, furniture, bamboo products, iron smith, and maadal (typical Nepali musical instrument made out of timber and goat/buffalo/cattle skin) making.
[4] Buffalo cart, tea shop, lodge, retail shop, rice/oil/flour mills, shoe polishing, bicycle repairing, copper utensils repairing, and tailoring

loss (i.e., the cost of loan principal lost to default) out of fees and interest income. According to CGAP, "operational self-sufficiency" requires MFIs to cover all administrative costs and loan losses from operating income. This is calculated by dividing operating income by operating expenses. MFIs that have not yet crossed this hurdle may be said to be heavily subsidy-dependent. Such institutions require frequent injections of fresh funds, and in case such funds are not forthcoming, they will quickly eat-up their capital in financing routine operational costs.

The second hurdle in reaching financial sustainability is financial self-sufficiency. It refers to the extent, to which a MFI (i) covers from its fees and interest income expenses such as interest on borrowings at the market rate, and also the inflation in addition to other costs included in assessing operational self-sufficiency; (ii) has its loan repaid, and (iii) makes a profit for expansion and further growth. According to CGAP, "financial self-sufficiency" requires MFIs to cover all administrative costs, loan losses, and financing costs from operating income, after adjusting for inflation and subsidies and treating all funding as if it had a commercial cost. Once this hurdle is crossed, subsidies in the form of concessional funds are no longer required, and also the inflation does not erode the value of MFI's capital. Theoretically, MFIs must add inflation in the interest rates they charge to their clients. In case, the interest rates are not adjusted for inflation and the return on capital falls below the inflation rate, the MFI would fail to cross the financial self-sufficiency hurdle and the real value of its capital will shrink. Similarly, MFIs that are expanding rapidly also face reduced profitability. Expansion requires investment in staff and facilities that may not be covered from an interest earning loan portfolio for some years. This has the effect of lowering measures of operational self-sufficiency until expansion levels off [Christen et al. 1995]. When an MFI crosses financial self-sufficiency level, the investors can expect a return on equity equivalent to returns that can be obtained elsewhere in the private sector. MFIs that attain this level will be profitable and secured and, therefore, can gain access to commercial funding sources.

In Nepalese context, MFIs that have been involved for more than five years in microfinance services have not yet achieved operational self-sufficiency level. Achieving financial self-sufficiency is still a long way for them. One may ask what could be the reasons for not achieving even the operational self-sufficiency by such institutions/programs?

These institutions/programs have to bear five types of cost: *social cost*, *service delivery cost (including salaries and other administrative costs, and depreciation of fixed assets), fund cost, provisioning for loan loss, and inflation.* Social preparation/activities such as, identification of geographical working area, identification of target group, organization of pre-group training, formation/reorganization of groups, formations of centers have to be performed before a loan is disbursed. Costs incurred on these activities can be categorized as "social costs". Credit and savings services are to be provided in the "Center" which is established in a place convenient to the group members. Field staff visits the center weekly, fortnightly or monthly depending upon the process adopted by the

institution. At the center, the field staff performs duties, such as, demand collection, weekly/fortnightly/monthly savings and loan installments collections, loan disbursement, review and discussions on problems and future needs. Costs incurred on the salaries and other facilities provided to such staff and those in the branch/area/regional/head offices along with other administrative costs including depreciation of fixed assets can be categorized as "service delivery costs". Interest paid on borrowed funds and deposits can be categorized as "fund costs". All these five types of costs have to be covered by the fees and interest amount they derive from their loan portfolio.

For the time being, MFIs are getting soft loan from CBs under Deprived Sector Credit Program for on-lending to their clients. Therefore, their fund cost and provisioning for loan loss due to their high recovery rate are not that high. But if the compulsion for CBs to lend in deprived sector, which has to be phased out sooner or later, is withdrawn MFIs will have severe fund problem. MFIs cannot adjust inflation fully in their interest charges for political and social reasons as and when it increases the cost of financing. The operational modality followed by the MFIs/Ps without any doubt is relatively expensive, partly due to the high social cost and partly due to the expensive service delivery system. In case, they do not do effective social preparation and intensive supervision through weekly/ fortnightly/monthly visits, loan quality suffers and, thereby, the non-performing asset increases and provisioning for loan loss will increase.

These are the reasons for MFIs not being able to attain even operational self-sufficiency. Increasing staff productivity, efficiency and loan quality, and curtailing unnecessary staff and thereby administrative cost may reduce the service delivery cost to some extent. Even then, the social cost, which the other formal banking institutions don't incur, and the inflation remain to be managed. One of the ADB's study reports [ADB 2000] has suggested that if the number of microfinance clients is to grow significantly, MFIs need to become financially self-sufficient. That is, they need to be able to cover all administrative costs, loan losses, and financing costs from operating income, after adjusting for inflation and subsidies and treating all funding as if it had a commercial cost. In Nepal it is of national interest to ensure that the MFIs operating in the country attain financial self-sufficiency to be able to provide sustainable microfinance services to a large number of microentrepreneurs. One way to address the problems faced by MFIs/programs, which deal with a large number of small scale loans at the grassroots level, in achieving at least operational self-sufficiency level is to share their social cost and some portion of their costs associated to institutional capacity building, employment generation, technology transfer, and research and development for the initial periods by HMG, donors or institutions who take interest in poverty reduction in Nepal, through grant or soft loan.

Because of the high operational cost, the MFIs/Ps are bound to charge interest on their loans higher than other formal banking sources. It makes high cost loan to the borrowers, so high that they may not always earn that much return from the microenterprise undertaken under such loan. So, there is also a need to ease the interest burden of the borrowers. One option is to subsidize the cost of (i) raw

materials (seeds, fertilizers, irrigation, electricity), and (ii) veterinary services, skill development training, and also continue providing livestock insurance premium and capital subsidy on biogas installations to the "hardcore borrowers" by HMG/N. These measures will cut down the borrower's production cost and thereby the interest cost would not be a burden to them, and consequently, the recovery of institutional loan would also increase. High loan recovery rate resulting in low level of provisioning would increase MFI's profit on the one hand, and curtail on borrower's production cost would lead to increased borrower's income on the other. That would be an incentive on the part of borrowers to borrow more from the MFIs and earn more. In such an environment, MFI's loan portfolio and profit both will increase, which will over time lead them towards achieving financial self-sufficiency.

8. *ROLE PLAYED BY COMMERCIAL BANKS IN POVERTY ALLEVIATION*

Commercial banks have been involved in rural lending since 1974. Even as of today they are required to invest at least 12 percent of their total loan portfolio in "priority sector", and from 0.25 to 3.0 percent in "deprived sector credit". Failure to meet these targets would lead to a penalty equivalent to the highest interest the respective CB charges to its client on the shortfall. However, the CBs are open to choose any one or a combination of the following options to meet the deprived sector credit target.

- Make direct lending to the people below the poverty line.
- Make wholesale loans to ADB/N/FI-NGOs/Grameen Bikas Banks/ licensed SCCs.
- Make share participation in RMDC/Grameen Bikas Banks.

With the exception of a few, all the CBs have been meeting their lending requirements in the priority sector and also in the deprived sector for quite some times. Details of the priority sector and the deprived sector lending of CBs for the last two years are presented in Table 3 below.

Of the deprived sector lending of Rs.3,492 million in mid July 2001 by CBs, the direct lending constitutes 53.23 percent. The corresponding figure for mid July 2002 is 55.50 percent. Seven banks in 2001 and nine banks in 2002 had made direct lending in deprived sector.

The nature of the microcredit services is such that the institutions involved in this sector have to (i) serve a large number of clients with small loan size, (ii) have intensive supervision and follow-ups, and (iii) have highly motivated and rural oriented staff. To venture in such a sector, one would have to bear operational cost much higher than the CBs have to incur in their regular banking activities. For this reason, CBs have been reluctant to lend in microfinance sector. Though, they have been lending in priority and deprived sectors, they have been doing that under compulsion. In reality, they are unwilling partners towards microfinancing. If they were given options, they would choose the second alternative. By the Act under which they are incorporated, they are supposed to be making loans in trade,

commerce, export promotion, industries, and other businesses. But, since there was a need for them to be involved in rural financing under social considerations, NRB directed CBs to lend a small portion of their deposit liability in priority sector back in 1974. That was a short of compulsion on the part of NRB also. Now the scenario has changed, many MFIs have entered in formal microfinance market. So, ADB, World Bank and CB's continuous pressure on NRB to withdraw priority sector and deprived sector lending requirements looks a valid demand. However, the recent problem is that, although the number of MFIs stood at 2,298 excluding CBs, development banks and finance companies, their outreach by mid January 2003 was barely 44.31 percent of the households below poverty line. Most of them are new entrants, and even those who have been in the microfinance sector for more than five years, have not been able to expand their network and area coverage to the desired level for various reasons. In fact, there is severe shortage of MFIs and calls for more and more to participate in the sector. *Therefore, it may be advised that till MFIs are sufficient in number and strong enough to provide sustainable microfinance services, the CBs should continue lending in both the priority and deprived sectors.* In the meantime, the government should create an enabling environment through policy and other appropriate supports so that the ones presently participating in the microfinance sector would manage to attain financial viability, and others will find an attraction to participate in the sector.

The present options provided by NRB to CBs either to make direct lending or to go for indirect lending in deprived sector seems quite logical and practical approach. It is true that direct lending in deprived sector is expensive, but CBs who find this option expensive can go for indirect lending. In the past, there were not many MFIs. As a result, CBs did not have much choice but to provide wholesale loans to the same MFI, already loaned by other CBs. Such limitation had created high credit risk to the CBs for placing public deposits on a few MFIs. But as of January 2003, there were already nine microfinance development banks (excluding two second tier microfinance banks), 37 FI-NGOs, 125 SFCLs and 2,118 SCCs (excluding 125 SFCLs and 19 municipality based SCCs). CBs now have ample choice. The immediate need is to establish linkage between the formal banking sector that has the fund but does not want to make direct lending to the poor and the formal microfinance sector that is willing to make loans to the poor but does not have sufficient fund and institutional capabilities. *Therefore, CB's could contribute towards poverty alleviation by providing wholesale loans to those licensed MFIs that are operating at a profit and with good governance. Financing loss-making institutions would be too risky to the CBs.*

Available information indicates that CBs who had made direct lending in the past had good number of branch network. They had branches in urban as well as in rural areas. But due to security problem, most of the rural branches of CBs have now been shifted to district headquarters. With the shrinkage in rural branches, the CBs that had made significant amount of loans through direct lending have, at present, experienced difficulty in doing so. Realizing this fact, NRB had reduced the lending targets in both the priority and the deprived sectors by 25 percent for the fiscal year 2001/02. But such concession cannot be expected for long.

Furthermore, the credit risk is very high in security risk areas. Cease-fire has been agreed upon between both sides and is in force for the last couple of months. But nothing can be said now about the outcome, though all the common people would like to see the lasting peace and security being restored in the country. So given the security situation of the country, CBs should emphasize indirect lending in the deprived sector.

9. DEVELOPMENTAL INITIATIVES TAKEN BY NRB IN SUPPORT OF MICROFINANCE

Agricultural Credit Survey Report [NRB 1972] had estimated total short-term agricultural credit needs and improved technology at Rs. 1,000 million in 1969/70. The credit supplied by ADB/N, the only rural financing institution at the national level, during that fiscal year was Rs. 13.64 million, which was 1.36 percent of the total credit needs of the country. The Report had recommended that NRB should take appropriate steps to improve the access of small sector to formal credit facilities. NBL and RBB's interest was mainly on financing commerce and trade in the urban areas and not in rural lending. There were also a few credit cooperatives and ward/village committees at the grass roots level, but their financial resources and capabilities were limited. Having realized that ADB/N, a few credit cooperatives and ward/ village committees were not in a position to meet the entire rural credit needs, NRB thought of exploring the available alternative window to supplement the existing sources of rural financing. Accordingly, NRB in 1974 directed the two CBs to invest at least 5 percent of their deposit liabilities in the "small sector". This step was the beginning of directed credit system and also involving CBs in rural lending in Nepal. Later on in 1976, the scope of small sector was enlarged so as to cover the whole of agriculture, cottage industries and services and renamed it as "priority sector".

In order to encourage CBs in priority sector lending, NRB took initiatives to establish Credit Guarantee Corporation[5] in 1974 with its major shareholding. This corporation has been providing risk coverage for default or non-repayment of the priority sector loan to the extent of 75 percent of the outstanding loan to the participating CBs. In 1981, NRB introduced Intensive Banking Program (IBP) under which the CBs were required to provide project based loans in priority sector that were to be supervised regularly. Under the program CB's were to extend at least 60 percent of the priority sector loan to rural poor below the poverty line as group based lending without any physical collateral. CBs were also provided with the priority sector-lending manual with details on the requirement of establishing "Priority Sector Credit Department", at the central, regional and branch levels, their staffing and the number of field staff (technical) required, group formation procedures their functions and responsibilities, and project appraisal techniques to

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[5] Now the name of the corporation has been changed to Deposit Insurance and Credit Guarantee Corporation.

make project based loans. Focus on collateral free loan based on the concept of group guarantee helped improve the access of institutional credit to quite a good number of rural poor, who otherwise would have been deprived of the formal credit facilities for the lack of physical collateral.

Realizing that priority sector coverage (256,439 households[6] by mid July 1997) was still lower than expected, NRB introduced "deprived sector credit scheme" in 1990. Under this scheme CBs are required to invest a minimum of 0.25 percent to 3.00 percent of their total loans and advances to the "hardcore poor". Loan of up to Rs. 15,000 extended to the hardcore poor for undertaking priority sector activities was counted under the deprived sector credit. The government had also made provision for providing interest subsidy (33 percent to 80 percent depending upon the size of loan) on deprived sector loans through budgetary allocation [Sharma and Nepal 1997]. Later on, loan amount under deprived sector was extended to Rs. 30,000, and the interest subsidy on such loans was also withdrawn. NRB initiated establishing Grameen bikas banks, one in each development regions with its major shareholding during the 1992 – 1996 period. Grameen bikas banks provide loans under group guarantee system to rural women belonging to "ultra poor" category without any physical collateral. These banks have been following the Grameen Bank Models of Bangladesh. This was yet another initiative taken by NRB towards poverty alleviation.

Realizing that the MFIs operating in the microfinance market had severe shortage of funds for on lending and also needed assistance in enhancing their institutional capabilities, NRB took a lead role in establishing "Rural Microfinance Development Centre (RMDC)" in 1998. Twenty-one banks and financial institutions, including NRB own the share of this second tier institution. RMDC has the provision to provide wholesale loans to MFIs licensed by NRB, for on lending to the sub-borrowers. It can also provide institution-building support to the financial intermediaries in the form of technical assistance, staff training and credit line for the procurement of equipment and service vehicles. However, it seems to be too slow in its operations. It can be substantiated from the fact that it has approved Rs. 299.06 million loans to 19 MFIs, and out of that it has disbursed Rs. 211.45 million to its 18 partners by mid December 2002 [RMDC 2002]. As per the agreement signed between HMG and the ADB on February 21, 1999, HMG shall, out of the loan proceeds of SDR 14,201,000 received under the Loan No. 1650 - NEP (SF), relend to RMDC an amount equivalent to SDR 11,787,000 over a period of six years beginning 1999 under a Subsidiary Loan and Grant Agreement. SDR 11,787,000 is equivalent to about US$ 20,000,000 that at the rate of Rs.78 per dollar converts to Rs. 1560 million. Now, the problem is, RMDC can have access to this fund only up to 2005, and by mid December 2002, that is, in the past three years it has been able to disburse a total loan of Rs.211.45 only. With the present pace will RMDC be able to disburse Rs. 1,348.55 million over the remaining period of three years? Even an ordinary citizen without any background of economics or banking would say "no". The other problem lies in its coverage. Over

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[6] Sharma and Nepal 1997.

the past three years, it has approved loans to 19 MFIs, that is, six MFIs per year. As of mid July 2002 (Table 2, column 5), a total of 827 MFIs are involved in microfinance. With the present coverage rate of six MFIs per year it will take 138 years for RMDC to cover the number of MFIs in operation by mid July 2002. These facts clearly indicate that RMDC alone cannot meet the financial need of MFIs in Nepal. Some more institutions are urgently needed. *In this context, NRB needs to come up with appropriate policy measures that would create conducive environment for entry to other second tier institutions. Without a few more second tier institutions with provision of providing wholesale loans to MFIs, it will be impossible to achieve the target of lowering down population below poverty line from 38 percent in 2002 to 30 percent by the end of Tenth Plan Period.*

Developmental role played by NRB in the past is justified on the ground that as a central bank, it had to act that way in those situations where the formal financial market was under developed and the formal microfinance market was almost non-existent. But now the situation has changed. There exists a significant number of MFIs (827 MFIs in mid July 2002) in microfinance market. However, all of them have not yet attained financial self-sufficiency. *So future need is that NRB, rather than continuing such developmental activities concentrates its effort in enhancing their capabilities by undertaking promotional role so that the MFIs are strengthened and are able to provide sustainable microfinance services to the growing number of hardcore poor.*

Promotional Initiatives Taken by NRB in Support of Microfinance

In the past NRB had also undertaken several promotional activities in support of microfinance. The important ones in chronological order are as follows:

Perhaps the first promotional activity undertaken by NRB was its collaboration with the Ministry of Local Development (MLD) in "Production Credit for Rural Women (PCRW)" project and acting as an executing agency for its credit part in 1982. The other far-reaching activity was the adoption and implementation of policy to grant limited banking license to NGOs and SCCs engaged in microfinance in 1990. A study report [Sinha 2000] has expressed this act as a bold step in the promotion of microfinance, and unique in the South Asian region. The paper further mentions that it marked a formal reorganization of the role of alternative institutions in savings and credit promotion to the poor. This, indeed, paved the way for a number of larger NGOs in Nepal to obtain vital experience as financial intermediaries between the formal banking sector and the poor. In the same year 1990, HMG/N established the "Rural Self Reliance Fund (RSRF)", as a pilot scheme, with the objective of providing wholesale loan to financial intermediaries (SCCs and NGOs) that had difficulty in obtaining access to credit for on lending to the rural poor. This fund, administered by NRB, was the first step in Nepal in the direction of exploring alternative means of credit delivery to the poor. The wholesale loan from this source carries an interest rate of eight percent per annum to the intermediaries with the provision of a return of 75 percent on

timely payment by the intermediaries to the Fund. With government funding as the only source of loanable fund, RSRF was the first program to recognize and use NGOs as intermediaries for credit delivery to the poor [Sinha 2000].

RSRF stopped lending to the NGOs since 1998/99 for the reason that Financial Intermediary Societies Act, 1998 had not allowed NGOs to accept savings, and RSRF's one of the policies being that of lending a SCC or NGO to the extent of ten times the savings it had collected. Now, the amended version of FISA allows FI-NGOs to collect savings from their group members, therefore, *NRB needs to take initiative to make RSRF funds available to the FI-NGOs as earlier. For RSRF, to continue lending to FI-NGOs does not have to wait for amendment in the Financial Intermediary Society By-laws. It can be done internally with little bit of push from NRB. Such an initiative would improve access of RSRF fund to the FI-NGOs that are not served by RMDC for its strict eligibility criteria.* The other innovative/promotional role played by NRB was its active participation from conceptualization to finalization of Development Bank Act in 1992, under which a total of 21 development banks have been incorporated by mid January 2003, of which 11 are microfinace development banks.

In 1993, NRB adopted a policy of counting CB's wholesale loans to Grameen bikas banks and licensed NGOs and the amount of their (CB's) share participation in Grameen bikas banks as a part of deprived sector credit. This policy provided CBs, with none or a few branch networks, an option to meet deprived sector credit target through indirect way of lending. In 1994, NRB again collaborated with MLD in "Microcredit Project for Women (MCPW)" for channeling ADB funds through NBL, RBB and FI-NGOs to the poor rural women of 12 districts and five municipalities. The most recent and potentially the most far-reaching promotional step undertaken by NRB was its important role in formulating the "Financial Intermediary Societies Act, 1998". This initiative is unparalleled in South Asia with countries like India, Bangladesh, and Sri Lanka lagging behind in terms of progress towards legally empowering NGOs to undertake microfinance activities [Sinha 2000]. However, some of the provisions of the original Act were not appropriate for the growth and financial sustainability of NGOs. Therefore, NRB again proposed, amendments in the problematic sections in 2001. The proposed amendments, was passed by the parliament. However, the by-laws are yet to be amended, without which the amendments in the Act will not be activated. *In this context, NRB now needs to take active roles towards amendments in the by-laws. The amended Act would certainly facilitate and attract potential NGOs to be a participant in microfinance market.*

NRB has undoubtedly made a number of innovative attempts in the past. But, with the increase in the number of poor and low-income households in absolute terms, the demand for microfinance services in terms of both the amount and coverage would also increase in future. NRB therefore, has to prepare itself by enhancing its capabilities to regulate, supervise and monitor large number of MFIs on and above CBs, FCs, and development banks on the one hand, and also come up with innovative and suitable credit policies/regulations that would create an enabling environment for MFIs to grow and attain financial self-sufficiency on the

other. Looking at the number of licensed MFIs as of January 2003 and the expected new entrants in the microfinance market, it will be too difficult for NRB to supervise all of them even by increasing its present branch network and man power. Therefore, NRB should think of other alternatives that would take the responsibility of supervising MFIs. This would ease the burden of NRB of supervising increased number of MFIs, and thereby could concentrate on supervising CBs, FCs, and development banks more effectively. It could also carry out other activities, such as, pilot projects, research, data collection and publication, advocacy, and training as suggested by ADB in support of microfinance.

10. ROLE PLAYED BY HMG/N IN SUPPORT OF MICROFINANCE

HMG/N has been playing developmental as well as promotional roles in support of microfinance. Share participations in grameen bikash banks and Sana Kisan Bikas Bank are some of the examples of its developmental activities. But the experiences have shown that private sector managed MFIs are better off than the government owned MFIs. All the government owned MFIs are technically insolvent, because of too much government interferences in their management on the one side, and the respective Employee's Union's interferences in their smooth functioning on the other. A study report [Sharma, et. al., 1996] had rightly stated the extent of government interferences in such MFIs in these words "the party elected to power tries to influence the management by placing some party workers as Chairperson and Executive Director of the bank. The worst thing is that, with the change of government both the Chairpersons and the Executive Directors also get changed. In Nepal, where governments have been changing every six or nine months, the in-stability in the management of RRDBs has become a big issue". The report further expressed its opinion in these words " In Nepal any good programme in the public sector cannot be made free from political interference. The politicians will certainly utilize such programmes for their political benefit. The ethic that the programmes like RRDBs should be run professionally and should not be politicized can not be put into practice in Nepal". Another study [Sharma and Nepal 1997] has stated, "The Employee's Union have also been making unnecessary interference on the smooth functioning of Eastern Rural Development Bank (ERDB). They have been putting pressure on the ERDB's management to favour them on aspects such as new appointments, promotions, posting, training and other opportunities. These activities have been pushing down the public image of ERDB. To some extent this is also true for other RRDBs. If these unions are allowed to function as today, sooner or later it is sure the financial performance of RRDB will cripple down. So there is a need to restructuring and privatizing such institutions.

Initiatives taken in undertaking socio-economic programs like PCRW and MCPW, Third Livestock Development Program (TLDP), Community Groundwater Irrigation Sector Project (CGISP), Microenterprise Development Programme (MEDEP) and Poverty Alleviation Project for Western Tarai

(PAPWT), and initiations in getting FISA and Cooperative Act passed through the parliament are some of the examples of government's promotional activities in the past. These activities have certainly helped MFIs to grow in number. But the problem is that most MFIs are concentrating their activities in the tarai area, and their outreach in the hills is almost negligible. This needs to be addressed without delay. Furthermore, with the substantial growth in the absolute number of poor and low-income households, promotional efforts taken in the past will not be sufficient to cope with the challenges that are to be faced in the future. In the context of poverty alleviation, HMG rather than taking developmental activities, needs to confine itself in promotional roles.

11. SUGGESTIONS

Based on the above discussions, the following suggestions have been recommended for the NRB, commercial banks and HMG/N in the context of poverty alleviation through microfinance:

NRB

- Stop direct involvement in running and managing MFIs.
- Stop owning MFIs and handover presently owned shares of such institutions to the private sector through appropriate and transparent mechanism.
- Innovate other alternatives that would take the responsibility of supervising MFIs.
- Act as facilitator.
- Rather than taking developmental activities, take promotional roles through appropriate policy measures that will create favorable environment for MFIs to (i) enter the microfinance market, (ii) grow, (iii) develop, and (iv) attain the financial viability.
- Take immediate initiative towards amending Financial Intermediary Society By-laws without which the recent amendments made in the Act will not benefit the FI-NGOs.
- Take initiative to make RSRF funds available to the FI-NGOs as earlier.
- Come up with appropriate policy measures that would create conducive environment for entry to other second tier institutions. RMDC alone cannot meet the credit needs of MFIs in future. Its performance over the last three years has clearly indicated that it can neither utilize funds available under ADB Loan No.1650 - NEP (SF) fully over the next three year period, nor, at the present coverage rate of six MFIs per year, is expected to serve the number of MFIs that will be in operation by the end of the Tenth Plan Period. Without a few more second tier institutions with provision of providing wholesale loans to MFIs, it will be impossible to achieve the target of lowering down population below poverty line from 38 percent in 2002 to 30 percent by the end of Tenth Plan Period.

- Continue both the priority and deprived sectors lending policies till MFIs are sufficient in number and strong enough to provide sustainable microfinance services.
- Carry out other promotional activities, such as, pilot projects, research, data collection and publication, advocacy, and training in support of microfinance. However, the extent of NRB's involvement in these activities should be limited to only those on which it has comparative advantage.

Commercial Banks

- Continue lending in both the priority and deprived sectors till MFIs are sufficient in number and strong enough to provide sustainable microfinance services,
- Provide wholesale loans to (i) the microfinance development banks, (ii) the licensed FI-NGOs and SCCs, and (iii) the SCCs with NEFSCUN's membership, which are operating at a profit and with good governance. Financing loss-making institutions would be too risky to the CBs.
- Emphasize indirect lending in the deprived sector till the security/law and order situation in the country improves.

HMG

- Demonstrate firm commitment towards poverty alleviation through action.
- Stop direct involvement in running and managing MFIs.
- Stop owning MFIs and handover presently owned shares of such institutions to the private sector through appropriate and transparent mechanism.
- Stop nominating government staff as Chairperson, Executive Director or the member of the board of MFIs.
- Encourage private sector to establish specialized training institutions for MFI's staff and for the MFI's potential clients.
- The employee's Unions established under the Trade Union Act, 1992 have been making unnecessary interference on the smooth functioning of the formal financial sector including larger MFIs. Therefore, take immediate initiation to amend / clarify the related clauses of the Trade Union Act, 1992, so as to make them applicable only to the workers of industrial establishments.
- Act as facilitator.
- Create favorable policy environment in which more MFIs would be encouraged to work in the hills.
- Develop roads, bridges, communication systems and extension services specially in the hills that will assist MFIs operating in the hills to grow, and the hilly microentrepreneurs to receive technical services and to market their products/services.

- Provide grants or make soft loans available through donor agencies to the MFIs for initial periods to meet expenses on:
  - ➢ Social preparation
  - ➢ Development of institutional capabilities, MIS system, and human resource.
  - ➢ Employment generation
  - ➢ Technology transfer, and
  - ➢ Research and development.
- Provide subsidy to the small borrowers on:
  - ➢ Seed, feed, fertilizers, irrigation, and electricity
  - ➢ Veterinary services, and
  - ➢ Skill development training expenses
- Continue providing livestock insurance premium, and capital subsidy on bio-gas installations.

ACRONYMS USED

ADB	:	Asian Development Bank, Manila
ADB/N	:	Agricultural Development Bank of Nepal
BFIs	:	Banks and Financial Institutions
CB	:	Commercial Bank
CBS	:	Central Bureau of Statistics
CECI	:	Canadian Centre for International Studies and Cooperation
CGAP	:	Consultative Group to Assist the Poorest
CGISP	:	Community Groundwater Irrigation Sector Project
CSD	:	Centre for Self-Help Development
DFD	:	Development Finance Department
DWD	:	Department of Women Development
ESAP	:	Enhanced Structural Adjustment Program
ESP	:	Economic Stabilization Program
FC	:	Finance Company
FI-NGO	:	Financial Intermediary Non-Governmental Organization
FISA	:	Financial Intermediary Societies Act, 1998
GBR	:	Grameen Bank Replicator
HMG/N	:	His Majesty's Government of Nepal
IBP	:	Intensive Banking Program
LRSC	:	Land Reform Savings Corporation
MCPW	:	Micro Credit Project for Women
MEDEP	:	Micro Enterprise Development Program
MFI	:	Microfinance Institution
MFIs/Ps	:	Microfinance Institutions/Programs
MLD	:	Ministry of Local Development
NBL	:	Nepal Bank Ltd.
NBFIs	:	Non-Bank Financial Institutions
NEFSCUN	:	Nepal Federation of Savings and Credit Cooperative Union

NGO	:	Non-Governmental Organization
NIDC	:	Nepal Industrial Development Corporation
NPA	:	Non-Performing Assets
NPC	:	National Planning Commission
NRB	:	Nepal Rastra Bank
PAGS	:	Poverty Alleviation and Growth Strategy
PAPWT	:	Poverty Alleviation Project for Western Tarai
PCRW	:	Production Credit for Rural Women.
RBB	:	Rastriya Banijya Bank
RMDC	:	Rural Microfinance Development Centre
RRDB	:	Regional Rural Development Bank
RSRF	:	Rural Self-Reliance Fund
SAP	:	Structural Adjustment Program
SCC	:	Savings and Credit Cooperative
SCO	:	Savings and Credit Organization
SFCLs	:	Small Farmers Credit Cooperatives
SFDP	:	Small Farmers Development Project
SHG	:	Self-Help Group
SPO	:	Sub-Project Office
TLDP	:	Third Livestock Development Project
VDC	:	Village Development Committee
WB	:	World Bank

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Applicability of Smeral's Model in Explaining Tourism Share of Member States in SAARC Region

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This paper attempts, with help of Smeral Model, to study the determinants of demand share of individual member states in total SAARC arrivals from seven major tourism markets. Empirical study of the tourism with the help of modified version of this model demonstrates the interdependency among the SAARC countries. This study found that relative price and regional share are two important link factors for the individual states in the region. Individual share of the tourism increases with an increase in regional share in the world tourism and with a decrease in relative price of tourism and vice-versa.

1. INTRODUCTION

Modeling tourism demand has quite been popularized these days. Many countries depend on the demand forecast in formulating tourism policy. We will present quick review of some demand models used in tourism study. Burger used an input-output model (Burger, 1978). Nepal Rastra Bank used a log linear model using cross-section and time series data for the period 1974-87 period (NRB, 1988). Chattopadhyay (1995) discussed on the factors affecting demand for tourism and used log linear model. Similarly, Paudyal (1993, 1998, 1999) used log log form of tourism demand model for Nepal and SAARC region. Pye and Lin (1983) estimated the tourist arrivals in Hong Kong. They also used log linear model. Krause and Jud (1973) estimated equations for tourist arrival for each of 17 Latin American countries. They also used log-log model.

We, in this paper, will use data of tourist arrivals from USA, UK, Canada, Germany, Japan, France, and Italy as countries of origin to SAARC region. These countries were selected because of the fact that 59 percent arrivals in this region were from these markets. The time period taken for this study is seventeen years, covering 1980 to 1996. We will use simple model for determining factors affecting the distribution of total arrivals in SAARC region among seven member states. For

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this we will adopt the Smeral's Model 1 and Model 2 which are as follows (Smeral, 1988: 40)

2. THE MODEL

a) $x_i = a_i + b_i X + c_i(p_i/P) + u_i$

.

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$x_n = a_n + b_nX + c_n(p_n/P) + u_n$ ………….. (i)

Where,

n   = number of countries of destination,

xi   = real revenue from international tourism of country i expressed in US $,

X   = $\Sigma^n_{i=1}x_i$

pi   = prices of tourism goods in country i in US $

P   = average prices of tourism goods in all n countries of destination in US $,

P   = $\Sigma^n_{i=1}g_ip_i$ gi = x_i/X, $\Sigma^n_{i=1}g_i=1$

We modify this model slightly owing to our data limitations, and to our purpose of study. Since our purpose of study is to determine the factors affecting tourist arrivals we will replace real revenue from tourism by the number of tourist arrivals in the individual SAARC member states (TA_i) and therefore in our case n = 7 and xi = number of arrivals in individual member states, while X = total arrivals in the SAARC region (TASA). Similarly, price of the tourism goods (p_i) will be proxied by consumer price index in the destination country and average price of tourism products in all n destination countries is P, which will be replaced by average consumer price index of SAARC member states.

Model 1:

$TA_i = a_i + b_i\ TASA + c_i(p_i/P) + u_i$

.

.

$TA_n = a_n + b_nTASA + c_n(p_i/P) + u_n$ …………….. (ii)

Model 2:

$ln\ TA_n = ln\ a_i + b_i\ ln\ TASA + c_iln(p_n/P) + lnu_i$

.

.

$ln\ TA_n = lna_n + b_n\ ln\ TASA + c_n\ ln(p_i/P) + lnu_n$ …… (iii)

3. CPI DATA

Data for this study are taken from International Financial Statistics (various issues) and those of tourist arrivals in the seven countries are taken from the tourism statistics published by respective governments of member countries in SAARC region and World Tourism Organization Year Book (various issues).

4. EMPIRICAL STUDY OF TOURISM DEMAND IN SAARC COUNTRIES

In this section, we will discuss the factors affecting the distribution of tourism demand or tourist arrivals among the individual member countries of the SAARC. For this purpose in the following line, the Smeral model is developed. In these models demand for tourism or tourist arrivals in the individual country are shown as the function of total demand for SAARC tourism.

Bangladesh is one of the youngest SAARC countries in the region. A large number of foreign tourists are attracted to this country each year. The factors that are constantly attracting the tourists to this country are discussed with the help of following model. The demand function shows that the quantity demanded of tourism is the function of total tourist arrivals in the SAARC region (TASA) and relative price variable in Bangladesh (pb/P).

TAB*= 47910 + 0.03 TASA - 54129 (pb/P)**
    (2.66)   (5.58)   (3.48)

$\overline{R}^2$ = 89.00 F = 66.230 DW = 0.9590 ……… (iv)

Since this equation is found suffering from auto correlation problem, it is again estimated by using the Cochrane-Orcutt iterative procedure. The estimated equation is given as follows:

TAB = 46935 + 0.03 TASA - 54689 (pb/P)
      (1.94)   (4.17)   (2.60)

$\overline{R}^2$ = 91.67 F = 66.230 DW = 1.91 ……..……. (v)

autocorrelation coefficient = 0.51...

Both independent variables– TASA and pb/P-have expected signs and are found statistically significant at one percent and 5 percent respectively at two tail test. The positive sign with TASA variable implies that as tourist arrival in the SAARC region increases, so does the tourist arrivals in Bangladesh also. The negative sign of the p_b/P variable implies that a rise in price level in Bangladesh compared to the average price level of SAARC countries reduces the demand for tourism in Bangladesh. It is because of the fact that visiting other SAARC countries is relatively cheaper to the visitors from the other countries compared to visiting Bangladesh. It is, therefore, relative price variable which reveals the fact that individual SAARC countries are competing destination within the region. The estimated coefficient of TASA implies that if the tourist arrivals in SAARC region increase by 100 tourists in Bangladesh

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Notes: * TB = Tourist arrivals in Bangladesh, ** pb = CPI in Bangladesh,
    P = CPI in SAARC Region.

increase by about 3. The coefficient of (p_b/P) variable shows that a rise in relative price by 1 unit decreases in the tourism demand by about 55000. These two variables explain about 92 percent of change in tourist arrivals in Bangladesh. DW statistics shows that there is no evidence of serial correlation.

$$\ln TAB = -3.25 + 0.95 \ln TASA - 1.27 \ln (pb/P)$$
$$(1.28) \qquad (6.48) \qquad\qquad (3.47)$$

$$\overline{R}^2 = 89.48 \quad F = 69.07 \quad DW = 1.01 \quad \ldots\ldots\ldots (vi)$$

The equation in log-log model is also found suffering from autocorrelation problem. Hence the Cochrane-Orcutt iterative procedure is used to correct the auto correction problem. The estimated equation by this procedure is given as follows:

$$\ln TAB = -3.57 + 0.97 \ln TASA - 1.27 \ln (pb/P)$$
$$(1.28) \qquad (4.83) \qquad\qquad (2.68)$$

$$\overline{R}^2 = 91.75 \quad F = 28.56 \quad DW = 1.94 \quad \ldots\ldots\ldots (vii)$$
autocorrelation coefficient = 0.45

This equation shows that estimated coefficient of both variables are statistically significant at 1 percent and 2 percent level respectively at tail test. The independent variables in the model explain about 92 percent variation in the tourist arrivals in Bangladesh. As the estimated coefficients of the variables give the elasticity, the coefficient of log TASA variable is 0.97 which is less than one reveals that tourism demand for Bangladesh is inelastic in terms of total arrivals in the region. This implies that one percent increase in tourism demand in SAARC region increases tourism demand in Bangladesh by only 0.97 percent. On the other hand, tourism demand for Bangladesh is price elastic since the coefficient of relative price variable pb/P is greater than one. It implies that one percent rise in relative price in Bangladesh reduces tourism demand in Bangladesh by about 1.3 percent.

Bhutan is famous for the controlled tourism promotion in the SAARC region. No doubt volume of the tourist arrivals in the country is largely affected by the government's controlled tourism growth policy. However, we will try to analyse how far other factors, which are common to the other SAARC countries have also affected tourism demand in Bhutan.

$$TABH^* = 1794.7 + 0.002\ TASA - 2699.1\ (pbh/P)^{**}$$
$$(0.38) \qquad\quad (7.49) \qquad (0.58)$$

$$\overline{R}^2 = 77.64 \quad F = 28.79 \quad DW = 0.68 \quad \ldots\ldots\ldots (viii)$$

Since this equation seems to have auto correlation problem, it is re-estimated by applying the Cochrane-Orcutt iterative procedure. The estimated equation with this procedure is given as follows:

Note : *TABH = Tourist arrivals in Bhutan.   **pbh = CPI of Bhutan.

TABH = 680.08 + 0.0024 TASA - 1559.0 (pbh/P)
         (0.19)   (4.56)   (0.45)

$\overline{R}^2$ = 86.95   F = 28.786   DW = 1.3999 …………. (ix)
autocorrelation coefficient = 0.68

The estimation of tourism demand function for Bhutan reveals that more than 87 percent of variation in the tourist arrivals in Bhutan is explained by TASA and PBH/P variables. The estimated coefficient of TASA shows that an increase in tourist arrivals in the whole SAARC region by 100 brings an increase in tourist arrivals in Bhutan by 2. However, a decrease in relative price(pbh) by 1 unit brings 1559 more tourists to Bhutan. However, price is not found statistically significant. There is no evidence of serial correlation.

ln TAB H = -12.42 + 1.42 ln TASA - 0.016 ln (pbh/ P)
              (3.96)   (6. 33)   (0.006)

$\overline{R}^2$ = 71.00   F = 20.19 DW = 0.68 ………………(x)

Again, this equation is also found to be suffered from autocorrelation problem, therefore, the following equation is estimated by the Cochrane-Orcutt iterative procedure. The estimated equation is as follows:

ln TAB H = -12.37 + 1.42 ln TASA - 0.31 ln (pbh/ P)
               (2.55)   (4. 08)   (0.15)

$\overline{R}^2$ = 82.36   F = 20.19 DW = 1.34 ……………... (xi)
autocorrelation coefficient = 0.62

The estimated t statistics show that only log TASA variable is significant at 1 percent level. However, both variables have correct signs and explain together more than 82 percent variation in tourist arrivals in Bhutan. The estimated coefficient of the log TASA variable which is greater than one reveals that tourism demand in Bhutan is TASA elastic. It implies that one percent increase in tourist arrivals in SAARC region brings 1.4 percent increase in tourist arrivals in Bhutan. In other words, tourism demand in Bhutan increases more than proportionately.

India is both the largest tourist destination in the region and strategically important country as it is the gateway for other countries, such as Bhutan, Nepal, Sri Lanka, Maldives, and Bangladesh. Tourism demand in India is expressed in the following functional form.

TAI* = 973780 + 0.60 TASA - 860410 (pi/P)**
        (0.87)   (10.48)   (0.83)

$\overline{R}^2$ = 96.03 F = 194.38   DW = 1. 08 …….. (xii)

The above regression equation is suffering from the both multicorrelation and serial correlation problems. When we have corrected the multicorelinearity problem the above equation has changed as follows:

. Notes: *TAI = Tourist arrivals in India.   **pi = CPI of India.

TAI = 91935 + 0.60 TASA - 85179.0 (pi/P)
　　　(17.85)　(10.48)　　　　(16.70)
R^{-2} = 96.03　　　DW = 1. 08 ……………. (xiii)

After we have corrected multicolinearity problem, we corrected serial correction by the Cochrane- Orcutt iterative procedure and the results are as follows:

TAI = 9706500 + 0.60 TASA - 9022700.0 (pi/P)
　　　　(12.93)　(9.73)　　　　(12.13)
$\overline{R}^2$ = 96.76 F = 194.38 DW = 1.34 …..… (xiv)
autocorrelation coefficient = 0.53

The estimated t statistics show that both variables considered are significant at one percent level. The included variables together explain about 97 percent variation in the tourism demand in India. The estimated coefficient of TASA variable shows that tourist demand by 100 in SAARC region increases the tourism demand in India by about 60 visits.

ln TAI = -3.73 + 1.22 ln TASA - 1.81 ln (pi/ P)
　　　　　　(2.29)　(10.50)　　　　(1.03)
$\overline{R}^2$ = 96.5 F = 221.79 DW = 1.14 ……….. (xv)

As this equation was also found suffering from both multicolinearity and autocorrelation problems, in the first step multicolinearity problem was solved and estimated equation runs as follows:

ln TAI = 13. 38 + 1.22 ln TASA - 14.62 ln (pi/ P)
　　　　　(825.78)　(10.50)　　　　(18.25)
$\overline{R}^2$ = 96.5　DW = 1.14 -*(xvi)*

After the correction multi colineasily problem this equation is found suffering from autocorrelation problem, therefore, the following equation is estimated by the Cochrane-Orcutt iterative procedure. The estimated equation is as follows:

ln TAI = 13. 40 + 1.20 ln TASA - 15.22 ln (pi/ P)
　　　　　(515.58)　(10.20)　　　　(13.76)
$\overline{R}^2$ = 97.16 F = 221.79 DW = 1.60 ……….... (xvii)
autocorrelation coefficient = 0.48116

Now this equation is free from both multi-colineasily and autocorrelation problems. The estimated t statistics show that both log TASA and log pi/P variables are found to be statistically significant at 1 percent level. The variables explain more than 97 percent variation in the tourism demand in India. The coefficient of log TASA is greater than one and so is the coefficient of log pi/P and therefore, tourism demand in India is both total arrivals elastic and relative price elastic. One percent increase in total arrivals in SAARC region bring 12 increase in India whereas one percent decrease.

Maldives is known to be the successful country in developing tourism industry. The government in the country seems to be very active in promoting tourism through developing necessary infrastructure for tourism. Tourism is only major industry in

beautiful marine country. It is of many tiny islands in relative price 15.22 percent of tourist arrival in India.

$$*TAM = -51169 + 0.17 \, TASA - 34840 \, (pm/P)**$$
$$(1.78) \quad (19.60) \quad\quad (1.85)$$
$$\overline{R}^2 = 97.57 \quad F = 322.49 \quad DW = 1.87 \ldots\ldots\ldots (xviii)$$

There is no evidence of autocorrelation in this equation. In estimated t statistics show that coefficients of both variables are significant at 1 percent and 10 percent level. The explanatory variables explain about 98 percent variation in tourism demand in Maldives. The estimated coefficients of both variables have expected signs. The coefficient of TASA reveals that an increase in SAARC tourism demand by 100 visits increases tourism demand by 17 visits. However, the coefficient of relative price, pm/P variable shows that a rise in relative price by one unit decreases the tourism demand in Maldives by 34840 visits. The elasticity of these variables is discussed with the help of following log-log model.

$$\ln TAM = -13.50 + 1.80 \ln TASA - 1.27 \ln (pm/P)$$
$$(5.11) \quad (9.62) \quad\quad (3.01)$$
$$\overline{R}^2 = 93.61 \quad F = 118.11 \quad DW = 1.50 \ldots\ldots\ldots (xix)$$

Since this log-log equation is also found suffering from autocorrelation problem, the following equation is estimated by the Cochrane-Orcutt iterative procedure. The estimated equation is as follows:

$$\ln TAM = -13.51 + 1.80 \ln TASA - 1.27 \ln (pm/P)$$
$$(5.11) \quad (9.61) \quad\quad (3.01)$$
$$\overline{R}^2 = 93.61 \quad F = 118.11 \quad DW = 1.50 \ldots\ldots\ldots (xx)$$
auto-correlation coefficient = 0.0009

The estimated coefficients in this model have correct signs and both variables are found significant at 1 percent level. Therefore, this model performs better compared to linear model given above. The variables explain about 94 percent variation in the model. The elasticity of demand for tourism in Maldives as shown by the coefficients of log TASA and log pm/P are more than one. It implies that tourism demand in Maldives is both SAARC tourism demand elastic and price elastic. One percent rise in SAARC arrivals brings 1.8 percent rise in tourist arrivals whereas one percent decrease in relative price brings about 1.3 percent increase in Maldives.

Tourism is one of the largest foreign exchange earners in Nepal. The main strength of the industry is the scenic beauty and Himalayas. The tourism demand equation for Nepal is estimated as follows.

$$***TAN = 18914 + 0.07 \, TASA$$
$$(2.72) \quad (13.13)$$
$$\overline{R}^2 = 91.46 \quad F = 172.40 \quad DW = 0.78 \ldots\ldots (xxi)$$

Notes: *TAM = Tourist Arrivals in Maldives.   **pm = CPI in Maldives.
         ***TAN = Tourst arrivals in Nepal.

Since this equation is found surrering from autocorrelation problem, the following equation is estimated by the Cochrane-Orcutt iterative procedure. The estimated equation is as follows:

$$TAN = 22635 + 0.07TASA$$
$$(1.99) \quad (7.90)$$
$$\overline{R}^2 = 94.54 \quad F = 172.40 \quad DW = 1.59 \ \text{........ (xxii)}$$
autocorrelation coefficient = 0.62

The price variable in this equation has been dropped as it appears to be have highly correlated with TASA variable. The TASA variable alone explains more than 94 percent variation in the tourism demand in Nepal. This variable has expected sign and is significant at one percent level. The estimated coefficient shows that every 100 tourist arrivals in the SAARC region brings 7 visits for Nepal.

$$\ln TAN = -0.66 + 0.88 \ \ln TASA$$
$$(0.71) \quad (13.09)$$
$$\overline{R}^2 = 94.91 \quad F = 171.48 \quad DW = 0.95 \ \text{.......... (xxiii)}$$

This equation is also found to have autocorrelation problem, the equation is estimated by the Cochrane-Orcutt iterative procedure as follows:

$$\ln TAN = -0.17 + 0.84 \ln TASA$$
$$(0.12) \quad (8.37)$$
$$\overline{R}^2 = 93.67 \quad DW = 1.69 \ \text{.....................…...... (xxiv)}$$
autocorrelation coefficient = 0.53

This equation in log-log model shows that log TASA variable is highly significant and has expected sign. This variable explains about 94 percent of variation in the tourism demand in Nepal. The coefficient of TASA shows that tourism demand in Nepal is TASA inelastic. In other words, one percent increase in SAARC tourism demand increases less than one percent in tourism demand in Nepal.

Pakistan is known for land of mountain and culturally rich cities. The government in Pakistan has been active to increase tourist flow in the country. It has adopted tourism conducive policies in the past. However, the growth of tourist arrivals in Pakistan seem not so encouraging. The tourism demand function in Pakistan is estimated as follows:

$$^*TAP = 259840 + 0.063 \ TASA - 17516 \ (pp/P)^{**}$$
$$(2.37) \quad (2.78) \quad (2.06)$$
$$\overline{R}^2 = 68.80 \quad F = 18.64 \quad DW = 1.94 \ \text{………… (xxv)}$$

The estimated t-statistics reveal that the TASA and pp/P variables are significant at two percent and five percent level respectively. The independent variables considered explain more than 69 percent variation in tourism demand in Pakistan. The estimated coefficient of TASA shows that an increase in tourist arrivals in the region by 100 visits increases tourism demand in Pakistan by 6 visits. Similarly, the coefficient of

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Notes: [*] TAP = Tourist arrivals in Pakistan. [**] pp = CPI of Pakistan.

relative price variable- pp/P shows that tourism demand in Pakistan increases by 17516 visits with the decrease in relative price by one unit.

$$\ln TAP = 5.57 + 0.46 \ln TASA - 1.57 \ln (pp/P)$$
$$(2.28) \quad (2.64) \qquad\qquad (2.62)$$
$$\overline{R}^2 = 77.30 \quad F = 28.24 \quad DW = 1.79 \quad \text{.............}(xxvi)$$

This equation in log-log model shows that all variables are statistically significant at 2 percent level. These variables explain more than 77 variation in the tourism demand in Pakistan. The coefficients of log TASA and log pp/P variables reveal that the tourism demand in Pakistan is SAARC tourism demand inelastic, while it is relative price elastic. In other words, one percent change in SAARC tourism demand brings about only 0.46 percent change in tourism demand in Pakistan, while a change in relative price brings 1.6 percent change in it.

Generally it is thought that Sri Lanka's tourism trade is badly affected by Civil war. It will be examined in our tourism demand function for Sri Lanka which is given below.

$$^{*}TAS = 4080.5 + 0.0059 \, TASA + 179630 \, (ps/P)^{**}$$
$$(0.02) \qquad (0.07) \qquad (0.61)$$
$$\overline{R}^2 = 0.03 \quad DW = 0.59 \quad \text{....................} (xxvii)$$

This equation explains only 3 percent variation in tourism demand in Sri Lanka. The relative price variable has unexpected sign and non of variables are significant. The model suffers from autocorrelation.

$$TAS = 116630 + 0.05 \, TASA$$
$$(2.97) \qquad (1.50)$$
$$\overline{R}^2 = 0.07 \quad DW = 0.59 \quad \text{....................} (xxviii)$$

In this equation the relative price variable has been dropped, the TASA variable explains only 7 percent variation in tourism demand in Sri Lanka. However, this equation is found to have autocorrelation problem. Therefore, the equation is estimated again by the Cochrane-Orcutt iterative procedure as follows:

$$TAS = 131000 + 0.035 \, TASA$$
$$(1.98) \qquad (0.67)$$
$$\overline{R}^2 = 51.31 \quad DW = 1.33 \quad \text{....................} (xxix)$$
$$\text{autocorrelation coefficient} = 0.70$$

The R^{-2} improves significantly after the correction of autocorrelation problem. However, the t-statistics show that estimated coefficient is not statistically significant. It implies that demand for tourism in Sri Lanka can hardly be explained by the tourist arrivals in SAARC region since the explanatory power of the equation is moderate and estimated coefficient is not significant.

$$TAS = 14008 + 0.06 \, TASA - 52298 \, CWS^{*}$$

$$(2.35) \quad (1.23) \quad (1.74)$$

$\overline{R}^2 = 56.97 \quad DW = 1.22$ …………………….. (xxx)

autocorrelation coefficient = 0.68

A dummy called CWS has been added in the model. With the inclusion of CWS in the equation, the explanatory power of independent variables increase to about 57 percent after we have corrected autocorrelation problem by above mentioned procedure.

$$\ln TAS = 9.22 + 0.20 \ln TASA$$

$$(1.62) \quad (0.49)$$

$\overline{R}^2 = 53.06 \quad DW = 1.30$ ……………..…… (xxxi)

autocorrelation coefficient = 0.73

This is the log-log model for the estimation of the demand equation for Sri Lanka. The estimation shows that log TASA is not significant and explains only 53 percent change in tourism demand in Sri Lanka.

$$\ln TAS = 11.86 + 0.00000034 \ TASA - 30520 \ CWS$$

$$(30.86) \quad (1.07) \quad (1.62)$$

$\overline{R}^2 = 57.72 \quad DW = 1.18$ ……………….…… (xxxii)

autocorrelation coefficient = 0.63

This is loglin model for the estimation of the demand equation for Sri Lanka, which gives the highest adjusted R^2 and but both variables are found significant only at 10 percent level at one tail test. Therefore, in the case of Sri Lanka the regression results are inconclusive.

5. *SUMMARY AND CONCLUSION*

The results of empirical studies reveal that tourism in every individual member country is linked with one another. The study shows that tourist arrival in the individual country is the positive function of total arrivals in the region. In other words, whenever the tourist arrivals increase in the region as a whole, the arrivals in the individual countries also increase. In addition, it is the negative function of relative price variable. As the average price level of tourism products increase in the particular individual country in comparison to average price level of SAARC region, the tourist arrivals in that member country decrease. It is found from the tourism demand function for individual countries that tourism demand is price elastic and total arrival inelastic in the cases of SAARC countries. Hence, the joint efforts to increase the tourist arrivals in the region as a whole will benefit all economies in the region.

The share of individual SAARC countries in total SAARC arrivals is found largely determined by the Smeral model. In case of Bangladesh both relative price and total SAARC arrival variables are found statistically highly significant. However, relative price variable is not found significant in the case of Bhutan and demand is found price inelastic. In India tourism demand is found highly price elastic and both variable are

significant. Demand for the Maldives tourism is found highly affected by both variables and demand is price elastic. In case of Nepal, only one variable, that is total SAARC arrival, is found significant. Tourism demand in Pakistan is determined by relative price and total SAARC arrivals and demand is found price elastic. On the other hand, none of the variables is found significant in demand function for Sri Lanka.

As empirical studies show that tourist arrivals in individual SAARC member countries is the positive function of total arrivals in the region, the efforts to increase the total arrivals bring the larger number of tourists in the individual member countries. The following measures are recommended to increase the tourist arrivals in the region.

Insignificant share of the SAARC region in world tourism is itself a reflection of the problem. One of the reasons might be the unfair competition among the member countries. In this light, the success of SAARC tourism depends on the positioning the SAARC region as a single destination and realising individual countries as a subset of the region as a whole. Competing each other to receive more share of tourist from the given SAARC arrivals individually will continue to attract less tourists in the region. Instead, each individual country can attain a better position through the maximisation of the social benefits if they together put their efforts in attracting more tourists in the region. Therefore, it is necessary to think and sell whole region as a single destination. SAARC member countries will have to realise that they are not competitors among each other but the complementary.

It is necessary to promote the entire region through joint package tours including more than one SAARC country. Many package tours, such as Buddhist circuits, Wild life tours, Cultural tours, Mountain tours, sight seeing and beaches tours, can be operated combining more than one country in one tourist package.

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Performance of Public Enterprises in Nepal

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Public Enterprises (PEs) have been established in Nepal with multiple goals and responsibilities. Though PEs have assisted in developing the infrastructure and institutional base in the country, these enterprises have neither been functioning in an efficient manner nor been able to perform their assigned roles. Performance analysis, in terms of the financial, economic and social parameters, shows that the Nepalese PEs have not been successful in achieving the financial and economic objectives, and also in providing social benefits to the people at large. Excessive political interference, lack of adequate autonomy and accountability, absence of professionalism, rampant financial indiscipline and conflicting goals have been the main reasons responsible for the dismal performance of PEs in Nepal. However, their performance can be improved by allowing greater autonomy and more accountability by introducing reward and punishment system linked with performance, and by appointing the Chief Executive Officer (CEO) by merit basis. In the absence of such measures, these enterprises need to be either privatized or liquidated. Presently, PEs in Nepal are, no doubt, at the cross-roads. Any delay in implementing reforms (privatizing or liquidating or continuing to operate through restructuring) would be detrimental to the overall health of the national economy.

Section I : Introduction

1. Background of the Study

PEs have been established in Nepal primarily with a view to improve the socio-economic conditions of the country. They are assigned the responsibility of strengthening the national economy and also improving the living conditions of the people at large *(K.C., 1994:1)*. By the end of the Seventh Plan (1985–90), altogether 63 PEs were established in Nepal. After the advent of democracy, HMG has adopted liberal economic policy since 1992. As a result, one and a half dozen PEs have been privatized so far. Currently, there are 43 PEs in which HMG has invested a total of Rs. 76.6 billion till fiscal year (FY) 2000–01 including Rs. 19.3 billion as equity and Rs. 57.3 billion as loan capital. These enterprises have contributed only Rs. 245.7 million to the government treasury as dividend in FY

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2000–01, which is only 1.27 percent of the equity investment *(MoF, 2002:xiii)*. In spite of huge investment in PEs, their total contribution to GDP is about 3 percent only. They are constantly perceived as consumer of resources rather than the producer of wealth in the economy. Though a pervasive dissatisfaction with the performance of PEs was at the heart of the appeal of privatization to policymakers, unfortunately, with the experiences of the last one decade, privatization programme itself has not shown the positive result as expected *[K.C., 1999(a)]*. It is, thus, a high time to examine the performance record of PEs so as to recommend appropriate measures for their improvement in Nepal.

2. Objectives and Methodology

The basic objective of this study is to review and analyze the overall performance of PEs in Nepal. It also aims at identifying the main causes of poor performance of PEs and suggesting suitable measures for improving their performance of PEs. In order to achieve the objectives, the relevant data and information have been collected from both the primary as well as secondary sources. The primary data has been collected mainly through questionnaire and personal interview with policy makers, academicians and others. The secondary sources include the publication of Ministry of Finance (MoF), National Planning Commission (NPC), Central Bureau of Statistics (CBS), Research and Survey Reports of various national and international institutions, books and journals, thesis and dissertation reports, etc. The information so collected has been suitably organized, tabulated and analyzed with the help of relevant statistical tools, i.e., percentage analysis, ratio analysis, index number analysis, mean value, ranking method, etc.

3. Organization of the Study

This study is mainly dividend into four sections. The first section introduces the study and also states the objectives and methodology. The second section contains the rationale for establishment and growth of PEs in Nepal, and their performance measurement indicators. The third section examines the performance of PEs in Nepal. The performance of PEs in terms of the financial, economic and distributional aspects has been analyzed. Finally, the causes of poor performance have also been identified in this section. In the final section, the summary and conclusions of the study have been presented.

SECTION II: RATIONALE AND GROWTH OF PUBLIC ENTERPRISES IN NEPAL

1. Rationale for Establishment of PEs in Nepal

Nepal accorded a high priority to PEs from the Second Plan to the Seventh Plan. They were seen as a vehicle for development. They were envisaged as an instrument for production and for execution of socio-economic policies in the country (*Bajracharya and Sharma, 1996:28)*. PEs are organization that have primarily economic, but additionally social and political objectives and characteristics *(Powell, 1987:5)*. They have, therefore, been established to attain multiple objectives.

PEs in Nepal, by and large, have been established mainly to serve the following objectives *(Shrestha, 1990:73)* :
   a. infrastructural facilities and services,
   b. basic consumer and development goods,
   c. adequate supplies of essential goods,
   d. managerial support to needy enterprises, and
   e. entrepreneurial support to needy enterprises.

Like in other developing countries, the rationale for establishing PEs in Nepal has been many. Ideological reasons, political considerations, development purposes, socio-economic considerations, macro and micro-economic justifications can be identified as the leading rationale. The need for carrying out development activities has indeed been the prime reasons to create PEs in the country. PEs can realize various development objectives as observed by *Praxy Fernandes et.al. (1982)*, such as; adopting socialist model of development, controlling strategic sectors of economy, developing requisite economic infrastructure, managing "*essential services*", controlling "*commanding heights of economy*", managing and controlling "*natural monopolies*", developing backward areas, providing competitive element to the private sector, generating income and employment, developing technology, utilizing economic resources, discouraging concentration of economic power, etc. These motives help in creating PEs in the country supported by other considerations particularly the socio-economic aspects, such as, protection of public interest, employee protection, equitable distribution of income, national self-preservation, and others *[K.C., 1999:134(b)]*.

Generally, the rationale for establishment of PEs in Nepal could be listed as follows:
   - Private sector was weak in both capital and know-how (technical as well as managerial) and government initiation was vital to enhance economic activities.
   - Donor countries and agencies, particularly China and former USSR, were much interested to invest in several enterprises, hence PEs were established to utilize these resources.
   - Additional return was expected from government investment in productive sector which was essential to mobilize other priority and backward areas.

- Government was responsible to prevent private sector exploit general public by charging monopoly price and rendering low quality and quantity of goods and services.
- Slogan of socialism, mainly in the post-war era, was popular in the developing countries including Nepal though Nepal's constitutions have not incorporated the doctrine of socialism as has been the case in other countries.
- Being newly independent from the domestic oligarchic rulers, the new political leadership aspired for providing the basic economic services through the public sector with the pious objective of alleviating the poverty of the people and improving the underdeveloped condition of the country.

Obviously, PEs have been established in Nepal with different objectives and rationale. Their performance, thus, needs to be concentrated on various spheres of activities. On the other hand, performance evaluation of these enterprises has to be based on the activities carried in pursuit of established objectives. It would be ideal, therefore, to look into the growth of PEs prior to focusing on the performance evaluation of these enterprises.

2. Growth of PEs in Nepal

PEs have been universally established in most developed countries like the USA, UK, Canada, and France as well as in developing countries like Nepal, Bangladesh, Brazil, Chile, India, and Sri Lanka, among others. It was estimated that the share of PE output in gross domestic product in the 1970s ranged from 1 per cent (Nepal) to 14 per cent (Taiwan) in Asia, 7 per cent (Liberia) to 38 per cent (Zambia) in Africa, and 1 percent (Gautemala) to 75 per cent (Guyana) in Latin America and the Caribbean. By the early 1980s, however, PEs accounted, on an average, for 17 percent of gross domestic product in sub-saharan Africa, for 12 per cent in Latin America, 3 per cent in Asia (excluding China, India and Myanmar), and for 10 per cent in mixed economies worldwide *(Hemming & Mansoor, 1988: 3; Hope, 1988:2; Kikeri, et.al. 1992:15).*

Nepal has adopted a mixed economic system whereby public and private sectors coexist to enhance public welfare. With the initiation of First Five Year Plan in 1956, PEs have started to grow in Nepal. The Industrial Policy of 1957 formally recognized for the first time the responsibility of the government in "promoting, assisting and regulating" industrial development in the country and the First Plan intended to establish state monopolies in the fields of transportation, telecommunication, hydro-electric power generation and irrigation, and to run some big industries, such as, cement, sugar, cigarettes, textiles, iron and steel *(Government of Nepal, 1956:55).*

The role of public and private sectors are defined in each development plan. However, shortage of capital, skill, know-how and entrepreneurial abilities in the private sector combined with the inadequacies of physical and institutional

infrastructure made it necessary for the government to step in and breakthrough the barriers of stagnation with various measures including direct participation and management of industrial activities *(Shrestha, 1991:1)*. A review of the history of PEs in Nepal tends to suggest that, "the desire for more rapid development, the desire for self-sufficiency, the heavy aid-dependency syndrome of the government and the theoretical virtuerity of the public enterprises as an instrument of implementing national plans have served as powerful objectives for their establishment" *(Pradhan, 1982)*. The emergence of PEs was thus predicted by the inability of private sector to adequately fulfill these national objectives *(Shah, 1991:98)*. It appears that the government participation in non-basic industries was considered merely as temporary measure designed to fill up the vaccum created by the lack of capital, initiative and entrepreneurial ability of the private sector. But the state ownership and operation of public utilities and basic industries were deemed essential partly because of ideological consideration and partly because of broad socio-economic consideration *(Shrestha, 1991:2)*.

The social and political sentiments that have given rise to the development of the PE sector in Nepal are often traced to the Constitution of Nepal (1962) which provides for maximum participation by the general public in economic development. As stated in the outgoing constitution of 1962 (Article 19):

> *"The economic objective of the panchayat system shall be to establish a system that will provide maximum participation of the general public in the economic uplift of the country as well as to encourage private enterprises, and wherein no individual or class is able to exercise undue economic pressure upon individual or class."*

The new Constitution of Nepal (1990) that was promulgated after the historic movement of 1990 has reiterated the same mixed feature of the economy as in the previous constitution of 1962. This indicates that fundamental changes in the political system of the country has not affected its basic economic system. With regard to the economic system of the country, Article 25(2) of the new constitution reads as follows *(Law Books Management Committee, 1990)*:

> *"The economic objective of the State shall be to transform the national economy into independent and self-reliant system by preventing the concentration of available resources and means of the country within the limited sections of the society, by making arrangement for the equitable distribution of economic gains..... prevent economic exploitation of any class or individual .... preferential treatment and encouragement to the national private and PEs."*

Thus, the existence of PEs in Nepal is not only an economic consideration, but also the constitutional imperative.

PEs in Nepal mostly came into existence during the Second, Third and Fourth Plans in 1960s and the first half of 1970s. However, their historical roots could be traced back well over a century, when the government decided to provide public services like financial service, drinking water, postal service, telephone, railways

and ropeways through departmental management. During the period of *Ranodeep Singh (1878-1886),* a government owned financial institution was opened in 1880 by the name of *Tejarath Adda* (Office of Finance). During the period of *Bir Shumsher Rana (1886-1891),* drinking water office was established. Postal services in 1892, electricity in 1912 and telephone and rail & ropeway service were provided in 1928. Many of the present day PEs have roots in these government units *(Pradhananga, 1983).*

Table 1. Growth of the Nepalese PEs During Different Plan Periods

Periodic Plan		Total Number	Change
Prior to	1956	1	-
First Plan	(1956-61)	8	7
No Plan Period	(1961-62)	11	3
Second Plan	(1962-65)	22	11
Third Plan	(1965-70)	34	12
Fourth Plan	(1970-75)	61	27
Fifth Plan	(1975-80)	59	-2
Sixth Plan	(1980-85)	54	-5
Seventh Plan	(1985-90)	63	9
No Plan Period	(1990-92)	62	-1
Eighth Plan	(1992-97)	46	-16
Ninth Plan	(1997–02)	43	-3

Source: National Planning Commission, *Various Plan Documents* and Ministry of Finance, *Various Publications.*

The corporate form of PE in Nepal existed only in 1952 when the government decided to go for majority holding-from 40 percent share ownership to 51 percent in Nepal Bank Limited, the only commercial bank operating in the country. The objective was clearly to control the financial market. Three sick units (jute, cement, and tea) were taken up by the government and two electrical companies were nationalized *(Manandhar, 1993:84).*

The table 1 shows that the majority of PEs were established during sixties and early seventies. However, unlike in most developing countries, the growth of Nepalese PEs was not based on the nationalization of private companies, but new enterprises were created in many areas, with the support of external donors including China, former USSR, the Netherlands, Japan and multilateral agencies. In other cases, units already existing as Government departments were converted into statutory corporations and other kinds of autonomous bodies. The Government also took over two private companies that were on the verge of closure in order to save jobs *(World Bank, 1990:2).* By the end of the Seventh Plan in 1990, 63 PEs were in operation including 50 first generation PEs, 11 second

generation PEs and 2 joint ventures. With the implementation of the Eighth Plan in 1992, the Government adopted the privatization policy instead of PE policy in the country as it embraced economic liberalization policy for the improvement of national economy. HMG has already privatized 17 PEs under different phases of privatization programme. Presently, there are 43 PEs in Nepal.

3. Public Enterprise Performance

The 'performance' of a PE is the attainment of goals by the enterprise *(Basu, 1982)*. In the PE economic, 'performance' refers to the extent to which a PE achieves the objectives which have been set for it *(Rees, 1984:10)*. More specifically, performance is interpreted in terms of success in achieving the stated objectives *(Kirkpatrick et.al.,1984:165)*. Performance is, thus, essentially correlated with the objectives.

It is widely believed that, in most developing countries, the performance of the PE sector has been disappointing. Originally established to generate public savings for investment and growth, and to achieve social redistributive goals, the PE is now perceived to have performed poorly in fulfilling these various objectives. *Cook and Kirkpatrick (1987:13)* further note that the performance of a PE is difficult to measure. In principle, the process of performance evaluation ought to flow a sequential procedure of identifying the objectives set for the PE, constructing indicators to measure the degree of attainment, and then measuring performance. In practice, there are considerable difficulties in following this procedure-objectives are seldom specified in a clear and unambiguous way. Objective may be mutually inconsistent. There are problems in devising satisfactory single and multiple-goal performance measures and the necessary data are often not interpreted. The existing information on PE performance must be interpreted therefore with caution, and few firm generalizations can be drawn from it.

United Nations (1973) has observed that a climate of controversy has continued to surround performance measurement in PE sectors with an air of inconclusiveness. There are always the votaries and the critics of PE. In an atmosphere of controversy any measurement of its performance that would invite ready comparison with private enterprise is likely to be questioned by the votaries and endorsed by the critics. Measuring PE performance is therefore a difficult task *(Merchand et.al., 1984)*.

Performance Measurement

A positive and scientific performance approach to PE is by now acknowledged to be very important for the PE management, the government and the vast majority of citizens. The management of a PE is not always aware of the weakness of the organization. If by comparison with past performance or with the performance of other similar firms, private or public, national or foreign, some weaknesses can be pinpointed, the chairman or managing director will have some explanation to do. The most valuable outcome of performance studies is to explore the scope for

improvement in the operations and management of PEs and thus to provide both government and managers with an instrument of improvement *(Parris et.al., 1986:138)*.

Performance studies can also serve other purposes. They can help public authorities to improve control of the managers to whom they delegate powers, who act in the name and for the good of the government and the public. Moreover, in the debate over whether to privatize or to deregulate certain activities, such studies, by showing the relative weaknesses and strengths of public versus private production, should be an essential requirement *(Parris et.al., 1986:134)*. Performance measurement provides valuable information.

Ray Rees (1984:11) argues that a more appropriate (and sympathetic) concept of performance will be the extent to which a PE achieves the objectives which have been set for it. Ideally, to every objective that can conceivably be assigned to an enterprise one would like to see correspond a specific performance measure, i.e., an indicator of the extent to which the objective is actually achieved *(Merchand et.al., 1984:26)*. It implies that performance of a PE is closely related with the objectives of the enterprise.

There is a growing view that PE performance need to be based on the realm of operational activities. Indeed, the assessment of the performance should amount to appraising the extent to which they do, in fact, achieve the goals which are attributed to them *(Parris et.al., 1986:136)*. Killick (1983:278) argues that the success of an enterprise should be assessed by its ability to do the job it was created to do, and this requires us to ask about the reasons for creating PE in the first place. Furthermore, the circumstances under which an enterprise is created often affect the performance. In this respect, the performance evaluation requires proceedings through several successive stages which include *(Tulkens, 1986:430)*:

    a. specifying explicitly the objectives attributed to the PE;
    b. providing a convincing justification for the selected objectives;
    c. translating each one of these objectives in terms of indicators that are observable and, preferably, measurable;
    d. devising methods whereby the comparison can be established between the observed values of the said indicators and those values that correspond to a complete fulfillment of the corresponding objectives.

Performance evaluation provides a valuable guideline for the control mechanism to the management. Enabling government to identify major weaknesses, it assists in the policy formulation as well as reform. PEs can truly be assessed in terms of the benefits extended and also the ability to protect the public interest *(Shrestha, 1988)*.

Performance is concerned with the efficiency, particularly the Pareto efficiency, which has at least three facets, i.e., technical efficiency, financial efficiency or cost minimization and overall efficiency of the enterprise. In this regard, it is noted that one sided approach is, of course, bound to induce a severe bias in most judgements on PEs *(Merchand et.al., 1984:26)*. Performance can be measured either through direct statistical analysis of time series or cross-sectional data of the enterprises

themselves or comparisons with the private sector enterprises which are alike in nature.

Performance Indicators

Performance indicators provide guidance when considering matters relating to value for money. They generally take the form of statements usually qualified on resources employed and achievements secured in relation to areas relevant to the particular objective of the enterprise. Due to the multiple goal structure of the PEs, performance evaluation of PEs generally takes into account all the relevant objectives of PEs. *Jenkins (1978)* views that PEs have three set of objectives, namely, financial, economic and social (distributional). Thus, if a PE is established to attain these objectives it can be evaluated within these frameworks using suitable indicators. If it is being used to meet the specific social objective, it ought to be measured against cost effectiveness.

Generally, the performance of PEs is assessed by employing the conventional indicators, such as, financial, partial productivity, and informal indicators. The financial indicator indicates the share of current and capital expenditure covered by revenue or simply the rate of profit or loss. The partial productivity indicators, such as, the ratio of output to labour, capital output ratio, capacity utilization, output quantity, sales volume, etc. guide the success or achievement from one particular aspect. The informal indicators are largely based on the surveys. These indicators provide the satisfaction level of consumers organizations or the users group. Moreover, the indicators like technical efficiency, gap in cost functions, index of total productivity growth and productivity gains and sharing of these gains have been used in recent years for measuring PE performance. The self-financing ratio, the share of the enterprise in the overall budgetary deficits and external debts, is also used in determining the efficiency of PEs.

The Economic Advisory Council (EAC) in its report titled "PEs in India: Some Current Issues" suggests different parameters categorized under five headings for performance evaluation *(Kazmi, 1993:138; Business India, 1988:77-79)*. The performance evaluation indicators included are presented in Box 2.1.

Box 2.1

Performance Evaluation Indicators for PEs

1. *Financial*
   (a) Gross margin to total capital employed
   (b) Total working capital employed
   (c) Total net interest payments due to working capital
   (d) Variance between the actual and the budgeted per unit cost.
2. *Production*
   (a) Capital utilization
   (b) Total value of production
   (c) Total outgo due to defaults on contractual performance obligations
3. *Investment Efficiency*
   (a) Average slippage on ongoing projects
   (b) Cumulative progress in the utilization of plan funds
   (c) Deviation between actual capital costs and the budgeted cost of the completed projects.
4. *Productivity*
   (a) Growth in total factor productivity
   (b) Trends in international competitiveness
5. *Social Audit*

Source: "The Strategic Cutting Edge" in *Business India,* Jan. 11-24, 1988, pp. 77-79.

Performance indicators give an overview of the performance of an enterprise. If these indicators are related to a time scale trend, declining performance can be isolated and action can be taken by enterprise management to forestall further deterioration before it reaches a crisis stage. Many indicators are specifically designed to reflect performance of enterprises in particular sector. *Victor Powell (1987:37)* has explained that there are several indicators for measuring PE performance. However, the indices can be classified into six groups:

   a. General performance indices
   b. Management performance
   c. Financial performance
   d. Investment performance
   e. Costs breakdown (input co-efficient)
   f. Physical performance (i.e. resource use)

The appropriate use of the type of performance indicator lies on the laid down objectives of the particular enterprise. All of these indicators assist in assessing the functioning of PEs. In the following section, an attempt has been made to evaluate the performance of the Nepalese PEs using different performance indicators.

SECTION III: PERFORMANCE ANALYSIS OF PUBLIC ENTERPRISES IN NEPAL

1. Financial Performance

Financial performance occupies a significant place in the performance evaluation of PEs. Financial profitability, with regard to the financial performance evaluation, shows its "ability to earn profits proves a measure of its market strength, its ability to keep down costs. Profitability also affects the amount of investment, for much industrial investment is financed out of reinvested profits, and hence the contribution of the firm to the overall growth of the economy" *(Killick, 1983:183)*.

Similarly, *Mary M. Shirley (1983:30)* argues that "profit is a composite indicator that applies positive weights (price) to benefits (outputs) and negative weights to costs (inputs). If the prices are correct, a profit maximizing firm strives to achieve maximum benefits for minimum costs - the definition of efficiency." Financial profitability is thus a simple and straight forward indicator which indicates the extent of success of an enterprise.

The Nepalese PEs have been largely criticized on the ground of financial performance. Despite the huge capital investment these enterprises have not been able to reveal satisfactory financial returns on the capital employed.

Table 2. Sectoral Investment in PEs (Rs. in million)

Sector	1980-81	1990-91	1998-99	1999-00	2000-01	2001-02	Indices 2001-02 1998-99 =100
Manufacturing	636	2205.2	6287.4	4858.6	4078.1	4247.8	67.55
Trade	-310	177.6	1107.4	952.4	1770.7	1253.1	133.00
Services	-	3647.5	497.5	702.8	290.4	361.9	72.74
Social	-	184.8	947.2	984.2	1066.2	1217.6	128.55
Public utilities	1078.3	25997.0	66545.5	72971.2	79027.8	102891.1	154.62
Financial	1927.0	3631.1	8300.4	2951.4	-3322.7	2633.5	31.73
Total	3331.3	35843.2	83685.6	83420.6	82910.5	112604.2	134.56

Source: Ministry of Finance (2002), *Economic Survey 2001-02,* Table 9.9, p. 60.

Capital investment in PEs has increased in substantial proportion. The net capital investment in the fiscal year 2001-02 amounted to Rs. 112.6 billion as compared to Rs. 3.3 billion in the fiscal year 1980-81. An analysis of the table reveals that the overall investment in PEs registered over one and a one third times growth during 1998-99–2001-02, the index being 135 in 2001-02 taking 1998-99 as the base. It is significant to note that investment in public utilities sector witnessed the highest growth followed by trade sector and social sector. On the centrary, investment in finance sector showed a dismal picture.

With the increasing capital investment, it is not unusual to expect satisfactory return. On the contrary, PEs have shown almost negligible ability to fulfill the expectation. The profit earning capacity has been significantly low on the one hand and many PEs have been running at losses on the other. These enterprises present a gloomy picture even from gross profit front. In many cases, they have

been unable to reveal gross profits. Even if they show a profit, it has been substantially low.

Table 3. Profitability of PEs (1980-81 - 1997-98) (Rs. in million)

Year	Capital Employed	Gross Profit	Gross Profit as % of Capital Employed
1988-89	17118.0	-38.8	-0.23
1989-90	18476.2	-244.6	-1.38
1990-91	35843.2	-1871.7	-5.22
1991-92	50530.3	-1145.5	-2.27
1992-93	43482.9	146.4	0.34
1993-94	63885.0	1073.7	1.68
1994-95	59244.8	1965.6	3.32
1995-96	62010.9	1377.6	2.22
1996-97	85757.9	475.9	0.55
1997-98	81270.8	1317.6	1.62
1998-99	83685.6	2903.6	3.47
1999-00	83420.6	2404.6	2.88
2000-01	82910.5	-1353.2	-1.63
2001-02*	112604.2	2378.3	2.11

*Estimate

Source: Ministry of Finance (2002), *Economic Survey (2001-02),* Table 9.9, p. 60.

PEs have not been able to show gross profits throughout the period under study. It is evident from table 3 that PEs incurred losses from the FY 1988-89 to 1991-92. Losses incurred by PEs in 1990-91 amounted to Rs. 1871.7 million while it decreased to Rs. 1145.5 million in 1991-92. In the year 1998-99 PEs have shown a gross profit amounting to Rs. 2,903.6 million, while it decreased to Rs. 2404.6 million in 1999-00. With a gradual decline in the profitability it reached Rs. 1343.2 million in the FY 2000-01. The gross profit ratio to the capital employed was 1.63 percent in the FY 2000-01, while it was expected to turn positive by 2.11 percent in the FY 2001-02.

The percentage of gross profits to the capital employed was much higher in the early period. It was 5.9 per cent in the year 1970-71. But, for some years, it also presented even a negative picture. PEs had greatest negative rate of return of 5.22 per cent in the year 1990-91. However, the rate of return on investment in PEs had been improved with a variation for some years.

PEs profitability had always remained at low level. During the early 1970s when returns were considerably better it was assumed that the standard expected rate of return was 12.5 percent in India and 16 percent in the private sector in Nepal *(Joshi, 1982).* Many PEs were established by the government to support the national treasury. But, unfortunately, the enterprises did not fulfill this set hopes.

Except for the abnormal situation (due to eighteen month long Nepal-India trade transit barrier) in 1989-90 the sectoral rate of return indicates that the performance

of finance and manufacturing sectors has been relatively better than the other sectors. Trading sector accounts for the poorest performance result. The two trading units, namely, the Agriculture Inputs Corporation and Nepal Food Corporation, account for 60 percent of losses in the PEs *(World Bank, 1990:10)*.

Table 4. Sectoral Rate of Return from PEs (in Percentages)

Sector	1990-91	1998-99	1999-00	2000-01	20001-02
Manufacturing	-7.77	-7.71	-8.42	-8.76	-5.26
Trade	-174.02	23.95	72.39	4.89	4.96
Service	-4.95	-18.15	3.83	-330.44	-53.22
Social Service	-2.00	-2.77	-2.51	-1.98	5.22
Public utilities	-3.33	-3.84	4.67	2.74	2.40
Finance	-10.99	8.23	43.65	68.26	7.37
Total	-5.22	3.47	2.88	-1.63	2.11

Source: Ministry of Finance (2002), *Economic Survey (2001-02),* Table 9.9, p. 60.

The nominal rate of return of PEs is due to the heavy losses incurred by a majority of enterprises. In terms of number, only 18 PEs earned profit of Rs. 2253.1 million in 2000-01 while other PEs incurred losses of Rs. 3606.3 million resulting in the net deficit of Rs. 1353.2 million. However, the number of profit making PEs decreased to 15 with profit of Rs. 2794.1 million and remaining PEs incurred losses of Rs. 415.8 million in 2001-02 resulting in the net surplus of Rs. 2378.3 million *(MoF, 2002:xvi)*.

As the capital investment is increasing significantly in PEs, returns on the investment have not been at a satisfactory level. Indeed, the return on capital investment has been very low and often showed a negative trend.

The poor financial performance of PEs has a direct impact on the government budgets. Deficits on the balance sheet of the enterprises need to be adjusted by the government through subsidies or loans. Financially, the government has been left supporting the PEs. It can be made clear with the analysis of funds flow between the government and PEs which is presented in table 5.

Table 5. Flow of Fund Between Government and PEs (Rs. in million)

Particular	1997-98	1998-99	1999-00	2000-01	2001-02*	Indices 2001-02 1997-98 = 100
Funds from Government:	*7562.7*	*6213.7*	*7950.5*	*8255.1*	*9225.0*	*122*
Share capital	1839.0	1420.0	1373.0	1088.8	2140.0	166
Loan capital	4658.8	4090.8	5945.0	6898.0	6800.0	146
Operating/Transport subsidy	988.0	698.7	577.5	268.3	285.0	29
Capital subsidy	76.9	5.0	55.0	0.0	0.0	0
Funds from Public Enterprises	*4913.3*	*6830.0*	*8523.2*	*8784.3*	*7452.8*	*152*
Indirect Taxes	0.0	0.0	0.0	0.0	0.0	0
Income Taxes	1317.8	1150.0	2190.2	2928.0	1102.8	84
Dividend	1194.5	1780.0	2623.0	2336.3	2400.0	201
Interest	1153.0	1660.0	1568.0	1463.0	1750.0	152
Principal	1248.0	2240.0	2142.0	2057.0	2200.0	176
Difference (B-A)	*-2649.4*	*616.3*	*572.7*	*529.2*	*-1772.2*	*67*

* Estimate

Source: MoF (2002), *Economic Survey (2001-02),* Table 9.8, p. 59.

The table reveals that the flow of funds from the government to the PEs registered more than one and a one fifth times growth during 1997-98 - 2001-02, the index being 122 taking 1997-98 as the base year, while the flow of funds from the PEs to the government recorded over one and a half times (i.e., the index being 152) growth during the same period.

The fund flow analysis also indicates that flow was in favour of the government for the FYs 1998-99, 1999-00 and 2000-01. For the years 1997-98 and 2001-02, the fund flow has been in favour of the PEs but at varying levels. However, the fund flow position shows the inability of the enterprises to generate capital as required.

2 Economic Performance

Economic performance provides a firm base for measuring the performance of PEs. It presents a picture on how far the enterprises have been able to increase the volume of outputs to a given level of inputs. With regard to economic performance, a variety of indicators, such as capacity utilization, capital- output ratio, labour-output ratio, labour-administrative cost per output, etc. can be adopted.

(i)   Capacity Utilization

Capacity utilization is an important indicator in course of performance evaluation. Economic efficiency of an enterprise, indeed, depends much upon the capacity utilization. It has been well realized that the capacity of the enterprise has to be utilized to its maximum in order to improve the performance. However, the capacity utilization rate of the Nepalese PEs has not increased significantly over the past few years. A *World Bank* report (1979:25) has stated that the average capacity utilization rate is below 60 percent and this was regarded as one of the major causes for the poor PE performance.

Table 6 presents the capacity utilization rates for the selected PEs. It is noteworthy, while analyzing the capacity utilization rate on the individual enterprises, to note that there are variations in the capacity to use its potential capacity. But the capacity utilization in some PEs (textile, cigarette, cement) is found to be very low. It is true both in theory and in practice that optimum capacity utilization helps in achieving the objective of cost minimization.

Table 6. Capacity Utilization of Selected PEs (in percentage)

Enterprises/Annual Capacity	1997-98	1998-99	1999-00	2000-01	2001-02*
Birgunj Sugar Factory					
13500 M. Ton (sugar)	58.87	69.54	99.87	61.07	31.85
Rectified Spirit (1350000 lit)	12.96	20.96	20.96	15.26	3.78
Lumbini Sugar Factory					
10800 M. Ton (sugar)	89.76	58.21	84.19	56.02	62.59
Alcohol (108000 lit)	54.06	50.93	37.96	21.95	7.83
Janakpur Cigarette Factory					
5.25 billion sticks	40.00	41.90	43.81	78.93	78.00
Bhaktapur Brick Factory					
20 million (bricks)	NA	NA	NA	NA	NA
Heatuda Textile Industry					
11 million metres	42.74	17.11	NA	NA	NA
Himal Cement Factory					
108400 M. Ton	44.42	37.57	35.46	NA	NA
Hetauda Cement Factory					
260000 M. Ton	52.69	49.55	45.64	33.42	48.08
Udayapur Cement Co.					
277300 M. Ton	47.49	35.94	39.85	38.21	54.11

* Estimate   NA = Not available

Source: MoF (2002), *Economic Survey (2001-02),* Table 9.7, p. 58.

The table reveals that information on capacity utilization of Himal Cement Factory, Bhaktapur Brick Factory and Hetauda Textile Industry is not available. Birgunj Sugar Factory and Lumbini Sugar Factory utilized their capacity between a range of 56 percent and 99 percent. Other factories utilized their capacity between a range of 33 percent and 50 percent. In the FY 2001-02, it is estimated that the capacity utilization rate has declined. As a consequence of the lower capacity utilization, the financial performance of PEs in general has been adversely affected.

(ii)   Capital-Output Ratio

The capital-output ratio of PEs is also regarded as not being at a satisfactory level. The capital-output ratio for the FYs 1977-78 and 1978-79 was recorded 6.1:1 and 5.7:1 respectively. The capital-output ratio in manufacturing and trade sector is usually found to be very low as compared to the financial and utility sectors *(CCC, 1981:6)*. However, another study *(IDS, 1987:137)* has revealed that capital-output ratio is particularly high in trading and finance sector PE (Table 7). Given the capital-output ratio of 4.5:1 assumed during the Seventh Plan period (1985-90), or 4.1:1 assumed during the Eight Plan period (1992-97), the capital output ratio of 5.7:1 in PEs is relatively high.

Table 7. Sectoral Capital-Output Ratios and Value Added per Employee (Labour-output Ratios) in the PEs (Rs.)

PE Sector	Capital-Output Ratio		Value Added/Employee	
	1974-75	1984-85	1974-75	1984-85
Manufacturing	3.9	2.8	11753	10278
Public utilities	7.4	4.2	12950	21742
Trade	0.8	15.3	22023	1527
Social services	3.6	5.8	11818	5578
Finance	8.6	9.7	9632	10979
All Sectors	5.3	5.7	12739	12204

Source: Integrated Development System (IDS) (1987), *Financing Public Sector Expenditures in Nepal,* (Kathmandu: IDS), p. 137.

(iii) Labour-Output Ratio (Labour Productivity)

The labour-output ratio provides an indication with regard to labour productivity.   The labour productivity in the PEs has declined from Rs. 12739 to Rs. 12202 (Table 7). Sectorally, there has been tremendous gain in public utilities, whereas most noticeable declines took place in the trade and social service sectors. Therefore, it is clearly indicated that PEs have stagnant labour-output ratios defined in terms of value added per employee.

Another study on improving PE performance *(Manandhar, 1993:320)* covering the period from 1980 to 1990 found that the labour productivity as sales per unit of labour, increased from 1980 to 1988. In 1980, sales were only Rs. 50.87 thousand per employee which increased to Rs. 161.32 thousand per employee in 1988. However, from 1989 onward there was decline in the ratio indicating that the growth in sales had not matched the growth in the employment in the PEs.

The above analysis in different aspects of the economic performance indicates that the Nepalese PEs have not been able to reveal a sound economic performance. Capacities of the enterprises have been utilized below to their optimum capacities. Capital-output ratio, labour productivity ratio, and value added-employee ratio have not been improved as desired by the government on the one hand and the enterprises on the other. These could be identified as the convincing reasons for the poor economic performance of the Nepalese PEs.

3. Distributional Performance

It has been clearly mentioned in the various periodic plans that one of the basic reasons behind creating PEs in Nepal is to generate employment opportunities and also reduce regional economic imbalances. It can, therefore, be observed that many PEs are expected to pursue social objectives rather than the economic ones. It is more often noted that the "*non-economic*" considerations dominate the "*economic*" ones.   The emphasis needs to be given to the PE performance in

fulfilling "*non-economic*" objectives along with the financial and economic performance *(Cook and Kirkpatrick, 1988)*.

PEs are increasingly considered as the major source of employment. They are also regarded as the vital instrument to redistribute income. In this respect, the *Seventh Plan (1985-90:91)* has recognized, "with rising government spending for the enterprises and diminishing returns from them, the government-owned corporations have become more a liability to the government. However, corporations have proved to be a major source of employment."

PEs have played a modest role in generating employment opportunities in Nepal. They provided employment to 23,133 persons at different levels from top management to manual workers level in 1975-76. Subsequently, the figure increased rapidly to 32,932 in 1978-79 *(CCC, 1978:5)*. Upto the FY 1989-90, a little less than 60,000 people were engaged in public sector *(MoF, 1992:60)*. Because of the privatization policy adopted by the government since 1992, there is a decreasing trend of employment in PEs. In 2000-01, only 46900 people were being engaged in this sector. Employment in PEs is less than a half percent (0.44 percent) of the total labour force in the country. Its share in the non-agriculture labour force is 8 percent *(Manandhar, 1993:104)*.

Table 8. Sectoral Share of Employment in PEs

PE Sector	1975-76	1978-79	1984-85	1989-90	2000-01
Manufacturing	6,419	9,694	10,249	14,415	9,082
Public utilities	3,570	4,420	10,608	15,534	17,182
Trade	2,906	3,363	5,405	7,210	4,938
Service and Social	3,170	4,726	5,278	6,340	4,485
Finance	7,068	10,727	8,681	16,051	11,213
(a) Total	23,133	32,932	40,221	59,550	46,900
(b) Total Economically Active Population	4,853,000	6,687,000	7,400,000	8,585,000	10,637,243
(c) Percent of (a) on (b)	0.48	0.49	0.54	0.69	0.44

Source: Ministry of Finance, *Various Publications* and Central Bureau of Statistics (2002).

The employment contribution is quite high when one compares the share of employment vis-a-vis the number of people engaged in the organized sector of the economy. The share of PEs is around 40 to 45 percent *(Manandhar, 1993:105)*.

The largest share of employment is in the public utilities sector, i.e., 37 per cent followed by finance sector (24 per cent) and manufacturing sector (19 per cent). Table 9 presents the employment in PEs for the FYs 1989-90 and 2000-01.

Equally, the principles of social equity, serving the rural poor and regional balance have been stifled by the major concentration of PEs in the urbanized central development region of the country. Out of 57 enterprises in 1993, 46 PEs have their head-offices in the central development region and 36 of them have their head office in the capital of Kathmandu alone *(Manandhar, 1993:127)*. Realizing the severity of this problem, in 1991, the government issued a directive to the PEs to close their liaison office in the capital so as to economise the administrative expenses.

Table 9. Employment in PEs in Nepal

PE Sector	1989-90		2000-01	
	Number	Percentage	Number	Percentage
Manufacturing	14,415	24	9,082	19
Public utilities	15,534	26	17,182	37
Trade	7,210	12	4,938	10
Service	4,405	7	2,648	6
Social Service	1,935	3	1,837	4
Finance	16,051	27	11,213	24
Total	59,550	100	46,900	100

Source: Ministry of Finance, (2002).

On the basis of the above analysis, it can be concluded that PEs have been successful neither in achieving their prescribed objectives nor towards providing social returns to the of poor of this country. Performance analysis in terms of the financial, economic and distributional performance shows that, the Nepalese PEs are not performing satisfactorily. As a consequence, they have been increasingly perceived as liabilities instead of assets to the government. Having been failed to contribute to the national development in both aspects, i.e. economic and social, the government is being compelled to search for the alternatives. Privatization policy, in this regard, has been advocated as the suitable policy option to the country as in other developing countries.

On the other hand, it is also advocated that PE performance should not be measured merely against the financial criterion but be evaluated against its established objectives. It is on the ground that many PEs are established to satisfy social and distributional objectives than meeting the financial ones.

In the following section, attempts have been made to make an empirical study with regard to identify the cause of poor performance on the one hand and improving the performance of PEs in Nepal on the other. This empirical study is based on the responses of the policymakers, academicians, public sector managers, entrepreneurs, employees and trade unions selected for the study.

4. Causes of Poor Performance

Privatization of PEs has been advocated on the ground that their performance is not upto the mark. The charges levied are basically financial performance and operations. The author has conducted an opinion survey to detect the causes of poor performance of the PEs, the results of which are summarized in Table 10.

Table 10. Causes of Poor Performance of PEs

Causes	Mean	Rank
Establishment of conflicting objectives	3.96	5
Excessive political interference	1.72	1
Lack of adequate autonomy & accountability	2.42	2
Absence of professional management	2.84	3
Financial indiscipline	3.52	4

An analysis of the table reveals that in the Nepalese context, it is perceived that excessive political interference has resulted in the poor performance of PEs. In the process of determining the cause and factor relationship, many of the respondents viewed that PEs have not been able to adopt *'business culture'*. Instead, they have been bound to adopt *'bureaucratic culture'* as a result of control and interference by the government to a greater extent. The mean value for holding this view is 1.72. Similarly, others hold the view that lack of adequate autonomy and accountability, absence of professional management, financial indiscipline and establishment of conflicting objectives are the basic reasons for the poor performance of the enterprises, showing the mean value of 2.42, 2.84, 3.52 and 3.96 respectively.

5. Performance Measurement and Its Criteria

Though, the PEs have been criticized in most cases on the ground of financial performance, it is equally important to note that they are not created with the sole objective of earning profits. They are rather expected to meet social objectives too. As such, it is more often argued that it is not appropriate to evaluate all enterprises on the basis of a single criterion.

Table 11. Criteria for PE Performance Measurement

Criteria	Mean	Rank
Established objectives	2.32	1.5
Social performance	3.54	4
Economic performance	2.92	3
Financial performance	2.32	1.5
Equity/distributional performance	4.30	5

The majority of respondents opined that the performance of PEs needs to be measured against the established objectives on the one hand, and the financial performance on the other as the mean value for both the criteria equate at 2.32. Others view economic, social, and equity/distributional performance evaluation, showing the mean value 2.92, 3.54 and 4.30 respectively. It, therefore, indicates that consideration should also be give to other factors in PEs performance besides the financial criteria.

6. Improvement in Performance

In the foregoing sections, it has already been discussed that the performance level of PEs, in general, is below the satisfactory level. In this perspective, it is also equally important to explore the possibilities of improving PE performance in the Nepalese context. Table 12 suggests certain key elements to be considered in view of deteriorating PE performance.

Table 12. Steps for Improving PE Performance

Steps	Mean	Rank
Allowing greater autonomy and accountability	2.33	1
Reward and punishment linked with performance	2.79	2
Appointment of CEO by merit	2.92	3
Performance contract	3.09	4
Privatization	3.54	5

Majority of respondents under the study responded that the existing situation of the poor performance might be improved by allowing greater autonomy and accountability to the enterprises. The mean value holding this perception is 2.33. It is also advocated that reward and punishment linked with performance could also help in improving the performance level. The appointment of Chief Executive Officer (CEO) by merit (mean value 2.92), performance contract of management (mean value 3.09) and privatization (mean value 3.54) are also considered to be some of the major steps for improving PE performance by which government would be comparatively relieved.

SECTION IV : SUMMARY AND CONCLUSIONS

In Nepal, PEs were set-up as a vehicle for growth and as an instrument for execution of socio-economic policies in the country. Accordingly, PEs were established in the areas of infrastructure, production, distribution and even in business and trade. The broader goals of establishing these enterprises have been developing infrastructure, creating employment opportunities, producing and offering required goods and services to the people, helping in controlling price situation, making goods available for exports, increasing revenue to the government and, finally, strengthening and accelerating the tempo of industrialization along with economic development and growth. In order to achieve these goals, PEs have been promoted since the beginning of the First Five Year Plan in 1956. As a matter of fact, a majority of PEs were set up during 60s and 70s. By the end of the Seventh Plan (1985-90), in all, 63 PEs were established. Many of these units were established with the support of external donors, such as, China, the former USSR, the Netherlands, Japan, etc.

In this way, banks and insurance in the financial sector; telecommunications, electricity and water supply in the public utilities sector; cement, bricks, textiles

and medicines in the manufacturing sector came into existence in the country. These enterprises have been playing a dominant role in the major sectors of the economy. They occupy a monopoly position in electricity and water supply, in telecommunication sector, in petroleum sector, etc.

Though the PEs in Nepal have greatly assisted in industrial and corporate sector development and in developing required infrastructure and institutional base, these enterprises are not functioning in an efficient manner. Consequently, these enterprises have not been able to develop a sound financial capability on the one hand and demonstrate expected work efficiency on the other, thereby all depending on government grants and subsidies. Their performances has continuously been lagging behind the expectations.

It is also obvious that, in spite of huge capital investment, PEs in Nepal have not been able to provide satisfactory financial returns on the capital employed. During 1980-81 through 2001-02, the overall investment witnessed a rise of almost 34 times, from Rs. 3.3 billion to Rs. 112.6 billion. However, the level of profitability remained either negative or very low. Sectoral rate of return shows that the performance of trade and manufacturing PEs has been relatively better than that of the other sectors. In particular, service sector's performance has been highly unsatisfactory or has remained the poorest one. The capacity utilization level remained low, in some cases much below 50 percent mark. The capital-output ratio also remained unsatisfactory. The labour productivity ratio showed unfavourable trend with a few exceptions. In fact, all the capital output ratio, labour productivity ratio and value added employee ratio have not been up to the mark. Less than a half per cent (0.44%) of the active population is employed in the PEs (in absolute terms, 46,900 people are employed in these enterprises). Mention may be made that the employment opportunity has been generated at the cost of profit and productivity.

As a result of poor financial performance, the PEs in Nepal have been increasingly perceived as a liability instead of an asset to the nation. Though these enterprises have helped to a greater extent in creating employment opportunities, in increasing production and providing basic services, these have failed to perform in an efficient manner. In spite of the long-term protection given to these enterprises, these have not been able to achieve satisfactory financial capability and work efficiency. Finally, it may be said that these enterprises have become the *white elephants*. . It may thus be concluded that the PEs in the country have been successful neither in achieving the pre-determined objectives nor in providing social returns to the poorer segments of the population. Excessive political interference, lack of adequate autonomy and accountability, absence of professionalism, rampart financial indiscipline and existence of conflicting goals are some fundamental reasons attributable to this deteriorating performance of the PEs in Nepal. Owing to these reasons, these enterprises could not develop sound and effective business culture and acumen as well. It seems that the objectives behind the establishment of the PEs look quite sound and highly significant for expediting the socio-economic development of the country. However, the actual implementation strategies, organizational/management modalities, operational

systems and work processes are not sound enough to meet the stated objectives. Thus, the PEs looked nice in words and papers but failed miserably in the actual practice. This is what is called the problem of "*nice words and bitter deeds"* or "*distributing hollow dreams to the deprived multitudes*".

Our study reveals that exploring the possibility of improving the performance of PEs in Nepal would be a better option. This can be done by allowing greater autonomy and more accountability; by rewarding those who contribute greatly in achieving the pre-determined goals and by punishing those who are proving themselves as hurdles. In the absence of such measures, these enterprises need to be either privatized or liquidated. Thus, PEs in Nepal are, no doubt, at the cross-roads. Despite this, some PEs that cater to the public utilities needs of the society would continue to remain in the operation because of the imperfections that govern the public utilities if handed over to the private sector without appropriately developing competitive economic climate and efficient regulatory environment. At the same time, it should also not be forgotten that monopolies in the private sector would be far more dangerous than that in the public sector. So, the logical conclusion would be to liquidate or privatize immediately PEs that cater to the needs that have already been catered by the private sector in a competitive, efficient basis. Similarly, PEs that work as natural monopolies could continue to work as PEs until more efficient/competitive private sector operators are in place. Till the PEs are either privatized or liquidated or continued to allow operate as PEs, the overall management improvement mechanism should be strongly institutionalized so that inefficiency in the use of resource is restricted and the public liability in such PEs does not invite crisis situation. Any delay in implementing such reforms would be detrimental to the overall health of the national economy.

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Depreciation Systems in Nepal:
A Comparison Based on ETR

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The administrator after the introduction of Income Tax Act, 2002 has claimed that the depreciation rule under the new law is more generous than the depreciation rule of 1992 in case of all the assets including machinery and building. The analysis made on the basis of ETR, however, shows no decrease in ETRs in 2002 in comparison to 1992. That means, the depreciation rule of 2002 in case of building and machinery is not generous as claimed by the tax policy maker. In opposite of this, the analysis proves that the depreciation provisions of 1992 and 2002 are more liberal than the depreciation provisions of earlier periods.

1. INTRODUCTION

Depreciation means decrease in the value of assets due to their use in production process or reduction in market value or obsolescence. The main purposes of depreciation are the replacement of assets, exact pricing of the product, prevent from consuming capital, reduction of tax liability directing investment towards intended area and providing source of finance. There are mainly two types of deprecations, namely, tax depreciation and economic depreciation. The amount of depreciation which is permitted to write off as expenditure by tax law is tax depreciation. It is tax depreciation because it reduces the amount of tax to be paid by the firm. As opposed to tax depreciation, economic depreciation is the decline in asset value due to aging and use in production process. In fact, it is the real change in the value of the fixed asset during the firms accounting period.

Nepal exercised various rates of depreciation system prescribed by various Income Tax related acts and rules. After the introduction in 1962; it was changed in 1974, 1981, 1982, 1992 and 2002. After each reform, the administration used to claim that the depreciation provision brought was more generous than the previous one. After introducing the Income Tax Act, 2002 also; they boasted that depreciation system is made more liberal than the previous ones especially for industrial sector.

The main purpose of the study is to compare the effective tax burden under different provisions of depreciation for industrial sector and find out whether the claim of the administrator in regards to depreciation provision of Income Tax Act, 2002 is correct or not. The method of analysis is based on ETR technique[7]. For the purpose of comparing the depreciation system, the present value of depreciation, present value of tax saving and ETRs under different tax provisions for industrial sector during 1962 to 2002 are analysed. Because of the unavailability of data, the depreciation provision of 1974 is excluded from the study. From the study, it is known that the present provision of depreciation for industrial sector is not more beneficial than the previous one as claimed by the policy maker.

The study is divided into 7 parts. The remaining parts of the article are Tax Depreciation System under different Tax Related Laws, Earlier Studies under ETR, Parameters and Methodology, Assumptions and Sources of Data, Analysis of Data and Conclusion.

2. TAX DEPRECIATION SYSTEM UNDER DIFFERENT TAX RELATED LAWS

Nepal introduced depreciation system as a part of the Income Tax Act, 1962. The method of depreciation proposed by that Act was straight line method and the rate allowed were 10 percent for plant and machinery, 6 percent for building, 5 percent for furniture and 15 percent for vehicles. In 1974, Income Tax Act, 1974 was introduced and the depreciation rates were changed.

By the introduction of Industrial Enterprise Act, 1981; the provision of depreciation given in Income Tax Act of previous years was also altered. According to the Industrial Enterprise Act, the permitted life span of the assets were 20 years for building, drainage and water distribution system; 5 years for vehicle, furniture and fixture; 10 years for all types of plant and machinery and 5 years for other assets. That means, the rate percent for calculating the depreciation as per the Industrial Enterprise Act, 1981 were 5 percent for building, drainage and water distribution system, 10 percent for plant and machinery, 20 percent for vehicle, furniture and fixture and 20 percent for other assets. To industries, an alternative to choose any one from the two methods of depreciation – straight line and diminishing balance – applying the same rate was allowed.

In 1982, the depreciation rate was again changed by Income Tax Rules, 1982. The rate schedule of depreciation given by Income Tax Rules, 1982 is as presented in Appendix II of this article. As per the prescribed rule, the rate of depreciation for building used in industrial purpose varies from 2 percent to 4 percent specifying 4 percent for go down etc. and 2 percent for factory building. The rate of depreciation for machinery also varies from 10 percent to 20 percent specifying 10 percent for basic type of equipment.

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[7] The full form of ETR is Effective Tax Rate. ETR in this context is Marginal Effective Tax Rate. Sometime, it is also called METR. ETR is the tax burden borne by a new investment project. It is the difference between gross of tax required rate of return to investor and net of tax return to saver.

In 1992, the rate schedule of depreciation given by Income Tax Rules 1982 was again changed by the first amendment in this rule. The rate schedule prescribed by this amendment is given in Appendix III. According to the Rule, the rate for building is basically 5 percent and the rate for machinery although varying from 10 to 20 percent is 15 percent for most of the type of machinery. Industries were allowed to choose either of the straight line or diminishing balance method of depreciation. Since the rates for diminishing balance method were almost triple of the rates for straight-line method, the former method was more generous than the latter one (Kandel, 2001).

Income Tax Act, 2002 started from last fiscal year has classified depreciable into 5 groups –structure, office-related furniture and equipment, vehicles, other machinery equipment and intangible assets. The rate for these groups are 5 percent for building, 25 percent for office related materials, 20 percent for vehicles, 15 percent for machinery items and total cost divided by life for intangible assets.

3. EARLIER STUDIES UNDER ETR

Theory of effective tax is related to the theory of the cost of capital developed by Jorgenson (1963). The developers of this theory were Auerbach and Jorgenon. They introduced ETR theory in 1980 in the debate over the US Economic Recovery Tax Act, 1981. They used this concept as a mean of comparing tax burden across different types of assets. After their study, this theory was used by various researchers like Boadway, Bruce and Mintz (1987), King and Fullerton (1984) and (1991); Jorgenson and Landau (1993); Mintz and Tsipoulas (1993), Mintz (1996), Mckenzie and Mintz (1994); Mintz (1990); Mintz and Tsipoulas (1995) etc. In Nepal this theory is used by Maxwell Stamp (1990), Kandel (2000). The methodology of evaluating the tax systems in all these researches was the comparison of effective tax burden calculated through marginal ETR technique. In Kandel (2000) and (2001), the effects of depreciation on ETRs are presented.

4. PARAMETERS AND METHODOLOGY

Computation of ETR needs various parameters like inflation rate, interest rate, interest tax rate, physical depreciation rate, tax depreciation rate, return on equity rate, debt equity ratio, dividend tax rate, capital gain tax rate, investment allowance rate, new issue to retained earning rate and so forth. Besides, there can be numerous ETRs based on different assumptions. That is why this analysis is limited within the estimate of ETR for building and machinery. These two assets are selected because as per the Central Bureau of Statistics Data, machinery and equipment cover 40 percent and structure or building covers 22 percent of the total fixed assets. That means of the total depreciable assets, machinery covers 56 percent where as building covers 31 percent. The tax depreciation rates used in the calculation are as given by the Income Tax Act, 1962; Industrial Enterprise Act, 1981; Income Tax Rules, 1982; Industrial Enterprise Act, 1992 and Income Tax Act, 2002. Straight-line method of depreciation is assumed for the period before

1992 and diminishing balance methods of depreciation are assumed for the period after 1992. The service life of the asset used for tax depreciation purpose under straight-line method is determined by dividing 100% by the depreciation rate. The tax rates are given in terms of the percentage of gross of tax required rate of return to investor. The industries covered for analysis are non-holiday tax paying ordinary industry under two sources of finance - debt and equity.

For the purpose of calculating ETRs, economic depreciation rate is very necessary. But neither in Nepal nor in any other neighbouring countries; such economic or actual depreciation rate is measured. So, for the purpose of this study, the economic depreciation rate developed by Hulten and Wykoff (1981) is used. According to them, the economic depreciation rate for building and machinery were 3.07 percent and 13.33 percent respectively.

The other variables like interest rate, interest tax rate, dividend tax rate, corporate tax rate and capital gain tax rate are the actual prevailing rate of the concerned years. Inflation rate were assumed as zero percent, 5 percent and 9 percent. The rate of 9 percent is the average of the inflation rate of all the years after 1974.

The procedures followed in analysis are as discussed in methodology part given in Appendix I. Some of the parameters used for analysis are as given in Table 1 and 2 below:

Table 1. Parameters for Analysis

Year	Interest Rate	Interest Tax Rate	Dividend Tax Rate	Corporate Tax Rate	Inflation Rate	Cap. Gain T. Rate
1962	15	.0	0	.25	0,.05,.09	0
1981	13	.05	0	.55	0,.05,.09	0
1982	14	.05	0	.50	0,.05,.09	0
1992	17	.05	0	.25	0,.05,.09	0
2002	12	.06	.05	.20	0,.05,.09	.10

Source: Compiled from different sources.

Table 2. Rates of Depreciation and Service Lives

	1962	1981	1982	1992	2002
Economic Depreciation Rate					
Building	3.7	3.7	3.7	3.7	3.7
Plant and Machinery	13.3	13.3	13.3	13.3	13.3
Tax Depreciation Rate					
Building	.06	.05	.02	.067	.067
Plant and Machinery	.10	.10	.10	.20	.20
Service Life Years (Building)	16.67	20	50	-	-
Service Life Years (Machinery)	10	10	10	-	-

Source: Compiled from different sources.
Note: Depreciation rates for 1962, 1981 and 1982 are under straight-line method.

5. Assumptions and Sources of Data

As stated earlier, calculation of ETR requires various information and assumptions. In this study, the assumptions are operation of the firm under neoclassical theory of investment, consideration of corporate and personal tax, Nepalese economy as a small open economy, profitable firm etc.

For this study, the sources of data are Finance Acts, Quarterly Economic Bulletin of Nepal Rastra Bank, Nepal Stock Exchange Ltd., Central Bureau of Statistics, Industrial Enterprise Acts, Income Tax Acts and Rules of various years etc.

6. Analysis of the Data

A. Present Value of Depreciation

As we know, depreciation is the reduction in assets value due to wear and tear or effluxion of time or obsolescence. For depreciation, the business houses use to deduct certain percentage of the cost of assets each year generally at the rate given in income tax act. Such reduction of cost within the span of time by a rate could not cover the whole amount of original cost if considered in real value. As we know, the value of money goes to be decreased each year due to the inflation. Because of this decrease in real value of money each year, the depreciation covers only a certain percentage of the original cost. The magnitude of coverage rests basically on the rate of depreciation in initial years of the life of the asset and the discount factor, i.e., cost of capital. Within diminishing balance and straight line methods of depreciation; straight line method is faster than the diminishing balance method if the rate of depreciation is same. However, if the rate of diminishing balance is higher than the double of the rate of depreciation rate under straight line method, the former method is faster than the latter one. The reason is that the diminishing balance method uses to have higher amount of depreciation in initial years of its service life. In the same way, within different sources of finance; the debt finance uses to have higher present value due to lower cost of capital in comparison to equity finance.

Table 3 shows the present value of depreciation of both the assets - building and machinery. As per the Table, it is known that the present value is higher under full debt finance in comparison to full equity finance in case of both the assets.

While comparing the present value of depreciation of different years, it is seen that in case of building, it is lowest in 1982 provision when it is 30 percent of cost under debt finance and 12 percent of cost under equity finance. The reason of being this is the decrease in depreciation rate in 1982 provision in comparison to previous and subsequent years. In case of machinery, the present value of depreciation is lowest in 1962 system when it is 58 percent under debt finance and 44 percent under equity finance. The Table shows that the present value of depreciation in 2002 system is more than the same in 1992 and previous years, system. For example, in 2002 provision for building; it is 42 percent under debt finance and 31

percent under equity finance where as the same for machinery are 67 percent under equity finance and 57 percent under debt finance. All these present values are greater than the present value of depreciation of previous years in all the cases except the present value of depreciation of machinery in 1981 and 1982 laws under debt finance. This indicates that the depreciation rate under 2002 provision is to some extent liberal in comparison to previous depreciation rates. However, it can not be claimed accurately that the latter provision is more advantageous to industrial sector than the previous one because it is the tax factor that is to be considered not the present value of depreciation.

Table 3. Present Value of Depreciation under Different Interest Rates (In Percentage of Costs of Assets)

Year	Assets	*Sources of Finance*	
		Debt Finance	Equity Finance
1962	Building	44	30
	Machinery	58	44
1981	Building	55	29
	Machinery	72	48
1982	Building	30	12
	Machinery	73	46
1992	Building	35	25
	Machinery	61	50
2002	Building	42	31
	Machinery	67	57

Source : Calculated

B. Tax Saving from Depreciation

The depreciation has different purposes. One among them is reducing the tax burden of a taxpayer. Since depreciation is a deductible expense before deriving the taxable income, it saves the tax of a taxpayer. The amount of tax saving depends on the rate of depreciation and the rate of tax. The higher are the rate of depreciation and the rate of tax, the higher is the amount of tax saved. From Table 4, it is seen that the tax saving in case of machinery is higher than the tax saving in case of building in all the years. It means that the depreciation rate for machinery is higher than the depreciation rate for building.

Across different sources of finance; the tax saving under debt finance is higher than the tax saving under equity finance. The main reason of this difference is the deductibility of interest from the income before paying the tax. From the Table 4, it is also found that the highest percentage of tax saving are under the provision of 1981 and 1982 and lowest percentage of tax saving are under the provision of 1962, 1992 and 2002. The main reason of being highest percent of tax saving in the provision of 1981 and 1982 is the high tax rates of that period i.e., 55 percent and 50 percent under the provision of 1981 and 1982 respectively. Conversely, the

reason of being lowest percentage of tax saving in 1962, 1992 and 2002 rules is the lower rate of tax in these years i.e., 25 percent in 1962 provision and 20 percent in 1992 and 2002 provisions. Table 4 shows that the present value of tax saving only can not measure the generosity of the depreciation system because it is higher in most of the earlier provisions than in 2002 provision. So, from the analysis of tax saving, it cannot be concluded that the depreciation provisions provided by Income Tax Act, 2002 is more liberal than the provisions of previous years.

Table 4. Tax saving under different Interest Rates

Year	Assets	*Sources of Finance*	
		Debt Finance	Equity Finance
1962	Building	11	8
	Machinery	15	11
1981	Building	28	15
	Machinery	36	24
1982	Building	16	7
	Machinery	40	25
1992	Building	9	6
	Machinery	15	13
2002	Building	8	6
	Machinery	14	11

Source: Calculated

C. Effective Tax Rates for Different Years

Effective tax rate (ETR) is the difference between gross of tax required rate of return to the investor and net of tax rate of return to the saver. In other words, ETR is the combined rate of tax paid to the government by the investor and saver. It covers both the corporate tax paid by the investor and dividend and capital gain tax paid by the saver. ETR is affected by different variables like inflation rate, interest rate, tax depreciation rate, economic depreciation rate, debt equity ratio etc. However, it is mostly dependent on the magnitude of tax rate. The ETR becomes higher with the increase in statutory tax rate if other variables like inflation rate, interest rate, depreciation rate, source of financing etc. remain constant. Besides tax rate, the second main variable which affects the ETR is the tax depreciation rate allowed by the law.

Table 5, and 6 show the ETRs under different sources of financing considering depreciation. From the Tables, it is known that there is difference between the ETR under debt finance and ETR under equity finance. ETR under debt finance is lower than the ETR under equity finance. The reason of this is the deductibility of interest as expense but not the capital gain and dividend from the income. The other thing that can be seen from the Table is that inflation hits the ETR very highly. The inflation reduces the tax rate with its increase if the source of finance is debt. Instead, if the source of finance is equity capital; ETR goes on increasing with the increase in inflation rates. Accordingly, it can also be seen from the Table that with

the increase in statutory corporate tax rate, ETR under debt financing goes on decreasing whereas the same under equity financing goes on increasing. Table 6 shows the increase in ETRs with the increase in statutory corporate tax rate under equity finance. The effective tax rates are lowest in 1981 and 1982 when the statutory corporate tax rates are highest, i.e., 55 percent and 50 percent.

Table 5. Effective Tax Rates under Debt Finance

Year	Assets	*Inflation Rates*		
		0	5	9
1962	Building	-6.8	-23.3	-73.4
	Machinery	-2.3	-11.5	-36
1981	Building	-11.5	-91.6	271
	Machinery	-2.4	-29.8	-525
1982	Building	-10.3	-49.2	333
	Machinery	-3.3	-34	-403
1992	Building	-1.3	-8.8	-33
	Machinery	-1.1	-6.4	-19.9
2002	Building	-2.4	-7.9	-84.9
	Machinery	-1.5	-3.8	-32

Source : Calculated

Table 6. Effective Tax Rates under Equity Finance

Year	Assets	*Inflation Rates*		
		0	5	9
1962	Building	21.9	22.9	24.3
	Machinery	24	27	31
1981	Building	46.5	48.5	51.6
	Machinery	49	53	60
1982	Building	56.8	58.4	61
	Machinery	54	58	63
1992	Building	22.8	23.7	25
	Machinery	21.7	23.9	26.8
2002	Building	23.9	28.1	35.9
	Machinery	23.1	28.8	38.9

Source : Calculated

While comparing the ETRs of building and machinery, it is seen that the ETRs on machinery are higher than the ETRs on building. This is a puzzling case because higher depreciation rate means lower ETR. As given in Appendix II, the depreciation rate for machinery is 10 percent to 15 percent for machinery where as the same for bulding is 2 to 6 percent. It means that the rate of depreciation for machinery is higher than the rate of depreciation for building. If so, why the ETR on machinery is higher than the ETR on building? In fact, it is the cause of economic depreciation or actual rate of depreciation. Economic depreciation rate

has great impact on ETR causing it higher if the economic depreciation rate is greater than the tax depreciation rate. Instead, if the tax depreciation rate is higher than the economic depreciation rate, it causes lowered ETRs. In our case, the economic depreciation rate for building is 3.07 percent which is lower than the tax depreciation rate of mostly 5 or 6 percent except in 1982 system when it is 2 percent. In contrast to this, economic depreciation rate of machinery is 13.3 percent which is higher than the tax depreciation rate of generally 10 percent except in 1992 and 2002 systems. In 1992 and 2002 systems also the magnitude of difference between economic depreciation rate and tax depreciation rate are higher in case of building than in case of machinery being economic depreciation rate 13.33 and tax depreciation rate 15 percent for machinery and economic depreciation rate 3.07 and tax depreciation rate 5 percent in case of building. All these mean that if there had been the tax depreciation rate higher than the economic depreciation rate in case of machinery, the ETRs on machinery would have been lower than the ETRs on building.

While comparing the ETRs of 2002 with previous years' provisions, it is known that the highest taxed years are after 1981 and before 1992. The reason of this higher ETRs may be higher corporate tax rates not the lower depreciation rates. In comparing the ETRs under 1992 and 2002 provisions, one can observe that the effective tax rates of the latter year is increased to some extent. The reason of this increase is also not the depreciation rate but the imposition of capital gain and dividend tax in this year. Thus the analysis shows that the ETRs under the assumed variables as given above cannot say whether the ETR is increased or decreased due to depreciation rule change. In other words, it cannot prove whether the new depreciation provision is liberal or conservative in comparison to old provision.

D. Simulation with changed Variables

Effective tax rate is not the function of tax and economic depreciation rate only. Rather it is also affected by various factors like interest rate, inflation rate, rates of different types of taxes, debt equity ratio etc. Due to the combined effect of different types of variables in above discussion, the exact impact of depreciation on ETR and the difference in impact of the depreciation provisions brought in different financial years are presented below. The assumptions for the new case are no inflation, 12 percent interest rate, 20 percent corporate tax rate, 5 percent dividend tax rate, 10 percent capital gain tax rate and 6 percent interest tax rate for all the cases. The main purpose of these assumptions is to neutralize the effect of these variables using the same in all the cases. The results of the simulation exercise are presented in Table 7 and 8.

Table 7. Present Value of Depreciation assuming the same Variables in all the Years (In Percentage of Costs of Assets)

Year	Assets	*Sources of Finance*	
		Debt Finance	Equity Finance
1962	Building	48	35
	Machinery	63	50
1981	Building	44	31
	Machinery	63	50
1982	Building	21	13
	Machinery	63	50
1992	Building	41	31
	Machinery	68	57
2002	Building	41	31
	Machinery	68	57

Source: Calculated

Table 7 shows the present value of depreciation under the above assumptions. Interest and tax rates in this simulation case are assumed as similar to the rates which were used in earlier case. Only depreciation and source of finance are assumed to be different in this case. As per the Table, it is seen that the present value of depreciation is highest under 1992 and 2002 provisions when they are 68 percent for building and 41 percent for machinery under debt finance and 31 percent for building and 57 percent for machinery under equity finance. It means, in these years, the depreciation rates are made more liberals than in previous years. Furthermore, contrary to this situation, the present value of depreciation is not much different in 2002 provision in comparison to 1992 provision, there is no such significant evident which shows the depreciation provision of 2002 is more liberal than the depreciation in 1992 provisions.

Table 8. ETR under different Sources of Finance with 0 Inflation Rate

Year	Assets	*Sources of Finance*	
		Debt Finance	Equity Finance
1962	Building	.3	23
	Machinery	4	25
1981	Building	1.7	24
	Machinery	4	25
1982	Building	7.8	27
	Machinery	4	25
1992	Building	2.4	24
	Machinery	1.5	23
2002	Building	2.4	24
	Machinery	1.5	23

Source: Calculated

Under the above assumption, the ETR is also derived to measure the generosity of depreciation in 2002 rules related to depreciation. The result obtained in such way is presented in Table 8. As per the Table, it is known that under both the sources of finance, ETR on machinery is more or less similar. There is not much variation in ETRs. It is up to 3-percentage point only. For example, under debt finance, minimum rate of ETR in 1962 provision is 1.5 percent and maximum rate of ETR is 4 percent. However, the ETR in 1992 and 2002 rules, i.e., 1.5 percent are smaller than the ETRs of 1962, 1981 and 1982 rules, i.e., 4 percent. This means the ETR in latter years are decreased. Since all variables used in the simulation case are same, the difference in ETR is the result of increase in depreciation rate. Under equity finance case too, this decrease can be seen. However, in case of building that is not the case. The ETR in 1982 case is greater than the ETRs of other years under both the sources of finance. Except in 1982 provision, the ETRs of other years are more or less similar. There is only the variation of up to 2.5 percent under both the sources of finance. This means the decrease in depreciation rate of building under1982 to 2 percent from 5 percent under 1981 have negatively affected the ETRs. But this is not the case for 1992 and 2002 provisions. There is decrease in the rate of ETRs in 1992 and 2002 depreciation rules in comparison to the ETRs in 1962 rules. It shows that the rates of depreciation of building and machinery have been increased during 1992 and 2002. However, this analysis too does not show that the depreciation provision of 2002 is more generous than the depreciation provision of 1992 for either of the assets under either of the sources of financing.

7. CONCLUSION OF THE STUDY

It is claimed by the government that the Income Tax Act, 2002 has made the depreciation provision more liberal than in 1992 for both the assets - building and machinery. The present analysis of both the provisions based on ETR compares the present value of depreciation, tax saving through depreciation and ETR under different assumptions and concludes that the depreciation provision of 2002 is not much liberal in comparison to 1992 for both the assets. They are more or less same. It means, the claim of tax administrator that the depreciation provision of 2002 is more beneficial than the depreciation provision of 1992 is not true. Instead, they are more or less the same if the variables other than the depreciation itself are assumed same to analyse the data. If the analysis is made on the basis of the actual variables of 1992 and 2002 including capital gain tax and dividend tax, it is seen that the ETRs are increased. In other words, if capital gain tax and dividend tax are considered, the ETRs are increased in 2002 in comparison to 1992. That means the depreciation provision of 2002 has not reduced ETRs. Rather, it is increased due to dividend and capital gain tax.

APPENDIX I

Computation of ETR needs two variables named gross of tax required rate of return or before tax income to investor $'r_g'$, and net of tax rate of return to saver the saver $'r_n'$. Furthermore, gross of tax rate of return to investor in turn needs real cost of finance r_f, tax depreciation rate $'\alpha'$, present value of tax depreciation' z', economic depreciation rate $'\delta'$ etc. The following are the technique and procedure used for deriving the ETRs in the study.

a. Computing Real Cost of Finance

There may be three sources of finance that can be used for generating resources to purchase the capital asset. By name, these sources are – full debt, full equity and a mix of debt and equity. Equity source itself can be bifurcated into two parts– share issues and retained earnings. Across these sources, the debt financing has certain advantages over others due to deductibility of its cost i.e., interest, while calculating taxable profit. Because of the deductibility of interest, the cost of debt financing becomes to some extent less than the cost of other sources of financing. The real cost of debt, denoted by $'r_b'$ is given by

$$r_b = i\,(1-u) - \pi \qquad (1)$$

Where, i = interest rate, u = corporate tax rate and π = inflation rate. In this equation, $i\,(1-u)$ means tax adjusted interest rate. Inflation is deducted to find out real value instead of nominal one.

Similarly, the real cost of equity is denoted by

$$'r_e' = \rho - \pi \qquad (2)$$

Where, 'ρ' means rate of return in the form of dividend to new equity holders and both the capital gain and dividend to old equity holders.

In case of mix finance, the real cost finance is the weighted average cost of debt and equity denoted by $'r_f'$ that is, real cost of finance and is given by

$$r_f = \beta i\,(1-u)\,\rho - \pi \qquad (3)$$

Where, β = fraction of finance raised through debt.

b. Treatment of Depreciation

By using the following formula, one can calculate the present value of from depreciation under diminishing balance method as given below:

$$\text{Pv of depreciation} = \frac{'\alpha'}{(r_f + \pi + \alpha)} \qquad (4a)$$

Present value of depreciation under straight-line method is as given below:

$$\text{Pv of depreciation} = \frac{'\alpha'}{(r_1 + \pi)}\left(1 - \frac{1}{(1 + r_1 + \pi)}\right) \qquad (4b)$$

where, Pv = present value, and $'\alpha'$ = tax depreciation rate.

Multiplying by the tax rate 'u' to present value of depreciation, the tax saving denoted by 'z' through tax depreciation $'\alpha'$ can be derived.

c. Required Rate of Return to Investor 'r_g'

The user cost of capital (cost of financing, economic depreciation and the tax paid to government) includes real cost of finance, economic depreciation and tax paid to the government. In this sense, the per period user cost of capital except tax saving becomes $(1 - z)(r_f + \delta)$. It is also mentioned that for a marginal investment the total revenue becomes equal to its cost.

If the economic depreciation is deducted from this user cost of capital, there remains the gross of tax rate of return to the investor 'r_g'.

That is $r_g = \dfrac{(rg + \delta)(1 - z)}{1 - u} - \delta$ \hfill (5)

For a non-depreciable asset, neither the economic nor the tax depreciation is applicable. It means,

$r_g = r_f / (1 - u)$ \hfill (6)

A part of this return 'r_g' goes to saver as a return from saving denoted by 'r_n' and other part goes to tax authorities as tax denoted by 't'.

d. Required Rate of Return to Saver 'r_n'

Now proceed to find out the net rate of return 'r_n' which really goes to the saver of the economy. Here, it is assumed that marginal rupee saved does not go into special tax sheltering assets and the intermediaries do not make monopoly profit. The rate of return to the saver or 'r_n' is the sum total of two types of returns to savers - earning from debt 'r_n^b' and earning from equity 'r_n^e'. Here, the 'r_n^b' can be calculated as follows:

$r_n^b = i(1 - m) - \pi$ \hfill (7)

Where, 'm' is the personal tax rate.

In case of equity, the after tax rate of return to saver depends on whether the financing comes from retained earnings or new issues. If there is no dividend taxation, net of tax rate of return to saver 'r_n^e' simply becomes $\rho - \pi$, where 'ρ' denotes capital gain in case of retained earning and dividend in case of new issues. Thus, in case of dividend and no capital gain tax assumption, the weighted average 'r_n' becomes,

$r_n = \beta i(1 - m) + (1 - \beta)\rho - \pi$ \hfill (8)

If there is dividend and capital gain tax, the formula becomes,

$r_n = \beta i(1 - m) + (1 - \beta)[a\rho(1 - \theta) + (1 - a)\rho(1 - c)] - \pi$ \hfill (9)

Where 'a' means ratio of new issue to retained earnings, $'\theta'$ rate of dividend taxation and 'c' capital gain tax rate.

e. ETR

When there is 'r_g'and 'r_n' one can get ETR on investment easily. Here, it should be noted that two types of ETRs could be calculated - one expressed in terms of total return and other in terms of before tax income. Among these two,

Effective tax rate 't' in terms of total return = $r_g - r_n$

Effective tax rate 't' in terms of gross of tax required rate or before tax

$$income = \frac{rg - rn}{rg} \; x \; 100 \qquad\qquad (10)$$

In this analysis, ETR 't' is presented in terms of gross of tax required rate of return. The details of the methodology is given in (Kandel, 2000).

Appendix-II. Rates of Depreciation as Per Income Tax Rules 1982

S. No.	Assets	Depreciation Rates Diminishing Balance Method
1	Building	
	a. Residence, office, film hall, theatre (clay mortar)	6%
	b. Godown, shade etc.	4%
	c. Factory building (Cement mortar)	2%
	2 Means of Transport	
	a. Airplane	25%
	b. Ship	10%
	c. Truck, lorry, bull-dozer, crane, tractor, rail engine, dozer, grader	20%
	d. Bus, minibus, van, car, jeep	15%
	e. Means of transport to be run by animals	25%
	f. Means of transport other than above	7%
3.	*Furniture*	
	a. Metal	8%
	b. Wooden and others	15%
	(Additional 50% for the furniture of film hall, theatre, hotel, restaurant etc.)	
4.	*Machinery*	
	a. Machinery and equipment	10%
	b. Electricity, telephone	10%
	c. Refrigerator of hotel, restaurant and musical equipment	5%
	d. Lift, escalator and elevator	10%
	e. Typewriter, calculator, duplicating machine, photocopy machine etc. to be used in office	10%
	f. Agricultural machine and tools	15%
	g. Machinery assets other than above	15%
	h. Trekking tent, sleeping bag, matraces etc.	20%
	i. Other utensils to be used in trekking	25%

Source: HMG, Ministry of Law and Justice, *Income Tax Rules, 1982.*

Appendix-III. Rates of Depreciation as per the Income Tax Rules, 1982 (Ist Amendment)

S.N. Assets	Depreciation Rate Diminishing Balance Method
1. Building	
a. Cement mortar	5%
b. Mud mortar	7%
c. Temporary or wooden thatch	50%
2. Means of Transport	
a. Airplane, helicopter	25%
b. Ship 20%	
c. Bus, minibus, truck, lorry, tractor, rail engine, rail wagon	20%
d. Van, car, jeep, motorcycle, scooter, tempo, sun cycle	15%
e. Bicycle, rickshaw	20%
f. Means of transport to be run by animals or boat	25%
g. Means of transport other than above	15%
3. Furniture	
a. Metal 10%	
b. Wooden 15%	
4. Machinery, Equipment and Tools	
a. Relating to building, road, bridge, mines, tunnel construction	10%
(i) Crane, bulldozer, dozer, grader, roller, dump-truck and other similar machinery and equipment	25%
(ii) Other light machine equipment	15%
b. Machine and equipment relating to electricity and Telephone	15%
c. Refrigerator, air conditioner, air cooler and other similar type of machinery and equipment	15%
d. Lift, elevator and escalator	15%
e. Computer and related equipment	20%
f. Machinery and equipment relating to production and screening of motion picture	20%
g. Frames used for producing bricks and tiles	15%
h. Machinery for rubber and plastic goods	15%
i. Machinery for hosiery and woolen goods	15%
j. Machinery and equipment for canvas and leather stitching and joining	15%
k. Plant, machinery and equipment used in tea factory including roller and drier	15%
l. Juice boiling pans	20%
m. Sugarcane crushing machine	15%
n. Wooden frame for match making	20%
o. Tools and equipment used for medical treatment	15%
p. X-ray machine	20%
q. Laboratory machine and equipment	15%
r. Office goods and equipment (typewriter, calculator, duplicating machine, photocopy machine etc.)	15%
s. Others 15%	

Source : HMG, Ministry of Law and Justice, *Income Tax Rules, 1982,* Ist Amendment.

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An Assessment of the Impact of External Debt on Economic Growth of Nepal

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Countries at early stages of development have small stocks of capital and require foreign borrowing for their investment needs and meet their external resource gap. Nepal's dependence on foreign assistance, nearly for the last five decades, can be viewed from the same perspective. The present article is a preliminary work in the direction of analyzing the relationship of external debt and economic growth of Nepal. The examination of debt burden indicators suggests the increasing burden of external debt, with a significant increase in the size and magnitude of such debt during 1990s. The empirical observation shows the external debt flow having positive effect on economic growth. This indicates that external debt should not be viewed only as a burden but also as a major source of financing for a developing economy like Nepal. However, the analysis of external debt stock and debt servicing shows that the equally important that external borrowing be made to supplement but not replace domestic savings in the long run.

1. INTRODUCTION

The need for public financing results because of the resource gap, i.e. savings as well as the trade gap. This compels a government to confront with the choice between the sources of financing: external and domestic. The choice depends on the availability of financing, the economic environment, the institutional framework and the degree of development of domestic financial markets. Economists say external financing, i.e. borrowing in foreign currency from nonresident creditors, is attractive because of lesser crowding-out effects on private investment and reduced risks of inflationary pressures (Beaugrand, Loko and

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Mlachila, 2002). Likewise, it can induce greater fiscal and monetary discipline since it eliminates any incentive the government might have to generate inflation in order to reduce the real debt burden. However, these theories need highly restrictive conditions to establish these advantages, while empirical studies suggest that external financing is not a panacea for governments. In contrary to these manifest advantages of external debt financing, a rising external debt tends to weaken the economy. First, foreign borrowing increases vulnerability to external conditions. When debt is contracted at a floating rate, higher foreign interest rates lead to an increase in debt servicing costs. This raises budgetary outlays, which may translate into a larger deficit or a reduction of non-debt outlays. Similarly, a depreciation of the currency leads to increased debt servicing and has the same effects as those mentioned earlier. Second, when the government borrows to cover a growing deficit, foreign borrowing leads to an unsustainable level of debt, an excessive share of debt service in overall government expenditure, and substantial use of foreign exchange to service the debt. In the long run, this may lead to a debt crisis (Beaugrand, Loko and Mlachila, 2002). From the development perspective as well, the impact of an unsustainable debt is very disastrous for an economy [8].

The crucial role of capital in the production process is well-known. The international flow of capital-borrowing and lending across political borders dates back at least to the ancient civilization of Mediterranean. At the end of the 1940s, the flow of capital to developing countries was negligible. But the early post-war reflections on the problems of developing countries led to the identification of insufficient capital stock as a cause of their low income. Among the notable economists who made such suggestions are Hans Singer and Ragner Nurske. According to Nurske, there was a vicious circle of poverty, which could be broken by increasing savings. The role of increased savings in facilitating capital accumulation was further advocated by Arthur Lewis, 1954 and Rostow, 1985 (Were, 2001). It was noted that the volume of savings in developing countries was too low on account of the low income and, therefore, domestic savings should be supplemented by foreign resources. This shifted the issue from whether external resources are useful to developing countries to how much was sufficient to help them realize their growth potential. The need for foreign resources in developing countries has been justified by the two-gap approach developed by Hollish B. Chenery and others (Were, 2001)[9].

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[8] Unsustainable debt, through several mechanisms, represents a major stumbling block towards economic and social development and poverty reduction. The most obvious stumbling block is the cash flow implication of debt service obligations, the so-called crowding-out effect. It is obvious that in such a case the government has to pay large sums of money to foreign creditors, thereby less can be spent on recurrent social expenditure or essential investments, such as infrastructure, health and education.

[9] They remark that, in the short run, the effectiveness of external resources depends on their use to relieve shortages of skills, savings and imported commodities while in the long run, the fate of these countries depends on the use that is made of the initial increase in the output. It has been the case in most of the Sub-Saharan and Latin American countries.

Economic theory suggests that reasonable levels of borrowing by a developing country are likely to enhance its economic growth (Pattillo, Poirson and Ricci, June 2002). Countries at early stages of development have small stocks of capital and are likely to have investment opportunities with rates of return higher than those in advanced economies. As long as they use the borrowed funds for productive investment and do not suffer from macroeconomic instability, policies that distort economic incentives, or sizeable adverse shocks, growth should increase and allow for timely debt repayments. The best known explanation comes from "debt overhang" theories, which show that if there is some likelihood that, in the future, debt will be larger than the country's repayment ability, expected debt service costs will discourage further domestic and foreign investment and thus harm growth. Potential investors will fear that the more a country produces, the more it will be taxed by creditors to service the external debt, and thus they will be less willing to incur costs today for the sake of increased output in the future. Some considerations suggest that, at reasonable levels of debt, further borrowing would be expected to have a positive effect on growth. Others stress that large accumulated debt stocks may be a hindrance to growth. Both these elements together imply that debt is likely to have non-linear effects on growth (Pattillo, Poirson and Ricci, June 2002).

Nepal, being one of the least developed countries of the world, is far behind in the level of social and human development. The Human Development Report, 2002 has placed Nepal in the 142nd rank out of the total 173 countries included in the report (HDR, 2002). Foreign aid contributes to domestic savings and thus to resource mobilization, capital accumulation, and industrialization (Chowdhary, 2002). A substantial portion of Nepal's development expenditure averaging about 55 percent per annum has been financed through foreign aid (His Majesty's Government of Nepal (HMG/N), Foreign Aid Policy, 2002). The external debt financing alone contributed significantly to the development expenditure of Nepal, which was nearly 35 percent during 1996/97-2000/01. However, the increasing burden of debt service has drained resources by curtailing the investment from socio-economic development and infrastructure building. The debt servicing has been consuming almost 30 percent of the regular expenditure for the last 15 years. Moreover, the external debt servicing has dominated the debt service in the last few years. The external debt service alone drains nearly 13.0 percent of the government revenue which is almost more than 14.0 percent of the regular expenditure and is approximately 8.0 percent of the total government expenditure of a fiscal year. This trend, on an average, has been continuing for the last five to six years. Similarly, the per capita external debt burden at the end of 2001 was approximately Rs. 8,600, which was nearly 50 percent of the per capita GDP (i.e. Rs. 17,718) of that year (Bhatta, 2002/2003). Though most of the external debt of Nepal is of concessional nature obtained from multilateral agencies and Nepal has partially liberalized its capital account; necessary surveillance over the composition, classification, accumulation and servicing of the external debt is important. It is particularly because of the significant amount of the development expenditure financed through foreign aid on the one hand and the increased size and magnitude of external debt

on the other. Further, it is also important because of the move of the Nepalese economy towards further liberalization probably the liberalization of capital account in the future and the ongoing process for Nepal's accession into the WTO. Given this reference, a study on external debt and its impact on economic growth of Nepal is considered to be relevant both from the economic development perspective and for ex-ante measures for preventing possible debt crisis.

In view of the increasing external debt of Nepal, the present paper attempts to examine the composition and disbursement of external debt, and its implications on economic growth. Specifically, the objectives are:

1. Analyze the inter-linkages of external debt and national resources,
2. Examine the size, magnitude, composition and disbursement of Nepal's external debt, and
3. Empirically assess the effects of external debt on economic growth of Nepal.

2. BACKGROUND INFORMATION

Inter-linkages of External Debt with National Resources

The relationship of external debt with gross national product (GNP) and export earnings is examined in this section using some of the commonly used debt burden indicators, which are: TDS/XGS (external debt service payments as a ratio of total export of goods and services), EDT/XGS (external debt to exports ratio), EDT/GNP (external debt to GNP ratio) and INT/XGS (interest paid on external debt to exports of goods and services ratio). These indicators are used to measure the effect of external debt on national income and export earnings.

As presented in Table 1, the examination of the TDS/XGS ratio shows that external debt servicing was too low to cause concern up to FY 1979/80. This ratio started to increase from FY 1980/81 in which it abruptly rose to 2 percent and reached the peak of 10 percent in FY 1989/90. During nineties, this ratio remained
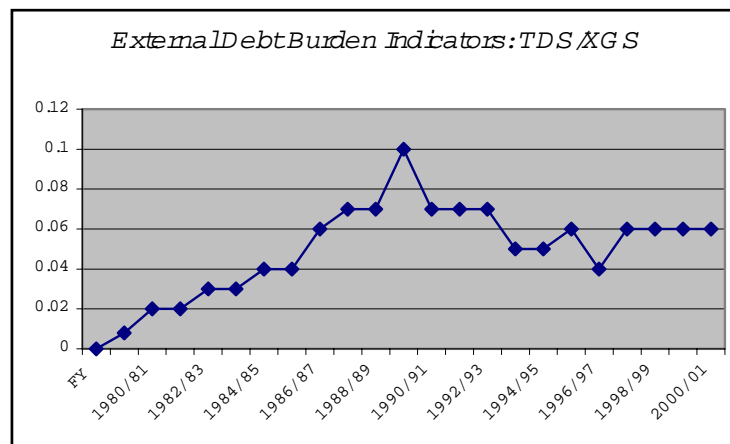
at 6 percent on an average. Thus, this ratio reveals that a significant portion of the exports earnings has been used for debt servicing purpose.

External Debt Burden Indicator: EDT/XGS
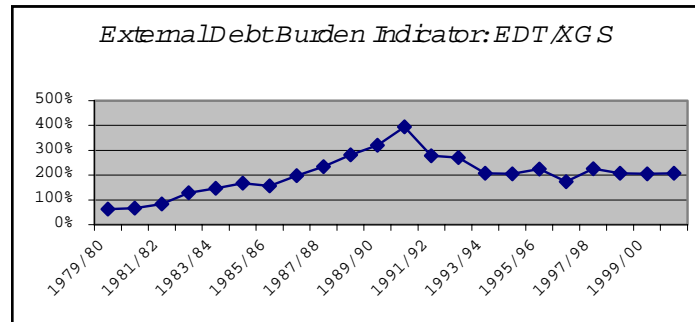
Similarly, two of the four key indicators: EDT/XGS ratio and EDT/GNP ratio have increased significantly in FY 2000/01 in comparison to those in the FY 1979/80. The EDT/XGS ratio was 63 percent in FY 1979/80 and came up to 207 percent in FY 2000/01. This ratio reached the peak of 395 percent in FY 1990/91 and began to come down in the subsequent years, remaining in the range of 200 percent during the last five years of nineties.

Likewise, the EDT/GNP ratio was only 8 percent in FY 1979/80 and reached 47 percent in the FY 2000/01. This ratio rose to 49 percent in FY 1990/91 from 35 percent of the previous year's level and was at the peak of 53 percent in FY 1997/98.

External Debt Burden Indicators: EDT/GNP
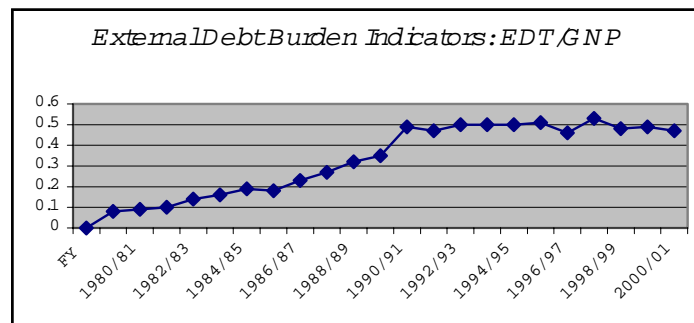
The Table 1 shows that when the GDP had recorded the negative growth of 3 percent, the EDT/XGS ratio increased from 84 percent to 129 percent and the EDT/GNP ratio from 10 percent to 14 percent in FY 1982/83. However, the GDP recorded the growth of 6.4 percent in FY 1990/91 while the EDT/XGS ratio and EDT/GNP ratio increased at the higher rate. Despite this positive relationship maintained in FY 1990/91, the growth recorded a contraction in FY 1997/98 from the level of the previous year along with the growth in EDT/XGS ratio and EDT/GNP ratio (Table 1).

Another debt burden indicator, INT/XGS, as presented in Table 1, shows that the interest payments on external debt drained 2 percent of the exports earnings during

1983/84-2000/01 with those of the exceptions during 1986/87-1992/93. Such interest payments consumed 3 percent of exports earnings during 1986/87-1992/93, again with an exception of 4 percent in FY 1989/90. The debt servicing was at the highest level of 10 percent in FY 1989/90. This analysis shows that normally one-third of the debt servicing consists of interest payments, which means a significant amount just used for the cost of the debt.
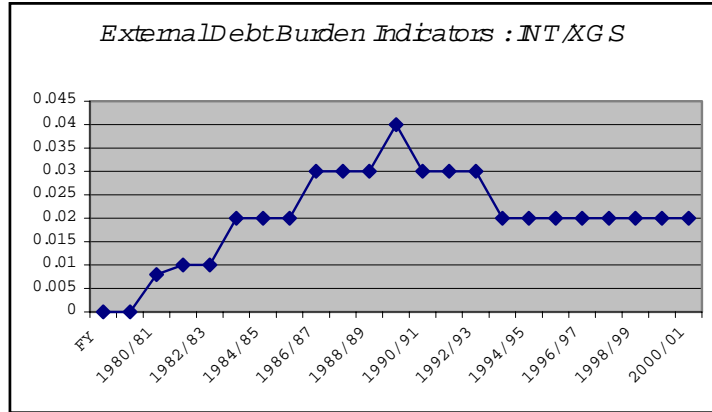
Based on this background, it is evident that Nepal's external debt burden and its share in national earnings is increasing over the years. The debt servicing capacity to be examined on the basis of EDT/XGS ratio and EDT/GNP ratio can not be outlined as the robust ones. Similarly, the significant amount to be used for debt servicing could have been allocated for consumption and investment purpose. In the long run, this may act as strong disincentive not only to invest but also to partake in the programs aimed at increasing growth.

Size and Magnitude of External Debt

Table 2 shows the size of Nepal's stock of external debt, debt disbursement and debt service payments during 1979/80-2000/01. The outstanding external debt and
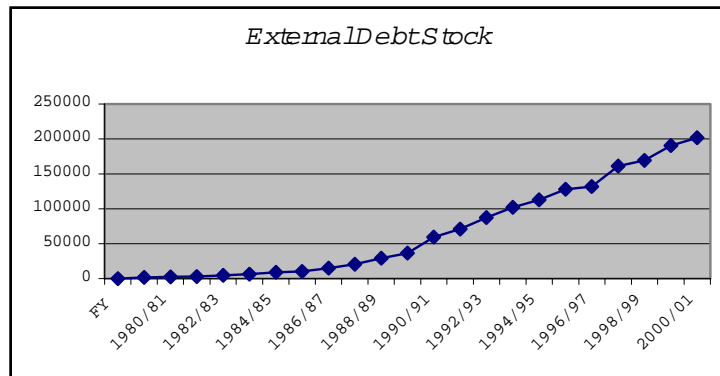
debt servicing rose dramatically during the decade of nineties. The nominal outstanding external debt, which was Rs. 1.80 billion at the end of the FY 1979/80, reached Rs. 36.80 billion at the end of the FY 1989/90. This is twenty-times increase in the outstanding amount of the external debt over the period of ten years. This external debt burden stood at Rs. 201.50 billion at the end of the FY 2000/01, which is one hundred and twelve-times increase from the level of FY 1979/80 and six-times increase from the level of FY 1989/90. These calculations show that the pace of such increase was extremely high during the eighties.

With respect to the flow of external debt, there is a significant increase in such a flow over the period of the last 20 years. The external debt disbursement was Rs. 693.3 million in FY 1980/81, Rs. 4.36 billion in FY 1990/91 and Rs. 12.04 billion in FY 2000/01. The growth rate of such debt remained highest in FY 1983/84 in which it increased by 69.5 percent. It also increased significantly by 54 percent in FY 1993/94. Such debt disbursement recorded a significant negative trend in FY 1995/96 in which it went down by 20 percent. Other years of negative growth in external debt disbursement were 1986/87, 1990/91, 1992/93, 1996/97 and 1999/00 in which the external debt disbursement went down by 0.3 percent, 6 percent, 5 percent, 4 percent and 0.3 percent respectively.
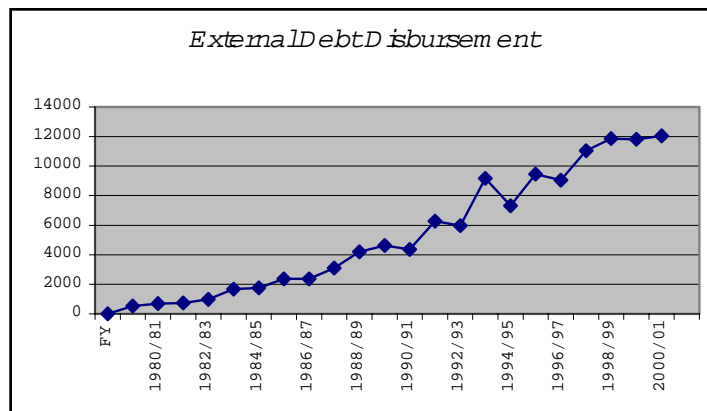

Likewise, the increasing burden of debt servicing, as shown in Table 2, reveals that the resources, which could have been used for the development of social sectors, are being consumed for debt servicing, a discouraging practice from the development perspective. While analyzing the trend of external debt servicing, the amount spent for external debt servicing was Rs. 23 million in FY 1979/80 and went up to Rs. 1.12 billion in FY 1989/90, a substantial increase in debt servicing over the period of 10 years. Further, this debt servicing drained Rs. 6.20 billion in FY 2000/01, which is nearly two hundred and seventy-times increase in debt servicing from the level of FY 1979/80 and six times increase from the level of FY 1989/90. In essence, the presentation made in Table 1 shows that the stock of external debt, flow of such debt and debt servicing burden have increased significantly.
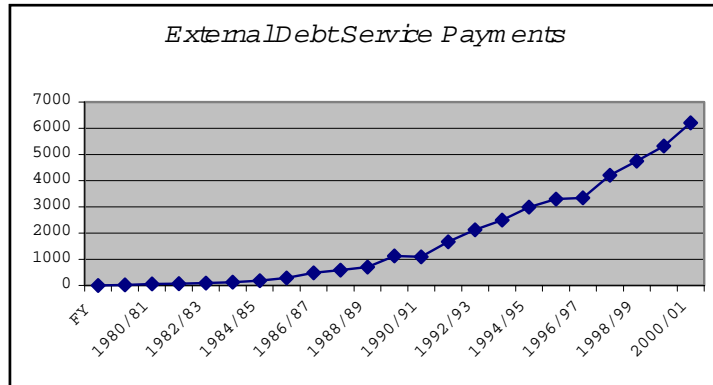
Structure, Type and Composition of External Debt

Most of the external debt of Nepal is public debt, which is agreed and received by the government. The maximum period of the debt repayment is 40 years. As shown in Table 3, Nepal's source of external debt consists of official debts (bilateral and multilateral). A decomposition of official debt disbursement shows it mainly from the multilateral sources. External debt disbursement from such sources was 79 percent in FY 1980/81 and always remained above the level of 75 percent during the analyzed period except for FY 1990/91 and FY 1991/92 in which it was 63 percent and 62 percent respectively. The disbursement of such debt from the multilateral sources was at the helm of 95 percent both in FY 1995/96 and FY 1998/99. On an average, external debt disbursement from multilateral sources during 1979/80/-2000/01 was 85 percent.
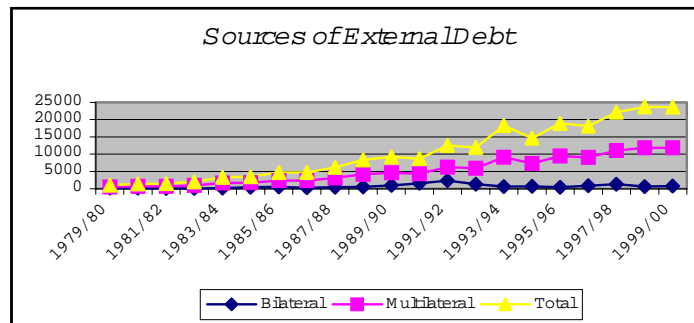

The external debt disbursement from bilateral sources remained 15 percent, on an average, during 1979/80-2000/01. However, it remained significant both in FY 1990/91 and FY 1991/92 in which it was 37 percent and 38 percent of total debt disbursement respectively. The external debt disbursement from bilateral sources

suddenly came down to 5 percent of total official debt disbursement in FY 1995/96 and remained low in the subsequent years.

Table 4 presents the total outstanding external debt of the government for the period ending July 16, 2002. This Table shows that out of the total outstanding debt, the debt owed to the multilateral creditors is substantial, nearly 85 percent of the total outstanding amount. Such debt owed to the Asian Development Bank (ADB) and International Development Association (IDA) only is almost 82 percent. Of the total outstanding debt, the debt owed to ADB is 39.4 percent and to IDA 42.3 percent. Nepal's other multilateral creditors are: European Economic Commission (EEC), International Food and Agriculture Development Association (IFAD), other Nepal Development Forum (NDF) members and Organization of the Petroleum Exporting Countries (OPEC). The debt to be owed to these other creditors is nearly 2 percent, which is significantly low in comparison to the outstanding obligations to the ADB and IDA.
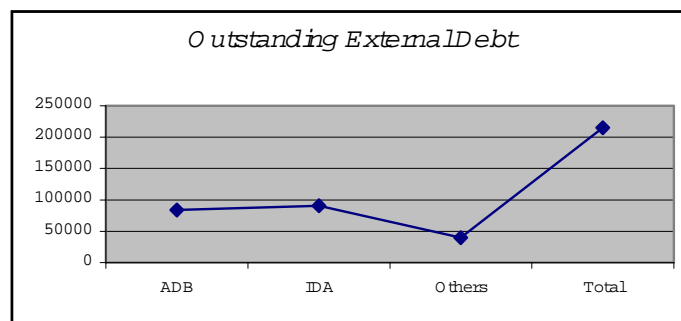
The debt owed to the bilateral creditors consists of 15 percent of the total outstanding debt. Japan is the largest bilateral creditor of Nepal. Nepal owes 11.5 percent of the total outstanding debt to Japan. Other bilateral creditors of Nepal are Australia, Belgium, Finland, France, Korea, Kuwait, Russia, Saudi Arab and the USA. The debt owed to all these creditors is nearly 3.5 percent of the total outstanding debt obligations.

Background of Foreign Aid and Policy Guidelines

Nepal's first experience of foreign economic assistance was heralded by the point-four program agreement signed on January 23, 1951. The US government's assistance of Rs. 22,00,000 provided under President Harry Truman's point-four program was soon followed by formal economic assistance from India in October of the same year. China and the then USSR came into the Himalayan country's foreign aid scenario in 1956 and 1958 respectively. Nepal joined the Colombo Plan in 1952, participated in the first non-aligned conference in 1955 in Bangdung and became a member of the United Nations and thus attracted the interest of the

developed as well as developing nations in its economic development efforts (Sigdel, 1996)[10].

Nepal has been utilizing the foreign aid as an instrument of financing socio-economic development since the mid-fifties, when Nepal embarked on the process of planned development with the launching of the First Five Year Development Plan 1956-61. Since then, a substantial portion of development expenditure averaging about 55 percent per annum has been financed through foreign aid. Currently, foreign assistance remains around 5-6 percent of Gross Domestic Product (GDP) annually, and finances about 25-30 percent of total government expenditure. In terms of sectoral distribution of foreign aid, agriculture, forestry and fisheries have received the largest share followed by energy, transport, health, social development, and human resource development (HMG/Nepal, Foreign Aid Policy, 2002)[11].

HMG/N has shown its concern over the increasing external debt of the country in the Foreign Aid Policy 2002, which remarks that over the years, HMG's stock of outstanding foreign debt and its debt servicing have risen, as a result of utilizing foreign loans. Although these loans are concessional in nature with high degree of grant element, they still constitute a growing burden to the budget. Therefore, Nepal needs to be highly selective and productive in utilizing such loans. This Policy has laid down a number of policies with a view to meet the objectives as envisaged thereon. Among others, the policy on concessional loan states that loan assistance would be utilized selectively, after a careful scrutiny of the purpose, content and benefits of such projects and programs in order to reduce the burden of external debt, while contributing to accelerating and meeting socio-economic objectives. Nepal would encourage a closer partnership between the government and multilateral donors so that they can jointly examine the implications of these loans in terms of their contribution to economic and social development. Measures to be adopted in this regard include: (i) utilizing foreign loan assistance in projects and infrastructure development promising high returns on investments, (ii) analyzing the various implications of each new loan before accepting it, (iii) focusing loan assistance on areas that help generate private sector activities and

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[10] Nepal's participation in the Conferences of the non-aligned countries in the subsequent years and her neutral stand in the then duopolarized world helped to expand the aid programs. Additionally, the formation of Nepal Aid Group in 1976 increased the quantum of foreign aid to Nepal (see Sigdel, 1996).

[11] Considering the increased role of foreign aid in the development endeavors of the country, His Majesty's Government of Nepal brought out the Foreign Aid Policy in 2002. The Foreign Aid Policy highlights the significance of foreign aid as it helps to: (i) supplement and enhance Nepal's meager domestic saving so as to mobilize increasing resources for poverty alleviation, (ii) channel increased resources towards priority sectors of the economy to accelerate development activity, (iii) create an environment for attracting foreign direct investment and promoting private sector investment, and (iv) improve the nation's capacity to identify, evaluate and adapt technology to accelerate production and productivity of the economy, which is one of the basic conditions for achieving the poverty alleviation objective.

promote external sector transactions that enhance the foreign exchange earnings capability, (iv) exploring ways of reducing the loan liability of HMG by protecting against exchange rate fluctuations. To reduce the potential debt burden, the government will also: (v) stop the use of loans for higher studies and study visits, (vi) minimize the expenditure on consultants and foreign experts out of loan assistance, (viii) not take any commercial and suppliers' credits (however, it will not preclude mixed credits), and (viii) not guarantee foreign loans for HMG-owned or other institutions.

The Foreign Aid Policy, 2002 emphasizes on the grant aid since it does not constitute the burden for the future generations and also does not constrain the already tight fiscal structure of HMG. Nepal needs to encourage aid more in such form and utilize them most effectively. So, the government's policy will be to seek grants first and, in the event grant assistance is not forthcoming, seek highly concessional loans. Action will be taken to facilitate arrangements to obtain concessional loans. By reviewing the guidelines mentioned in the Foreign Aid Policy 2002, it is also obvious that HMG is worried for the external debt burden and, therefore, has adopted the policy of reducing such debt obligations in the future.

3. EMPIRICAL OBSERVATION AND ANALYSIS

Empirical Observation

An attempt is made in the previous section to examine the interrelationship of external debt with those of the GNP and exports and to study the size and magnitude of external debt in the last twenty years along with reviewing the guidelines regarding the foreign borrowing envisaged in the Foreign Aid Policy 2002. In the present section, the effectiveness of external debt on economic growth is examined through the estimation of the ordinary least square (OLS) regression equation. For this purpose, the required data of 1979/80-2000/01 have been included. The regression equation is based on the model used by Maureen Were (2001) and is specified as:

$GDPGR = a_0 + a_1 DEDTGDP + a_2 EDTGDP + a_3 DDSR + ut$

Where,

GDPGR	=	Real GDP growth rate
DEDTGDP	=	Flow of external debt to GDP
EDTGDP	=	External debt stock to GDP
TDSXGS	=	External debt servicing as percentage of exports of goods and services
ut =		Error term

The channels through which the indebtedness affects growth have been identifies as: DEDTGDP to show the impact of external borrowing on stimulating growth, EDTGDP to show the past debt accumulation which impacts negatively on growth and the debt servicing which affects the crowding out effects.

The results of the OLS regression equations are:

Variable	Coefficients	Std. Error	t-Statistic	Prob.
	-0.000393	0.000373	-1.052214	0.3074
EDTGDP	0.026096	0.012680	2.058130	0.0552
DTGDP	0.000395	0.000509	0.775742	0.4486
DSXGS	-0.446633	0.491340	-0.909010	0.3761

R-squared = 0.240648

Analysis

The analysis is based on the evidences put forward by the OLS regression equation as presented above. However, a note of caution in terms of limited data set, application of limited explanatory variables and low degree of freedom should be taken into account while interpreting the result and, therefore, the present result could be taken as indicative only.

The independent variable DEDTGDP has an estimated regression coefficient of 0.026, which suggests that a 1 percent increase in DEDTGDP is associated with a 0.026 percent increase in the dependent variable, GDPGR. The independent variable EDTGDP has 0 estimated regression coefficient, which suggests that a 1 percent increase in EDTGDP has 0 percent increase in the dependent variable GDPGR. The third independent variable TDSXGS has a negative regression coefficient of -0.446, which suggests that a 1 percent increase in TDSXGS will lead to a 0.446 percent decrease in GDPGR. These observations indicate that the current flow of debt has some positive effect on GDP growth. The debt accumulation, however, has no effect and the debt servicing has a negative effect on GDP growth.

To test the significance of regression coefficient, the t statistics is used with 17 degrees of freedom at 5 percent level of significance. The calculated values of t statistics are found to be less than the tabulated value. However, the t statistics for DEDTGDP is approximately closer to the tabulated value indicating a positive relationship between the current flow of foreign debt and GDP growth. The t statistics for EDTGDP and TDSXGS are not significant. Further, to judge the movement of regressors in the regression equation, the R squared is calculated. The R squared, which is 24 percent, suggests that only one fourth of the variation in GDPGR could be explained by the movements in explanatory variables: DEDTGDP, EDTGDP and TDSXGS.

Thus, the empirical observation shows that the flow of external debt has positive impact, the debt accumulation has no impact and the debt servicing has a negative impact on GDP growth. The result relating to the flow of debt to GDP supports the view that, at the reasonable levels of debt, further borrowing would be expected to have a positive effect on growth. However, the results obtained relating to the debt stock to GDP supports the view that large accumulated debt stocks may not contribute to the growth in the long run. At the same time, it would be very difficult to define the reasonable level of debt for a developing economy like ours whose resource base, i.e. the government revenue, is not stable and substantial and

depends highly on foreign assistance not only to meet capital expenditure but also for revenue expenditure.

4. SUMMARY AND CONCLUSION

There is no doubt that a country needs financing for its economic development and the appropriate choice of financing depends upon the availability of resources, level of the economic development, budgetary situation of the government and the robustness of the external sector. Most of the Least Developed Countries (LDCs) face both savings gap and trade gap and seek for external financing. Nepal, as being the LDC, also falls in this category and has relied on the foreign aid for the last four decades or more for its development endeavors. In spite of this, continuous dependence on external financing may not be productive and sustainable in the long run and may not necessarily spur the growth of the economy.

The external debt burden of Nepal has increased significantly since the FY 1979/80, with a high pace of growth in such a burden since FY 1990/91. The significant growth in debt burden is basically because of the increased investment need of the government for infrastructure building, macroeconomic adjustment and structural reform. This investment need is keenly addressed by the foreign creditors along with the liberalized economic policy adopted by the country in the mid-eighties in general and after the restoration of multiparty democracy in 1990 in particular. In addition, lower resource mobilization and higher revenue expenditure on the government's part have also contributed to debt burden.

The present paper attempts to examine the relationship of external debt with those of the GNP and export earnings. For this purpose, some debt burden indicators: outstanding external debt as a percentage of exports of goods and services (EDT/XGS), outstanding external debt as a percentage of GNP (EDT/GNP), external debt servicing as a percentage of exports of goods and services (TDS/XGS) and interest payments on external debt as a percentage of exports of goods and services (INT/XGS) are used. All these examined debt burden indicators have increased significantly during the last twenty years obviously indicating the increased indebtedness trend of Nepal. These debt burden indicators demonstrate severity over solvency of the economy during 1989/90-1990/91. However, such an extreme trend has been tackled and all the debt burden indicators have remained more or less stable in the subsequent years. In the nineties, it is also revealed that the gross national product and export earnings have maintained the increased pace of foreign debt though could not outpace it.

Regarding the effect of external debt, as a source of financing investment, on economic growth, the empirical study does not reveal the large impact of external debt on growth. However, it shows that the economic growth in Nepal has not been deterred due to the external debt as it had been the case in most of the low income countries, particularly in Latin America and Sub-Saharan Africa. The empirical study shows the positive impact, though of very small size, of the debt flow on economic growth. Given this, it can be noted that inflow of the foreign resources

may assist the economic growth since the financing in the large-scale development projects in the country provides employment opportunities, warms up the business climate, creates investment-conducive environment and stimulates people for more consumption and investment. This fact may also be coincided with regard to the IDA and ADB financing in many large-scale projects in Nepal. At the same time, the external debt stock and the debt servicing do not reveal the same relationship as shown by the debt flow. Thus, it is equally important that the external borrowing be made to supplement but not replace domestic savings in the long run. Further, it is also important to notice that the external debt is mainly from the World Bank and Asian Development in concessional terms and therefore the debt flow has not hampered the growth. The result could have been different if there would have been the significant amount of commercial loan.

Though Nepal's external debt is of highly concessional nature and has the long term maturity, certain factors such as the continuous depreciation of the Nepalese currency vis-a-vis the US Dollar, increased debt servicing resulting in the higher budget deficit, crowding out effects of such debt servicing on private sector investment (Nepal Foundation for Advanced Studies (NEFAS), 1998), higher portion of loans than grants, substantial multilateral credits than bilateral ones and the inflationary effect of foreign borrowing, among others, should be watched carefully. In this regard, it is also important to note that unless a country grows fast enough to sustain debt obligations and maintain domestic investment, indefinite external indebtedness could have a very detrimental effects on the economy' s growth and on the welfare of the citizens. Nepal should abide by the guidelines recently envisaged in the Foreign Aid Policy 2002 regarding the procurement and use of the external borrowing. It is also equally important for Nepal to take initiatives for getting the rescheduling, writing-off and cancellations of external debt. Moreover, Nepal should urge for its inclusion in the Heavily Indebted Poor Countries (HIPC) program of the World Bank and the IMF. This program, in addition to deeper, faster and broader debt relief, also maintains a strong link between debt relief and poverty reduction.

Table 1. Nepal's debt burden indicators and real GDP growth rate (%)

FY	EDT/ XGS	DT/GNP	EDT/ GDP	TDS/ XGS	INT/ XGS	INT/ GNP	GDP growth rate
79/80	63%	8%	7.7%	0.8%	0	0	-2.3%
80/81	67%	9%	9.6%	2%	0.8%	0.10%	8.3%
81/82	84%	10%	10.3%	2%	1%	0.10%	3.8%
82/83	129%	14%	13.9%	3%	1%	0.15%	-3.0%
83/84	147%	16%	16.0%	3%	2%	0.20%	9.7%
84/85	168%	19%	19.8%	4%	2%	0.25%	6.2
85/86	157%	18%	18.5%	4%	2%	0.20%	4.6%
86/87	198%	23%	23.8%	6%	3%	0.40%	1.7%
87/88	234%	27%	27.0%	7%	3%	0.40%	7.7%
88/89	281%	32%	32.7%	7%	3%	0.35%	4.3%
89/90	320%	35%	35.6%	10%	4%	0.40%	4.6%
90/91	395%	49%	49.4	7%	3%	0.40%	6.4%
91/92	278%	47%	47.4%	7%	3%	0.50%	4.1%
92/93	271%	50%	51%	7%	3%	0.50%	3.9%
93/94	207%	50%	51.2%	5%	2%	0.50%	8.2%
94/95	205%	50%	51.6%	5%	2%	0.50%	3.5%
95/96	224%	51%	51.4%	6%	2%	0.50%	5.3%
96/97	174%	46%	47%	4%	2%	0.40%	5.3%

97/98	226%	53%	53.6%	6%	2%	0.45%	2.9%
98/99	207%	48%	49.5%	6%	2%	0.45%	4.5%
99/00	205%	49%	50.2%	6%	2%	0.40%	6.2%
00/01	207%	47%	49.1%	6%	2%	0.40%	4.8%

Source: Author's calculation.

Table 2. Trends of external debt stock, debt disbursement and debt Servicing

(Rs. in million)

FY	Outstanding external debt	% change	Amount of external debt disbursement	% change	Amount of debt servicing	% change
79/80	1807.3	-	534.9	-	23	-
80/81	2451.3	36%	693.3	30%	59.8	160%
81/82	3177.8	30%	729.9	5%	74	24%
82/83	4717.6	48%	985.8	35%	94.7	28%
83/84	6321.1	34%	1670.9	69.5%	128.2	35%
84/85	9203.2	46%	1753	5%	189.5	48%
85/86	10330	12%	2370.1	35%	285.7	51%
86/87	15171.9	47%	2361.9	-0.3%	487	70%
87/88	20826	37%	3094.3	31%	591	21%
88/89	29216.9	40%	4188.7	35%	701.3	19%
89/90	36800.9	26%	4628.3	10.5%	1123.6	60%
90/91	59505.3	62%	4360	-6%	1086.5	-3%
91/92	70924	19%	6269.4	44%	1664.9	53%
92/93	87420.8	23%	5961.7	-5%	2131.9	28%
93/94	101967	17%	9163.6	54%	2488.7	17%
94/95	113001	11%	7312.2	-20%	2984.7	20%
95/96	128044.4	13%	9463.9	29%	3304.3	11%
96/97	132087	3%	9043.6	-4%	3349.4	1%
97/98	161208	22%	11054.5	22%	4201.2	25%
98/99	169465.9	5%	11852.4	7%	4745.5	13%
99/00	190691.2	13%	11812.2	0.3%	5321.4	12%
00/01	201550.6	6%	12044	2%	6201.4	17%

Source: Economic Survey, HMG/MoF, Nepal

Table 3. External debt disbursement by sources (Rs. in million)

FY	Bilateral	Multilateral	Total	% of Bilateral in total	% of Multilateral in total
1979/80	149.6	385.3	534.9	28%	72%
1980/81	151	542.3	693.3	21%	79%
1981/82	109.9	620	729.9	15%	85%
1982/83	66.3	919.5	985.8	7%	93%
1983/84	217.7	1453.2	1670.9	13%	87%
1984/85	399.4	1353.6	1753	23%	77%
1985/86	498.1	1872	2370.1	21%	79%
1986/87	299.7	2062.2	2361.9	13%	87%
1987/88	462.5	2631.8	3094.3	15%	85%
1988/89	507.8	3680.9	4188.7	12%	88%
1989/90	1000.6	3627.7	4628.3	22%	78%
1990/91	1602.8	2757.2	4360	37%	63%
1991/92	2389.8	3879.6	6269.4	38%	62%
1992/93	1307.6	4654.1	5961.7	22%	78%
1993/94	582.9	8580.7	9163.6	37%	63%
1994/95	717.3	6595	7312.2	10%	90%
1995/96	460	9003.9	9463.9	5%	95%
1996/97	850.7	8192.9	9043.6	9%	91%
1997/98	1314.5	9740	11054.5	12%	88%
1998/99	584	11268.4	11852.4	5%	95%
1999/00	757.9	11054.3	11812.2	6%	94%
2000/01	586.7	11457.3	12044	5%	95%

Source: Economic Survey, HMG/MoF, Nepal

Table 4. Outstanding balance of external debt (by lender and by currency)
As of July 16, 2002 (last date of the FY 2001/02)(Amounts in million)

S.N.	Lender	Currency	Outstanding Debt	Exchange rate	Equivalent Nepalese Rupees	As percentages of total
1	ADB	USD	140.5897192	78.6	11613.38	5.4%
2	ADB	SDR	716.5309071	101.01	72377.5	34%
3	IDA	USD	188.7650914	78.6	14836.94	6.9%
4	IDA	SDR	752.530927	101.01	76013.9	35.4%
5	Australia	USD	4.6013693	78.6	361.7	0.2%
6	BEL	BEF	182.5	1.94	354.0	0.2%
7	EEC	FRF	5.142225	11.929	61.34	0.03%
8	EEC	BEF	10.119450	1.94	19.63	0.009%
9	EEC	DKK	1.237680	10.45	12.93	0.006%
10	EEC	DEM	4.864200	40.01	19.46	0.009%
11	EEC	GBP	1.217592	122.34	148.96	0.06%
12	EEC	IEP	0.011220	99.357	111.48	0.05%
13	EEC	ITL	596.725800	0.0404	241.07	0.1%
14	EEC	LUF	0.318450	1.94	0.618	0.0002%
15	EEC	NGL	1.344750	35.508	47.75	0.02%
16	FINISH	USD	5.53128286	78.6	434.76	0.2%
17	FRANCE	EUR	44.31189013	78.25	3467.4	1.6%
18	IFAD	SDR	38.26936226	101.01	38.65	0.02%
19	IFAD	USD	7.63176174	78.6	599.86	0.3%
20	JAPAN	JPY	36816.485891	0.676	24887.94	11.5%
21	KOREAN	KRW	11847.887710	0.066	782.79	0.36%
22	KUWAIT	KUD	2.25620965	261.939	591	0.3%
23	NDF	SDR	15.16821266	101.01	15.32	0.007%
24	OPEC	USD	16.01549879	78.6	1258.82	0.59%
25	RUSSIA	RUB	0.701855	2.5	1.75	0.0008%
26	SAUDI	SAR	61.96425943	20.8	1288.86	0.6%
27	USA	NPR	3.15360181	1.0	3.15	0.001%
28	USA	USD	0.01755211	78.6	1.38	0.0006%
		Grand Total			*214783.95*	*100%*

Source: HMG/MoF, FCGO, Nepal

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Money and Its Role of Income Stabilization: An Econometric Diagnosis

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There is a continuous debate over the transmission mechanism of monetary impulses on economic activities in developed as well as developing countries, and the debate revolves around two broad categories of transmission channels- the Keynesian and the Quantity Theory. Keynesian transmission mechanism examines the effect of money on economic activities by building the structural model. The basic Keynesian view is that the impact of the change in money stock on real income results indirectly through change in the rate of interest rate and thereby investment expenditure. The Quantity Theory of Money, on the other hand, is associated with reduced-form economic model, in which the effect of money on economic activities is examined by looking whether movements in income are tightly linked to movements in money supply. Monetarists analyze the effect of change in money supply on the change in income level as if the economy is a black box in which its working can not be detected. This paper tries to find out the relationship between money and income by using reduced-form models. The empirical results show that there is a strong positive association between money and its role of income stabilization. It is true both for nominal as well as real terms. The lagged response of money supply on income is two years in nominal terms and three years in real terms. There is also the structural shift in the role of money for income stabilization, indicating that money has become more effective during the liberalization period to determine the income level of the economy.

1. INTRODUCTION

Every government has two powerful instruments in its hand -monetary and fiscal policies- to utilize potential economic resources properly for the rapid development of the economy. Monetary policy works through the movement in money supply whereas the fiscal policy uses shifts in tax and expenditure patterns, both attempting to increase economic growth of the economy. Though monetary policy, in the recent years, is focusing its attention on stabilizing the nominal variables such as inflation and exchange rates, its role of income stabilization, as

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yet, cannot be undervalued, especially for the developing countries like Nepal where the economy is below the full employment level. In this regard, the central bank has the responsibility to help achieve the appropriate rate of economic growth with stability, using prudential monetary measures available in its hands. The effectiveness of policy the central bank formulates depends, among other things, on the identification of true relationship between the variables. As such, this paper tries to find out the empirical relationship between money and income.

Nepal Rastra Bank has taken money supply as an intermediate target variable. So far, the money supply is targeted on the basis of expected real output growth, inflation rate and monetization rate. It is expected that the empirical results obtained by this study can be used to target nominal money supply in accordance with the projected nominal money income.

The organization of the study is as follows: the next section throws light on the review of theoretical developments, the third section presents the description of the methods used in the study to get empirical findings. The empirical results and the conclusions are presented in the fourth and fifth sections respectively.

2. SYNOPSIS ON THEORETICAL DEVELOPMENTS

Several theories have been propounded so far to identify the role of money on economic activities. There are basically two groups to discuss over this issue: one group claims 'money matters' and the other, counter claims 'money does not matter'. The different hypotheses range from classical to modern rational expectationists' views as are presented below:

The Classical View

The classical quantity theory of money states that the change in money stock is proportionately related with the change in the price level, assuming that velocity of money and real output remain constant in the short run. The classical quantity theory is expressed as:

(1) $MV = PT$
     Where,
     M = quantity of money in circulation
     V = velocity of money
     P = price level
     T = total real output transacted

Here, the velocity of money (V) is assumed constant because it is determined by structural and institutional factors. The real output transacted (T) is independently determined by real forces such as techniques of production, real sources available in the economy, etc. These variables are constants in the short-run. Thus, the effect of change in money stock is fully reflected to the change in the price level. The classical quantity theorists, therefore, conclude that money determines only the

price level but not the real output of the economy. There exists dichotomy between monetary and real sectors of the economy and the monetary policy has nothing to play any role for income stabilization in the economy.

Traditional Keynesian Concept

Keynes' concept of role of money on economic activities is the revolutionary one against classical concept. Under the assumption of under-employment equilibrium, the basic Keynesian traditional view states that the change in money supply has an indirect effect on real income through changes in the role of interest rate and hence investment expenditure. To establish the link between monetary and real sectors of the economy, Keynes assumes two-asset world (money and bonds) in the portfolio. Therefore, any increase in the quantity of money leads first to the portfolio adjustment in the monetary sector, implying that people invest some of their increased income in bonds. Consequently, there will be a decline in the rate of interest. With given marginal efficiency of capital, the investment demand will increase and hence the national income or real output will increase.

Keynes, however, believes the existence of 'liquidity trap' - a situation below which interest rates do not fall down even if money supply is increased- that makes the monetary policy to be less effective on the expansion of aggregate output. Therefore, Keynes' focus is on the importance of fiscal policy rather than on monetary policy. Monetary policy is not sufficient to stabilize the economy and in the depression period, monetary tools become completely ineffective, says Keynes.

Neo-Keynesian Developments

The Keynesian concept had enjoyed greater acceptance and it was piling up day-to-day during 1950s and early 1960s. During this time, modern Keynesians had made significant revisions and extensions in the original or traditional Keynesian analysis and developed various transmission mechanisms of monetary policy. Followings are some of the important ones:

Credit Availability Channel : This channel works through credit rationing- that makes excess loan available for essential sector of the economy. When there exists high degree of positive correlation between loan availability and investment expenditure, the latter will eventually be increased causing the rise in national output of the economy. This channel has been proved to be effective for underdeveloped countries where there is high demand for credit at the prevailing rate of interest in the formal financial sector.

Tobin's 'q' Theory : Tobin (1970) defines 'q' as the ratio of market value of firms to the replacement cost of capital. When money supply increases, the public finds it has more money than it wants and so gets rid of it by spending more on various stocks raising its prices and market value of the firms. This means the value of 'q' is high and the market price of firms is relative higher than replacement cost of capital than the replacement cost of capital, and new plant and capital equipment

will be cheaper to the market value of business firms. Companies can then issue stocks and get a high price for it relative to the cost of the plant and equipment they are buying. Thus, investment spending will rise because firms can buy many new investment goods with only a small issue of stocks and thus ultimately national output will rise.

Wealth Effect Channel : This channel explains that if consumers are assumed to hold bonds as well as other assets in their wealth portfolio, increment in the value of bonds brought about by increase in the monetary impulses will affect net worth of the consumers and they start to make more expenses on various goods and services. Permanent income hypothesis of Milton Friedman (1957) and life cycle hypothesis of Ando and Modigliani (1963) suggest that changes in the net worth of a consumer affect consumption expenditure.

International Trade Channel : This channel explains the effect of changes in money supply on the net export of the country. When domestic interest rates fall (with inflation unchanged) because of increase in money stock, domestic deposits become less attractive relative to deposits denominated in foreign currencies. The result is a fall in the value of domestic deposits relative to foreign currency deposits. This means there is a fall in the exchange rate of domestic currency, which causes a rise in net exports and hence in aggregate output.

There may have been so many other channels of monetary influence on aggregate output, however the particular channel through which changes in the money supply affect national output are diverse and continuously change and it may be too difficult to identify all the transmission mechanisms of monetary policy.

Monetarists' Approach

When Keynesian view was in its peak of popularity among the economists in the 1950s and early 1960s, a small group of economists in the University of Chicago, led by Milton Friedman with some of his disciples- who latter known as monetarists, presented what was then an unfashionable view that money could show strong effect on the economic activities. Monetarists do not describe specific ways; instead, they examine the effect of money on the economic activities by looking is to whether movements in aggregate spending are tightly linked with the movements in money supply. The monetarists argue that when money supply is increased by the monetary authority, the money market is in disequilibrium, the excess money balance is used for purchasing real assets, causing an increase in the quantity of the national real output. However, it is the short run phenomenon according to them. In the long run they believe that growth of real output is independent of the growth of money stock and increased money supply will completely be reflected in the changes of price level.

Hence, the monetarists presented a revolutionary idea, signifying the dominance role of monetary policy on economic activities. Friedman and Schwartz (1963) in their classic book 'A Monetary History of the United States, 1867-1960' had even

showed that the Great Depression was not a period of easy monetary policy; rather the depression could be attributed to the sharp decline in the money supply from 1930 to 1933 resulting from bank panics. They have shown in great detail that the growth rate of money leads business cycles.

Rational Expectationists' View

The failure of pre-existing theories to explain the dismal economic performance during the seventies and eighties of the economies practically all over the world gave rise to the theory of 'Rational Expectations'-called the theory of 'Ratex'. Rational expectationists believe that public can predict about the level or rate of change of some economic variables based on the use of the best model and all the information available thereof. Therefore, they maintain that monetary policy has negligible systematic effects on output unless they come as a surprise to the public. The actual rate of monetary expansion, according to them, can be divided into anticipated and unanticipated ones and they concluded that anticipated variation in the rate of growth of money supply could lead directly to variations in inflation rate and unanticipated variation is reflected only to real income and eventually to inflation rate fluctuation. The monetarists have accepted long run neutrality of monetary policy over real economic variables such as output and employment, but, according to rational expectationists, it is true even in the short run as well.

3. METHODOLOGY

This paper is related with macro-economic variables, so the secondary data used on the sources such as economic surveys (HMG/N), quarterly economic bulletin (NRB), etc are used. For the purpose of processing and analyzing the data, different statistical and econometric tools are used to work out empirical results.

Unit Root Test

At the outset, the unit root test is used to check whether the variables used are stationary or not. In time series analysis, the empirical results with non-stationary data lead to spurious results. The Dicky-Fuller (DF) and Augmented Dicky-Fuller (ADF) tests are normally used to perform unit root tests. To test the stationarity, let us consider the general relationship as:

(2) $\quad Y_t = \alpha + \rho\, Y_{t-1} + \varepsilon_t$

If $|\alpha|<1$, y is stationary and if y=1, y is non-stationary and contains unit root. So, the null hypothesis of unit root is given by;

$\quad H_0: \rho = 1$

For testing this null hypothesis, the equation (1) is converted into as:

$\quad \Delta y_t = \alpha + \gamma\, y_{t-1} + \varepsilon_t$

$\quad$ Where, $\gamma = \rho - 1$

In this case, the null hypothesis of unit root is $\gamma=0$

Co-integration Test

The co-integration test is used to test the existence of long-run equilibrium relationship between the variables, though they might have individually shown the non-stationary phenomena in the short-run. When the series are co-integrated, the ordinary least square method is supposed to be super consistent to estimate the regression parameters. Of the many methods available for co-integration test, the data are tested by using the method suggested by Engle and Granger (1987). As per this method, firstly the regression is run between non-stationary variables and obtain residuals. Then, the unit root test is used for the residuals thus obtained. If the residuals do not contain unit roots, the given variables are said to be co-integrated with the notion of that the variables have equilibrium relationship in the long-run.

Specification of the Model

To know the exact relationship between the variables, we should set the model that best describes the true relationship. Mainly there are two types of widely used models- (i) reduced form, and (ii) structural models, to describe the money-income relationship. The economists who follow Keynesian type of transmission mechanism are mostly biased towards large-scale structural model, and followers of monetarists proposition are biased towards reduced-form single equation model. Structural model examines whether one variable affects another by using data to build a model that explains the channels through which one variable affects the other; whereas reduced-form model examines whether one variable has an effect on another simply by looking directly at the relationship between the two variables. The selection of the model is basically depends on the factors such as objective of the researcher, the reliability of the model, structure of the economy, data availability, cost factors, etc. All of these factors have help to select the reduced-form model. Thus, the general functional form of the estimating equations on the reduced-form models is as follows:

(3) $Y_t = a_0 + a_1 M_t + u_t$
        Here, Y is the income variable and M, the money supply variable.

The empirical results are also obtained in real terms as well. The variables concerned are converted into the real terms by using the GDP deflator. The income variable (Y) is separated in agricultural income (Y_{ag}) and non-agricultural income (Y_{nag}) to find the sectoral response of monetary shocks. As monetary variables, both monetary aggregates are used to find the empirical results.

The Almon Approach to Distributed Lag Models

It is a priori postulation that the effects of changes in explanatory variables on dependent variable may spread for several time periods and in this case distributed lag models are suggested to apply for policy evaluation. There are various methods available to estimate the equations with lagged variables, a more sophisticated and frequently used method has been presented by S. Almon. The mathematical form of the model with finite number of parameters and only one independent variable is:

$$(4) \quad Y_t = \alpha + \sum_{i=0}^{k} a_i X_{t-i} + u_t$$

Instead of attempting to estimate directly all the a's by applying OLS to the above model, they are approximated by some function that may be given by m^{th} degree polynomial in i. Therefore,

$$(5) \quad a_i = \beta + \beta_i + \beta_2 i^2 + \ldots + \beta_m i^m$$

Here, β's are obtained by using OLS method. Getting the values of β's, we can easily find the values of a's. One thing to be considered is that while using Almon's technique the degree of polynomial (m) should be necessarily less than the length of lag (k). Although there are various techniques used for selecting the degree of polynomial, yet it is usually assumed low, i.e., 3 or 4 (Koutsoyiannis, 1996, pp. 300). The selection of lags, on the other hand, depends on the significance and sign of the estimated parameters associated with the lagged values of the variables. The selection of degree of polynomial and the lags, however, should be performed on a priori ground while estimating lagged model from Almon technique.

Method of Estimation

The relationship between the variables is obtained by using Ordinary Least Square (OLS) method for all the models.

Stability Test

If we use linear regression models to represent an economic relationship, the question often arises as to whether the relationship remains stable in various periods of time or not. Here, the whole study period has been separated into two sub-sample periods viz. 1975-1989 and 1990-2002. The former represents the less liberalized economy and the latter, the liberalized economy. The basis for such separation of the whole period is on the postulation that the liberalization policy started during mid 1980s and intensified at the beginning of 1990s, following the policy changes such as deregulation in interest rates, establishment of joint venture

banks, initiation on full convertibility in current account, etc. In this regard, we realized the necessity of stability test to know the effectiveness of liberalization policy. Several statistical tests are available for the stability test of the regression equation and of the parameters. One of the popular methods of testing the stability of the parameters can be performed with the help of Chow-test statistics. The null of the coefficients of two sub-sample periods do not differ significantly is given by;

$H_0 : a_1 = a_2$

To test this hypothesis, the calculated F-ratio is given by,

(6) $$F^* = \frac{[\Sigma e_o^2 - (\Sigma e_1^2 + \Sigma e_2^2)]/K}{[\Sigma e_1^2 + \Sigma e_2^2]/(n_1 + n_2 - 2K)}$$

Where,

Σe_p^2 = Residual sum of squares of the regression estimates
n = Number of observations
K = Number of estimated parameters

Subscripts p, 1 and 2 stand for pooled, sample 1 and sample 2 periods respectively.

4. EMPIRICAL FINDINGS

Unit Root Test Results

The following table exhibits the unit root test results. The results show that all the variables in log-transformed form are non-stationary. For the case of first difference log-transformed variables, no variables possess unit root except for the non-agricultural GDP.

Unit Root Results

Variables	log							
	Y	Yag	Ynag	M_1	M_2	RY	RM_1	RM_2
ADF Statistic	-0.53	-1.18	-1.42	0.10	-1.24	0.55	-0.97	-1.02

Variables	Δlog							
	Y	Yag	Ynag	M1	M2	RY	RM1	RM2
ADF Statistic	-3.04	-3.07	-5.40	-4.62	-2.47	-5.04	-5.73	-5.75

The MacKinnon's statistics in 1%, 5% and 10% for log-transformed variables are -3.71, -2.98 and -2.63 , and that for difference of log-transformed variables are -3.72, -2.99 and -2.63 respectively.

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[*] As suggested by Chow, we have two types of test statistics to test the structural change- breakpoint test and forecast test. This formula is for breakpoint test.

Co-integration Test

The co-integration test results as shown below exhibit that all the variables in the corresponding relationships are integrated of order zero. The co-integration vectors for the set of variables log (Y) and log (M1), log (RY) and log (RM2), and log (Ynag) and log (M1) are significant at 5% level, whereas the remaining models are significant at 1% level. The results in the co-integration tests suggest that one can also run the regressions in the log-transformed variables, even if they are individually non-stationary as shown by unit root test results.

Co-integration Test Results

Dependent Variable	Explained by	Constant	Trend	Co-integration Order	Dicky-Fuller Test Statistic
log Y	log M_1	-	-	I(0)	-3.89
log Y	log M_2	-	-	I(0)	-2.65
log RY	log RM_1	-	-	I(0)	-3.55
log RY	log RM_2	-	-	I(0)	-2.60
log Y_{ag}	log M_1	-	-	I(0)	-4.65
log Y_{nag}	log M_2	-	-	I(0)	-2.59

The MacKinnon's statistics for 1%, 5% and 10% are -2.66, -1.96 and -1.62 respectively.

Results in Nominal Income on Nominal Money Supply

The regression results in nominal terms exhibit that both definitions of money supply are the significant determinants of money income. Despite low DW test statistics indicating positive autocorrelation, all other test statistics are highly significant for both the estimated equations. The elasticity coefficient of narrow money supply is greater than that of broad money supply, which may be because of relatively more exogenous characteristics of M_1 than M_2. The currency, a major part of the M_1, is exogenously determined by the monetary authority, but the time deposits, a part of broad money supply, basically depend on endogenous variables like income level, interest rates, etc.

Dependent Variable	Explained by	Constant	Coefficient	Test Statistics		
				Adj. R^2	DW	p- value for F
log (Y)	log (M_1)	3.35 (0.00)	0.86 (0.00)	0.996	0.68	0.00
	log (M_2)	3.69 (0.00)	0.75 (0.00)	0.99	0.50	0.00

Bracket figures indicate p-values

Results in Real Incomes on Real Money Supply

With a view to knowing the impact of real money supply on real output of the economy, the following two equations have been estimated as shown below. The real money stock has a significant effect on real aggregate income level. The elasticity coefficient o.65 for M_1 indicates that one percent change in real money balance is able to change in real GDP by 0.66 percent. For broad money, this coefficient is 0.50, lower than that of narrow money, again indicating M_1 as a better predictor of income level of the economy. When compared these coefficients with the coefficients in nominal terms, indicating that the real money supply has comparatively lower impact on real output in comparison with nominal terms.

Dependent Variables	Explained by	Constant	Coefficient	Test Statistics		
				Adj. R^2	DW	p- value for F
log (RY)	log (RM$_1$)	4.86 (0.00)	0.65 (0.00)	0.98	0.70	0.00
	log (RM$_2$)	5.78 (0.00)	0.50 (0.00)	0.97	0.56	0.00

Bracket figures indicate p-values for t-statistics

The Results on Sectoral Response

Expecting the impacts of money on sectoral incomes of the economy are diverse, an attempt has also been made in nominal terms only to find out the effectiveness of money separately on agricultural and non-agricultural income in the economy. As the previous results have shown that narrowly defined money is a better explanatory variable to determine income level, only this monetary aggregate (M_1) is used from now on in estimating regression equations. As shown by results, money supply is able to explain significant changes on agricultural as well as non-agricultural income. The lower coefficient for agricultural income may be attributed to heavily weather-dependent agricultural income and a large part of this income is basically non-monetized. The non-agricultural income, on the contrary, is more money-influencial. The goodness of fit for both models is highly significant. The DW statistics, however, poses some problem, showing positive autocorrelation between the error terms.

Dependent Variables	Explained by	Constant	Coefficient	Test Statistics		
				Adj. R^2	DW	p- value for F
log (Y_{ag})	log (M_1)	3.95 (0.00)	0.72 (0.00)	0.99	0.81	0.00
log (Y_{nag})	log (M_1)	1.25 (0.00)	1.01 (0.00)	0.997	0.99	0.00

Bracket figures indicate p-values for t-statistics

Results in Polynomial Distributed Lag Models

It is expected that the effects of changes in money supply on money income are spread over a period of some time. As per the expectation, the following results have also shown that the nominal money stock has a positive effect on changes on nominal income up to two years lag, whereas there are dampening effects on changes in nominal income beyond three years lagged changes in money stock. The coefficients are also decreasing over the increase in lags and becoming insignificant beyond two years.

Nominal Terms:

Dependent Variable: log (Y)	Explained by					Sum
	$\log (M_1)$	$\log (M_1)_{t-1}$	$\log (M_1)_{t-2}$	$\log (M_1)_{t-3}$	$\log (M_1)_{t-4}$	
Coefficients	0.543	0.293	0.110	-0.007	-0.056	0.88
t-Statistics	3.17	3.47	0.76	-0.08	-0.33	99.65

For the case of real terms, the coefficient for one year lag is the highest and thereafter it started to decline having with positive signs. The t-value for current year is insignificant, but for one to three year lags, it is significant.

Real Terms:

Dependent Variable: log (RY)	Explained by					Sum
	$\log (RM_1)$	$\log (RM_1)_{t-1}$	$\log (RM_1)_{t-2}$	$\log (RM_1)_{t-3}$	$\log (RM_1)_{t-4}$	
Coefficients	0.193	0.217	0.194	0.122	0.002	0.73
t-Statistics	1.60	4.57	2.24	1.99	0.03	49.99

Results in Stability Test

With a view to knowing whether or not there is the stability in the relationships between money and income in different economic regimes, the whole sample period is divided in two sub-sample periods- 1975 to 1989 (less liberalized economic regime) and 1990 to 2002 (liberalized economic regime), assuming the year 1990 as a breakthrough, especially because of restoration of democracy and intense beginning of economic and financial liberalization from this particular year. The results as shown below are against the null hypothesis of no effect of structural change for both nominal as well as real terms. The coefficients are greater in liberalization period, indicating that liberalization period is more effective to cause change in income level by the change in money supply. The goodness of fit and the DW statistics have also been improved for the liberalization period.

Nominal Terms:

Sample Period	Dependent Variable	Explained by	Constant	Coefficient	Test Statistics		
					Adj. R^2	DW	p- value for F
1975-1989	log (Y)	log (M_1)	3.87 (0.00)	0.79 (0.00)	0.98	0.80	0.00
1990-2002	log (Y)	log (M_1)	3.53 (0.00)	0.84 (0.00)	0.99	0.95	0.00

F(Chow) = 4.03 (p-value:0.03)
Bracket figures indicate p-values for t-statistics

Real Terms:

Sample Period	Dependent Variable	Explained by	Constant	Coefficient	Test Statistics		
					Adj. R^2	DW	p- value for F
1975-1989	log (RY)	log (RM_1)	5.96 (0.00)	0.51 (0.00)	0.91	0.94	0.00
1990-2002	log (RY)	log (RM_1)	4.96 (0.00)	0.65 (0.00)	0.95	0.96	0.00

F(Chow) = 8.27 (p-value:0.002)
Bracket figures indicate p-values for t-statistics

5. CONCLUSIONS

The empirical results associated with the relationship between money and income exhibit that money supply can be used as an effective variant for income stabilization in Nepal. It is valid both for nominal and real terms. Compared to broad money, the larger coefficient of narrow money indicates that narrow money can be used as an appropriate policy variable for income stabilization.

Regarding the results between money supply and the two definitions of sectoral incomes-agricultural and non-agricultural, the coefficient for agricultural income is larger than for non-agricultural income, indicating that former is more money influential than the latter. This strongly supports the priori postulation that non-agricultural income is better explained by the monetary variable. The agricultural income is largely weather dependent but non-agricultural sector of the economy is monetized sector and it is more money-sensitive.

The regression results on the lagged response of money on income have shown that the full adjustment of monetary shock on income level is completed within two year lag period for nominal income stabilization and three year for real income stabilization. So, the adoption of monetary control measures to stabilize output of the economy should be taken as per this lagged response of money on income level.

Regarding the efficiency of liberalization policy, the stability test proves that there is a significant effect of change in policy regimes for income stabilization. The coefficients have been increased for both nominal and real terms in the liberalization period than that of less liberalized period indicating liberalization policy more effective to determine income level in Nepal.

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- Anderson, T.W., and C. Hsiao. 1982. "Formulation and Estimation of Dynamic Models Using Panel Data." *Journal of Econometrics* 18: 47–82.
- Chu, K., E. C. Hwa, and K. Krishnamurty. 1983. "Export Instability and Adjustment of Imports, Capital Inflows, and External Reserves: A Short Run Dynamic Model." In David Bigman and T. Taya, eds., *Exchange Rate and Trade Instability*. Cambridge, Mass.: Ballinger.
- Goldstrein, Morris, and Mohsin Khan. 1985. "Income and Price Effects in Foreign Trade." In R. W. Joners and P. B. Kenen, eds., *Handbook of International Economics*, vol. II. New York: Elsevier.
- Hemphill, William. 1974. "The Effect of Foreign Exchange Receipts on Imports of Less Developed Countries." *IMF Staff Papers* 21: 637–77.

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