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2010

Online at <http://mpra.ub.uni-muenchen.de/35387/>

MPRA Paper No. 35387, posted 13. December 2011 / 09:39

## Poverty and Food Insecurity in Nepal: A Review

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### Abstract

Nepal being the poorest country in the world, poverty remains one of the crucial development agenda in Nepal since it started its development effort in 1956. Therefore, this review paper analyzes the poverty and food insecurity in Nepal. Macro economic indicators of the country i.e., Gross Domestic Product (GDP) growth rate and inflation rate shows that the country is historically a low growth country with inflation rate always higher than the GDP growth rate. Therefore, macroeconomic indicators are not in favorable condition to tackle the overarching problem of poverty incidence in the country. Since 1976/77, poverty incidence is in increasing trend in Nepal. It was only in 2003/04, some progress in reducing poverty was reported, which was mainly due to the significantly higher inflow of remittance compared to earlier years, rapid urbanization, and an increase in non-farm incomes. This resulted not only in the decline in proportion of population suffering from poverty but also decline in the absolute number of population suffering from poverty. However, such decline in incidence of poverty was achieved at the cost of increased inequality. The gini coefficient increased from 0.24 in the year 1984/85 to 0.41 in 2003/04. Imbalanced growth in rural and urban areas could be the reason for increase in gini coefficient. Reduction of poverty in urban areas remains always high

compared to that of rural areas. Therefore, poverty incidence remains always the highest in Mid-western and Far-western rural hills. Also, poverty and food insecurity is the highest among female headed household, *dalit* and ethnic communities, small landholding households, households engaged in laboring and agriculture. This is mainly due to unequal distribution of resources such as land, social discrepancy, and lack of access to basic social and economic structures. Government has been giving the first priority to the reduction of poverty since eighth five year plan (1992). But the government's programs are failed to reach the target population. For instance government programs represent less than 10% of the national food deficit. Therefore, besides in-depth analysis of poverty at household level in order to understand location specific problem of poverty and food insecurity, expansion of government programs focusing on targeted population is very critical in dealing with the problems of poverty and food insecurity.

## 1. Introduction

The perception of poverty has evolved and varies tremendously from one culture to another culture (World Bank, 1990). However, its definition has been evolved overtime in order to encompass a variety of issues, moving from its initial treatment as an economic phenomenon (from Rowntree in 1901) to take on a number of social phenomenon (to Human Development Index-HDI by UNDP in 1990 and Amartya Sen in 1999). At present context the definition propounded by Amartya sen is the most commonly used definition. He introduced the concept of "deprivation of basic capabilities" in order to supplement "lowness of income" (Sen, 1999). Thus, poverty has two broad dimensions namely: monetary and non-monetary dimension. Monetary poverty is a quantitative measure of poverty using information on income or consumption, whereas non-monetary poverty is associated with the insufficient outcomes with respect to health, nutrition, literacy, deficient social relations, insecurity, low self-confidence and powerlessness.

Nepal remains one of the poorest countries in the world in terms of monetary as well as non-monetary dimensions of poverty. She remains the poorest country in South Asia and ranks as twelfth poorest country in the world in terms of Gross National Income (GNI) with per capita GNI of US\$320 in the year 2006 (World Bank, 2008a). The per capita income though reached US\$388 per annum in the year 2008, the country still remains one of the poorest countries in the world with the wide income disparities, and poor access by a large section of the population to basic social services (Asian Development Bank, 2008). The poverty being cause as well as consequence of food insecurity, similar is the situation of food insecurity as well. Indicators of food insecurity became worse once the country shifted from being food self-sufficient even net food exporter till late 1970s to food deficit country since the early 1980s. Even during the food surplus period, most of the Hilly and Mountainous districts suffered food deficit situation. At present 17 percent of the population is suffering from malnourishment. The figure is much worse if we consider children under weight for age - underweight (percent under age 5) and children under height for age - stunting (percent under age 5). Around 48 percent and 57 percent of under-five children are suffering from underweight and stunting, respectively. Both the figures are increasing continuously since the UNDP started calculating children underweight and stunting in 1990 and 1995, respectively (UNDP, 2007; and UNDP, 1998)

Such situation prevails in the country despite the fact that it is receiving significant amount of financial as well as technical assistance from several donor countries as well as multilateral donor agencies since it started its first planned development effort in 1956. Thus, poverty remains the critical issue to be analyzed. Therefore, this paper intends to discuss the historical perspective of poverty and food insecurity incidence from macro-economic perspective based on the literature review. In doing so the paper starts by giving an overview of macroeconomic indicators overtime, discusses incidence of poverty, inequality, and food insecurity overtime, and describes programs and policies to tackle poverty and food insecurity in the country, and finally draws conclusions.

## 2. Overview of macroeconomic indicators

A growth rate of GDP including that of agricultural GDP (AGDP) as well as non-agricultural GDP, inflation rate, and changes in per capita income are three macroeconomic indicators considered for this paper. The data for first and second planning period is lacking, therefore the analysis is based on the data for third to tenth plan period. The GDP growth rates were related with the population growth rate and inflation rate (Table 1). Here, we can see that Nepal is experiencing low GDP growth rate, especially marred by the poor performance of agriculture. During these periods, agriculture grew at only around 2.6 percent per annum with huge fluctuation i.e. from -1.1 to 4.7 percent per annum, which is slightly above the population growth rate of 2.3 percent per annum during the same period. Huge fluctuation in AGDP growth rate is due to heavy dependence on vagaries of weather condition. Consequently, growth in agriculture is unpredictable resulting into uncertainty in meeting ever-increasing food demand. Besides, during all these period inflation rate is higher than GDP growth rate, which is not a favorable condition for national poverty reduction. Optimal target of inflation should be less than 6 percent, which would be the best to minimize the negative impact on long-run economic growth (Khan, 2005). It is also estimated that 6 percent growth rate is essential to reduce Nepal's high levels of poverty. However, average inflation rate in Nepal is 8 percent, which is always above GDP growth rate. This could have hit the poor disproportionately as they do not hold financial assets that provide protection against inflation. Therefore, despite the achievement of broad macroeconomic stability by the country during these periods, the stability could not translate much in accelerating economic growth, which is a key to poverty reduction.

**Table 1:** GDP and population growth rate, and inflation rate of Nepal for different periods.

Variables	Plan period							
	Third 1965-70	Fourth 1970-75	Fifth 1975-80	Sixth 1980-85	Seventh 1985-90	Eighth 1992-97	Ninth 1997-2002	Tenth 2002-07
Real GDP	2.7	1.8	2.2	4.4	4.8	4.9	3.6	3.4
Agriculture	2.9	1.5	-1.1	4.7	4.1	3.0	3.3	2.7
Non-agriculture	2.4	2.2	9.0	4.0	5.5	6.3	3.9	3.8
Inflation	5.1	10.5	5.2	9.7	11.2	9.9	6.5	5.5
Population growth rate	2.05	2.62	2.62	2.08	2.08	2.25	2.25	2.25

Source: National Planning Commission (NPC), 1970, 1975, 1980, 1985, 1992, 1998, 2003, and 2008; Pantha & Sharma, 2003

Per capita income measured in terms of per capita Gross National Product (GNP)/Gross National Income (GNI) increased from US\$ 120 in 1976 to US\$ 340 in 2007 (Table 2). It accounts mere 3.5 percent annual increase in per capita income between 1976 and 2007. Such increase is in nominal term and is against 8 percent average rate of inflation. Ranking based on GNP/GNI placed Nepal in 12<sup>th</sup> position from bottom in the year 2007 along with some other conflict ridden African countries. This is a slight graduation from its 5<sup>th</sup> position from bottom during late 1980s and 8<sup>th</sup> during late 1990s. However, she remains the poorest country outside Africa since 1991. All these suggest that the macroeconomic indicators of Nepal, since it started having statistics on it, are not in favorable condition to tackle the overarching problem of poverty incidence in the country.

**Table 2:** Changes in per capita Gross National Product (GNP)/Gross National Income (GNI) in Nepal from 1976-2007.

Year	Per capita GNP/GNI US\$	Ranking from below
1976	120	9 <sup>th</sup> along with Chad, Burundi and Myanmar
1987	160	5 <sup>th</sup> along with Malawi, and Bangladesh,
1988	180	9 <sup>th</sup> along with Bhutan and Lao PDR
1989	180	5 <sup>th</sup> along with Bangladesh, Lao PDR, Guinea-Bissau, and Malawi
1990	170	5 <sup>th</sup>
1991	180	5 <sup>th</sup> along with Bhutan and Guinea-Bissau
1992	170	5 <sup>th</sup> along with Uganda
1993	190	8 <sup>th</sup>
1994	200	10 <sup>th</sup> along with Madagascar
1995	200	9 <sup>th</sup>
1997	210	6 <sup>th</sup> along with Rwanda and Tanzania
1998	210	8 <sup>th</sup> along with Mozambique, and Tanzania
1999	220	8 <sup>th</sup> along with Angola
2000	220	11 <sup>th</sup>
2001	250	13 <sup>th</sup>
2002	230	12 <sup>th</sup> along with Rwanda
2003	240	11 <sup>th</sup> along with Uganda
2004	260	10 <sup>th</sup> along with Chad
2005	270	9 <sup>th</sup>
2006	290	10 <sup>th</sup>
2007	340	12 <sup>th</sup> along with Uganda and Zimbabwe

Source: UNDP, 1990; World Bank, 1990; 1991a; 1992; 1993; 1994; 1995; 1996; 1997; 1999; 2000; 2001; 2002; 2003a; 2003b; 2004; 2005; 2006; 2007; and 2008b

### 3. Poverty and food insecurity in Nepal

Under this heading, we will discuss poverty and inequality, nature of poverty, and food insecurity and its nature.

#### 3.1. Poverty and inequality

It was only during the early 1970s that the issue of poverty started taking root in the minds of Nepalese planners, policy makers, and political leaders of all persuasions. Such development was mainly due to failure of the earlier periodic plans to achieve substantial increase in national income; thereby improvement in the standard of living of people (NPC, 1975). In addition, the interest of the World Bank on Poverty put forth by its President in 1973 could have led to such realization (Nunes, 2008). This can be reflected in the Fifth Five-year Plan (1975-1980), in which the problem of poverty was first introduced and thus, agriculture development received the top priority. It was breakthrough of the previous trend of giving top most priority to infrastructure development. Realizing the fact that huge

proportion of population relies heavily on subsistence agriculture, it was assumed that the problem of poverty could be addressed with the increased domestic agricultural production (NPC, 1975). It was during the same time, in 1976-77 that the first carefully documented poverty study in Nepal (Survey on Employment, Income Distribution, and Consumption Pattern-SEIDCP) was undertaken. Since then, three nationally representative surveys namely; Multi Purpose Household Budget Survey (MPHBS) in 1984/85 by Nepal Rastra Bank, NLSS I in 1995/96, and NLSS II in 2003/04 by Central Bureau of Statistics were conducted and were used to make poverty analysis of the country. Besides, Nepal Rastra Bank conducted rural credit survey in 1991/92 confined within the rural areas. In addition, the World Bank and the UNDP are also active in making research on poverty in Nepal. Almost all of these poverty analyses are based on cost of basic needs that includes both food as well as non-food needs of an individual. For this standard food basket that supplies basic calorie requirement is identified based on consumption behavior of the respondents. The cost involved in acquiring the standard food basket then gives food poverty line, which if combined with non-food cost gives poverty line. The household whose income or expenditure is not able to meet the poverty line is categorized under poor. Even the World Bank uses income/expenditure data to assess and analyze poverty such as per capita GNP/GNI in the context of Nepal. In contrast to this, UNDP relies not only in income/expenditure information to assess welfare of population, but also considers education in terms of adult literacy rate and gross enrollment rate, and health aspect in terms of life expectancy.

Except for the NLSS I and NLSS II, none of the survey share common methodology. Therefore, they are not directly comparable with each other. However, comparison made by Lanjouw and Prenzushi (1999) through several simulations showed that there is no evidence of decrease in poverty from 1976/77 to 1995/96. Table 3 shows the incidence of poverty for different periods in the country. The adjusted comparison also shows that though there is rise in poverty, there is no indication of rise in urban poverty incidence, which means that the increase in poverty is mainly taking place in the rural areas. Similarly, within the given limitations, perceptible increase in the poverty can be observed from comparison between the adjusted MPHBS and NLSS I. Here, decline in urban poverty and increase in rural poverty has been reported. Increase in rural poverty incidence was mainly due to increases in poverty incidence in West, Mid-West, and Far-West Regions and in the Eastern Hills that outweighed decline in the incidence in Central Hills/Mountains and Central Tarai (Lanjouw & Prenzushi, 1999).

Rural Credit Survey (1991/92) conducted by the Nepal Rastra Bank is directly comparable with NLSS I (1995/96) but the comparison will be valid only for rural areas, which is essential from the view point of poverty being predominantly rural phenomena in Nepal. The comparison showed that the incidence of poverty reached the highest level with the rural poverty incidence of around 50 percent in 1991/92. The cumulative density function (CDF)<sup>(1)</sup> showed around five percent point lower incidence of poverty in 1995/96 compared to 1991/92. Despite sign of decline in poverty in rural areas, regionally, however, there is no indication of increase in consumption level in Western, Mid-Western and Far-Western Hills of the country; rather there was slight decline in consumption level. This signifies that even the improvement in rural poverty is erratic in terms of regional balance, and there is no improvement in case of Western, Mid-Western, and Far-Western Hills of the country.

The sign of improvement in rural poverty was also realized in the NLSS II (2003/04), and being nationally representative survey, the result of the survey also provided the evidence of decline in poverty in the country as a whole. Significant increase in a flow of remittance is the main reason for decline in incidence of poverty despite the country suffering severe conflict. However, the rate of decline in rural poverty compared to urban poverty is remarkably low. Thus, it suggests that the benefit flow of economic growth and development is skewed more towards urban areas having limited impact on rural poverty.

**Table 3:** Incidence of poverty in Nepal for different periods.

Source	Poverty incidence (percentage)		
	Urban	Rural	Nepal
National Planning Commission-SEIDCP (1976/77)	22.2	35.5	32.9
Simulations under alternative assumption			
a) Inflating up the 1977 poverty line to 1995/96 prices using overall index of national urban consumer prices. (NRs. 2 per person per day in 1977 = NRs. 10.97 per person per day in 1995/96)	15	33	32
b) As in a. but changing definition of consumption for 1995/96 so as to better match definition applied in 1977	18	38	36
c) Calculating poverty line from the NLSS (1995/96) data but using a similar methodology to that used for the NPC (1977)	19	42	41
d) As in c) but also changing the definition of consumption in the NLSS (1995/96) data so as to better match definition applied in 1977	20	44	42
Nepal Rastra Bank-MPHBS (1984/85) <sup>a</sup>	19.2	43.1	41.4
The World Bank (1991)-Based on data of MPHBS (1984/85 in 1988/89 prices) considering NPC poverty line, which is based on income needed to supply minimum calorie requirement)	15	42	40
Nepal Rastra Bank-Rural Credit Survey 1991/92	-	50	-
Central Bureau of Statistics-NLSS I (1995/96) <sup>a</sup>	17.8	46.6	44.6
Central Bureau of Statistics (1996)-NLSS I (1995/96)	21.5	43.3	41.8
Central Bureau of Statistics (2004)-NLSS II (2003/04)	9.5	34.6	30.8

Source: CBS, 2005; Lanjouw & Prenzushi, 1999; and World Bank, 1991b.

Note: <sup>a</sup> An adjusted poverty incidence in order to make comparable with each other.

Trends in inequality can be understood by examining the gini coefficient and the share of income by different income category for the given period. Similar to the trend of poverty incidence, inequality in the country is also increasing. Inequality is even increasing despite decline in poverty incidence in 2003/04 (Table 4). Gini coefficient calculated in terms of per capita income has increased from 0.24 in 1984/85 to 0.41 in 2003/04.

Share of the fifth quintile (the richest) of the population was in the highest level (59.9%) in 1976/77, which was reported to be 34.6 percent in 1984/85. Such sharp decline in the share might be the result of extensive infrastructure development (transportation, communication, irrigation, and industries) during the period throughout the country, which provided the opportunities to the huge mass of population who otherwise would have been critically isolated. There could be flaws in the measurement itself. Also these were the period of closed economy. Since 1984/85 when the country adopted the stabilization and structural adjustment program, however, the trend was reversed, the share has been increasing and reached 50.3 percent in the year 1995/96 till when economy was liberalized to greater extent, which further increased to 53.4 percent in the year 2003/04. Therefore, this could be the outcome of economic liberalization in the country. Increase in the share of the fifth quintile of the population in 2003/04 was realized at the cost of the decline in the share of the first quintile, second quintile, third quintile, and fourth quintile by 47.5 percent, 40.3 percent, 30.1 percent and 10.9 percent, respectively. This indicates that the economic growth in the country has failed to be pro-poor.

**Table 4:** Income distribution pattern overtime.

Share of population	Percentage share of income on			
	1976/77 (SEIDCP)	1984/85 (MPHBS)	1995/96 (NLSS I)	2003/04 (NLSS II)
First quintile (Poorest)	5.9	10.1	5.3	5.3
Second quintile	8.2	14.9	10	8.9
Third quintile	9.1	18.3	14	12.8
Fourth quintile	22.4	22.1	20.4	19.7
Fifth quintile (Richest)	59.9	34.6	50.3	53.4
Gini coefficient	NA	0.24	0.34	0.41

Source: CBS, 1997a; CBS, 2004; NPC, 1983; and NRB, 1989

Note: NA-Not Available.

Till 1995/96 with no indication of reduction in poverty, the higher population growth rate (2.6 percent per annum) for the period (between 1976/77 and 1995/96) suggests a huge increase in number of poor in the country. Therefore, in order to keep pace with the population growth rate, poverty incidence must be brought down from 40 to 25 percent at least to keep the number of poor constant overtime (Lanjouw & Prenzushi, 1999). However, reduction of poverty at that extent was not realized as a result the number of poor has been almost doubled within the period of 20 years - from 1976/77 to 1995/96 (Table 5). In 2003/04, however, decline in the absolute number of poverty is reported even at the poverty incidence of 30.8 percent. This could be due to the fall in population growth rate to 2.25 percent per annum, which otherwise was 2.6 percent per annum.

**Table 5:** Number of poor people in different periods.

Source	Year	Poor population (in '000')
NPC (SEIDCP)	1976/77	4,897
Nepal Rastra Bank (MPHBS)	1984/85	6,852
World Bank/UNDP (based on MPHBS)	1989	7,694
CBS (NLSS I)	1995/96	9,507
CBS (NLSS II)	2003/04	7,672

Source: CBS, 2005; Nepal South Asia Center, 1998

Despite the scant improvement in poverty incidence in the country, increasing disparity together with the huge increase in poor population has the detrimental effect on the objective of poverty reduction. Rise in inequality stifle growth, and poverty fall less rapidly than in the case of a more equitable one (Cornia, 2004). Therefore, increased inequality and rise in number of poor have serious ramifications on one's ability to maintain a sustainable economic growth together with serious threats on social stability (Zhou & Wan, 2003).



### 3.2. Nature of poverty

Poverty in the country exists in a wide variation depending on the rural-urban divide, geography, gender, and ethnic groups and occupational castes (UNDP, 2005). Poverty incidence, gap, and severity analysis of the country suggests that poverty is more rampant, deeper, and severe in rural areas, and much worse in the Hills and Mountains. Poverty incidence in the rural areas, where 85 percent of the population lives, is 34.6 percent that accounts 95.3 percent of the poor in the country. Moreover, the recent decline in poverty incidence is favored more in urban areas. Overall, decline in incidence of poverty in urban areas from 1995-96 to 2003-04 is 56 percent, whereas the figure for rural areas is only 20 percent (CBS, 2005a; and 2005b). Similarly, poverty rate is the highest in rural areas of Mid-Western, and Far-Western Development Regions. Poverty incidences in the regions are 44.8 percent and 48 percent, respectively. Also more than 25 remote districts in the Mid-Western and Far-Western, Hills and Mountain regions have the poverty incidence of 45-60 percent. In terms of ecological region, Hills is experiencing the highest incidence of poverty with 34.5 percent population living below poverty line (CBS, 2005a). Poverty in such areas is primarily due to the stagnation in the growth of agriculture, which is the main source of income and employment (NPC, 2003). In addition, unequal distribution of land, and lack of access to basic social and economic infrastructure is also responsible for prevalence of poverty in such areas (Prennushi, 1999; and SAAPE, 2003).

Besides rural-urban, geographical, and ecological variation, poverty also greatly varies according to caste and ethnic groups in the country. Most of the poorest of the poor belong to the *dalit*, and ethnic communities who have been historically excluded from policy influencing and decision-making opportunities because of their caste and ethnic position (Joshi and Maharjan, 2008; Joshi and Maharjan, 2007; Maharjan and Joshi, 2007; Maharjan, 2003; and SAAPE, 2003). They are also treated as untouchables even today. Such exclusion is mainly due to dominance of Hindu caste hierarchy in Nepalese society. There is an unequal caste system that divides people into four vertical hierarchies with *bahun* on the top, *chhetris* second, *baishyas* third and *dalits* at the bottom. Caste position attained by birth limits the possibility of upward mobility forcing them to involve in the hereditarily designated occupation like blacksmith, tailoring, laboring etc. Due to this, they continue to lag behind in their income and asset levels, educational achievement, and human development indicators, which restrict them to derive benefit from any new opportunities created by development activities. This is supposed to be the reason why the lowest consumption level exists among low-caste *dalits* with the highest poverty incidence of 46 percent followed by ethnic communities with the poverty incidence of 43 percent (UNDP, 2005).

Poverty also varies according to land ownership and major sources of livelihoods such as own-farm agriculture, agricultural labor, and non-farm activities (Joshi and Maharjan, 2008; Joshi and Maharjan, 2007; and Maharjan and Joshi, 2007). Households headed by agricultural wage laborers, and self-employed in agriculture make up the poorest, and second poorest groups, respectively (UNDP, 2005). Seasonality in agriculture leading to underemployment and absence of regulation regarding the working hours and wages of agricultural workers force them to work on low wages and unhealthy working conditions further intensifying poverty and hunger among these groups (Aryal & Awasthi, 2004).

Negligence of rural areas of Mid-Western and Far-Western Hills from historic time, being far from the center of power, relatively high population pressure on farm land as well as difficult terrain, adverse climatic conditions, and limited infrastructure development hinder development process; thereby impacting on poverty reduction adversely in these regions. It was only in 1972 when the state introduced the concept of regional development. In addition, pattern of growth in Nepal has not been pro-poor. Most of the growth took place outside agriculture (which is the main source of livelihood for 65.6 percent of country population) and outside the rural areas where 85 percent of the population and 95.3 percent of the poor resides (CBS, 2005a). There was 6 percent growth rate in non-agriculture sector since 1990, whereas, agriculture sector was growing at the annual growth rate of only 2.3 percent per annum, about the same rate as

population growth (MOAC, 2007; and NPC, 2003). Due to these reasons, there is no perceptible improvement in rural per capita income for a long period to make difference in reducing rural poverty.

All these poverty and disparities prevail in the country despite the fact that the country has been implementing poverty reduction policies right from the initiation of plan development since the year 1956 in the form of infrastructure development. Poverty reduction receives the top priorities and is absorbing the significant amounts of foreign aid as a percentage of GNP since Fifth Five-year Plan (1975-1980) to date. However, the achievements are far below the expected and the country's efforts towards poverty reduction are considered to have failed miserably with unchecked poverty growth till 1995/96, and then creating serious income gap afterwards (CBS, 2005a; and SAAPE, 2003).

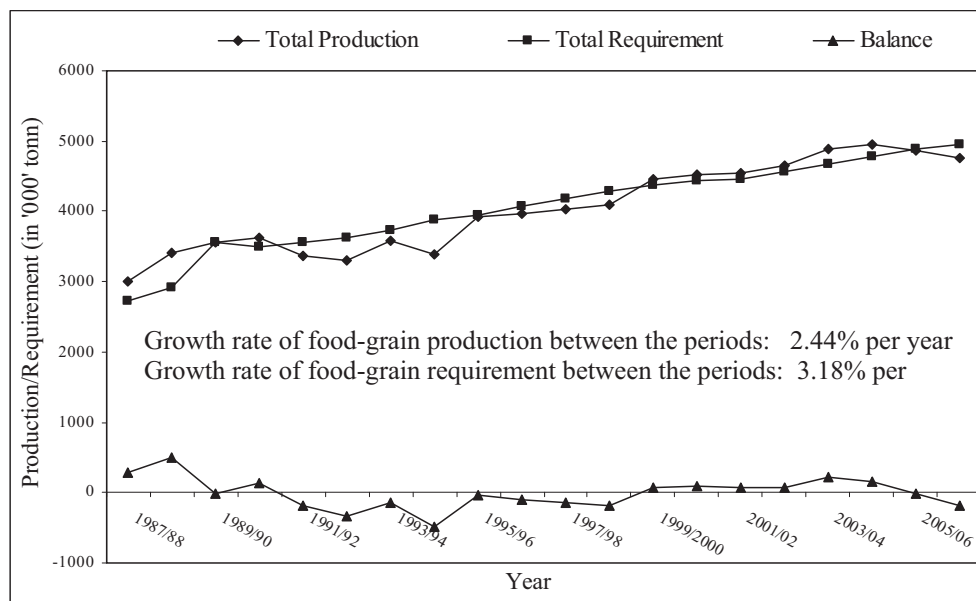
This suggest that poverty in Nepal is complex and of diverse nature, and is associated with location (with lack of physical and social infrastructure), gender, caste/ethnicity, land ownership, occupation, and low economic growth *inter alia*. Huge concentration of the poor in rural areas makes rural poverty the core issue in Nepal focusing on Far-Western and Mid-Western Hills. Therefore, several literatures made recommendation for the study of poverty focusing more on rural poverty in order to gain thorough understanding of poverty in the country, which helps in achieving the goal of poverty reduction through realistic planning. Also to cope with the possible consequences of increasing disparity, a better understanding of the root cause of income disparity within the rural areas became the most important issue (Adams and He, 1995; Bourguignon, 2004; Cornia, 2004; Kakwani, 1997; Litchfield, 1999; Nissanke and Thorbecke, 2005; Thorbecke, 2004; Wan, 2001; and Zhou & Wan, 2003). All these led to increasing interest in the sources of income inequality in developing world together with the absolute poverty analysis.

### 3.3. Food insecurity and its nature

It was only in the early 1980s that food security as such entered the formal development agenda of Nepal following the world's attention to the food problem during the late 1970s. Therefore, expansion of agriculture production to meet the domestic food demand remains the center point of the policy choice since then. Such policy was adopted also due to the agricultural production growth rate not being in pace with the population growth rate and exportable surplus of food-grain experienced proportionate dwindling. The sixth five-year plan (1980-85) sets an important objectives of fulfilling the minimum needs of the people together with increasing production at faster rate, and increasing productive employment opportunities (NPC, 1980). Later on, in 1985, following the directive of the King on the occasion of the Silver Jubilee Celebration of the Panchayat System, the program for the fulfillment of Basic Needs was prepared and made public. The document defined basic needs in terms of food (2250 kcal per capita per day), clothing, housing with kitchen and toilet, education (primary education for all children under the age of 10 years and higher education for as many adults as possible), health, and security. The document, however, lacked the quantitative target to be achieved within the given period i.e., from 1985 to 2000 (NPC, 1985). Furthermore, the program was discontinued due to political change in 1990, transformation from party-less Panchayat system to multiparty democracy.

Despite the target of high agricultural growth, the country, which previously was the net food-grain exporter, started to become a net importer since 1987/88 (Koirala & Thapa, 1997). Between the periods of 1974 to 1992, the country experienced the sharp decline in per capita gross food production from 376 Kilogram (Kg) to 277 Kg (APROSC & JMA, 1995). Throughout 1990s, the country was under food-grain deficit situation (Figure 1). The figure 1 depicts that the country started attaining food-grain self-sufficiency from the year 2000 and maintained it only till 2004/05. The annual growth rate of food-grain production for the period was 2.4 percent per year, which is below the growth rate of the food-grain requirement (3.2 percent) of the country for the given period (CBS, 1997b; FAO & WFP, 2007; and MOAC, 2005). Sole dependence of agriculture on weather, with only 15 percent of the cultivated land irrigated year round, is the major factor behind huge fluctuation in the production despite expansion of the area under

cultivation during the period (NPC, 2003). In addition, supply of essential production input such as improved seeds, fertilizer, and pesticides is not regulated in terms of quality, quantity, and timely availability. All these factors led to fall of the country at the bottom in whole South Asian region in terms of yield of major cereal crops, which otherwise used to be a leader in the region during 1960s (Table 6). This suggests that the effect of green revolution in meeting food demand as well as poverty reduction is not much significant in case of Nepal.



**Figure 1:** Food-grain production and requirement of Nepal (1987/88-2006/07\*)

Source: CBS, 1997b; FAO & WFP, 2007; and MOAC, 2005.

Note: \* Total production figure for 2006/07 is estimated amount.

The country predominantly being agriculture dependent, which is suffering the ever-rising huge trade deficit with quite higher import growth rate compared to the export growth rate, food-grain deficit simply suggests that the country is facing critical challenge of maintaining food security at the national level. Besides, 61 percent of the households, for whom agriculture is the dominant means of fulfilling household food demand, were not able to produce sufficient food in their farm even though the country was self-sufficient in food-grain (CBS, 2003).

Regional variation in production and requirement of the food-grain reflects the different scenario than the national one. Throughout the period, even when the country was achieving the food-grain self-sufficiency, Mountain and Hill regions of the country were under the food-grain deficit situation, where access was further hindered by the limited market. In the year 2001, 13 out of the 16 districts in the Mountain and 33 out of 39 districts in the Hills suffered the food deficit situation (Subedi, 2003). This led to per capita food-grain deficit of 47 Kg per capita per year in the Mountain and 32 Kg per capita per year in the Hills, in contrast to the food-grain surplus of 45 Kg per capita per year at the national level (Pyakurel, Thapa, & Roy, 2005). In the year 2006/07, number of food deficit districts came down to 44 districts but the total food-grain balance reached negative (FAO & WFP).

**Table 6:** Yield of major cereal crops in South Asian countries from 1961-2007 (ton/ha.).

Crop	Country	Yield					
		1961	1971	1981	1991	2001	2007
Rice	Bangladesh	1.70	1.60	1.95	2.66	3.40	4.01
	Bhutan	2.00	2.00	2.05	1.65	1.74	2.72
	India	1.54	1.71	1.96	2.63	3.12	3.30
	Nepal	1.94	1.95	1.97	2.28	2.75	2.56
	Pakistan	1.39	2.33	2.60	2.31	2.75	3.30
	Sri Lanka	1.86	2.01	2.64	3.02	3.49	3.93
Wheat	Bhutan	1.02	1.02	1.09	0.83	1.00	1.29
	India	0.85	1.31	1.63	2.28	2.71	2.70
	Nepal	1.22	0.85	1.22	1.41	1.80	2.16
	Pakistan	0.82	1.08	1.64	1.84	2.33	2.72
Maize	Bangladesh	0.80	0.71	0.73	0.98	3.22	5.98
	Bhutan	1.40	1.40	1.42	0.98	1.58	2.15
	India	0.96	0.90	1.16	1.38	1.20	2.44
	Maldives	1.00	1.00	1.00	1.00	0	4.40
	Nepal	1.95	1.73	1.58	1.60	1.80	2.09
	Pakistan	1.03	1.11	1.26	1.42	1.77	3.43
	Sri Lanka	0.73	0.71	0.92	1.19	1.12	1.65

Source: FAOSTAT, 2009

The food-grain deficit has been a long term problem in Far and Mid-Western Hills and Mountains. Sixteen out of 19 districts in Far and Mid-Western Hills of Nepal were suffering food deficit situation in the year 2001/02 (Pyakurel et al., 2005). The same situation still prevails in the regions. Food-grain deficit simply reflects the chronic food insecurity problem in the regions where production is grossly inadequate and economic access of food is limited due to low purchasing power as a result of almost non-existence of market in the wake of very limited or no road infrastructure in the region (FAO & WFP, 2007).

The declining productivity of the land in the Hills and Mountains were identified as the main cause of shortfall in domestic production. In addition, huge dependence on the weather due to lack of irrigation facilities, and lack of investment in infrastructures such as roads are contributing to stagnant, if not declining agricultural production in the region (APROSC & JMA, 1995; FAO & WFP, 2007; Koirala & Thapa, 1997; NPC, 2003; and Pyakurel et al., 2005).

Besides national production and requirement figure, proportion of under-nourished population can also serve as the indicator of food insecurity in the country. Under-nutrition refers to the condition of people whose dietary energy consumption is continuously below a minimum dietary energy required to maintain a healthy life and carrying out light physical activity (FAO & WFP, 2007). The proportion of the undernourished population in the country increased from 20 percent in the year 1990-1992 to 22.5 percent in the year 2004. This resulted into significant increase in the number of undernourished population in the country. It has increased from 3.9 millions to 4.1 millions within the decade. It

further reached 5.6 millions from the year 2001-2003 to 2004 (Table 7). Sheddon & Adhikari (2003) pointed out factors such as socio-political structures, which effectively prevent the rural poor from having equitable access to production resources and community assets, persistent degradation of natural resources and community assets, imperfect mechanisms for the distribution of goods and services, conflict, suspension of food aid programs in some districts, and etc as the major causes of undernourishment.

Similar to the balance of food-grain requirement, geographical variation prevails in terms of incidence of undernourishment as well. At the aggregate level of MRDEC, the proportion of undernourished population is the highest in Mid-Western region with the figure of 48.5 percent, which is followed by Far-Western region (47.5 percent). Similar trend is also followed in terms of ecological belt, the Mountains has the highest proportion (46.3 percent) of undernourishment, followed by the Hills (41.8 percent) and the Tarai with 38.4 percent of undernourishment (FAO & WFP, 2007).

**Table 7: Health indicator of food insecurity in Nepal.**

Indicator	Number (in millions)	Proportion
Undernourishment (Calculated based on Minimum Requirement of Dietary Energy Consumption - MRDEC of 1810 kcal/person/day)		
1990-1992 (average)	3.9	20 percent
2001-2003 (average)	4.1	17 percent
2004	5.6	22.5 percent
2004*	10.1	40.7 percent

Source: FAO & WFP, 2007 and MDG Info, 2007.

Note: \* MRDEC of 2124 kcal/person/day.

The per capita mean dietary energy consumption in Rural Far-Western region is reported to be 2250 kcal/person/day in contrast to the figure of 2534 kcal in Rural Western region, and 2405 kcal of the national average. In case of ecological belt division, the level is the lowest in the Mountains with the consumption level of 2297 kcal, compared to 2404 kcal in the Hills and 2426 kcal in the Tarai. It is also reported that Rural Mountains and Hills in the Mid and Far-Western regions host the very high proportion of population under severe deficit of food energy intake. The crisis situation prevails in the region with more than 30 percent and 20 percent of the rural population consuming less than 1600 kcal/day in Mid-Western Mountains and Far-Western Hills, respectively (FAO & WFP, 2007). Such consumption level is substantially lower than the nationally set minimum dietary energy consumption requirement of 2124 kcal/person/day (CBS, 2005a).

The WHO classified Nepal to be under the crisis level of malnutrition. Nepal ranked last among 177 countries in terms of the proportion of children classified as underweight with 48 percent incidence (UNDP, 2007). Other aggregated malnutrition indicators such as stunting and wasting is also higher in the country. Stunting is as high as 49 percent and wasting is 13 percent. Regional variation suggests the highest incidence of stunting, wasting, and underweight in the Mountains and Hills of the Far and Mid Western Development Regions. In the region, more than 60 percent of the children are stunted and around 50 percent are underweight (Ministry of Health and Population/Nepal, New Era, & Macro International Incorporated, 2007). This prevalence is mainly caused by the limited availability of food, and high poverty rates in the region.

#### 4. Program and policies to tackle poverty and food insecurity

Basic Needs Program, the efforts to increase aggregate agricultural production, the pursuance of poverty alleviation programs, training and income generating programs, subsidies, and food and feeding programs are some of the important initiatives taken by the government of Nepal in order to deal with the poverty and food insecurity problem of the country. Though the basic needs program contained the elements of successful poverty alleviation, focus on intensification of existing programs often without addressing the reasons of their past failure was considered as the main shortcoming of the program. Later on, especially after the reestablishment of democracy in 1990, the government realized the absence of employment and income generation issues as the important missing components in basic needs program. Therefore, the eighth plan (1990-1995) focused on the need for employment generation giving priority to the targeted groups. The important aspect hindering the achievement in reducing poverty and food insecurity in the country, population growth, however, was accorded less priority.

Agriculture being the main industry of the country, it can achieve the development goals such as reduction of poverty and food insecurity by itself with minimum external intrusions in the sector. The efforts put in using various technologies to make the farming more productive and more stable will stabilize the farm economy that lead to more stable rural economy vis-à-vis national economy as a whole (Maharjan, 1997). Fertilizer subsidies, credit subsidies, irrigation subsidies, and food subsidies were important programs targeted to promote improved agricultural technologies in order to achieve the goal of poverty and food insecurity alleviation through enhanced agricultural production in the country in the past. However, a study on the impact of fertilizer subsidy revealed that the subsidy has very little impact on the poor, mainly because they do not use fertilizer. This is because they practice rainfed agriculture with limited scope for fertilizer use, supplies through government body were unreliable and not available at the key times, and subsidized fertilizer was deflected to India, Kathmandu or went to the better-off class households. Credit subsidies were provided in terms of interest and capital subsidies in order to encourage productive investments in agriculture through the Agricultural Development Bank of Nepal (ADB/N). This program also has the little direct impact on the poor. Coupled with low level of education attainment and physical resources possession, the poor have neither the access nor the capacity to use institutional credit, thus less than 10 percent of such subsidized credits went to the small farmers (Prennushi, 199; and World Bank, 1991b). Subsidy in irrigation was indirect in nature. The government bears the operating costs of public irrigation scheme. In addition, grants were provided for capital costs of small irrigation schemes. These were also supposed to have very limited impact on the poor, as they do not tend to cultivate in irrigated land due to lack of access on irrigation.

The government gradually lifted these subsidies, and distribution was deregulated due to the adoption of Structural Adjustment Program (SAP) in 1985/86, and finally such subsidies were eliminated in 1998/99 and markets were deregulated. The consequences were increased cost of fertilizers leading to the drastic fall in chemical fertilizer use in 1990s compared to the level of 1970s (Subedi, 2006). Per hectare use of fertilizers also showed the declining trend. It came down to 21 Kg/ha in 2005/06 from 26 Kg/ha in 2003/04 (FAO & WFP, 2007). Removal of subsidies in shallow tube-well also has an adverse effect on expansion of irrigation. There has been even decrease in ground water irrigation facilities since 1997/1998, which is forcing small holders to rely on monsoon (FAO & WFP, 2007; and Subedi, 2006). There was also removal of preferential credit and withdrawal of bank branches from the rural areas due to the SAP. Together with the heavy reliance on weather, these factors could have affected the fluctuation in the production of food-grain in the country.

Food subsidies is mainly targeted at providing food below market price to civil servants and the population as a whole in remote areas where there is no connection with the land transportation and also no food is available for sale in large parts of the year. It was done by buying food from surplus areas by Nepal Food Corporation (NFC) and was

aimed at reducing inter regional food imbalance. However, guided by political interest, NFC distributed most of the procured foods in the Kathmandu Valley. It usually supplies only around 5-6 percent of the deficit in the rural areas, and beneficiaries most often are government officials and well-off households of the region (FAO & WFP, 2007; and World Bank, 1991b). Despite inefficiency in the functioning of the NFC, there is growing need for such strategy as the population growth rate continues to outstrip agricultural production and the region still being isolated. In order to improve efficiency in its functioning, the NFC developed the concept of local grain storage program. A local grain storage program aims to reduce seasonal price fluctuations by providing the opportunity for the poor farmers to hold grain after harvest until prices rise. Also organization of saving group for poor farmers with rotating loan funds is supposed to provide an escape for stress selling of their crops immediately after the harvest in order to pay debts. However, there lacks initiative in documenting impact of such programs.

Food-for-work or the rural community infrastructure works (RCIW) program, food-for-education program, mother and child health initiative program, and emergency assistance in natural disasters are other undergoing food and feeding programs with the support from various international donor agencies. Food-for-work program appears to be more successful in reaching the poor in terms of providing rural employment opportunities through rural infrastructure construction and income generation projects that make a payment in kinds - food items (FAO & WFP, 2007; RCIW, 2003; and World Bank, 1991b). Currently, the program covers 30 districts throughout the country. During the time between the year 1991 and 2007, the amount of food NFC is handling came down from 34,000 metric ton to 20,000 metric ton per year mainly due to the hindrance caused by the Maoist conflict (FAO & WFP, 2007; Sheddon & Adhikari, 2003; and World Bank, 1991b).

Similarly, a food-for-education program provides a mid-day meal and a take-home ration of oil for girl students in 18 districts. The program is directed at improving the nutritional status, school enrollment, and attendance of girl children. A Mother and Child Health initiative operating in 11 districts aims at improving the health and nutritional status of pregnant and nursing mothers and their young children by providing essential nutritional food support in the form of monthly take-home ration of fortified food (FAO & WFP, 2007). The combined impact of these food and feeding programs is relatively small compared to the magnitude of the food insecurity problem in the country. Programs of the NFC, and food and feeding program represents less than 10 percent of the national food deficit (FAO & WFP, 2007; and World Bank, 1991b). Also the coverage of food and feeding program is very much limited. Thus, most of the programs in the country so far are not able to improve food security at the household level in equitable way.

## 5. Conclusion

Nepal being the poorest country in the world poverty remains one of the crucial development agenda. Since its fifth development plan, poverty reduction is receiving top priority in the name of agriculture development as more than 90 percent of population then was dependent on agriculture. Therefore, targeting agriculture meant targeting 90 percent of the population, which also accounts more than 90 percent of the poor. From 1992 (Eighth development plan) poverty received the top priority. However, macro economic indicators of the country i.e., GDP growth rate and inflation rate shows that the country is historically a low growth country with inflation rate is always higher than the GDP growth rate. Therefore, macroeconomic indicators are not in favorable condition to tackle the overarching problem of poverty incidence in the country.

Since, 1976/77, poverty incidence is in increasing trend in the country. It was only in 2003/04, some progress in reducing the poverty was reported, which was mainly due to the significantly higher inflow of remittance compared to earlier years. Rapid urbanization and an increase in non-farm incomes also contributed in reduction of poverty. This resulted not only in the decline in proportion of population suffering from poverty but also decline in the absolute

number of population suffering from poverty. However, such decline in incidence of poverty was achieved at the cost of increased inequality. The gini coefficient increased from 0.24 in the year 1984/85 to 0.41 in 2003/04. The main reason behind this was imbalanced growth in rural and urban areas. Reduction of poverty in urban areas remains always high compared to that of rural areas. Therefore, poverty incidence remains always the highest in Mid-western and Far-western rural hills. In addition, poverty and food insecurity is highest among female headed household, *dalit* and ethnic communities, small landholding households, and households engaged in laboring and agriculture throughout the period. This is mainly due to unequal distribution of resources such as land, social discrepancy, and lack of access to basic social and economic structures.

There were several programs and policies adopted by the Nepalese government to tackle the problem of poverty and food insecurity ranging from basic needs programs, subsidies program, and food for work program. All these programs either lacked the proper accounting or failed to learn from the past experiences. In some cases, it also failed to focus on target population. For instances, subsidies program mostly benefited the well-offs who are able to apply the subsidized inputs, whereas poor household could not apply the subsidized input either due to very small landholding or due to dependency on rainfed agriculture which do not support use of fertilizer or seeds of high yielding varieties. In addition, food support represents only 10 percent of the national food deficits and beneficiaries were mostly government officials and well-off households of the targeted region. Therefore, there is need for expanding such programs in more efficient manner focusing on the target population. Besides, in-depth analysis of poverty in the poverty-ridden areas is also very crucial to deal with the problem more effectively.

## Endnote

<sup>(1)</sup> CDF describes the probability distribution of real valued random variables  $X$ . It reflects the probability that the random variable  $X$  takes on a value less than or equal to  $x$ .

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