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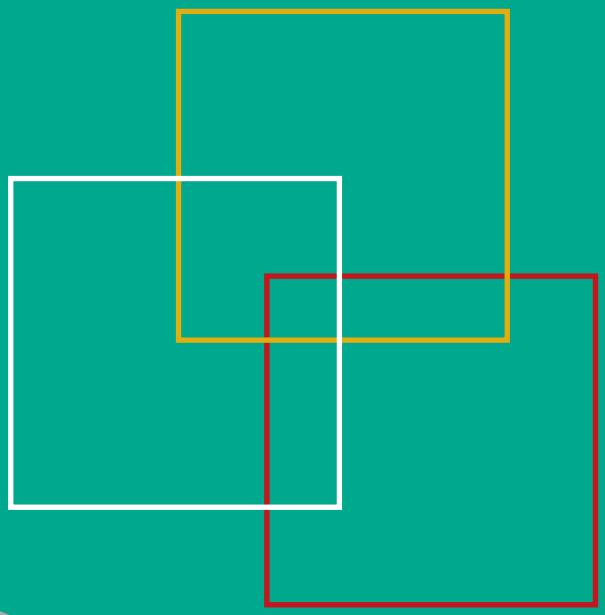
Nepal: Addressing the Employment Challenge

through the Sectoral Pattern of Growth



By
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Needless to mention, the author alone is responsible for the views expressed and any remaining inadequacy in the report.

Executive Summary

Economic growth and the macroeconomic situation

The economy of Nepal attained reasonable, though modest, growth during the period of mid-1980s to mid-1990s. The decline in growth started thereafter and continued during the 2000s. While the decline in growth was sharp for industries, agriculture and service sectors continued to attain moderate growth.

The macroeconomic situation of the economy has remained quite stable in terms of inflation rate and the budgetary situation. Inflation remained within tolerable levels till prices of food grains rose sharply in 2008. Budget deficit remained within five per cent of GDP throughout the period of 2000s. It thus seems that the economy would have the fiscal space needed for undertaking at least some of the necessary changes in polices (e.g. providing subsidy on fertilizers which has already been re-instituted).

The employment challenge and issues to be addressed

The employment challenge in a developing country like Nepal may manifest itself in several forms. First, there is a quantitative dimension in that employment growth may fall short of labour force growth - giving rise to open unemployment. But in a developing country like Nepal, this may not be a major issue because when poverty is acute and unemployment benefits are absent, very few can afford to remain without employment. Even in the absence of proper employment, one generally tries to find some work to eke out a living. Of course, an estimate of the quantitative dimension of the employment challenge should be the first step in an exercise on understanding the employment challenge.

Second, and perhaps more important, is low productivity and earnings associated with a sizeable segment of the employed population. An associated phenomenon is predominance of employment in the informal segments of the economy where productivity and earnings are low and conditions of work are poor. This, in turn, is manifested in large numbers being employed and yet poor - the so-called working poor. And an important part of the employment challenge is to raise the productivity and earnings of workers through a change in the structure of employment towards sectors with high productivity and raising productivity of workers in sectors characterized by low productivity.

The above brings one to the third dimension of the employment challenge, viz., attaining a shift in the sector composition of employment. The experience of the present day developed countries (e.g., U.K., USA, France, Germany, etc.) as well as that of some of the late developers who have been successful in their development effort (e.g., Republic of Korea, Malaysia, Taiwan, China) shows a common pattern of structural change in their economies - the share of agriculture in both GDP and total employment declining and that of non-agricultural sectors increasing. Within non-agriculture, the share of manufacturing increased first and then the share of service sector rose at a later stage of development. Such a pattern of structural change enabled the labour force to move from agriculture (where labour productivity is usually lower than in industry and services) to sectors with higher productivity. Alongside such moves, productivity in agriculture also increased, due both to decline in numbers remaining there and to the adoption of productivity enhancing technology and inputs. The challenge before Nepal (like other developing countries) is to engender such a process of economic growth where not only output in non-agricultural sectors but also productivity and employment would grow.

The point mentioned above about the need for a shift in the sector composition of output and employment should not be taken to imply that agriculture can be neglected in development efforts of a country. In fact, in low income countries (like Nepal) where poverty continues to remain a problem and large proportions of the poor are engaged in agriculture, high growth of that sector along with improvements in productivity and earnings (including real wage rates of workers) is a precondition for pro-poor and inclusive growth.

Raising the productivity of workers thus emerges as a major issue in addressing the challenge of employment. And that brings one to two major issues. First, if output growth is obtained only (or mostly) through productivity growth, employment growth would be low even when output grows at a high rate - a phenomenon dubbed as "jobless growth", which has been observed widely in the development experience of the 1990s and the 2000s. Second, and a point that is often made in development literature, is the possibility of a trade-off between growth of employment and labour productivity. These two points are inter-related and need to be addressed together. Although there is a theoretical possibility of a trade-off between employment and productivity growth, in reality the situation may vary, depending upon the kind of development strategy pursued and the pattern of growth. One way of avoiding the trade-off between employment and productivity growth is to pursue a sectoral pattern of growth where those sectors that are more employment-intensive in nature grow at faster rates. It is on the basis of this premise that the present exercise on employment promotion through a sectoral focus is being undertaken. The specific sectors that have been selected for analysis in the present report are agriculture, manufacturing (with attention to sub-sectors within manufacturing), infrastructure, and tourism.

The present study starts by recognizing that the relationship between employment and output is not invariant and that there can be different combinations of output and employment growth in an economy. From the point of view of boosting growth of *productive* employment, it would be important to attain growth of output and employment simultaneously rather than of employment alone ignoring the growth of output.

The employment situation and challenge in Nepal

During 1998/99-2008, the labour force has grown at an annual rate of 2.6 per cent while employment has grown at the rate of 2.22 per cent per annum. As a result, open unemployment has gone up from 1.8 per cent in 1998/99 to 2.1 per cent in 2008. While the overall unemployment rate is not high (as explained above), urban unemployment rate was 7.5 per cent in 2008, indicating that open unemployment is basically an urban phenomenon.

Given the growth of labour force mentioned above, over 300,000 (400,000 according to another estimate) people enter the labour force every year. This figure indicates the quantitative dimension of the employment challenge in Nepal and the additional need of creating jobs for those who are currently employed but may seek jobs with higher productivity and earnings. One ILO study puts the requirement as one of generating 500,000 "productive employment" per year during 2009-15.

The importance of the qualitative aspect of employment is also indicated by those engaged in what may be termed as "vulnerable employment" (defined as the total of own account workers and unpaid family workers). In 2008, over 80 per cent of those employed were in this category. A large proportion of them must be in low productivity jobs requiring better jobs with higher incomes.

As for the third dimension of the employment challenge, that of sector composition, there appears to have been shift in the structure of the economy in that the share of agriculture in GDP has declined substantially over time - from 47.08 per cent in 1985/86 to 36.7 per cent in 2008/09. However, this has not been associated with a commensurate increase in the share of manufacturing; it remained virtually unchanged (6.07 per cent in 1985/86 and 6.19 per cent in 2009/10). Thus, whatever structural transformation has taken place in the economy of Nepal, it has been from agriculture towards services - which is not the sequence expected in an economy like that of Nepal.

The magnitude of the change in the structure of employment has been even less. The share of agriculture (including forestry and fishery) in total employment declined from 78 per cent in 1998/99 to about 74 per cent in 2008. The share of manufacturing increased marginally from 5.84 per cent to 6.56 per cent during that period. The trend towards a service sector oriented change is thus noticeable from the employment figures also. Moreover, it is clear that productivity of employment in manufacturing has declined (even if slightly) because the share in employment increased (albeit slightly) without an increase in the share of output.

Another indicator of a lack of structural change towards better jobs is the decline in the share of paid employees and a rise in that of self-employed and unpaid family workers.

Growth and employment in agriculture

Agriculture sector in Nepal achieved impressive growth during a decade between 1995-96 and 2005-06. Although this sector cannot be expected to act as the driver of overall growth in a developing economy like that of Nepal, there has been a period when growth of agriculture exceeded that of overall GDP. However, growth declined to 2.2 per cent during 2005/06-2009/10.

Within agriculture, there have been some structural shifts with an increase in the share of cash crops like sugarcane and tobacco. The latter has attained higher rates of growth compared to food crops. Amongst food crops, there appears to have been some shift away from paddy towards potato, fruits and vegetables. In terms of yield also, cash crops have done better than food crops, and wheat has done better than paddy. On the whole, however, yield growth has been slow (and much slower than in other countries of South Asia like Bangladesh, India and Pakistan).

Profitability per hectare of cultivated land has increased at a much higher rate for cash crops compared to food crops. It is, therefore, not surprising that the growth of acreage has increased at a higher rate for cash crops. Within food crops, there has been a shift away from paddy towards wheat.

The incentive structure appears to have moved against food crop production as is indicated by the movement of relative prices of inputs like fertilizers and outputs like paddy and potato. There has been a decline in the use of fertilizers per hectare of cultivated land, and area under irrigation has grown very slowly. Thus it is not surprising to see crop yield increasing very slowly.

Growth of employment in both food crops and cash crops has been negative since 1995/96 and 2000/01 respectively. Elasticity of employment with respect to output growth has been negative for both food and cash crops. The positive aspect of the picture with respect to labour absorption is that crops with higher profitability, e.g., sugarcane, vegetables, and fruits are also highly labour intensive. However, among food crops, paddy is the most labour-intensive, and a shift away from that to other crops like wheat and maize is going to have adverse effect on labour absorption.

Growth and employment in manufacturing

Regarding growth of output in manufacturing, there seems to be a data issue. The national accounts data show that after a period of modest growth (of 5.81 per cent per annum) during 1991-95, growth has been declining over time and was negative during 2006-10. Growth of investment in manufacturing also declined and was negative during 2001-05. However, the trend got reversed (albeit with very low growth) during 2006-09. On the other hand, data from the census of manufacturing industries show growth of 0.46, 5.77, and 5.33 per cent per annum respectively during 1991-96, 1996-2001 and 2001-06 in the case of large-scale industries. For small-scale industries, the opposite trend emerges, with a growth of 7.19 per cent per annum during 1991-99 and 0.33 per cent per annum during 1999-2008.

Although accession to WTO and the termination of the MFA (and the quota system for garments) are widely considered to be the factors responsible for decline in Nepal's industries, the national accounts data show that the decline in industrial growth started already in the mid-1990s - well before the termination of MFA. Census data, on the other hand, show modest growth since the mid-1990s.

Employment intensity of growth of large-scale manufacturing is found to be negative - a very unusual phenomenon for a country at the stage of development where Nepal is. Quite clearly, there has been shedding of labour in sectors that had grown during the import substitution regime and faced a difficult situation after economic liberalization. However, for small-scale industries, employment intensity of growth has become positive during 1999-2008 (though rather low). This, coupled with relatively better performance of small-scale garment industries, indicates that there is potential for growth of industries along with employment expansion, especially in the small-scale segment.

As expected, within both the large and small-scale segments, employment intensity of growth varies considerably between sub-sectors. Within the large-scale segment, carpets, garments, dairy products, food products, wood products, etc. are more employment intensive in nature. In the small-scale segment, the corresponding industries are paper and paperboard, garments and textiles, ceramic products, glass products, and foot wear. Many of these industries enjoy comparative advantage in Nepal. So, with appropriate policy environment, there is no reason why such industries cannot grow.

Further insights into the performance of manufacturing industries can be obtained from data on specific industries. Four industries, viz., food processing, furniture, carpet, and garment, have been examined in the present study. In large-scale food processing, high growth in output has been achieved since 1996, but employment growth declined during the 2000s. As a result, employment elasticity declined. In the small-scale segment of the industry, after high growth of output during 1991-99, growth was negative during 1999-2008. A look at the growth data for specific industries within this sector shows that no particular industry except dairy products and food products like noodles has been able to achieve sustained growth.

The large-scale segment of the garment industry experienced negative output growth during 1991-96 and 2001-06. The small-scale segment attained very high rate of growth of both output and employment during 1999-2008. Thus, there seems to have been a structural change within the industry with the small-scale segment performing better.

Growth of both output and employment in the carpet industry declined in both large and small-scale segments. That was mainly because of the inability to sustain the market created with the help of some technical assistance projects and negative image created by perceptions about the use of child labour.

The furniture industry is basically oriented towards the domestic market and has attained modest growth in output in the large-scale segment and a high growth in the small-scale segment (the latter over 7 per cent per annum during 1999-2008). However, the elasticity of employment with respect to output is found to be rather low in the latter.

The variation in performance between industries and their large and small-scale segments indicate that in addition to general factors responsible for the decline in investment in industries, problems specific to various industries need to be addressed.

Growth and employment in infrastructure

Growth in the construction sector has always exceeded overall GDP growth in Nepal, thus indicating that this sector has been and could remain a major contributor to growth. During the 2000s, investment in the infrastructure sector has increased sharply, especially in the strategic roads and rural roads sub-sectors. However, the labour component has declined in all sub-sectors of infrastructure and rather sharply in the strategic roads sub-sector (from 60 per cent in 1990/91 to 19 per cent in 2008/09 in the latter). This has been due to the widespread use of heavy equipment in the construction of roads. As a result, the elasticity of employment with respect to output has declined from a high of 0.84 during 1991-95 to negative figures in the 2000s.

The distribution of capital investment has changed between various sub-sectors of infrastructure, with a substantial decline in strategic roads and substantial increase in rural roads. This has positive implications not only for rural connectivity but also for employment because the labour component of expenditure has not declined so sharply in the case of rural roads.

Three different scenarios of investment and employment in the infrastructure sector have been outlined in the present report: status quo, pessimistic and optimistic. The latter two are based respectively on the assumptions of higher and lower rates of mechanization. As expected, the employment outcome would be better in the case of the optimistic scenario. But that would require not only higher rate of investment in rural roads and irrigation but also a reversal of the current trend of mechanization.

The present report outlines three programmes of infrastructure, viz., rural roads, roadside plantation, and rehabilitation of heritage trails, which could contribute to improving rural connectivity, expansion of tourism, and development of social forestry. Such schemes could be used to implement the 100-day employment programme that is being formulated by the government.

Growth and employment in tourism

In terms of contribution to GDP and total employment, tourism is a relatively smaller sector than many other sectors of Nepal. Moreover, if the performance of the hotels and restaurant sector is any indicator, growth in the sector has not been smooth. But given the country's established niche in this field, the experience the country has acquired, and the labour intensive nature of the sector, the sector deserves attention in the context of a strategy for boosting growth and employment.

In 2009, tourism accounted for 2.4 per cent of GDP and nearly 2 per cent of total employment. The sector contributed 7.5 per cent of the total foreign exchange earnings of the country (compared to 8.88 per cent in 1999/2000). The number of tourist arrivals has increased considerably in recent years - from 463,646 in 2000 to 509,956 in January 2010 and to 602,867 in 2011. But spending per person per day by tourists has declined from US$63 in January 2010 to US$47 in January 2011.

Forecasts made by WTTC (2011) using satellite account data show that between 2011 and 2021, the direct contribution of tourism to GDP is likely to grow at an annual rate of 4.8 per cent. Direct employment in the sector is likely to grow at an annual rate of 3.9 per cent. Taking into account the indirect effects, these figures are 5 and 4.1 per cent, respectively.

Econometric analysis shows that the average length of stay by tourists has a stronger impact on employment generated by the sector than the number of tourist arrivals. Hence, from a policy perspective, it would be important to adopt measures for encouraging tourists to stay longer.

There is potential for strengthening the linkages between travel and tourism and other sectors of the economy. Currently, there is some linkage of the sector with sectors like wearing apparel, craft products, etc. But the linkage is rather low with agriculture, although one would expect some linkage between hotel and restaurants sector and agricultural products like fruits, vegetables, dairy products and bakery products.

Policies for growth and employment

In formulating policies for boosting economic growth and productive employment in Nepal, it is essential to keep in view the specific context in which policies are to be formulated and implemented. Some of the major considerations in this regard include (i) the high incidence of poverty and the challenge of ensuring food security for the poor, (ii) landlocked nature of the country and the predicaments that arise as a result (e.g., added costs of trade), (iii) long and open border with India which makes it difficult to pursue an independent policy regime, and (iv) the difficult terrain that makes it difficult to develop infrastructure and improve connectivity.

Agriculture

Policies for this sector have to aim at raising productivity and incomes of those engaged there. That, in turn, requires yields of crops to increase at faster rates and the terms of trade to move in favour of agriculture. In order to attain these goals, policies are needed both in the area of prices of inputs and outputs and in other areas like research and development, credit, and extension services. Given the importance of incentives, attention has to shift back to the relative prices of inputs and outputs of agriculture and the profitability of crop cultivation. If the earlier policy of providing minimum support price (MSP) has not been effective, attempt should be made to understand the reasons for that and to adopt corrective measures for providing price support to farmers rather than terminating the policy completely.

The Government of Nepal has already re-introduced subsidy on fertilizers from 2011-12, and is offering subsidy on urea and Di-ammonium Phosphate (DAP) at the rate of 65 per cent and 55 per cent respectively. This has already led to the desired goal of increasing the demand for fertilizers. However, whether the increase in sales reflects an increased application of fertilizers or cross-border smuggling is a question. A second question relating to subsidy is whether the rate is appropriate and the amount of expenditure is sustainable from the point of view of the government's budget. A third question is whether all farmers need to be provided with subsidies or it is only the small and marginal ones who need it. From the point of view of achieving the goal of application of fertilizers at the required rates, especially by small and marginal farmers, a more effective means could be to offer them with cash on targeted basis and continue the practice of open market sales of fertilizers at market prices. This, of course, would require an administrative mechanism at the local level that will be capable of administering the cash subsidy with a reasonable degree of efficiency.

The budgetary allocation for subsidy on fertilizers for the fiscal year is Rs. 2.83 billion. The Agricultural Inputs Company already estimates an additional requirement of Rs.0.38 billion. On the other hand, if the rate of subsidy is lowered to 25 per cent and it is offered only to small and marginal farmers through cash transfer, the total amount involved will be much lower.

As for the policy of MSP, it would be desirable to announce the price at the time of planting of crops, so that farmers are able to base their decision on relative prices of various crops. In addition, the government will need to have an adequate administrative and logistic capacity (the latter including the tasks relating to the actual procurement and storage) to implement the support price.

Apart from prices, availability of credit is also important from the point of view of enabling the farmers to adopt high yielding varieties of crops. Hence, it is critical to reverse the trend of decline in the growth of agricultural credit. In addition, it is important for small and marginal farmers to have access to credit.

Research on agriculture, especially on crops of high yielding variety and are resistant to natural calamities is important. Agricultural research in Nepal is found to be seriously under-funded. Moreover, the national context and agenda do not appear to feature very prominently in agricultural research. Thus, it is not surprising that there has not been much success in developing technologies appropriate for the Nepalese context. Although there have been some growth in yield, total production growth is still more due to area expansion rather than yield increase. Since there is a limit to area expansion, future production growth does not have a bright prospect unless yield-augmenting technologies are developed with more indigenous research.

Agricultural extension service is important for transferring the results of research to the field for application by farmers. In a low-income country like Nepal where most farmers are unlikely to have the ability to pay for extension service, the government would have to play an important role in enabling them to adopt new technologies and practices.

Manufacturing

Policies that are important for growth of output and employment in manufacturing industries include policies relating to trade (both import and export), financial sector, infrastructure, administration, and labour market. In the area of trade policy, reforms were initiated in Nepal during the 1980s, which were intensified in the subsequent decades, especially through Trade Policy 1992 and Trade Policy 2008. Key features of the trade policy include flexible exchange rate, elimination of import licensing and quota system, and rationalization of tariff structure and reduction of average tariff rate. These came alongside the policy of economic liberalization and privatization that included market based pricing of agricultural commodities and inputs and reduction of subsidies. As a result of the reduction of tariff rates, the average rate of import duty came down to 8 per cent, and the effective rate of protection declined from 97 per cent during the late 1980s to 8 per cent in 1996.

Measures of policy support for industries include the introduction of bonded warehouse system, duty drawback facilities and deductions on imports of industrial machinery. Despite the above measures aimed at making the policy environment conducive for growth of industries, the ground reality is different. First, the sharp decline in the effective rate of protection implies an extremely competitive environment for industries. Second, with a long and open border with India, it is not easy for a land-locked country like Nepal to pursue a policy of industrialization that would fully reflect the country's comparative advantage. Third, the complexity in rules and procedures that remains even after deregulation does not

make it any easier to start and do business in the country. Procedural delays, complicated documentation system and inefficiencies in the implementation of the trade regime add to the cost of doing business. This is particularly the case for receiving the duty drawback and VAT refund. In addition, lack of trade credit, need for personal guarantees and high level of collateral limit the availability of finance.

Labour market regulations are often mentioned as a factor adversely affecting investment in and growth of industries in Nepal. This issue needs a careful and objective analysis. It is true that with the introduction of multi-party democracy, legislation has been adopted granting basic rights to workers. Since Nepal's experience with democracy in general is rather recent and the issue of workers' rights is a relatively new concept, these developments are perceived as adding to the cost of doing business. And enterprises try to find ways of getting around such labour laws in various ways, for example, by keeping size of enterprises small. On the side of workers and trade unions, lack of experience with respect to their rights and the role of trade unions may also have caused some initial misunderstandings and adverse effects on the industrial relations environment. That recognition of workers' rights need not necessarily affect the environment for doing business is indicated by the improvement in industrial relations environment that is already being noticed. For example, there has been a decline in the number of complaints lodged and the number of man-days lost due to strikes and lockouts. It would thus appear that citing of stringent labour laws as a constraint on the growth of industries is based on lack of experience with regard to the practice of workers' rights, the confrontational attitude adopted during the initial period of such practice, and a general misperception about the industrial relations environment.

Apart from the general policy issues mentioned above, the present report analyzes policy issues faced by specific industries. In the case of carpets, for example, attention to quality, improved access to finance for exports, strengthening of institutions to diversify the market, serious efforts to improve compliance to human rights including elimination of child labour and tackling the image problem in the export markets are needed to reverse the declining trend in exports.

In the case of garments, needed measures include introduction of an export credit guarantee scheme, improving the implementation of the duty drawback system, compensating enterprises for costs incurred to generate their own power, efforts to develop a regular and skilled workforce, and ways to reduce the transport cost.

For food processing, withdrawal of arbitrary price interventions, measures to improve the efficiency of the domestic sugar industry, and to improve the availability of agricultural raw materials are measures that would help.

Infrastructure

This sector has witnessed a sharp rise in investments, especially in the rural roads component. However, a sharp decline in the labour component (especially in the strategic road sector) has impeded the realization of the full employment potential from the investment. That, in turn, has been facilitated by government's own measures and policies to artificially lower the price of imported heavy equipment. This needs to be seriously reconsidered. As a minimum, the policy of artificially lowering the price of equipment could be stopped and market prices be allowed to determine the choice of technique. In addition, for rural roads and irrigation, the use of labour-based approach could be encouraged.

Infrastructure would be the major source of jobs in the proposed employment guarantee scheme that is going to be introduced in the country. Hence, measures would be needed to realize the full employment

potential of the country, to identify appropriate schemes that could not only generate employment but also help induce economic activities, and to strengthen institutions (especially at the local level) for implementing the programme.

Tourism

To boost productive employment through promotion of tourism, in addition to the number of tourists, it is important to undertake measures for increasing their length of stay. Measures are needed to strengthen the linkages of the sector with other sectors like agriculture (viz., dairy products, food crops, fruits, vegetables) and manufacturing (e.g., wearing apparel, craft products, etc.). Measures are needed to promote domestic tourism that could benefit rural areas and heritage sites. On the supply side, in addition to physical facilities, supply of skilled manpower is an important prerequisite for an uninterrupted growth of the sector.

Addressing the employment challenge: an overview

If one adopts a broad view of the employment challenge in Nepal, following elements appear to emerge clearly. First, it would not be realistic to expect agriculture sector to be able to employ more people although there are crops that are more labour intensive than others and growing such crops could increase output and employment simultaneously. Second, manufacturing employs a small proportion of the labour force, and given its performance during the past ten years or so, it may not seem practical to pin much hope on it. Third, although construction is labour intensive and should have the potential to absorb a significant part of the additional labour force, that has not been the case in Nepal. As a result of the above, service sector appears to be the major employment-generating sector in the country. However, a few remarks may be made by way of forward-looking policies for growth and employment.

First, although it may not be realistic to expect labour intensive industrialization to play a major role in productive absorption of labour (as is usual in labour surplus countries) in Nepal, efforts should be made to reverse the trend of de-industrialization. Analysis of the present report shows that there are elements in the policy framework that can help in achieving this. Second, there are policies that could help realize the real potential of employment in the construction of infrastructure. Third, within the service sector, distinction must be made between those activities, which have potential for dynamic growth and those, which act as sponge for surplus labour when there is very little alternative. Policies need to be geared towards promoting the former type of service sector activities. Fourth, as the normal process of economic growth and employment seems to be inadequate to meet the employment challenge (at least in the short and medium term future), serious thoughts may be given to the adoption of an employment guarantee programme which would act as a source of employment and simultaneously contribute to the growth of the economy by creating much needed infrastructure. Finally, policies need to be geared towards moving the economy to a higher growth path - where GDP growth will be at least six per cent per annum. With economic growth reaching such a level and with the sectoral pattern of growth discussed in the present report, it will be much easier to meet the employment challenge that Nepal's economy faces.

Section 1

Introduction

The employment challenge in a developing country like Nepal may manifest itself in several forms. First, there is a quantitative dimension in that employment growth may fall short of labour force growth - giving rise to open unemployment. But in a developing country like Nepal, this may not be a major issue because in the absence of unemployment benefits and acute poverty, very few can afford to remain without employment; and even in the absence of proper employment, one generally tries to find some work to eke out a living. Of course, an estimate of the quantitative dimension of the employment challenge should be the first step in an exercise on understanding the employment challenge.

Second, and perhaps more important is low productivity and earnings associated with a sizeable segment of the employed population. An associated phenomenon is predominance of employment in the informal segments of the economy where productivity and earnings are low and conditions of work are poor. This, in turn, is manifested in large numbers being employed and yet poor - the so-called working poor. And an important part of the employment challenge is to raise the productivity and earnings of workers through a change in the structure of employment towards sectors with higher productivity and raising productivity of workers in sectors characterized by low productivity.

The above brings one to the third dimension of the employment challenge, viz., attaining a shift in the sector composition of employment. The experience of the present day developed countries (e.g., U.K., USA, France, Germany, etc.) as well as that of some of the late developers who have been successful in their development effort (e.g., Republic of Korea, Malaysia, Taiwan, China) shows a common pattern of structural change in their economies - the share of agriculture in both GDP and total employment declining and that of non-agricultural sectors increasing. Within non-agriculture, the share of manufacturing increased first and then the share of service sector rose at a later stage of development. Such a pattern of structural change enabled the labour force to move from agriculture (where labour productivity is usually lower than in industry and services) to sectors with higher productivity. Alongside such moves, productivity in agriculture also increased, due both to decline in numbers remaining there and to the adoption of productivity enhancing technology and inputs. The challenge before Nepal (like other developing countries) is to engender such a process of economic growth where not only output in non-agricultural sectors but also productivity and employment would grow.

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Raising the productivity of workers thus emerges as a major issue in addressing the challenge of employment. And that brings one to two major issues. First, if output growth is obtained only (or

mostly) through productivity growth, employment growth would be low even when output grows at a high rate - a phenomenon dubbed as "jobless growth" and has been observed widely in the development experience of the 1990s and the 2000s. Second, and a point that is often made in development literature, is the possibility of a trade-off between growth of employment and labour productivity. These two points are inter-related and need to be addressed together. It has been demonstrated (Islam, 2011) that although there is a theoretical possibility of a trade-off between employment and productivity growth, in reality the situation may vary, depending upon the kind of development strategy pursued and the pattern of growth that results. One way of avoiding the trade-off between employment and productivity growth is to pursue a sectoral pattern of growth where those sectors that are more employment-intensive in nature grow at faster rates. It is based on this premise that the present exercise on employment promotion through a sectoral focus is being undertaken. The specific sectors that have been selected for analysis in the present report are agriculture, manufacturing (with attention to sub-sectors within manufacturing), infrastructure, and tourism.

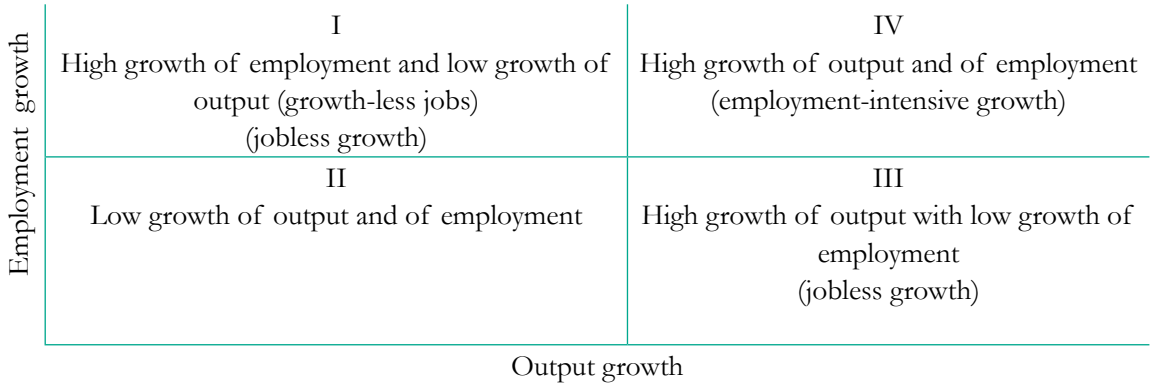
The present report has been organized in the following manner. Section 2 presents the basic conceptual framework in terms of the relationship between growth of output and employment. Section 3 provides a brief account of the experience regarding economic growth and macroeconomic performance of the economy of Nepal. The nature and magnitude of the employment challenge in Nepal is described in empirical terms in Section 4. Section 5 provides an analysis of the justification for a sector-focused approach to growth and employment. The four subsequent sections (6 through 9) deal with the four selected sectors, viz., agriculture, manufacturing, infrastructure, and tourism. Section 10 presents an analysis of policies pursued by the government as well as reforms needed in policies.

Section 2

The Conceptual Framework

One major element in the conceptual framework that underpins analysis of the present report is employment-intensive (or job-rich) growth as opposed to jobless growth. The basic idea behind employment-intensive growth is not to have employment growth at any cost or to generate any kind of employment without regard to quality. It is productive employment, which is the goal; and in order to achieve that goal, it would be important to simultaneously achieve high rates of output growth as well as employment growth. The point may be clarified by using a simple diagram as in Figure 1 where a stylized picture of various possible combinations of output and employment growth is presented.

Figure 1: Combination of Output and Employment Growth



The four quadrants of Figure 1 show different combinations of output and employment growth in a typical developing economy. While quadrants III and IV represent high rates of output growth, I and II represent low levels of output growth. The growth experience that has been referred to above, viz., one of high output growth accompanied by low growth of employment growth, is represented by quadrant III. It may be noted that observations in this quadrant need not be literally on the horizontal axis denoting zero employment growth with positive and high output growth. Observations inside the quadrant also represent situations that are not helpful from the point of view of achieving full employment, and are perhaps being referred to as indicating "jobless growth".

On the other hand, it is conceivable to find countries where despite low output growth, employment growth may be high if employment is driven by a supply push and people find jobs in low productivity activities of a residual nature. Such a situation would reflect distress and employment of last resort where the alternative is unemployment and starvation (in the absence of any social protection measures). Quadrant I of Fig. 1 could depict other types of situations, e.g., public sector enterprises creating jobs without regard to output growth or even private enterprises "hoarding labour" during a period of economic downturn in the hope of a quick recovery. In an empirical exercise involving estimation of the elasticity of employment growth with respect to output growth, observations in quadrant I will

demonstrate high values. In such a situation, if employment elasticity alone is used as an indicator of whether growth in an economy has been employment-intensive and hence good from the point of view of achieving full employment and accelerating poverty reduction, it will provide misleading signals.

Quadrant IV represents situations where high growth of employment goes together with high growth of output. This naturally would be the desirable outcome of economic growth in situations where growth is expected to be the means for achieving the goals of full employment and rapid rate of poverty reduction using the employment route. Hence, from a policy point of view, the goal would have to be to move a country towards quadrant IV, wherever it is currently placed. And when one talks about employment-intensive (or job-rich) growth, it should be interpreted as referring to a growth scenario depicted in quadrant IV (*not* in quadrant I).

The above framework may be applicable to various sectors and sub-sectors within a country. In the case of Nepal, for example, one study (ILO, 2011, Table 5) divides various sectors into four different categories based on the combination of output and employment growth that characterizes the sectors. From such categorization, it is possible to identify sectors that can be identified as having potential in a strategy for employment intensive growth.

Section 3

Economic Growth and the Macroeconomic Situation

During the first decade of the twenty-first century, Nepal's performance in economic growth has been disappointing. GDP growth exceeded five per cent only in 2007/08. Particularly disappointing has been the growth performance of the manufacturing sector; and GDP growth has by and large followed the growth of agriculture (Figure 2).

Figure 2: Growth of GDP and Major Sectors

Disappointing growth performance cannot be ascribed to low investment rate (Table 2) because gross investment as percentage of GDP rose during the decade and exceeded 30 per cent in 2007/08. This figure reached 35 per cent in 2009/10 (Figure 3). GDP growth during that year was a mere 4 per cent. This raises a question regarding the relationship between investment and output and the efficiency of investment in Nepal's economy.

Data in Table 1 provides a picture about the growth performance of Nepal's economy over a longer-term period in the past. The contrast between the performance during the 2000s and the earlier years, especially during the eighties and the early 1990s becomes clear from data presented in this table. First, the economy attained reasonable (though modest) growth between 1986 and 1995. It is after that year that the downslide started, especially in terms of GDP and manufacturing growth. Second, the manufacturing sector also recorded modest growth during the above-mentioned period. Like GDP growth, manufacturing growth also plummeted since the beginning of 2000s. Third, agriculture and services have recorded steady growth since the mid-1980s and continued to perform well during the 2000s.

Table 1: Growth of GDP and Major Sectors during Different Sub-Periods

Periods	Manufacturing	Agriculture	Service	Total GDP	Elasticity of manufacturing growth with respect to GDP growth	Elasticity of agriculture growth with respect to GDP growth	Elasticity of service growth with respect to GDP growth
1986-90	6.14	5.06	7.61	5.71	1.08	0.89	1.33
1991-95	7.32	2.23	8.27	5.18	1.41	0.43	1.60
1996-00	4.91	4.61	6.69	4.74	1.04	0.97	1.41
2001-05	1.70	4.14	4.39	3.87	0.44	1.07	1.13
2006-10	-0.26	3.79	6.91	4.63	-0.06	0.82	1.49

Source: *Calculated from data available in Ministry of Finance: Economic Survey, different years.*

Comparison between GDP growth and the growth of various sectors (last three columns of Table 1) shows interesting pattern. Service is the only sector, which has recorded growth in excess of GDP growth in all the sub-periods. Growth of manufacturing also exceeded GDP growth till 2000, but after that, fell far short. It is thus clear that manufacturing has not been able to play the leading role as would be expected in a developing economy. Instead, the service sector appears to have been the leading sector in the economy.

Nepal's performance with regard to maintaining macroeconomic stability has been satisfactory, especially if stability is defined narrowly in terms of low inflation and low budget deficit. Inflation measured by changes in the consumer price index (CPI) remained within single digit till 2007/08 and exceeded that mark since 2008/09. It is quite well known that prices of food grains increased sharply in the global market in 2008, and Nepal did not remain immune to that price increase. Since that year, food price inflation has been a major source of inflation in many developing countries.

Another important achievement in the area of macroeconomic management is the low budget deficit during the 2000s. Budget deficit as percentage of GDP never exceeded 5 per cent during that decade (Figure 4). That indicates the availability of fiscal space if the government intends to allocate resources in productive areas like infrastructure.

Figure 3: Savings and Investments as Percentage of GDP

Figure 4: Budget Deficit as % of GDP

Table 2: Data on Selected Macroeconomic Variables. 2002/03 to 2010/11

	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
GDP growth (% change)	3.8	4.4	3.2	3.7	2.8	5.8	3.8	4	3.5
Agriculture (% change)	3.3	4.7	3.5	1.9	1	5.8	3	1.3	4.1
Industry (% change)	3.1	1.5	2.9	4.4	4	1.6	-1.4	3.3	1.4
Gross domestic savings as % of GDP	8.6	11.7	11.6	9	9.8	9.8	9.4	7.4	6.7
Gross national savings as % of GDP	23.8	27.3	28.4	29	28.6	33.2	35.9	32.3	30.9
Gross investment as % of GDP	21.4	24.5	26.5	26.9	28.7	30.3	31.7	35	30.2
Consumer Price Index (% change)	4.8	4	4.5	8	6.4	7.7	13.2	10.5	9.6
Budget deficit as % of GDP	3.3	2.9	3.1	3.8	4.1	4.1	5	3.5	3.8

Source: *Ministry of Finance, Government of Nepal : Economic Survey 2011.*

The Employment Situation and Challenge in Nepal

As highlighted above, one way of looking at the employment challenge faced by a country is to adopt a quantitative approach of looking at the growth of the labour force and the number of new entrants into the labour force every year and examining whether the economy is capable of generating the number of jobs needed to absorb the new addition to the labour force. If one takes this approach, the starting point would be the rate of growth of labour force in the country. In Nepal, labour force has been growing at the rate of 2.6 per cent per annum during 1998/99 to 2008[1]. Given the total labour force of 12.03 million in 2008, the annual addition to the labour force works out to be 312,832. It may be noted here that an ILO study, quoting a national daily newspaper, mentions the annual addition to the labour force to be 400,000 (ILO, 2011).

During 1998/99-2008, the rate of growth of employment has been 2.22 per cent per annum. Thus, employment growth has fallen short of the growth of labour force - and much short of what is needed to absorb part of the underemployed. It is, however, important to note another source of employment that has absorbed a substantial part of Nepal's labour force - viz., international migration of workers. Indeed, employment of Nepal's workers abroad has grown at very high rates in recent years - increased from 217,165 workers in 2008-09 to 294,094 workers in 2009-10. If one considers the numbers going abroad for employment, it would appear that the challenge of employment is being made much lighter than it would have been otherwise.

Despite large number of works finding employment abroad, open unemployment has continued to increase in Nepal - rising from 1.8 per cent in 1998/99 to 2.1 per cent in 2008. The rate of unemployment is much higher in urban areas - 7.5 per cent in 2008. It thus seems that in Nepal, open unemployment is basically an urban phenomenon.

Another indicator of the quantitative dimension of the employment challenge is time-related underemployment -measured as those who worked less than 40 hours during the reference week and would like to work for more hours but are not able to do so due to "economic reasons" (e.g., non-availability of work - in the case of wage employment, lack of demand or other bottlenecks in business in the case of self-employment). Underemployment defined in this way, as proportion of labour force, for population of 15 years and over, increased from 4.1 per cent in 1998/99 to 6.7 per cent in 2008. This percentage was higher for women. And not surprisingly, this was a more common characteristic of the self-employed rather than for employees (CBS, 2009).

It is clear from an increase in open unemployment and time related underemployment that the employment challenge in Nepal has remained serious despite large numbers finding jobs abroad. Hence, the opportunity of employment through international migration of workers should not give rise to complacency about the employment challenge. Apart from this being an unstable and unpredictable

[1] The Labour Force Survey Report of 2008 does not provide any estimate of the growth of labour force in the country. The figure presented here has been estimated by using the labour force figures for 1998/99 and 2008.

source of employment, the true magnitude of the employment challenge cannot be gauged from the simple figure of annual addition to the labour force. As in other developing countries at a similar stage of development, in Nepal, there is a large segment of the labour force that are underemployed in low productivity activities, and an important goal of an employment strategy would be to create productive employment to gradually transfer the underemployed labour force to employment with higher levels of productivity. According to one ILO estimate, in order to fully absorb the new entrants into the labour force and reduce working poverty by half by 2015, the country will need to create around 500,000 "productive employment" per year during 2009-15.

Another aspect of the employment challenge is to attain a structural transformation of the employed people from low productivity sectors to higher productivity ones. Since agriculture in developing countries is characterized by lower productivity compared to sectors like manufacturing, trade, and modern services, a change in the sectoral composition of employment away from agriculture would be desirable from the point of view of addressing the employment challenge. The performance of Nepal's economy in that respect can be judged from figures presented in Table 3. A few points emerge clearly from this data. First, the pace of transformation of the structure of employment appears to have been rather slow in Nepal. Secondly, the small decline in the share of employment of agriculture has been accompanied by an increase in the share of the service sector, not of manufacturing. On the other hand, the historical experience of current day developed countries and those developing countries that have achieved greater success in growth and poverty reduction clearly shows that the pattern of structural transformation of both output and employment has a tendency to follow a pattern that is characterized by the increase in the share of industry in the first phase of development and of services as an economy reaches a mature stage of development. This does not seem to be taking place in Nepal. Third, within the non-agricultural sector, it would be natural to see the share of construction sector to increase. But that does not seem to have taken place in Nepal (Table 3). In fact, the share of construction has declined somewhat over the decade ending in 2008. Thus, whatever little structural change has taken place in the sector composition of employment in Nepal, it seems to have taken a service sector orientation.

Table 3: Sector Composition of Employment, 1998-99 and 2008

Sector	Percentage of total employment	
	1998-99	2008
Agriculture, forestry and fishing	78.00	73.87
Manufacturing	5.85	6.56
Construction	3.64	3.19
Wholesale and retail trade	4.31	5.87
Hotels and restaurants	1.21	1.68
Transport and storage	1.43	1.68
Other services	4.59	5.99
Others	0.97	1.15

Notes: *(i) "Other services" include financial intermediation, real estate and renting, public administration, education, health care and social work, other communication, and private household. (ii) "Others" include mining and quarrying, and electricity, gas and water.*

Source: *Calculated from Nepal Labour Force Survey data available in ILO (2011) Table 8.*

The employment challenge faced by a country may also be captured by two indicators that form part of the employment related targets (target 1B) of the Millennium Development Goals. One of these is what is termed as "vulnerable employment", measured as the share of own-account workers and unpaid family workers in total employment. In Nepal, nearly 72 per cent of the workers in 2008 were in this

category. Since comparable data for earlier years (e.g. from the Labour Force Survey of 1998/99) is not available, it is difficult to say whether the degree of vulnerable employment increased or decreased. But figures on self-employment and family workers (presented in Table 3) indicate that over 80 per cent of total employment was in vulnerable employment in 2008.

An important development is the decline in the share of "paid employment". Although the terminology used in the ILO classification (Table 4) is "wages and salaried employment", comparison of data presented in Tables 4 and 5 seems to indicate a sharp decline in the share of paid employment. While an analysis of this decline is not available, one can surmise that major reasons would include the decline in the manufacturing sector, and decline in public sector employment following economic reforms.

Table 4: Status in Employment and Vulnerable Employment, 2001

Status	Share in total employment
Wages and salaried workers	24.6
Self-employed	66.5
(Employers)	(3.8)
(Own-account workers)	(62.7)
Contributing family members	8.8
Vulnerable employment	71.6

Source: *International Labour Office: Key Indicators of Labour Market, Sixth Edition. ILO, Geneva.*

Table 5: Status in Employment, 2008

Status	Share in total employment
Paid employee	16.9
Self-employed with regular employees	0.98
Self-employed without regular employees	37.35
Family members without pay	45.73

Source*: Calculated from Central Bureau of Statistics, Government of Nepal: Report on the Nepal Labour Force Survey 2008. Kathmandu, July 2009 (Table 7.8).*

Data on sector distribution of the employment and of employment by status provides some further indication of the employment challenge faced by Nepal. What is important to note is the importance of productive employment. Given the low level of productivity that characterizes employment in agriculture and the very high proportions of the work force that are still in that sector, the magnitude of the challenge involved in transferring workers to activities with higher level productivity is obvious. This is also confirmed by the high proportion engaged in so-called "vulnerable employment".

Section 5

The Pattern of Growth and Employment: Analysis Focused on Selected Sectors

Various studies indicate that similar output growth can be obtained through different combinations of employment and labour productivity growth[2]. The particular combination that would prevail in a particular country would depend on a variety of factors, which in turn are influenced by the overall development strategy pursued by the country. If a country with surplus labour consciously pursues a development strategy that focuses on optimal utilization of its abundant factor (viz., labour), that may be reflected in the relative contribution of employment and labour productivity growth to overall growth of output. This has been examined in Islam (2010a) and it was found that the pattern of growth is indeed important from the point of view of the employment outcome of growth. One particular element in the pattern of growth is the sector and sub-sector composition of output.

5.1. Sector and sub-sector composition of output

Studies that have attempted to identify the binding constraints on employment growth (e.g., Heintz, 2006) remain limited to linking aggregate employment to total output, and does not take into account the possibility of a variation in the employment outcome that may result from a variation in product-mix. Total demand may be an important constraint on the growth of output. But the *pattern* of demand is important in shaping up the *pattern* of growth, which, in turn, can influence the employment outcome of growth. In fact, the product-mix (or sector-composition) of an economy is also linked to demand, but the pattern of demand and income elasticity of demand for various products are important here. And that brings one to the consideration of the composition of output.

As indicated above, the amount of employment associated with a given amount of output would be influenced by what is being produced. Recent research (e.g., Islam, 2006a; Auer and Islam, 2006; Islam, 2010a) argues that the overall employment intensity of output growth would depend on the sector composition of output. At the level of broad sectors of an economy, manufacturing, construction and services usually demonstrate higher employment elasticity compared to sectors like agriculture, mining, utilities, etc. Manufacturing should normally serve as the engine of growth, and it is high growth in that sector (in relation to sectors like agriculture) that helps an economy move on to increasingly higher growth path and creates conditions for a gradual transfer of labour away from low productivity activities. It needs to be noted, however, that growth of manufacturing would not automatically enable an economy to absorb surplus labour from the traditional sectors; the sub-sector composition of manufacturing would also be important in that regard. At the initial stages of development, higher growth of labour-intensive industries is essential from the point of view of transferring labour to higher productivity activities. In that context, it may be useful to look at the experience of Asian developing countries. In order to examine this issue of the role of the manufacturing sector in overall economic growth, Islam (2010a) examines data on growth of GDP and of manufacturing output for selected countries of Asia and shows that compared to countries of South Asia, countries of ESEA achieved higher growth of manufacturing output in relation to GDP growth In the Rep of Korea, for example, the elasticity of growth of manufacturing output with respect to

[2] See Islam (2011) for an analysis of this issue.

GDP growth was over 2 in the 1960s and dropped to just below 2 in the 1970s. The figure dropped below 1.5 only during the 1980s. In Malaysia, the figure was between 1.5 and 2 for almost three decades (1970-96). Indonesia and Thailand also had a similar experience. In contrast, this figure has been in the range of 1.3 to 1.4 in India, and lower in Pakistan. In Bangladesh and Sri Lanka, there has been a considerable degree of fluctuation in the elasticity of manufacturing growth with respect to GDP growth. On the whole, not only has overall economic growth been higher in the countries of ESEA (except Philippines) than in South Asia, the manufacturing sector has been the major driver of growth in the former. It thus appears that only those countries were able to achieve a sectoral pattern of growth outlined above. Not surprisingly, they are also the countries that were able to achieve more employment intensive growth and ensure absorption of their surplus labour - although at varying speed.

As mentioned earlier, growth in countries of ESEA was more employment-intensive compared to those of South Asia. As a result of high rates of growth of manufacturing industries and labour-intensive nature of such industries in the former group of countries, surplus labour from agriculture was quickly transferred to the modern manufacturing sector. Republic of Korea was able to achieve the so-called Lewis turning point by mid-1970s, and Malaysia followed during the 1980s. Indeed, apart from Korea and Taiwan, Malaysia and Thailand are the only other countries of developing Asia that appear to have used up their surplus labour in agriculture. Indonesia was on its way towards that stage, but her journey was disrupted by the Asian economic crisis of 1997-98- The countries of South Asia (e.g., Bangladesh, India, Nepal, Pakistan and Sri Lanka) are still quite distant from that point[3].

Given the specific situation of Nepal, manufacturing may not be able to perform the same role of the engine of growth, as has been the case in more successful developing countries of Asia mentioned above. The specificities of Nepal that may be relevant in this context include the country's geographical position (being land-locked), its difficult terrain that makes internal connectivity between different parts difficult, and the existence of a neighbour which is not only large but is characterized by a much higher level of industrialization and has an open border with Nepal. All these factors make the formulation of a strategy of industrialization extremely challenging. However, despite the specific challenges mentioned above, Nepal has been able to attain growth of some industries during certain periods. Hence an employment strategy focused on specific sectors need not be based on the assumption that industrialization is not possible in the country. Instead, there should be a careful analysis of the specific constraints and difficulties faced and a strategy formulated on the basis of such analysis.

Considering the possibility that a structural transformation of Nepal's economy and employment may not be possible through industrialization alone, the role that can be played by other sectors would have to be considered. In that respect, specific attention needs to be devoted to agriculture, infrastructure and the service sector. Within the service sector, tourism (including hotels and restaurants) is a sub-sector in which Nepal should have a comparative advantage (given its location and background). Hence that sector may be given particular attention.

Considering the factors mentioned above, the following sectors have been selected for sector-focused analysis of employment policies and strategies for Nepal: agriculture, manufacturing, infrastructure, and tourism. The following paragraphs provide outlines of how the prospects of output and employment growth in these sectors will be analysed and what kind of policies and strategies are needed to pursue employment focused growth strategies for these sectors.

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[3] See Islam (2009a) for an analysis of that aspect.

Agriculture

From the point of view of a development strategy focused on high growth of output as well as that of productive employment, it is clear from our earlier discussion that the focus has to be on achieving high growth of modern sectors like manufacturing, trade and services. That, however, does not mean that agriculture can be neglected. This is so especially in Nepal where agriculture still accounts for a high proportion of the country's GDP as well as total employment. Moreover, poverty in Nepal is predominantly a rural phenomenon (although poverty in urban areas cannot be neglected). Hence, from the point of view of an employment focused development strategy for poverty reduction, a two-pronged approach needs to be adopted.

First, a strategy of diversifying the sectoral composition of output needs to be adopted. This will enable workers to move from sectors characterized by low productivity to those with higher productivity. Second, productivity of those engaged in agriculture (and other rural activities where productivity is low) has to be raised. This can be done through a combination of measures to raise crop yields and productivity in other sub-sectors, e.g., livestock, and forestry and a shift of workers to non-agricultural sectors. A major question in this regard is whether there is scope for combining labour absorption in agriculture simultaneously with improvement in crop yield and labour productivity. In this regard, useful lessons may be derived from the historical experience of countries like Japan (during the early phases of their development).

In Japan, labour input per unit of land in rice cultivation increased steadily until mid-1960s and started to decline only during the advanced stage of mechanization (Ishikawa, 1980, p. 28-29). Furthermore, there have been periods when increased labour input in the cultivation of paddy was associated with increases in crop yield. This was so when the technology was such that yield raising factors and inputs made possible the labour using aspects to dominate labour saving aspects. Although it may not be realistic to assume lessons from one country to be transferable to another, it is worth noting that in the case of Nepal it was found that increased labour input in certain operations of paddy cultivation does contribute to raising yield (Islam, et al. 1982). It may be useful to examine whether this is still the case or whether crop production technology in Nepal has changed to such an extent that farming has reached the falling segment of the productivity curve.

An additional factor influencing labour input and crop yield is the type of seeds that are used. It is well known that modern high yielding varieties of rice also require higher labour input. It would therefore be important to examine whether there is still further potential for an expansion of area under such crops, and if so, what factors may be acting as constraints on realizing that potential.

Another important factor that influences labour requirement in crop production as a whole is the type of crops that are produced and the allocation of cultivated area to different crops. To illustrate this point, it may be noted that crops like paddy, maize and jute require more labour per unit of land compared to crops like wheat. Hence if there is a reallocation of land towards crops like wheat and cultivated area under paddy declines, there will be a negative impact on labour requirement. In the context of employment in agriculture, it would, therefore, be important to examine the allocation of cultivated land among different crops and changes if any over time. The employment implications of changes in the cropping should be analyzed.

From a policy point of view, it would also be necessary to analyze the factors that have been responsible for the observed change in the cropping pattern. While demand for products is an important factor, the policy environment in terms of the nature of market, trade, prices of crops and inputs, and subsidies are also important.

Manufacturing

As mentioned already, a number of specific factors (e.g., its land-locked nature, difficult terrain, and open border with a large country with a much higher level of industrialization) may stand in the way of Nepal's achieving a conventional type of labour-intensive and export-oriented industrialization. This, however, should not imply that no industrialization is possible in Nepal. In fact, at least two industries, viz., carpets and garments, achieved significant rates of growth in output and exports during the 1990s and the early part of the 2000s. While the sharp decline in the growth of both of these industries may have created a sense of despair about prospects of industrialization in Nepal, their experience may in fact be used as the basis for a policy oriented assessment of the prospects of the sector as a whole.

An assessment of the growth and employment prospects of manufacturing in Nepal would have to start by an examination of some basic figures, e.g., growth of output and employment in its sub-sectors over time. In doing so, it would be useful to divide the past two decades or so into various sub-periods and see if some pattern emerges for the sub-periods. For example, the growth of the garments industry may have been affected by the abolition of the quota system in 2005. Whether there has been some such factor reversing the performance of the carpet industry would also need to be explored.

A comparison of the growth of output and employment in manufacturing shows that the latter has far exceeded the former. While part of the observed phenomenon may be ascribed to poor quality data, it would be important to examine how employment could increase despite lack of growth in output. This can happen in household based industries where operation may not always be based on pure cost-profit consideration. It would be interesting to see whether this has happened in organized segments of the sector as well. If that has been the case, one should not perhaps expect much employment growth in the sector even if output growth can be achieved. The goal should perhaps be to reverse the decline in growth and raise productivity of those who are already employed in the industries that are characterized by low and declining productivity.

While the phenomenon mentioned above (of employment growth outstripping output growth) has been observed for manufacturing sector as a whole, there may be variation at the level of sub-sectors, and all industries may not be suffering from the problem. In order to identify the sectors that are suffering from this problem, it is necessary to undertake a comparison of the growth of output and employment (or the estimation of the elasticity of employment growth with respect to output growth) at the sub-sector level. This will be done for some important industries of Nepal by using data available from secondary sources like the survey of manufacturing industries. Such empirical analysis will also enable an identification of industries that are more employment intensive and where a combination of high output and employment growth can be achieved. A framework for policies to promote the growth of such industries will then be formulated.

In addition to broad sub-sector analysis of the performance of different industries, an in-depth analysis will be undertaken of the performance and prospects of growth of output and employment in selected industries of Nepal with a view to drawing policy oriented conclusions on how the process of industrialization can be revived and how productive employment can be generated through industrialization. For this purpose, a few industries will be selected to represent both declining and growing segments of the sector. The obvious examples of the former are garments and carpet. As for growing industries, there are quite a few. Keeping in view the potential for exports, growth in domestic demand, and employment-intensity of growth, the sectors that will be selected include food processing, furniture, agro-processing industries like herbs, etc. The analysis of the declining sectors will be on

reasons for decline, prospects of revival, and ways and means of reviving them. The analysis of the growing sectors is expected to bring out the factors that have contributed to their growth and draw lessons for the industrial sector as a whole.

Based on the empirical exercise mentioned above, an analysis will be undertaken of the policy environment that has influenced the growth and employment performance of the manufacturing sector. Some factors may affect employment mainly through the growth channel - implying that they affect growth of investment and output and hence employment. There may be factors that affect labour intensity of production even when there is output growth. Such factors may include relative prices of critical factors like labour and capital, rigidities in the labour market, and the industrial relations environment. For example, if relative prices of capital and labour, and trade policy encourage the import and use of machinery, there would be incentives for greater capital intensity. Likewise, if labour laws of the country do not provide any incentive for the use of labour, there may be adverse effect on employment. All such factors will be analyzed in this section. Following is a list of factors that would be examined:

- Trade and tariff regime in different sub-periods and its impact on industrial growth;
- The impact of various external factors, e.g., the abolition of the quota system in 2005, the global economic crisis of 2008-09, on industrial growth;
- The impact of open border with India on competitiveness of Nepal's industrial sector;
- The impact of domestic factors, e.g., shortage of power and other infrastructural; bottlenecks, security, relative profitability of investment in other sectors like real estate, etc., on investment and growth in industries; and
- Factors (in addition to those mentioned above) that may have affected the growth of employment in manufacturing industries of Nepal even when there has been growth in investment (e.g., industrial relations environment, rigidities in the labour market, etc.).

Infrastructure

There are at least three reasons for regarding infrastructure as a strategic point of entry and sector for employment-intensive growth:

- First, infrastructure is critical for investment and growth in other productive sectors of an economy. Conversely, lack of or degradation of infrastructure not only retards economic growth but also isolates and even discriminates against poorer communities located in remote regions[4];
- The second point relates to the weight of this sector in the economy. According one World Bank study (World Bank, 1994);
  - Infrastructure accounts for 3 to 8 per cent of GDP;
  - 50 per cent or more of domestic fixed capital formation consists of construction output;
  - 20 per cent of total investment and 40 to 60 per cent of public investment expenditure are in this sector;
- The third reason for attaching importance to infrastructure is that for a substantial part of this sector, there are viable technological options without the need to compromise on efficiency and productivity. For example, comparing equipment-intensive with labour-based technologies in the road sector, data show that the cost of equipment in the former typically represents some 80-82 per cent of the total cost and the labour cost only 10-12 per cent. For the labour-based option, equipment would represent some 30-40 per cent of the total cost, and the labour component would cost up to 50-60 per cent (Islam and Majeres, 2001). As labour employed in the sector is largely unskilled and semi-skilled, use

[4] In an analysis of Africa's economic performance, Collier and Gunning (1999) pointed out the deficiency in infrastructure as one of the major constraints on growth.

of labour-based approaches, by enabling higher proportions of expenditures going to labour, would help generate incomes in rural areas, especially amongst the poor. High growth of infrastructure, thus, can not only act as a catalyst for growth of other productive sectors but also as a means of making growth more employment-intensive, and pro-poor and hence more inclusive.

Based on a number of pilot and large-scale studies in countries of Asia and Africa, the ILO (ILO, 1998) concludes that the labour-based option in infrastructure

- Is in financial terms about 10 to 30 per cent less costly than the more equipment intensive option
- Reduces foreign exchange requirements by 50 to 60 per cent, and
- Creates, for the same amount of investment, 3 to 5 times more employment.

Although less documented than for the road sector, important labour-based alternatives to conventional technologies also exist in other sub-sectors, e.g., irrigation (construction of canals, minor dams, etc.), drainage and sewerage systems, erosion control, soil and water conservation, land development, etc. Their application can be cost effective and the outcome could be of sufficiently high quality compared to the equipment-based options.

While investment in infrastructure can generate employment directly, the amount of employment and incomes that are generated indirectly through multiplier effects of the first round of investment may also be considerable[5]. Such effects can be created in a variety of ways. One the one hand, incomes generated in the hands of people can create multiplier effects through the demand channel. Since a large proportion of the workers employed in the construction of infrastructure are likely to be unskilled and belong to lower income group, the consumption multiplier is likely to be stronger than would be the case with increases in income at upper levels. A second channel of indirect effect of investment in infrastructure is through a positive impact on other economic activities. For example, investment and improvements in roads, irrigation, soil conservation, etc. are likely to encourage investment in a wide range of economic activities from agriculture to manufacturing, transport, etc. The second round of investment, in turn, would create additional employment.

Another important role that can be played by investment in infrastructure in low-income countries is its potential for use in social safety net programmes or in employment programmes with a rights-based approach. While there are many examples of employment through infrastructure as an element of social safety net, India's National Rural Guarantee Programme provides a good example of using investment in infrastructure as a means of implementing a rights-based approach to employment.

As for Nepal, all of what has been mentioned above would be applicable. Indeed, in the specific geographic context of the country, improvement in connectivity and investment in infrastructure for achieving that objective become particularly important. Moreover, at the current level of wages and incomes, the case for the adoption of labour-based approaches in large segments of the infrastructure sector would seem strong.

[5] Islam and Majeres (2001) presents a brief description of some studies that quantify the direct and indirect effects of the employment generation and other macroeconomic potentials of the adoption of labour-based approaches in infrastructure in a number of African countries. Alarcon, et al. (2011) demonstrates the application of Social Accounting Matrix to undertake this kind of exercise with illustrations from Indonesia and Mozambique.

The construction sector in Nepal has been identified as one with high economic growth but low employment growth (ILO, 2011, Table 5). Data presented in Table 1 of the present report show that the share of the sector in total employment has declined over time. Other preliminary information also point to the decline in employment in this sector. The above pieces of information contradict what one would expect in a country like Nepal. Construction can be an employment-intensive activity in a situation with surplus labour and low cost of labour. Hence it would be interesting to examine what factors may have contributed to this sector's inability to be more employment generating despite high growth achieved.

An exercise on engendering employment intensive growth through increased investment and higher growth of infrastructure in Nepal will start by undertaking basic stock of the sector. Such an exercise would include the sector's overall size in terms of contribution to the country's GDP, total investment, and employment. Alternative projections would be made of medium and longer-term investment in the sector. An estimate would also be made of the part of the sector (and its components) where there is potential for application of labour-based approaches. Based on these basic parameters, an estimate would be made of the employment potential of investment and growth in the sector. Alternative scenarios may be outlined based on different assumptions about the growth of investment and adoption of alternative approaches. An attempt will be made to estimate the total impact on employment (taking into account both direct and indirect effects) of investment in the major components of the sector, e.g., roads, irrigation, soil conservation, etc.

An important issue relating to employment through infrastructure is that of financing necessary investment in the sector. It can be expected that in a country like Nepal, a large part of the investment in this sector would be financed through external assistance. Hence, it would be useful to examine the fiscal space that the country has (both in actual and potential terms) and the likely flow of external assistance for investment in the sector.

Tourism

Given Nepal's location and geography, the country has a natural advantage in terms of tourism. Indeed, it is a well-known tourist destination and is already well-established on the global tourism map. It is, therefore, natural to consider this as a sector having potential not only for growth in its contribution to the country's GDP but also for expanding employment in the sector. It would be useful to look at these potentials and analyze policies that could contribute towards achieving such goals.

Tourism is a component of the service sector of the economy, and hence, it would be appropriate to look at it in that perspective. As for growth of the service sector as a whole, it has already been mentioned that the usual sequence observed in the history of economic development is for the industrial sector to grow first. The structural transformation in the first phase of development manifests itself in the decline in the share of agriculture in GDP and total employment and a corresponding increase in the share of industries. In the subsequent stage, a further transformation takes place in the form of a rise in the share of the service sector and a decline in that of the industrial sector. This pattern of structural change is explained by the linkages between the three broad sectors, viz., agriculture, industry and services. At the initial stages of development, growth of output and productivity in agriculture creates conditions for growth of output in the industrial sector. The latter, in turn, creates conditions for the growth of services of various kinds. A rise in the incomes of people also creates demand for services. Both these factors create conditions for the growth of service sector and set the stage for that process in the second stage of structural transformation.

It is, however, not uncommon among contemporary developing countries to see the service sector growing simultaneously with the industrial sector or even before the process of a full-fledged industrialization has started. This has given rise to a debate as to whether the service sector can really be an alternative engine of economic growth in developing countries. Growth of tourism (actual as well as potential) could be looked at in the context of such a debate. There may be a merit in this debate especially because tourism (particularly the international aspect of it) is an activity whose growth does not necessarily depend on the growth of a domestic industrial sector. In this context, it may be useful to look at the various components of the sector.

In terms of broad sub-sectors, the major components of tourism are: (i) hotels and restaurants (although the whole of this sub-sector does not cater to tourism), (ii) transport, and (iii) other enterprises providing various services to tourists. If one considers only the direct contribution of these sectors to GDP and total employment in Nepal, they may not appear very substantial. For example, the share of hotel and restaurants in GDP is 1.76 per cent (2009-10), and its share in total employment may be a just a bit more. Similar may be the situation with respect to transport and other enterprises providing services for tourists[6]. However, each of these sub-sectors has linkages with other sectors of the economy. For example, to the extent hotels and restaurants sell products originating in the country (e.g., food grown in the country), this sector would have important backward linkages with agriculture (including livestock and poultry). Likewise, the transport sector may have linkages with another service sector, viz., repairs and maintenance. Enterprises offering services to tourists include retail trade selling goods of various kinds - decorative as well as utilitarian - thus creating linkage effects with the production of such goods.

As for the employment effects of tourism, again, it is not only the direct effect but also the indirect effects that would need to be looked at. While the hotel and restaurant sub-sector is highly employment intensive (with observed elasticity of employment greater than one), the transport sector also is reasonably employment intensive (with an elasticity of 0.6). In addition, if it is possible to quantify the indirect employment created through linkage effects, the total employment effects may turn out to be bigger than the direct effect.

Hence, the starting off point for an exercise on promoting employment intensive growth through the tourism sector would be to quantify the total employment impact of growth in the sector and put in proper perspective in relation to the overall employment situation of the country. The next important issue to be addressed is that of productivity in the sector. Given the observed elasticity of employment in the hotel and restaurant sector (ILO, 2011), it is clear that there is a need to raise productivity in the sector. Hence, the target for future growth of employment in the sector has to be formulated accordingly. In other words, the target for employment growth for the sector has to be lower than the target for growth of value added. In the case of transport sector, this does not have to be the case; the currently observed employment elasticity may be applied to estimate the target for employment in the sector.

As mentioned above, the linkage effects of growth in the tourism sector are potentially important. From a policy point of view, it would be useful to analyze the nature of the existing linkages and identify ways and means of strengthening them. If linkages between the hotel and tourism sector with the country's food sector (including food grains, fruits and vegetables, poultry and livestock) and industries like beverages

[6] The share of transport in total GDP was 9.83 per cent in 2009-10. But a large part of the transport sector caters to the domestic market and only a part for the tourists.

and tobacco can be strengthened, that would help in achieving a broader distribution of the gains from growth in the sector. Appropriate policies for achieving this goal need to be formulated. Likewise, there should be potential for strengthening the linkages between the tourist oriented enterprises and products of the manufacturing sector, e.g., garments, carpets, and other artisanal products (decorative as well as utilitarian).

Employment in Agriculture

6.1. Introduction

Despite some shifts in the structure of Nepal's economy during the past five decades or so, it remains predominantly agrarian. Agriculture accounts for a third of the GDP of the country and provides employment to three out of four members of the country's labour force.

A further indication of the importance of agriculture in Nepal is provided by the fact that a high proportion of the country' s poor live in rural areas and are dependent on agriculture for their living. Despite the small average size of landholding[7], access to land is an important factor in the fight against poverty. During 1995/96 to 2003/04, decline in poverty was found to be more rapid for higher landholding groups. In 2003/04, the incidence of poverty was the highest (nearly 54 per cent) for agricultural wage earners. On the other hand, the degree of landlessness increased from 10 per cent in 1983 to 18.3 per cent in 2001/02 - underscoring the challenge that remains in the fight against poverty.

From the point of view of development strategy in a labour-surplus agrarian country like Nepal, the importance of transferring workers from agriculture to modern sectors (like industry and services) and of increasing productivity of workers remaining in agriculture has already been mentioned in Section 4. Given the weight of agriculture in the economy, employment-intensive growth in Nepal would require growth of output in the sector (through yield raising measures and move to higher value crops) without compromising labour absorption and productivity of labour.

Productivity of workers in agriculture can be raised by (i) increasing yield of crops, (ii) growing crops with higher value added, (iii) improving the terms of trade of agriculture, and (iv) shifting workers out of agriculture. Some of these measures, e.g., increase in yield and changes in the cropping pattern, may have implications for employment. An increase in yield may lead to higher labour absorption through a rise in labour requirement in harvesting and post-harvest operations (unless they are mechanized). Some of the measures that contribute to yield increase, e.g., irrigation, may also be labour-intensive. Changes in crops grown may also influence labour absorption because of the differences in labour requirement. For example, sugarcane, coffee, etc. require more labour compared to food crops like paddy, wheat and maize. Hence, a shift away from food crops may raise labour requirement (although it may have implications for availability of food grains). Among the food crops, paddy requires more labour compared to wheat and maize. Hence a shift away from paddy to the other food crops is likely to have the opposite effect.

6.2. Growth of Output

As mentioned already, although Nepal is an agrarian economy, the size of landholding is rather small. There has not been much increase in the amount of cultivated land during the past decades. The annual growth of agricultural land during 1961/62 to 2001/02 has been only 0.86 (Table 6). However, land

[7] The average size of landholding was 0.79 ha. in 2001/02 (the latest year for which such data are available).

under permanent crops grew at a much higher rate (4.63 per cent per annum) than land under temporary crops (0.81 per cent per annum). This indicates the change that has been taking place in the cropping pattern - an issue to which more attention will be devoted below. On the other hand, growth of land for non-agricultural use has been more than twice that of land under agriculture. This shows that agriculture has lost out to other sectors in its command over the asset that is critical for its operation.

Table 7 shows that there has been a steady decline in the share of agriculture in overall GDP. This is only to be expected in a developing country like Nepal. However, the sector still accounts for more than a third of the country's GDP, thus underscoring its importance in the overall economic growth.

Table 6: Annual Growth Rates in Utilization of Land under Different Categories (1961/62 to 2001/02)

Categories	1961/62 to 1971/72	1971/72 to 1981/82	1981/82 to 1991/92	1991/92 to 2001/02	1961/62 to 2001/02
Total area of holding	-0.19	4.07	0.53	0.22	0.91
Ag. Land	-0.21	4.01	0.14	0.43	0.86
Arable land	-0.16	3.86	0.16	0.14	0.79
Land under temporary crops	-0.09	3.88	0.15	0.18	0.81
Other arable land	-3.20	2.24	0.63	-2.47	-0.58
Land under permanent crops	2.09	6.89	0.07	14.86	4.63
Land under permanent pasture	-7.43	15.23	-1.40	-6.04	-0.24
Ponds				-1.08	
Non-ag. Land	0.46	5.39	6.97	-2.67	1.97
Woodland and forest	-10.21	12.31	21.91	-10.18	2
Other land	2.36	4.60	0.72	2.17	1.96

Source: *CBS: National Sample Census of Agriculture, different years.*

Coming to growth in agricultural output especially in relation to overall GDP growth, a few points emerge from Table 6. First, there has been a reversal in economic growth rate in Nepal over the past decades. It was only during the 1980s that the country achieved annual GDP growth in excess of five per cent. Growth rate declined continuously during the subsequent decades. While annual growth rate was over four per cent per annum during the 1990s, during the 2000s, it fell below 4 per cent per annum.

Table 7: Share of Agriculture in GDP (at 2000/01 constant price)

Year	Share
1985/86	47.8
1990/91	45.0
1995/96	38.6
2000/01	38.1
2005/06	38.6
2009/10	36.7

Source: *MoF: Economic Survey 2010/11.*

Table 8: Growth Rate of GDP and Agricultural GDP in Different Periods

Periods	GDP	Agricultural GDP	Elasticity of agricultural GDP growth with respect to GDP growth
1985/86 to 1990/91	5.20	3.95	0.76
1990/91 to 1995/96	4.99	1.83	0.37
1995/96 to 2000/01	4.18	3.91	0.94
2000/01 to 2005/06	3.06	3.32	1.08
2005/06 to 2009/10	3.24	2.20	0.68

Source: *Calculated from data available in MoF: Economic Survey 2010/11.*

Compared to overall economic growth, agriculture has done better, although growth in the sector has not been consistent. Except during the first half of 2000s, growth in agriculture has been lower than overall GDP growth (which of course is only normal). However, except during the first half of the 1990s, the elasticity of growth of agriculture with respect to overall GDP growth has been over 0.6. In a developing country like Nepal, it is normal for agriculture to demonstrate an elasticity of 0.5 to 0.7 with respect to the growth of overall GDP. Looked at in this perspective, the performance of agriculture in Nepal has been quite impressive. In fact, during 1995/96 to 2005/06, growth in agriculture has either exceeded or equalled that of overall GDP growth. So, it seems that agriculture has played a critical role in maintaining whatever growth has been attained by Nepal's economy, especially since the mid 1990s.

Within agriculture, the relative contribution of different components (e.g., food crops, cash crops, livestock) has changed over time. The share of both cash crops and other crops has increased very substantially while that of food crops has declined during the past three decades for which data have been presented in Table 9. The share of cash crops increased especially during the 2000s. In contrast, the share of livestock has suffered a gradual decline. This is surprising because in a growing economy, the demand for products of livestock (viz., milk and meat) is likely to increase, and the sub-sector's output should rise in response - unless of course there are factors that severely constrain growth of the sector.

Table 9: Percentage Share of Value Addition by Agricultural Commodity Groups, 1985/86 to 2009/10

Sub-sector	1985/86	1990/91	1995/96	2000/01	2005/06	2009/10
Food crops	36.93	35.45	34.11	36.36	34.55	33.16
Cash crops	6.08	6.51	7.64	13.04	13.95	14.73
Other Crops	15.12	18.42	20.69	16.81	20.48	23.99
Livestock	31.94	29.49	27.31	25.61	23.64	22.17
Fishery	0.46	0.70	0.99			
Total	90.53	90.56	90.75	91.82	92.62	94.05

Source: *Computed from MoF, Economic Survey, 2010/11.*

Table 10: Sub-sector Growth Rates in Different Periods

Sub-sector	1985/86 to 1990/91	1990/91 to 1995/96	1995/96 to 2000/01	2000/01 to 2005/06	2005/06 to 2009/10
Food Crops	3.10	1.05	5.25	2.27	1.36
Cash Crops	5.37	5.16	15.63	4.73	3.31
Other crops	8.14	4.23	-0.32	7.48	5.48
Livestock	2.30	0.27	2.59	1.68	0.90
Fish	13.26	9.06			
Total	3.96	1.87	4.16	3.50	2.51

Source: *Computed from MoF, Economic Survey 2010/11.*

6.3. Productivity

The issue of productivity in agriculture can be looked at from different perspectives. While yield of crops indicate the productivity of land, productivity (and earnings) of those engaged in agriculture is influenced not only by yield but also by the cropping pattern. The terms of trade between agriculture and non-agricultural sectors also influences earnings in agriculture.

As for the growth of yield of food crops, wheat leads the way and paddy and maize lagged behind. Area under wheat and maize increased at substantially higher rates compared to paddy. Yield of paddy stagnated particularly in the decade of the 2000s. On the whole, there seems to have been a shift in emphasis away from paddy to wheat and maize. This naturally has implications for food security as well as labour absorption in agriculture (an issue to which we shall return).

Table 11: Growth Rate of Area (A), Production (P) and Yield (Y) of Selected Staple Crops

		1985/86 to 1990/91	1990/91 to 1995/96	1995/95 to 2000/01	2000/01 to 2005/06	2005/06 to 2009/10	1985/86 to 2009/10
Paddy	A	0.24	0.60	0.83	-0.14	-1.12	0.13
	P	3.88	0.46	3.33	-0.03	-1.12	1.39
	Y	3.63	-0.14	2.48	0.11	0.00	1.26
Wheat	A	-6.58	10.61	0.18	0.36	2.30	1.18
	P	4.31	3.92	2.71	3.78	2.79	3.53
	Y	11.65	-6.05	2.52	3.41	0.48	2.32
Maize	A	4.31	-1.08	0.82	0.62	0.73	1.08
	P	3.40	1.62	2.20	3.16	1.70	2.44
	Y	-0.87	2.73	1.37	2.52	0.97	1.35
Millet	A	8.41	-2.69	0.00	0.15	0.57	1.25
	P	5.47	4.07	0.07	0.56	0.68	2.21
	Y	-2.71	6.95	0.07	0.41	0.11	0.95
Barley	A	0.52	-6.41	0.00	-1.47	0.95	-1.41
	P	7.93	-5.44	0.00	-2.02	0.00	0.00
	Y	7.37	1.04	0.00	-0.55	-0.94	1.43
Total Food crops	A	0.79	1.35	0.62	0.16	0.21	0.64
	P	3.92	1.34	2.84	1.31	0.34	2.01
	Y	3.11	-0.01	2.20	1.15	0.14	1.36

Source: *Computations from MOF, Economic Survey, 2010/11.*

Nepal's disappointing performance with regard to per hectare yield of food crops becomes apparent when compared to other countries of South Asia (Table 12). In the early sixties, yield of paddy and wheat in Nepal was higher than in all other countries of South Asia. By the early 1990s, the situation got reversed, and yields in Nepal fell below those of other countries in the region. The outcome was the result of very slow growth of yield of paddy and wheat in Nepal during a period when other countries achieved substantial growth. In fact, there was negative growth of yield in Nepal when all cereals are considered together.

Compared to food crops, cash crops have performed better (Table 13). The overall yield of cash crops has registered a healthy growth of 4.7 per cent per annum during 1985/86 to 2009/2010. Apart from Jute, the other major crops have shown substantial growth in yield. Yield of jute has actually declined over that period.

Table 12: Per hectare Yields of Cereals and Their Growth Rates in Nepal and other South Asian Countries.

Period	Country	All cereals	Paddy	Wheat
1961-63	Nepal yield (kg/ha)	1854	1940	1230
	Nepal as % of			
	India	198	129	146
	Bangladesh	111	129	198
	Pakistan	212	140	150
	Sri Lanka	108	101	NA
1991-93	Nepal yield (kg/ha)	1817	2277	1340
	Nepal as % of			
	India	92	86	57
	Bangladesh	70	86	75
	Pakistan	84	93	69
	Sri Lanka	61	74	NA
1961-63 to 1991-93	Annual yield growth rate (%)			
	Nepal	-0.07	0.54	0.29
	India	2.71	1.92	3.46
	Bangladesh	1.59	1.55	3.59
	Pakistan	3.27	1.92	2.89
	Sri Lanka	1.75	1.57	NA

Source: *Based on FAO Yearbook, 1986 and 1993.*

Table 13: Growth Rate of Area, Production and Yield of Cash Crops

		1985/86 to 1990/91	1990/91 to 1995/96	1995/95 to 2000/01	2000/01 to 2005/06	2005/06 to 2009/10	1985/86 to 2009/10
Sugarcane	A	6.58	6.40	5.57	1.00	-0.41	3.96
	P	14.30	s7.24	7.11	2.17	1.28	6.54
	Y	7.24	0.79	1.46	1.16	1.70	2.48
Oilseeds	A	0.26	3.74	0.43	-0.11	1.43	1.13
	P	0.90	8.37	-0.60	0.45	2.67	2.30
	Y	0.64	4.46	-1.02	0.56	1.22	1.15
Tobacco	A	-4.90	-3.04	-9.71	-5.38	-1.88	-5.15
	P	6.96	-3.04	-10.74	-4.86	-1.45	-2.85
	Y	12.47	0.00	-1.14	0.55	0.45	2.43
Potato	A	0.97	4.51	4.01	3.20	4.92	3.45
	P	12.61	3.78	7.91	8.49	5.63	7.73
	Y	11.53	-0.70	3.75	5.13	0.68	4.13
Jute	A	-21.51	-4.71	1.07	0.68	28.78	-1.46
	P	-23.48	-1.28	2.53	0.00	5.42	-4.35
	Y	-2.51	3.60	1.45	-0.68	-18.13	-2.93
Total cash crops	A	-1.31	3.80	2.13	1.17	3.58	1.78
	P	11.67	5.94	6.99	4.54	3.28	6.58
	Y	13.16	2.07	4.76	3.33	-0.29	4.71

Source: *CBS: Statistical Year Book of Nepal, 2010 (Annex 4 data).*

Although no rigorous analysis has been carried out of the factors that may have been responsible for the slow growth of yield of crops in Nepal, a few tentative observations may be made on the basis of available data. As improved seeds and associated inputs like fertilizers, pesticides and irrigation are critical determinants of crop yields, a look at data on these aspects may offer some clue about the performances of crop yields in Nepal.

Data presented in Table 14 show that the supply of improved seeds increased by a little over 100 MT per year. This supply represents the replacement rate of seeds because most farmers use home produced seeds. Major growth in seed supply was in the case of wheat seeds. In maize, growth in seed supply was negative – declining by a little over 4 MT per year.

The supply of fertilizer - a major complementary input needed for the application of high yielding varieties of crops - recorded a decline from 1985/86 to 2009/10 at a rate of 12,410 MT in each 5 year period (about 2,500 MT per year). During this period, the supply of fertilizers per ha of land has been negative. Major reduction in supply has been in the case of nitrogenous fertilizers. NPK nutrient supply per hectare of cultivated land decreased by 2.7 kg per hectare in five years (0.54 kg/year) between 1985/86 and 2009/10. The supply rate reached a lowest of 3.1 kg per cultivated hectare in 2005/06.This may, in part, be a reflection of the inability of the government's data collection machinery to record the supply going through private channels[8]. But it is quite possible that the increase in prices of fertilizers after the price deregulation in 2000 has had a negative impact on demand[9].

Data on the supply of plant protection chemicals are not available on a continuous basis. Available data show a declining trend, which may be because of the enhanced consumer awareness of the negative environmental and health effects.

Table 14: Use Level of Chemical Fertilizers, Improved Seeds and Plant Protection Chemicals, 1985/86 to 2009/10

Year	1985/86	1990/91	1995/96	2000/01	2005/06	2009/10	Slope (1985/ 86 to 2009/ 10)
Chemical fertilizers	43408	72719	71154	23623	8136	42178	-12410
N	31698	51929	46448	16397	2856	28407	-9063.6
P	11053	19257	21306	7191	4994	12356	-3011.4
K	657	1533	3400	35	286	1415	-335
NPK Ratio	1:0.35:0.02	1:0.37:0.02	1:0.46:.04	1:0.44:0	1:1.75:0.53	1:0.43:0.05	
NPK supply per cultivated hectare	16.7	28.0	27.4	9.1	3.1	16.2	-2.7
Improved seeds	2465	2275	2443	1894	3514	4337.1	519.52
Paddy	154	156	250	231	644	850	178.2
Maize	69	44	144	7	11	0.1	-22.08
Wheat	2242	2075	2049	1656	2859	3487	363.4
Chemicals							
Powder	603	429	83				-346
Liquid (litres)	4859	3945	470				-3475

Source: *MOAC.*

It is by now common knowledge that irrigated agriculture is far more efficient than the unirrigated or rainfed agriculture. This is also supplemented by the data below. A comparison of returns from irrigated and unirrigated paddy showed nearly 5 times more net return in the irrigated farming situation in both Terai and the hills (Table 15). More net return means the cost per unit of output is lesser which connotes more competitiveness. This means that if irrigation is expanded, Nepal's agriculture could be more competitive.

[8] This figure, however, may be misleading because there is informal supply of fertilizers from India, which has not been accounted

[9] One positive effect of reduction in price, however, has been in the fertilizer balance in fertilizer use. Earlier, nitrogenous fertilizers were used very heavily, causing imbalance in the proportions between different types of fertilizers. The proportion of N:P use has now improved from 1:0.35 in 1985/86 to 1:0.43 in 2009/10

Table 15: Cost and Returns from Irrigated and Unirrigated Paddy, 2002

District	Irrigated		Unirrigated		Irrigated profit	Unirrigated profit
	Cost	Return	Cost	Return		
Terai	25881	36183	15613	17698	10302	2086
Hills	29568	44856	14701	17307	15288	2606
Nepal	27724	40520	15157	17502	12795	2346

Source: *DOA (2008).*

Despite the well-known benefits of irrigation, growth of area under irrigation has been rather slow - only 0.63 per cent per year during 1990 to 2008/09. Not only has irrigation development slowed down, the actual irrigated area is much less because of two reasons: (i) systems rendered non-functional, and (ii) systems where water does not reach the tail part of the command area. A SAPPROS study shows that almost all irrigation systems are performing sub-optimally (SAPPROS/WB, 2000).

Table 16: Stock of Irrigation Command Area Development as of 1989/90

Eco-belt	Net developed command area (ha)				Remaining potential (ha)
	DOI	ADBN	FMIS	Total	
Mountain	6598	303	44699	51600	8118
Hills	43506	5337	215316	264159	104382
Terai	357587	112644	303563	773794	563787
NEPAL	407691	118284	563578	1089553	676287

Source: *MOF: Economic Survey, 1990.*

Nepal's total cultivated area is 2.64 million with nearly two-third area lying in the flat Terai region. Of the total cultivated area, about 1.77 million is considered irrigable and 69.5 per cent of the area has received, as of FY 2009/10, some form of irrigation (Table 17). In terms of proportion of irrigable area, mountain region has higher proportion of irrigation (83.8%) followed by hills and Terai. Development region wise, Eastern region has higher irrigation coverage (nearly 78%) while Mid Western region has the least coverage.

Table 17: Distribution of Irrigation facility by Eco-belt, 2008/09

(Figures are in hectare)

Region	Overall	Irrigable	Irrigated	Per cent
Mountain	227,197	59,718	50,042	83.8
Hill	921,366	902,787	655,011	72.6
Terai	1,036,811	355,934	183,676	51.6
EDR	749,373	521,770	406,644	77.9
CDR	717,088	541,984	384,789	71.0
WDR	521,008	322,486	197,060	61.1
MWDR	397,437	223,069	130,318	58.4
FWDR	256,836	156,531	108,543	69.3
NEPAL	2,641,742	1,765,840	1,227,354	69.5

Source: *MOF: Economic Survey, 2010/11.*

6.4. Cropping Pattern

There has been a noticeable shift in the pattern of cropping (in terms of share of cultivated area devoted to various crops) over time. Some indication of this phenomenon is already provided by the data on relative growth of area under different crops (presented earlier in Tables 11 and 13). Table 18 shows the changes more clearly. Between food and cash crops, there seems to have been a shift towards cash crops as is indicated by a much higher rate of growth of area under cultivation compared to the area under food crops (1.78 per cent compared to 0.64 per cent). Within food crops, area under wheat has grown at a higher rate compared to those under paddy and maize. Among cash crops, sugarcane and potato have witnessed higher growth in area compared to other crops. Area under jute and tobacco actually declined.

How does one explain the observed change in the pattern of cropping, especially the shift towards cash crops like sugarcane and potato? Relative profitability of growing various crops is an important element in this respect because farmers would naturally want to devote more area under those crops that yield higher returns. Data on net profit from different crops during 1981/82 to 2009/10 are presented in Table 19. The table also reveals the data gaps for different crops in different years. According to the most recent data in the table, sugarcane, potato, spice crops (mainly ginger) and vegetables have performed well (over Rs.100,000 net profit per hectare) while food crops are producing net profit only in the range of Rs.9,000 to Rs.18,000 per hectare. Moreover, profits in the cash crops mentioned above have grown at a much higher rate compared to profit from food crops like paddy and wheat. Hence food crop production does not appear to be a rational choice from the point of view of profitability. And the change in cropping pattern that has taken place should not be a surprise.

Table 18: Percentage Share of Different Crops in Total Cultivated Area, 1985/86 to 2009/10

Crops	1985/86	1995/96	2005/06	2009/10
Paddy	48.5	39.8	38.1	35.2
Maize	22.9	21.0	20.9	20.8
Wheat	18.8	17.4	16.5	17.5
Potato	2.7	2.8	3.7	4.3
Sugarcane	0.8	1.2	1.5	1.4
Jute	1.6	0.3	0.3	0.3
Fruits	0.0	1.6	2.2	2.5
Vegetables	0.0	3.8	4.4	5.6
Pulses	0.0	7.1	7.7	7.6
Oilseeds	4.7	4.9	4.6	4.7
Total	100.0	100.0	100.0	100.0

Source: *Same as for Table 13.*

Table 19: Net Profit per Hectare from Different Crops, 1981/82 to 2009/10 (Rupees)

		1981/82	1990/91	1885/96	2000/01	2005/06	2009/10	Slope
Paddy	Improved Irrigated Hill	4102	15067	9058	39046	26676	17787	135.96
	Improved Irrigated Terai	2579	5379	4969	7696	13868	15097	92.64
	Local irrigated Hill	2293	3745	9133	8127			81.75
	Local unirrigated Hill	3420		9774		8544	8807	33.32
Maize	Improved Irrigated Hill	2847				9524	11348	60.41
	Improved Irrigated Terai	1184		1317	4214	10304	14012	95.72
	Local irrigated Hill	633						
	Local unirrigated Hill	1077	1015	2798	5985			58.95
Wheat	Improved Irrigated Hill	1039	1956	1464	3000	8526	9328	63.97
	Improved Irrigated Terai	646	1698	587	4235	1188	8111	40.25
Millet	Hill	-1684	2352					144.14
	Terai parsa	1044	1121					2.75
Barley	Hill	1836	1047					-28.18
	Terai	-199						
Potato	Hill	1616	8529	44156		172896	232008	1757.42
	Terai	5180		45304		94491	165227	1069.37
Sugarcane		3791	12328				472996	3569.08
Jute		634	8143					268.18
Oilseeds	Mustard	2390	1880	1207				-21.12
Pulses		1439	1392	11555				180.65
Spice crops		6861		132079		362704	455456	3293.54
Fruits			39887					
Vegetables		3085	39355	102140			140753	961.06

Source: *Compiled from DOA Cost of Production and Returns.*

6.5. Prices of Agricultural Commodities and Inputs Outputs

The prices of major agricultural commodities (rice, wheat, maize, black gram, potato, tomato, ginger) and livestock products (mutton, chicken meat, milk) have increased over the years at varying rates as shown in Table 20.

(Rs./kg except for milk which is Rs./litre)

Table 20: Price Trends of Selected Agricultural Commodities, 1985 to 2004

	1985	1989	1995	2000	2004	Annual growth (%)
Rice coarse	5.4	7.73	13.99	17.97	18.13	6.6
Wheat	3.89	5.68	8.91			8.6
Maize	3.62	4.81	8.44			8.8
Black gram	11.72	18.78	40.88	48.24	46.31	7.5
Potato	8.43	5.69	10.02	10.89	11.65	1.7
Tomato	8.34	11.61	22.02	25.13	18.48	4.3
Ginger	8.06	15.55	80.63		56.75	10.8
Mutton	33.31	55.5	105.17	167.53	201.72	9.9
Chicken	35.69	60.54	98.83	139.15	144.73	7.6
Milk	5.36	8.64	14.89	22.08	22.98	8.0

Source: *DOA, Agricultural Marketing Information Bulletin, Special Issue, 2005.*

Data in Table 20 show prices at 4-5 years' intervals – 1985-1989 representing prices during the Panchayat regime and others representing the multi-party governance regime. The largest annual increase in the 20-year period is found in the case of ginger (10.8%) while the lowest increase is seen in the case of potato (1.7 per cent). The major increases in most commodities have occurred between 1989 (the last year of the *Panchayat* regime) and 1995. This was due to the historical 1993 flood in Nepal, which caused serious imbalance between the demand and supply of agricultural commodities resulting in major price hikes. This period also represents a major shift in Nepal's economic policy – the beginning of the liberalization of the economy. The state support for agriculture in the form of subsidies to producers began to decline since this period, which probably resulted in the lack of incentives in production. The consistent price hike is found in the livestock products, particularly meat, which has not demonstrated even a short period of respite in price upsurge.

Another spell of high price rises was in 2007 to 2008, which was a consequence of the sharp increases in the prices of food grains in the global market. Since January 2007, food price inflation exceeded overall inflation. During the first seven months of FY 2008, on a year-on-year basis, food prices increased at an average rate of 8.7 per cent compared to overall inflation rate of 6.3 per cent. But both general inflation and food price inflation (as the major driver of general price inflation) accelerated substantially during the second half of FY 2008. Food-price inflation is driven by high prices of cereals (rice in particular) and edible oil/ghee, which together make up nearly 40 per cent of the food basket. Nepal Rashtra Bank's Consumer Price Index (CPI) measures urban inflation and showed that the price of rice and rice products increased by 12.4 per cent during FY 2008 as compared to 2.8 per cent in FY 2007. Likewise, the price of oil/ghee rose by 13.5 per cent in FY 2008 compared to 6.7 per cent in FY 2007. For other food items such as, meat, fish, eggs, and milk price inflation had remained at more manageable levels. Food price inflation accelerated in 2008 and showed significant variation by region and commodity.

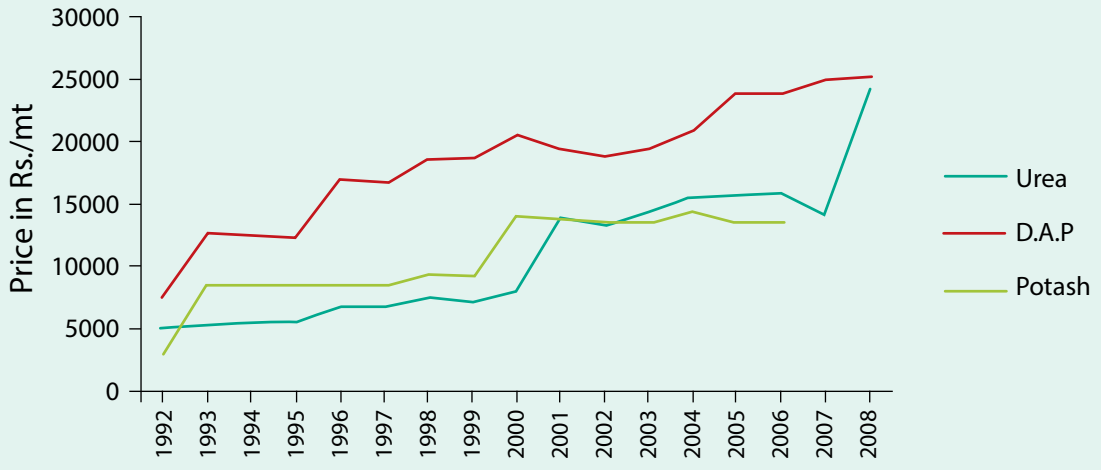
Rise in food prices is ominous for the poor and deficit producers. The poor producers suffer from the seasonal variation in prices - relatively cheaper prices at the time of harvest and increase thereafter reaching the highest point just before harvest. They have to sell the produce at harvest time to fulfil pending cash obligations but will need to buy the food later at higher costs. Hence, food price stabilization is important for poverty reduction.

Prices of inputs

Annual increase in prices of fertilizers per metric ton (MT) from 1996/97 to 2007/08 were Rs. 1,190 in urea, Rs. 705 in DAP and Rs.625 in MOP. A jump in urea price from Rs. 8,000 per MT to Rs. Rs.13,980 (74.7% in a single year) was observed between the years 2000 and 2001 as a result of the deregulation of the fertilizer prices in 1999. A supply related jump was noticed recently when urea price soared to Rs.24,000 per MT in 2008 from a level of Rs. 14,200 in 2007. This has adversely affected the ability of farmers to use fertilizers. As a result, the average use level as per government data was only 28 kg per hectare as against the Agriculture Perspective Plan (APP) envisaged level of 64 kg nutrient per hectare. Although this reported use level may have been underestimated due to lack of inclusion of informal acquisition of fertilizer from India (through illegal cross-border flow), yet the low level of use is clear. The fertilizer price trend over the years is also depicted in Figure 5 together with the output price trends in Figure 6.

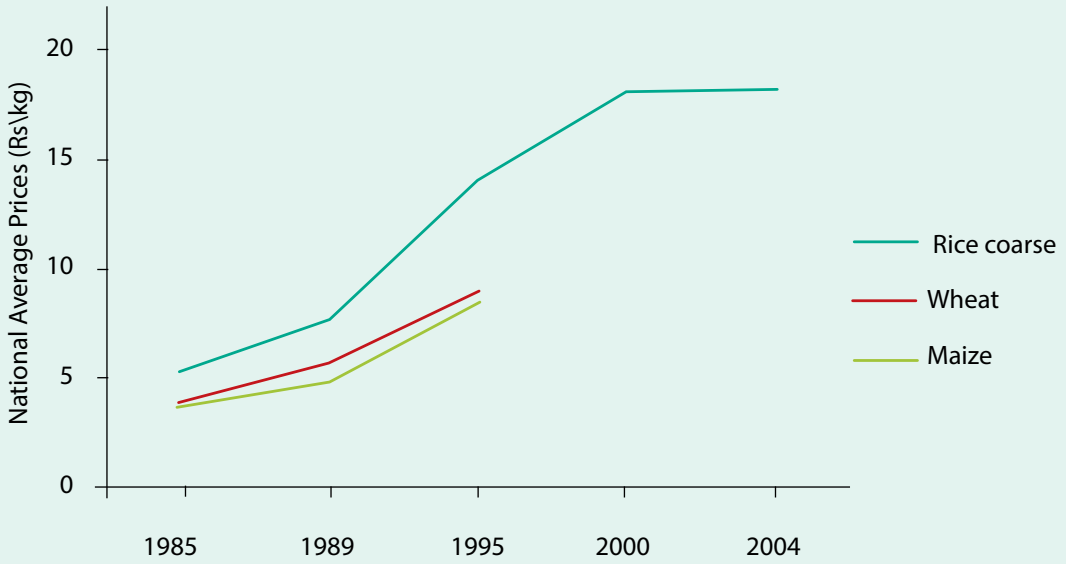
Agricultural labour wage rate index rose from 100 in 2004/05 to 160 in 2008/09, a sudden jump from 126.1 in 2007/08[10]. This has rendered hiring wage labour for agricultural production very expensive.

Figure 5: Price Trend of Fertilizers, 1992 to 2008



[10] It is difficult to say what has been behind this sharp increase in wage rates in agriculture in recent years. While there may have been seasonal shortages, especially caused by increases in international migration of workers, the rise in 2008 and subsequent years may have been sparked by sharp increases in the prices of food grains in that year. Whatever has been the cause, this must have made a positive contribution to the reduction in the incidence of poverty in recent years.

Figure 6: Price Trend of Food Crops, 1992 to 2008



Asymmetry in price changes and terms of trade of agriculture

The increases in prices have been asymmetric across various inputs and output as shown in price differences between 1974 and 2008 for potato rice, urea, di-ammonium Phosphate (DAP) and labour wage rate. In this period, the daily wage rate has increased the most at 11.61 per cent per year while that of potato has increased 7.55 per cent per year. While one kg of rice could buy 1.8 kg urea, 1.41 kg DAP and 0.9 days of wage labour in 1974, these figures declined to 1.14 kg of urea, 0.73 kg of DAP and only 0.30 day of wage labour in 2008 (Table 21). Thus it is clear that food crops have suffered a worsening of their terms of trade vis-à-vis inputs used in their production.

Table 21: Some Examples of Asymmetric Price Rise

				One kg of rice will buy	
	1974	2008	Growth rate (%)	1974	2008
Potato price (Rs./kg)	3	15	5.51	1.50	2.86
Rice price (Rs./kg)	4.5	40	7.55		
Urea price (Rs./kg)	2.5	35	9.20	1.80	1.14
DAP price (Rs./kg)	3.2	55	9.94	1.41	0.73
Labour wage (Rs./day)	5	135	11.61	0.90	0.30

Source : *SNV/DVN (2008).*

6.6. Elasticity of Employment in Crop Production

Methodology of estimating employment elasticity for sub-sectors of agriculture

An attempt has been made to estimate broad sub-sector elasticities within the agricultural sector using the data for different periods starting from 1990/91 up to 2009/10.

In order to compute the sub-sector elasticity in agriculture, the following method was adopted:

- Data on labour input per hectare were compiled for the period between 1990/91 to 2009/10 for as many crops as possible; (data on labour use for livestock, fishery and a few minor crops were not available);
- Total labour absorption by crops for different periods was computed by multiplying the area under different crops (presented earlier in this section) with the respective per hectare labour input figures for those crops;
- Total labour absorption thus obtained was divided by 280 standard work days per year to arrive at man-years of full time equivalent employment;
- These employment data were aggregated into major sub-sectoral employment (food crops, cash crops and other crops);
- Period wise growth rates in employment by sub-sectors were then computed;
- Period wise values of sub-sector output were computed by using the weights of respective sub-sectors in the AGDP, which represented the contributions of the sub-sectors in the total GDP;
- The growth rates of sub-sector GDP were then computed for different periods; and
- Sub-sector wise employment elasticity was finally computed by dividing the employment growth rates in each period range by respective growth rates in sub-sector GDPs.

The figures generated from the above process are presented and discussed below.

Labour input per hectare

The compiled data on costs and returns provided the data on labour use per hectare for different crops, some gap values of which were filled by linear extrapolation to ensure continuous series. These are presented in Table 22. According to the table, labour use per hectare labour has been declining except for millet, barley, pulses and vegetables. The table shows strongest decline in paddy (17.7 labour days in 5 years period) followed by maize and potato. Vegetable crops recorded the highest growth rate in labour absorption on per hectare basis (12.6 man days additional labour use per hectare in 5 years).

Table 22: Labour Input per Hectare for Different Crops, 1981/82 to 2009/10

	1981/ 82	1990/ 91	1995/ 96	2000/ 01	2005/ 06	2009/ 10	Slope (1981/ 82 to 2009/ 10)
Paddy	206	223	209	192	145	133	-17.7
Maize	211	196	203	198	139	129	-16.7
Wheat	158	110.5	130	127.5	114	120	-5.2
Millet	171.5	196	200.5	204.5	206.5	210.5	6.6
Barley	62	120	130	125	115	113	7.0
Potato	238.5	269	286	252	217.5	205	-10.2
Sugarcane	187	249	247	246	205.5	165	-6.9
Jute	164	187	172	170	170	165	-1.4
Oilseeds	61	92	60	59	59	58	-3.3
Pulses	91	68	90	90	88	86	1.3
Spice crops	314	382	450	399	348	291	-7.7
Vegetables	204	216	228	241	254	267	12.6

Source: *DOA Costs and Returns (Various issues) with adjustments in the data gaps through linear extrapolation.*

Growth rates of labour use per hectare in different crops

The period wise rates of change in labour days used in for different crops presented in Table 23. Labour input per hectare for paddy declined since 1990/91. In the case of vegetables, labour use per hectare increased during each sub-period.

Table 23: Crop Weights and Growth Rates in Labour Days Used in Different Crops

	Weight (%)	1981/82 to 1990/91	1990/91 to 1995/96	1995/96 to 2000/01	2000/01 to 2005/06	2005/06 to 2009/10
Paddy	20.95	0.89	-1.27	-1.73	-5.44	-2.19
Maize	9.05	-0.80	0.64	-0.46	-6.79	-1.91
Wheat	4.63	-3.90	3.30	-0.39	-2.21	1.29
Millet	2.41	1.49	0.46	0.40	0.19	0.48
Barley	0.26	7.61	1.61	-0.78	-1.65	-0.44
Potato	2.83	1.35	1.23	-2.50	-2.90	-1.47
Sugarcane	0.42	3.23	-0.16	-0.08	-3.53	-5.34
Jute	0.56	1.47	-1.66	-0.23	0.00	-0.74
Oilseeds		4.67	-8.19	-0.34	0.00	-0.43
Pulses	1.97	-3.19	5.77	0.00	-0.45	-0.57
Spice crops		2.20	3.33	-2.38	-2.70	-4.37
Vegetables	10.73	0.64	1.09	1.12	1.06	1.26

Source: *Computed from data in Table 21.*

Total crop wise labour absorption in different periods

Taking area under different crops in different periods presented earlier and per hectare labour use data in Table 22, the total labour use in crops have been calculated which is presented in Tables 24 to 25 for the period 1990/91 to 2009/10. The labour use figures have been converted into man-years to represent full employment level by dividing the figures of labour use days by 280 standard working days per year.

Table 24 shows the man-years of employment in food crops group (sub-sector), which in the case of food crops declined by 1.22 per cent per year between 1990/91 and 2009/10. The largest decline again is in paddy crop (2.3 per cent per year). Positive employment growth rate is observed in the cases of wheat and millet. Figures of growth rates of employment in food crops for different sub-periods are presented in Table 25. Again, no particular pattern emerges from the sub-period growth figures.

Table 24: Total Man-years* of Human Labour Use in Food Crops, 1990/91 to 2009/10 ('000 man years)

Food crops	1990/ 91	1995/ 96	2000/ 01	2005/ 06	2009/ 10	Slope	Growth rate (1990/91 to 2009/10)
Paddy	1157	1117	1070	767	711	-124	-2.53
Wheat	234	304	292	274	313	13	1.55
Maize	529	574	583	422	404	-40	-1.42
Millet	139	186	190	193	201	13	1.99
Barley	13	18	13	11	11	-1	-0.87
Total food crops	2072	2200	2147	1667	1640	-140	-1.22

Source: *Computed from data in Table 21 and data on crop acreage.*
Note: *Man-years of employment has been converted from man-days taking 280 days in a year as full employment.*

Table 25: Growth Rates in Total Man-years* of Human Labour Use in Food Crops, 1990/91 to 2009/10

Food crops	1990/ 91 to 1995/ 96	1995/ 96 to 2000/ 01	2000/ 01 to 2005/ 06	2005/ 06 to 2009/ 10	Slope	Growth rate (1990/ 91 to 2009/ 10)
Paddy	-0.70	-0.86	-6.44	-1.88	-124	-2.53
Wheat	5.37	-0.80	-1.26	3.38	13	1.55
Maize	1.65	0.31	-6.26	-1.08	-40	-1.42
Millet	6.00	0.43	0.31	1.02	13	1.99
Barley	6.72	-6.30	-3.29	0.00	-1	-0.87
Total food crops	1.21	-0.49	-4.93	-0.41	-140	-1.22

Source: *Computed from data in Table 24.*

Similarly, Table 26 presents data on total man-years of employment generated by the cash crops. Among cash crops, potato is the largest employer while jute is the smallest employer. Potato also achieved the highest growth rate of 2.64 per cent per year during 1990/91 to 2009/10. Oilseeds and jute experienced negative growth rates in the same period. Period wise growth rates presented in Table 26, however, shows no regular pattern (ups and downs, negative to positive). Due to higher growth rates in labour absorption in potato and sugarcane, the aggregate cash crop sub-sector labour absorption is positive (1.13 per cent growth per year)

Table 26: Total Man-years of Human Labour Use in Cash Crops, 1990/91 to 2009/10 ('000 man-years)

Cash crops	1990/ 91	1995/ 96	2000/ 01	2005/ 06	2009/ 10	Slope	Growth rate (1990/ 91 to 2009/ 10)
Sugarcane	29	40	52	46	36	2	1.07
Oilseeds	51	40	40	40	41	-2	-1.07
Potato	82	108	116	117	134	11	2.64
Jute	9	7	7	7	8	0	-1.00
Total cash crops	171	194	215	210	219	11	1.31

Table 27: Total Man-years* of Human Labour Use Growth Rates in Cash Crops, 1990/91 to 2009/10

(per cent)

Cash crops	1990/ 91 to 1995/ 96	1995/ 96 to 2000/ 01	2000/ 01 to 2005/ 06	2005/ 06 to 2009/ 10	Slope	Growth rate (1990/91 to 2009/10)
Sugarcane	6.23	5.48	-2.57	-5.72	2	1.07
Oilseeds	-4.76	0.09	-0.11	1.00	-2	-1.07
Potato	5.80	1.41	0.21	3.38	11	2.64
Jute	-6.29	0.30	1.16	1.52	0	-1.00
Total cash crops	2.60	2.00	-0.46	1.08	11	1.31

Source: *Computed from data in Table 26.*

Other crops, which include pulses, spice crops and vegetables have employment stance declining marginally by 0.2 per cent per year from 1990/91 to 2009/10 (Table 27). Pulses and vegetables have positive employment growth rates. The highest decline in employment is in the case of spice crops (Table 28).

Table 28: Total Man-years* of Human Labour Use in Other Crops, 1990/91 to 2009/10 ('000 man years)

Other crops	1990/ 91	1995/ 96	2000/ 01	2005/ 06	2009/ 10	Slope (1990/ 91 to 2009/ 10)	Growth rate (1990/ 91 to 2009/ 10)
Pulses	68	90	90	88	86	3.4	1.2
Spice crops	382	450	399	348	291	-28.4	-1.4
Vegetables	216	228	241	254	267	12.8	1.1
Total other Crops	666	768	730	690	644	-12.2	-0.2

Table 29: Total Man-years* of Human Labour Use Growth Rates in Other Crops, 1990/91 to 2009/10

(per cent)

Other crops	1990/ 91 to 1995/ 96	1995/ 96 to 2000/ 01	2000/ 01 to 2005/ 06	2005/ 06 to 2009/ 10	1990/ 91 to 2009/ 10)
Pulses	5.77	0.00	-0.45	-0.46	1.3
Spice crops	3.33	-2.38	-2.70	-3.51	-7.7
Vegetables	1.09	1.12	1.06	1.00	12.6
Total Other Crops	2.89	-1.01	-1.12	-1.37	6.2

Source: *Computed from data in Table 27.*

The summary of employment situation in overall crop sub-sector is compiled and presented in Table 30. The employment in total crop subsector declined from 2,909 thousand man-years in 1990/91 to 2,503 thousand man-years in 2009/10, a decline of 141,000 man-years in every 5 years (28,200 man years per year). The annual rate of decline is 0.79 per cent. A major decline occurred in food crops (1.22 per cent per year). Cash crops witnessed an employment growth rate of 1.31 per cent per year, which is mainly due to area expansion (both through substitution from other crops and the increase in cropping intensity). The other crops group showed a marginal decline in employment.

Since the accounted sub-sectors in agriculture has 50 per cent share in AGDP, the employment in total agriculture sector in 2009/10 is estimated at about 5 million man years assuming that other unaccounted sub-sectors for which labour use data were not available, are also behaving in a similar trend.

Table 30: Employment in Crop Sub-sector, 1990/91 to 2009/10 (000 man years)

Sub-sector	1990/ 91	1995/ 96	2000/ 01	2005/ 06	2009/ 10	Slope	Growth rate (1990 /91 to 2009/ 10)	Share in 2009/ 10 %
Food crops	2072	2200	2147	1667	1640	-140	-1.22	65.5
Cash crops	171	194	215	210	219	11	1.31	8.7
Other crops	666	768	730	690	644	-12	-0.18	25.7
Total	2909	3162	3092	2567	2503	-141	-0.79	100.0

Source: *Computed from area under different crops multiplied by the labour days used per hectare.*

Over the years beginning from 1990/91 to 2009/10, food crop's share in employment declined by 1.6 per cent in 5 years (0.32% per year) but still remained the largest contributor (almost two-third of total employment in crops sub-sector in 2009/10) (Table 31). Cash crops and other crops recorded an increase in their shares on employment. This shows a gradual shift of area from food crops and cash and other crops cultivation, which has partly offset a possible further decline in agriculture related employment.

Table 31: Percent Share of Different Crop Sub-sectors in Employment, 1990/91 to 2009/10

Sub-sector	1990/ 91	1995/ 96	2000/ 01	2005/ 06	2009/ 10	Slope
Food crops	71.2	69.6	69.4	64.9	65.5	-1.60
Cash crops	5.9	6.1	6.9	8.2	8.7	0.78
Other crops	22.9	24.3	23.6	26.9	25.7	0.83
Total	100.0	100.0	100.0	100.0	100.0	

Source: *Computed from data in Table 29.*

Using the data on employment growth in agricultural sub-sectors (Table 32 which is based on Table 30) and growth rates of AGDP, sub-sector employment elasticities are computed. The elasticity figures are presented in Table 34. These figures show that, during the 1990s, employment elasticities were positive in all crop groups. The cash crop sub-sector had the highest employment elasticity. During the decade of 2000s, employment elasticity for food crops and other crops became negative because of negative employment growth. It seems that during the past decade, there has been shift in agricultural labour from food crops to cash crops. However, for the crop sector as a whole, employment elasticity was negative during the decade of 2000s.

Table 32: Employment Growth Rates in Crop Sub-sectors

Sub-sector	1990/91 to 2000/01	2000/01 to 2009/10	1990/91 to 2009/10
Food crops	0.36	-2.66	-1.22
Cash Crops	2.32	0.18	1.31
Other crops	0.92	-1.25	-0.18
Total	0.61	-2.09	-0.79

Table 33: GDP and AGDP Growth Rates

Description	1990/91 to 2000/01	2000/01 to 2009/10	1990/91 to 2009/10
GDP	4.6	3.1	4.1
AGDP	2.9	2.8	3.0

Table 34: Employment Elasticity in Crop Sub-sector with Respect to AGDP

Sub-sector	1990/91 to 2000/01	2000/01 to 2009/10	1990/91 to 2009/10
Food crops	0.12	-0.95	-0.41
Cash Crops	0.80	0.07	0.44
Other crops	0.32	-0.44	-0.06
Total	0.21	-0.75	-0.26

6.7. Growth and employment in agriculture: a recapitulation of key findings

Nepal's agriculture has attained decent growth in output during the period for which data have been analyzed in the present study. But it needs to be noted that in a developing country, agriculture does not normally serve as the primary engine of growth, and Nepal has not been an exception. During most of the past three decades or so, output growth in agriculture has been slower than in overall GDP growth.

Growth of yield of food crops has been slow, although cash crops (except jute and tobacco) have done better. Profitability per hectare of cultivated land has increased at a much higher rate for cash crops compared to food crops. It is, therefore, not surprising that the growth of acreage has increased

at a higher rate for cash crops. Within food crops, there appears to have been a shift away from paddy towards wheat.

The incentive structure appears to have moved against crop production as is indicated by the movement of relative prices of inputs like fertilizers and outputs, e.g., paddy and potato. There has been a decline in the use of fertilizers per hectare of cultivated land, and area under irrigation has grown very slowly.

Growth of employment in both food crops and cash crops has been negative since 1995/96 and 2000/01 respectively. Elasticity of employment with respect to output growth has been negative for both food and cash crops. The positive aspect of the picture with respect to labour absorption is that crops with higher profitability, e.g., sugarcane, vegetables, and fruits are also highly labour intensive. However, among food crops, paddy is the most labour-intensive, and a shift away from that to other crops like wheat and maize is going to have adverse effect on labour absorption.

Manufacturing

Section 7

7.1 Introduction

It has already been mentioned (in section 5 above) that in developing countries, manufacturing industries sector is expected to act as the driver of growth, and that this has been the case in countries of East and South-East Asia who have been successful in achieving high rate of economic growth as well as in absorbing surplus labour in the modern sectors. In fact, during the early stages of growth in countries like Republic of Korea and Malaysia, growth of output in the manufacturing sector has been nearly double that of GDP growth and industrialization acted as the engine of growth. Even in some of the countries of South Asia like Bangladesh, India, Pakistan and Sri Lanka, growth of manufacturing has generally been higher than that of GDP growth.

In Nepal also, growth of manufacturing output exceeded that of GDP growth during the 1980s and 1990s. But the situation changed since the turn of the century when a couple of fast growing export oriented industries, viz., garments and carpets, suffered negative growth and questions started to be asked about prospects of industrialization in the country. Of course, given the specific context of Nepal, it may not be possible to implement a conventional strategy of labour intensive export oriented industrialization. But its own experience may be useful in formulating a strategy that would at least reverse the process of "de-industrialization" that the country has experienced and would enable the manufacturing sector to play an important role in supporting overall economic growth as well as in transferring labour to higher productivity activities and reduce the country's dependence on international migration as a source of employment.

7.2 The Growth Experience of the Manufacturing Sector: An Overview

It may be recalled that Nepal adopted a policy of economic liberalization since the mid-1980s with the IMF-led structural adjustment programme. The process continued during the 1990s. Up to mid-1990s, the country attained modest economic growth, and the manufacturing sector made useful contribution to that. Data presented in Table 35 show that till 2000, growth of output in manufacturing exceeded GDP growth. But GDP growth started to decline in the second half of the 1990s and growth of manufacturing declined significantly during that period[11]. The slide continued during the decade of 2000s and growth in the sector was negative in the second half of the decade. It thus appears that the benefit of economic liberalization in terms of growth was rather short-lived (if there was any).

Not surprisingly, the decline in growth rates reflects the trend in investment growth -overall as well as in manufacturing (Table 36). Compared to the first half of the 1990s, there was a sharp decline in investment growth during the second half of that decade. During 2001-05, investment growth was negative. Although that trend was reversed during the second half of 2000s, growth remained insignificant.

[11] For a detailed discussion on economic reforms in Nepal and their impact on economic growth, see Khan (2000).

Table 35: Growth of Manufacturing and National GDP at Different Sub-Periods

Year	Manufacturing Growth	GDP Growth
1986-1990	6.14	5.71
1991-1995	7.32	5.18
1996-2000	4.91	4.74
2001-2005	1.70	3.87
2006-2010	-0.26	4.63

Source: *Ministry of Finance, Economic Survey, 2010.*

Table 36: Growth of Aggregate and Manufacturing Investment

Year	Manufacturing investment	Total Investment
1986-90	4.49	2.69
1991-95	17.92	10.37
1996-00	2.53	-0.15
2001-2005	-1.35	4.03
2006-2009	0.81	8.24

Source: *CBS, Govt. of Nepal.*

Without a full-fledged analysis of the factors influencing investment, it is difficult to explain the observed trend. However, one factor that stands out as different is the political environment that unfolded following the adoption of multi-party democratic system of government in the country. Absence of political stability and the associated uncertainty in the policy environment appear to have negated the potential benefits of economic liberalization and of a democratic system.

The result of a lacklustre growth of manufacturing is reflected in the pattern of structural change that has taken place in Nepal. Although there has been some decline in the share of agriculture in total GDP, the share of manufacturing has remained virtually unchanged over a period of more than two decades. There was some increase in the share during 1985-2000, but it declined thereafter and by 2010 went back to the level of the mid-1980s (Table 37). Whatever little structural change took place, it was between agriculture and services sector.

Table 37: The Share of Manufacturing Sector in GDP

Year	Manufacturing as % of GDP
1985	6.07
1990	6.18
1995	8.48
2000	8.70
2005	7.56
2010	6.19

Source: *Ministry Finance, Economic Survey, 2010.*

Table 38: The Share of Manufacturing in Total Employment

Employment	Employment in Manufacturing Sector	Total Employment	Share of Manufacturing Sector %
1998 ('000s)	553	9,463	5.84
2008 ('000s)	773	11,779	6.56

Source: *Nepal Labour Force Survey, 1998 and 2000.*

The same observation may be made with regard to the structure of employment. During 1998-2008 (labour force surveys were carried out only in those two years), there was a slight increase in the share of manufacturing in total employment. Out of over 11 million employed people in the country, less than a million are in the manufacturing sector. In a developing economy with surplus labour, economic growth is expected to lead to a transfer of labour from low productivity agriculture/traditional sector to the modern sectors characterized by higher productivity. And in that process, manufacturing is expected to take the lead - at least at the initial stage of development. In Nepal, that process does not seem to be taking place. Whatever little structural change has taken place in employment, it has been a shift from agriculture to services. While some of the service sector jobs may be of modern variety with higher productivity and incomes, a vast majority appear to be in traditional services with low productivity and incomes.

7.3. Employment Intensity of Growth in Manufacturing

Employment intensity at the sector level

Labour absorptive capacity of the manufacturing sector (or for that matter of any sector and the economy as a whole) depends not only on its overall size and growth but also on the employment intensity of growth. A widely used measure of employment intensity of growth is the elasticity of employment growth with respect to output growth. There are different methods of measuring employment elasticity, but the reliability of the estimates depends critically on the quality of data.

In interpreting the estimates of employment elasticity for policy purposes, a few points may be noted. First, the concept focuses only on the quantitative aspect of employment growth in relation to output growth, and does not say anything about the quality of employment. Hence, high employment elasticity, while desirable from the point of view of achieving high employment growth, cannot be the only goal. In fact, elasticity higher than one (implying an employment growth that is higher than output growth) implies growth of employment at the cost of decline in labour productivity, and hence, cannot be regarded as desirable.

Second, while high employment intensity of growth (and hence high employment elasticity) is a desired characteristic of growth in an economy like that of Nepal, how high it should be remains a question. Although there is no theoretical basis for suggesting a specific figure in this respect, experience of countries that have been successful in achieving a combination of high rate of economic and employment growth (e.g., Republic of Korea, Malaysia, Indonesia) indicates that for the manufacturing sector, an elasticity in the range of 0.6 to 0.7 combined with high rate of output growth would enable employment and labour productivity to grow simultaneously.

For Nepal, the elasticity of employment for the period 1998-2008 is usually calculated by using output data from the national accounts and employment data from the labour force surveys that were conducted during those two years. Elasticity figures obtained from those data for manufacturing as well as for the economy as a whole are presented in Table 39. The elasticity of employment with respect to output for the economy as a whole works out to be 0.54, which appears quite reasonable. However, for the manufacturing sector the figure is a staggering 3.16, which appears out of line with any such figure for countries at similar levels of development. One possible explanation for this high figure is that data on employment and output growth are obtained from two different sources and may not be consistent with each other. Labour force survey is conducted on households, and a large number of people who are engaged in rudimentary non-farm activities may have been categorized under manufacturing. Output figures on manufacturing, on the other hand are obtained from national accounts data and hence may reflect a smaller part of the economy compared to the activities of those categorized under manufacturing by the labour force survey. However,

if the differences were similar for both the years, they should not have affected the elasticity estimates. But the overestimate in manufacturing employment may not have been systematic, and that may have resulted in unduly high growth rate of employment, and consequently, a high estimate of employment elasticity. That this is a possibility is indicated by the estimate of overall employment elasticity, which appears reasonable because that is based on growth of total employment and total GDP.

Table 39: Elasticity of Employment in Manufacturing and Overall Economy 1998-2008

	Manufacturing	Overall economy
Annual GDP growth (1998-2008)	1.08	4.08
Annual employment growth (1998-2008)	3.41	2.21
Elasticity of employment w.r.t. output	3.16	0.54

Sources: *Data on output growth are from the Ministry of Finance and figures on employment are from the labour force surveys.*

Given the possible overestimation of employment elasticity for manufacturing based on labour force data, it would be desirable to obtain an alternative estimate by using data from the census of manufacturing industries which are conducted on establishments and provide data on both output and employment. Such estimates are presented Table 40. Figures presented in this table are very different from the elasticity figure mentioned earlier. For none of the sub-periods during 1991-2008, elasticity of more than one has been observed. In fact, growth of employment in large-scale industries is found to have been negative during all the sub-periods although output growth has been positive and substantial. The result is negative employment elasticity of employment in this segment of the sector. In the small-scale sector, elasticity was also negative during 1991-99. During 2000-09, the small-scale sector demonstrated positive (though low) employment elasticity.

Table 40: Growth of Output, Employment and Value Added in Manufacturing Sector, 1991 to 2008

(Growth figures are per cent per annum)

Indicators	Large-scale industries			Small-scale industries	
All Manufacturing Sector	1991-1996	1996-2001	2001-2006	1991-1999	1999-2008
Growth of establishments	-3.59	-2.01	1.41	-0.76	-3.29
Growth of persons employed	-2.52	-0.50	-1.54	-1.85	0.08
Growth of paid employees	-2.60	-0.58	-1.36	-1.99	4.32
Growth of wage and salary	-5.72	3.84	-0.20	-1.96	8.54
Growth of fixed assets or investment	-4.10	3.17	8.97	-2.24	6.78
Growth of manufacturing value added	-0.30	2.71	-0.23	3.50	1.13
Growth of output	0.46	5.77	5.33	7.19	0.33
Employment elasticity	-5.51	-0.09	-0.29	-0.26	0.26

Source: *Censuses of Large and Small Manufacturing Establishments.*

Sectoral Variation in Employment Elasticity

As mentioned already, pattern of growth in terms of the sector composition is an important factor influencing the employment intensity of growth. If sectors that are more employment intensive grow at higher rate than other sectors, overall employment intensity of growth will be high. Hence, from the point of view of an employment focused growth strategy, it would be useful to identify sectors that are more employment intensive. This is done by computing the elasticity of employment for various

industries within the manufacturing sector. Data available from the censuses of large-scale manufacturing establishments conducted in 1996 and 2006 are used for the purpose and the results are presented in Figure 7.

It is clear from Figure 7 that there is a wide variation in employment intensity between various manufacturing industries. From the point of view of a strategy of industrialization that would be in line with the twin goals of output and employment growth without compromising on productivity, it would be useful to identify industries with employment elasticity between 0.6 and 1. A number of industries in Nepal belong to this category; they include carpet, garments, dairy products, food products like noodles, other food products, paper and paperboard, wood products, iron and steel, and soft drinks. While the first two industries in the above list are export oriented, the rest cater mainly to the domestic market and hence should have growth potential from the point of view of demand. There are also industries with employment elasticity of greater than one, e.g., jute and jute products, and foot wear. Although growth in such industries may be associated with decline in productivity, it may be possible to bring about efficiency through some upgrading of technology used by them. Such a growth strategy for highly labour intensive industries may still be consistent with the objective of promoting productive employment.

It is thus clear that within the large-scale manufacturing industries, there are a good number of industries where there is scope for simultaneously pursue growth in output, employment and productivity.

Similarly, within the small-scale category, there are a number of industries which are characterized by high degree of employment intensity (employment elasticity of 0.6 to 1.0); they include pulp and paper (0.71), garments and other textiles (0.72), garment (0.72), ceramic products (0.82), glass products (0.86), foot wear (0.9), cement (0.96), and plastic (1.0). The degree of elasticity estimated for various small-scale industries are presented in figure 3. These estimates indicate in some of the small-scale manufacturing industries there is the prospect of simultaneously increasing productivity and employment.

Some of the industries in agro and food processing in both large and small-scale industries such as vegetables oils and fats, noodles, etc. have also been identified as enjoying comparative advantage and having good growth potential. NTIS identified 19 exportable products having comparative advantages and have also underlined potentials of significant benefits that Nepal could reap by developing those commodities and services. Seven of the 19 exportable commodities and services identified – cardamom, ginger, honey, lentils, tea, noodles, medicine, and concentrate oils, are agro-based. Of course, employment elasticity of some of these products like vegetable oils is rather low (close to 0.4). Five commodities- handmade paper, silver jewellery, iron and steel, *pashmina* and woollen products belong to the industrial craft category while the remaining seven belong to service and trade[12].

The upshot of the above is that within small-scale manufacturing, there are industries that are employment intensive and have the potential for growth with improvement in productivity.

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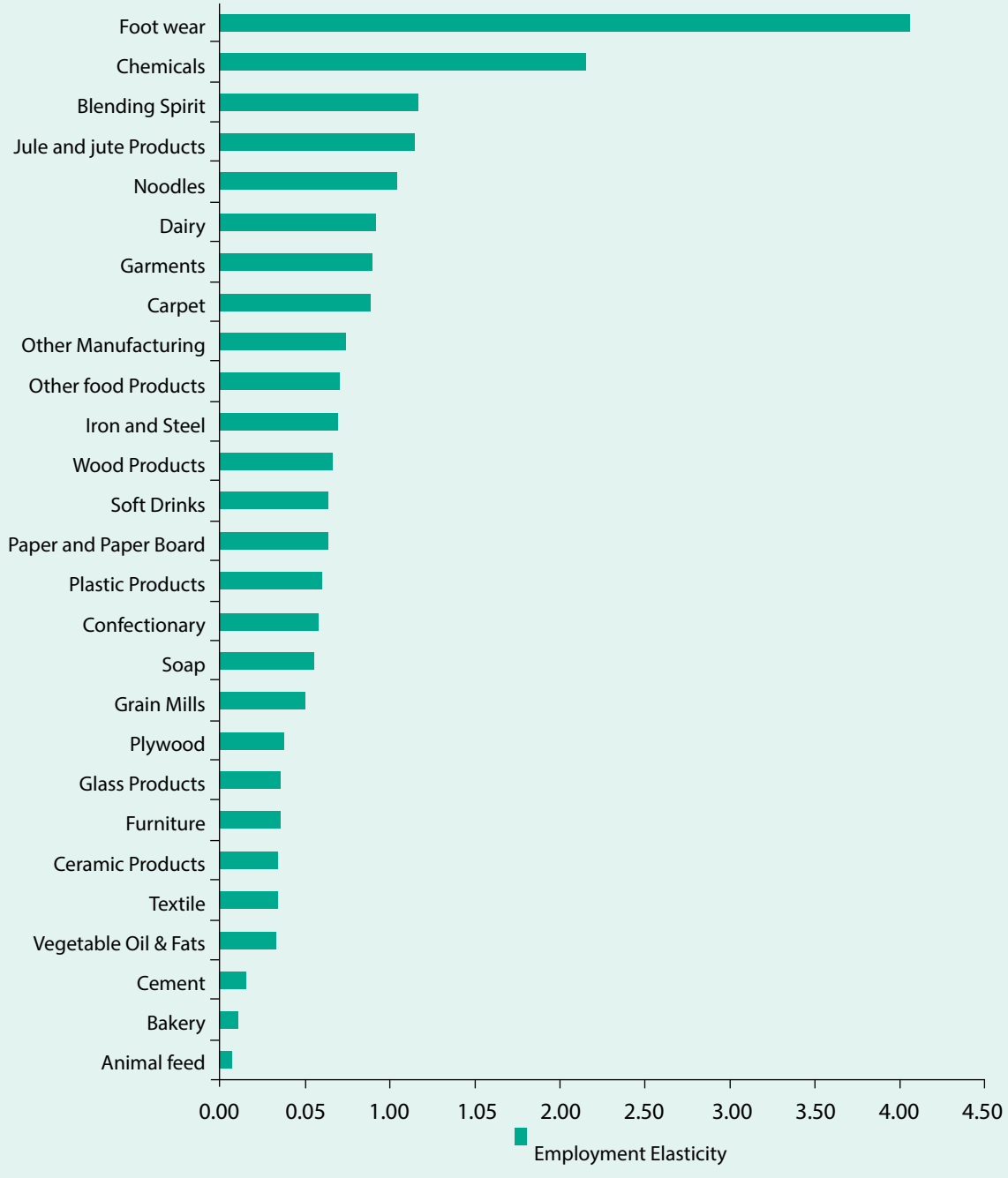
[12] The export potential of 19 products that have been covered by the Nepal Trade and Competitiveness Study of the Ministry of Industry and Commerce (2003) : cardamom, ginger, honey, lentils, tea, noodles, medical herbs/essential oils under agro food items, handmade paper, silver jewellery, iron and steel, pashmina wool product under crafts and industrial goods, tourism, labour services, IT and BPO services, health services, education, engineering, hydro-electricity under services. The aspects that have been considered in analyzing the export potential include the current export performance, current demand conditions, domestic supply capacity, and the potential socio-economic impact of the sector on Nepal's economy. It seems that the exercise does not take into account the implications of open border with India in analyzing the comparative advantage and export potential of those products.

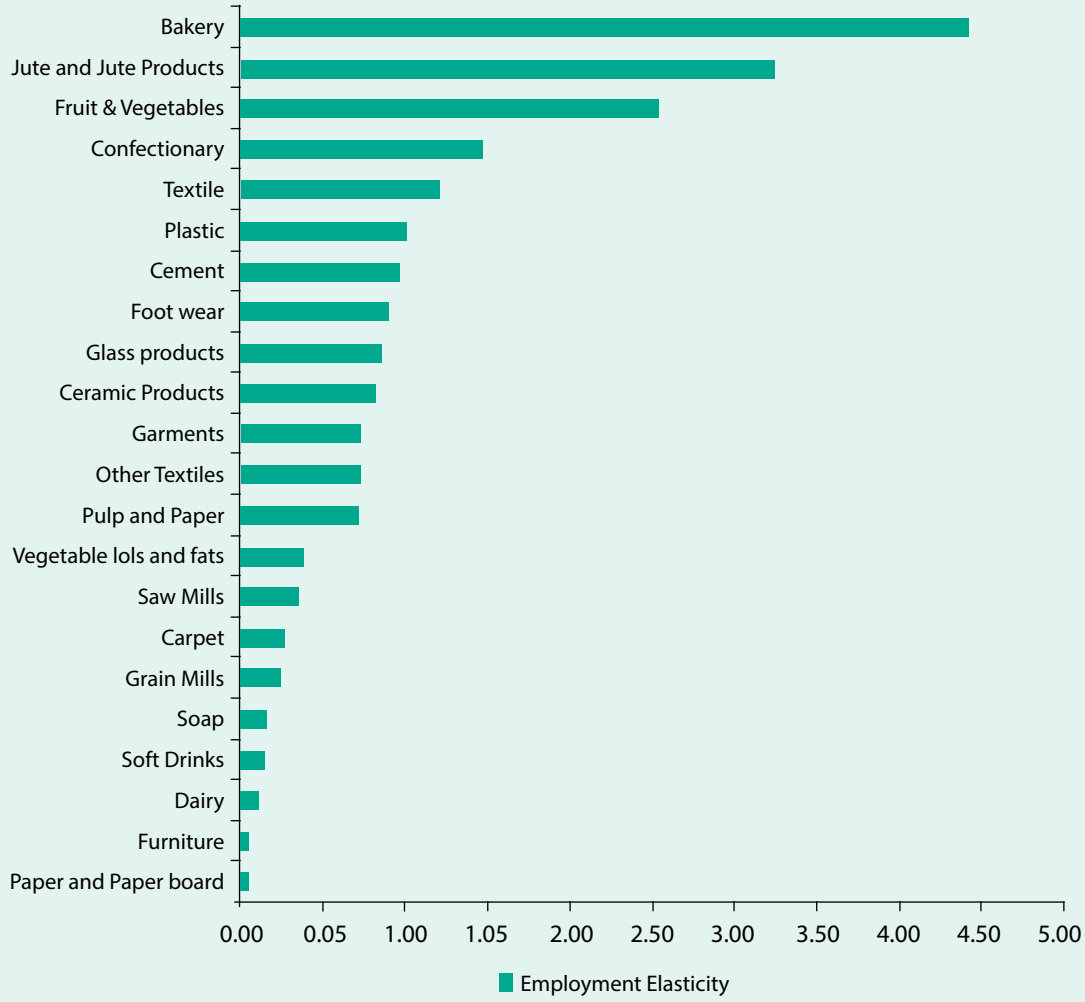
7.4. Growth of Output and Employment in Selected Manufacturing Industries

Figure 7: Sectoral Variation in Employment Intensity in Large-scale Manufacturing Industries, 1996/97-2006/07



Source: *Computed from the censuses of Large-scale Manufacturing establishments 1996 and 2006.*

Figure 8: Sectoral Variation in Employment Elasticity in Small-scale Manufacturing Industries, 1999/00-2008/09



Source: *Computed from the censuses of Small-scale Manufacturing establishments 1999 and 2008.*

In order to obtain a deeper understanding of the prospects of an employment intensive growth of the manufacturing sector, the present study undertook in-depth analysis of four specific industries, viz., agro and food processing, furniture, carpet, and garment. While the first two of these industries are oriented more towards the domestic market, the other two are more export oriented. In terms of growth experience, the latter experienced negative growth during the decade of 2000s while the first two experienced positive growth. It is thus hoped that and analysis of these specific industries would provide one with an understanding of the factors that facilitate or hinder growth in specific industries in Nepal based on which policy perspectives may be drawn.

Figures presented in Table 41 present an interesting picture about the place of the four industries within the manufacturing sector as well as of the change in the relative importance of these industries. First, the share of the four industries together in total manufacturing value added has declined during 1996-2006. This is clearly due to the sharp decline in the shares of carpet and furniture. Within the large-scale segment, the share of food processing increased to some extent, but that could not offset the sharp decline in the shares of the other two. Within the small-scale segment, the share of food processing declined sharply while that of garments increased substantially. The share of furniture increased slightly. The above figures also indicate some structural change within the industries. Within both the garment and furniture industries, there seems to have been a shift towards smaller scale units. In food processing, the shift appears to have been in the opposite direction.

Table 41: Contribution of Selected Sectors in Total Manufacturing Value Added

Sector	Large-scale Industries			Small-scale Industries		
	1996	2001	2006	1991	1999	2008
Food Processing	13.65	19.57	15.34	38.74	60.42	28.86
Carpet	17.87	4.85	4.07	5.88	0.86	0.77
Garments	6.32	7.34	0.99	3.48	0.73	13.74
Furniture	0.88	0.66	0.86	12.7	8.69	14.64
Total	38.72	32.42	21.26	60.8	70.7	58.01

Source: *Computed from Manufacturing Censuses of Large and Small -scale Industries.*

Agro and Food Processing

The major industries in this sub-sector in the large-scale category include dairy products, food products like noodles, sugar, and vegetable oil. In the small-scale category, the major products are bakery, dairy products, grain mill, and vegetable oil. The share of this sub-sector in total manufacturing value added in the large-scale segment was fairly steady between 1996/97 and 2006/07 at a level of about 13.65 to 19.57 per cent. But there are indications that this share increased significantly since 2000/01. Similarly, it ranged from 28.86 to 60.42 per cent between 1991 and 2008/09 in the case of small-scale manufacturing establishments. In this case also, the share has increased substantially since 1999/2000. Strong growth in the manufacture of sugar and vegetable ghee contributed to this increase.

The sub-sector's share of total manufacturing employment is less than its share of total manufacturing value added - ranging from 10-12 per cent in large manufacturing establishments and 25-40 per cent in small manufacturing establishments, which reflects high capital intensity in some product groups such as sugar.

The sub-sector's relative importance in the total manufacturing sector may be even larger when taking into consideration small and micro size production units at household levels. In this sector, with value added in the size order of 25 per cent of the total value added as reported by establishments with 10 and more employees, the food sub-sector accounts for about 60 per cent of value added and 45 per cent of employment (mainly grain milling products).

An overview of growth in output and employment in the agro and food-processing sector is provided in Table 42. A few observations may be made on the basis of data presented in this table. First, after healthy investment growth during the first half of the 1990s, there has been no further growth in investment in this sector. In fact there has been negative growth in investment after 1996. As for growth in output, the figure for 1991-96 (which is negative) does not appear consistent with a healthy growth in investment.

One possible explanation is that output growth came with a lag, because there has been high growth of output after 1996. Employment growth was also positive after 1996. But the elasticity of employment with respect to output declined sharply over time, indicating that productivity growth rather than growth in the quantity of input contributed more to output growth.

In the small-scale sector, the trend has been different. While investment growth was negative during the 1990s, there was healthy growth after that. But figures for output growth do not appear to be consistent with investment growth: while positive output growth is observed during the period of negative investment growth (1991-99), opposite is the case during 1999-2008. Elasticity of employment was very low (especially if one looks at in relation what would be expected of a sector like this) during 1991-99, but it increased substantially during 1999-2008. The result has been a negative growth of productivity during the latter period.

Table 42: Growth of Agro and Food Sector Output, Employment and Value Added, 1991-2006

	Large-scale industries			Small-scale industries	
Agro and food processing (%)	1991- 1996	1996-2001	2001-2006	1991-1999	1999-2008
Growth of Establishments (%)	0.68	2.01	3.61	2.82	-4.40
Growth of Fixed assets (%)	8.80	-5.17	-3.23	-1.09	5.12
Growth of inputs used (%)	-6.87	-5.58	-4.55	15.92	-8.83
Growth of Output (%)	-0.38	13.00	23.63	14.22	-7.66
Persons employed growth (%)	-0.68	6.12	2.30	0.78	-2.36
Paid Employee growth (%)	-0.97	6.15	2.25	-0.71	-0.82
Elasticity (person involved)	1.76	0.47	0.10	0.05	0.31
Productivity Growth	0.29	6.48	4.31	13.34	-5.43

Source: *Census of Large and Small -scale Manufacturing Establishments.*

In order to look at the growth experience of individual industries and to identify what may be termed as "growth industries", data on growth of output and employment were examined for different sub-periods- 1991-96, 1996-2001, and 2001-06 for large-scale establishments and 1991-99 and 1999-2008 for small-scale establishments. Interestingly, no major industry except dairy products and noodles demonstrates consistent growth. Both these products (in large as well as small-scale) attained consistent growth since 1996. Sugar industry in the small-scale segment had positive growth in both sub-periods. In the large-scale segment, this industry registered positive growth in two of the three sub-periods. Thus, if one were to identify growth industries in the food-processing sector, one could perhaps mention dairy products, noodles and sugar.

As for employment growth, even the industries with positive output growth show mixed experience. In the small-scale sugar industry, employment growth was negative despite positive output growth. In the large-scale segment, there was positive employment growth when output growth was positive. In the small-scale noodle industry also, there was negative employment growth despite positive output growth. In the large-scale segment, high output and employment growth was attained during 1996-2001, but during 2001-06, employment growth was negative despite positive output growth. In the case of dairy products, there was positive employment growth when output growth was positive.

Carpet

Carpets produced in Nepal are basically hand-knotted woollen carpets, most of them featuring traditional patterns, but some also featuring new, modern patterns. Benefiting from the export market, the industry attained impressive growth in the 1980s. But it declined rapidly since the early 1990s, and its share in total

manufacturing value added dropped dramatically between 1996/97 to 2006/07, from 17.8 per cent in 1996 to 4.85 per cent in 2001 and further to 4.04 per cent in 2006 in the case of large-scale industry group. As can be seen from Table 43, investment, output, and employment in the industry declined continuously since 1991.

As for the export market, EU was the main market receiving 86 per cent of total carpet exports, followed by USA with 10 per cent and other countries 4 per cent in 1998/99. Germany alone accounted for 75 per cent of the exports, but has the function as wholesaler and distributor of carpets from all around the world to EU. Export of carpets declined from 3.33 square metres in 1993-94 to 1.29 square metres in 2008/09. And the industry's share in total exports declined from 49.3 per cent in 1993/94 to a mere 8 per cent in 2008/09. It is thus clear that from being a major export industry, it has become a minor source of export earnings.

Table 43: Growth of Output, Employment and Value Added in the Carpet Industry

	Large-scale industries			Small-scale industries	
	1991-1996	1996-2001	2001-2006	1991-1999	1999-2008
Growth of establishments (%)	-14.63	-14.79	6.08	-28.53	-10.66
Growth of fixed assets(%)	-14.74	-11.52	-0.88	-30.60	3.24
Growth of inputs used (%)	-9.87	-18.63	-5.66	-17.79	-13.72
Growth of output (%)	-7.57	-19.69	-12.52	-18.12	-6.46
Growth in persons employed (%)	-3.34	-19.47	-11.01	-28.18	-1.71
Growth in paid employee (%)	-3.23	-19.36	-10.93	-34.64	17.88
Elasticity (persons employed)	0.44	0.99	0.88	1.56	0.26

Source: *Censuses of Manufacturing Establishments.*

Employment followed the same pattern, declining from about 54,670 persons in 1996/97 to about 18,514 in 2001/02 to further 17,024 in 2006/07 reflecting declining international market opportunities. There has been a further reduction in the labour force reflecting the continued decrease in production. The organized carpet enterprises, however, sub-contract a significant part of their production to individual households that are not covered in the above statistics. Women account for about 45 per cent of total employment in the industry.

That the carpet industry in Nepal is an employment intensive industry is indicated by the fact that in the large-scale segment of the industry, the elasticity of employment with respect to output growth has been nearly one during the 2000s. In the small-scale segment, employment elasticity declined sharply during that period. That may have been due to a greater reliance on productivity enhancement as a mechanism for survival when the operating environment became difficult.

The phenomenal growth of the carpet industry in the late 1980s and early 1990s has been attributed, inter alia, to a Swiss technical assistance project functioning as a catalyst to open up the market in EU to Nepalese carpets and a World Bank funded project, whereby the practices of washing carpets and using moth resistant dyes were introduced to improve the quality of carpets. Simultaneously, the carpet industry started to use high quality wool imported from New Zealand as supplies of wool from Tibet became increasingly insufficient.

The steady decline since 1993/94 is mainly a function of the decline in overall demand for carpets in EU, which went down by 38 per cent in Germany alone between 1993 and 2000. Another contributing factor has been the shift in the structure of demand to either higher quality carpets from Iran or lower quality/

low price carpets from other countries like India and China. Nepal has occupied a middle segment consisting of medium quality carpets, at somewhat higher prices than the cheapest carpets being supplied by India and China. Germany is the major country for carpet but over the period of time carpet export to Germany has significantly decreased. The export from Nepal to Germany was 1.04 million square metres in 2001, which decreased to 348 thousand square metres in 2008. One of the reasons may be the perception regarding the use of child labour in carpet factories.

Garments

Major product categories in the garment sub-sector are men's and boys' shirts and trousers as well as ladies' dresses. The garment industry of Nepal developed primarily on the basis of the quota system combined with investment from India because Indian investors were keen to benefit from Nepal's quota. In the early 1980s, there was a quota for India but not for Nepal. With the Indian investors as a dummy Nepali industrialists came and started the garment industry. But with increasing garment export from Nepal, a quota was also placed for Nepal too. In contrast with Bangladesh, Nepal did not open up the garment sector for FDI (except India). Nepal's productivity was low and prices were high compared to China and Bangladesh. After the end of MFA in December 2004, with the abolition of quota and inability to compete in the open market, exports of garments from Nepal declined significantly. However, the industry has been gradually picking up again. Some salient features of the sub-sector and its development are illustrated in Table 44.

It is clear from the figures presented in Table 44 that investment in the large-scale garment industry has been declining continuously since the early 1990s. Output and employment growth was positive only during 1996-2001. Thus, it is not only the abolition of the quota system after the end of the MFA regime that was responsible for the decline of Nepal's garment industry. The decline started much earlier, and there must be other reasons than the abolition of the quota system.

Table 44: Growth of Output, Employment and Value Added in the Garment Sector

	Large-scale industries			Small-scale industries	
	1991-1996	1996-2001	2001-2006	1991-1999	1999-2008
Growth of establishments (%)	-10.29	-3.30	-20.73	-10.92	21.85
Growth of fixed assets (%)	-10.38	4.54	-14.89	-14.09	34.17
Growth of inputs used (%)	1.36	1.32	-20.79	-16.13	45.51
Growth of output (%)	-1.56	3.09	-12.05	-1.32	41.98
Growth of persons employed (%)	-3.19	3.98	-10.73	0.33	30.23
Growth in paid employee (%)	-2.97	4.08	-10.68	0.19	44.40
Employment elasticity (persons employed)	2.04	1.29	0.89	-0.25	0.72

Sources: *Censuses of Manufacturing Establishments.*

Figures relating to the small-scale segment of the garment industry (Table 44) point to some interesting development. After a period of negative growth during the 1990s, there seems to have been a turnaround in all respects. Investment and output have grown at healthy rates. The number of establishments has also grown, indicating that it is not only the existing units that have expanded but new units have also come up. Employment has also grown alongside output. And the elasticity of employment with respect to output has been an encouraging 0.72 during 1999-2008. These figures indicate that small-scale units in the garment industry of Nepal have been able to grow even after the abolition of quotas and the industry remains employment intensive as expected. From the point of view of a pursuing a strategy of

export oriented industrialization, it would be useful to look at this growth experience of this segment of the industry in some depth so that it becomes possible to capitalize on and consolidate the success achieved there.

Furniture

The wood furniture industry accounts for only a small fraction of the country's total industrial output - less than 1 per cent of the value added in the large-scale segment and 14.6 per cent in the small-scale segment. However, given the potential demand for furniture as income increases, this industry should have good potential for growth.

Some salient features of the sub-sector and its development over the last several years are illustrated in Table 45 below.

As these are the official census figures, it is possible that they underestimate the importance of furniture and various other wood products (including handicrafts) because of under-coverage of smaller production units. Based on a survey of small manufacturing establishments (less than 10 employees) in 1999/2000, it was estimated that almost 8,221 employees (15.20%) were employed in 1991, which increased to 9,320 (20.24%) in 1999/00 and further to 11,113 employees (16.49%) in 2008/09 in the smaller establishments.

Moreover, the industry's performance has improved measurably in both its capital and labour utilization after 2006 as input output ratio remained 0.6 in large-scale establishments and 0.65 in the case of small-scale establishment. But the industry has become more capital intensive as the ratio of capital to labour has increased - from Rs. 13,532 in 1996 to 19,179 in 2006 in large-scale industries and from 11,650 in 1991 to 16,039 in small-scale industries.

Table 45: Growth of Output, Employment and Value Added in Furniture Sector

	Large-scale industries			Small-scale industries	
	1991-1996	1996-2001	2001-2006	1991-1999	1999-2008
Growth of establishments (%)	1.37	-0.37	0.74	6.70	-2.60
Growth of fixed assets (%)	-2.70	-3.53	12.53	8.93	3.51
Growth of inputs used (%)	-9.57	-5.76	10.92	0.11	13.02
Growth of output (%)	0.61	0.79	1.78	-0.43	7.08
Growth in persons employed (%)	1.07	0.97	0.62	3.17	0.35
Growth in paid employee (%)	0.43	2.46	10.65	1.58	1.97
Elasticity (persons employed)	1.77	1.22	0.35	-7.41	0.05

Sources: *Censuses of Large and Small Manufacturing Establishments.*

Figures in Table 45 indicate that in the large-scale furniture industry there has been modest but sustained growth of output in the furniture industry during the two decades since 1991. Investment registered healthy growth during 2001-06 after negative growth during the 1990s. Employment also increased alongside output, although the elasticity of employment with respect to output declined, indicating a decline in the employment intensity of growth and reliance on productivity increase as the source of growth. In the small-scale segment, investment increased since 1991, and output growth became healthy after 1999.There was positive employment growth during the 2000s. Thus, on the whole, the performance of the furniture industry appears to have been in the positive direction.

Infrastructure

8.1. Introduction

The potential role of infrastructure in developing countries - in facilitating the growth of other sectors as well as in generating employment - has already been mentioned earlier in the present report. But in Nepal, despite high growth of the construction sector, its share in GDP has been rather low, and has not increased much. Between 2000/01 and 2009/10, the share of the sector in GDP has increased only marginally from 6.01 per cent to 6.64 per cent[13]. The sector's share in total employment has actually declined. This, however, should not be taken to underestimate the role of infrastructure in promoting growth and employment generation in the country. Instead, an attempt should be made to examine the potential for faster growth of the sector and to understand the factors responsible for low employment growth. The purpose of the present section would be to undertake such an exercise based on which policies could be formulated for future growth employment generation in the sector.

As part of an exercise on engendering employment intensive growth through increased investment and higher growth of infrastructure in Nepal, this section will start by undertaking a basic stock of the sector, which would include the sector's overall size in terms of contribution to the country's GDP, total investment, and employment. Alternative projections would be made of medium and longer-term investment in the sector. An attempt will be made to identify the part of the sector (and its components) where there is potential for application of labour-based approaches. Based on these basic parameters, an estimate would be made of the employment potential of investment and growth in the sector. Alternative scenarios would be outlined based on different assumptions about the growth of investment and adoption of alternative approaches. An attempt will be made to estimate the total impact on employment (taking into account both direct and indirect effects) of investment in the major components of the sector, e.g., roads, irrigation, soil conservation, etc.

An important issue relating to employment through infrastructure is that of financing necessary investment in the sector. It can be expected that in a country like Nepal, a large part of the investment in this sector would be financed through external assistance. Hence, it would be useful to examine the fiscal space that the country has (both in actual and potential terms) and the likely flow of external assistance for investment in the sector.

8.2. Growth, Investment, and Employment in Infrastructure: An overview

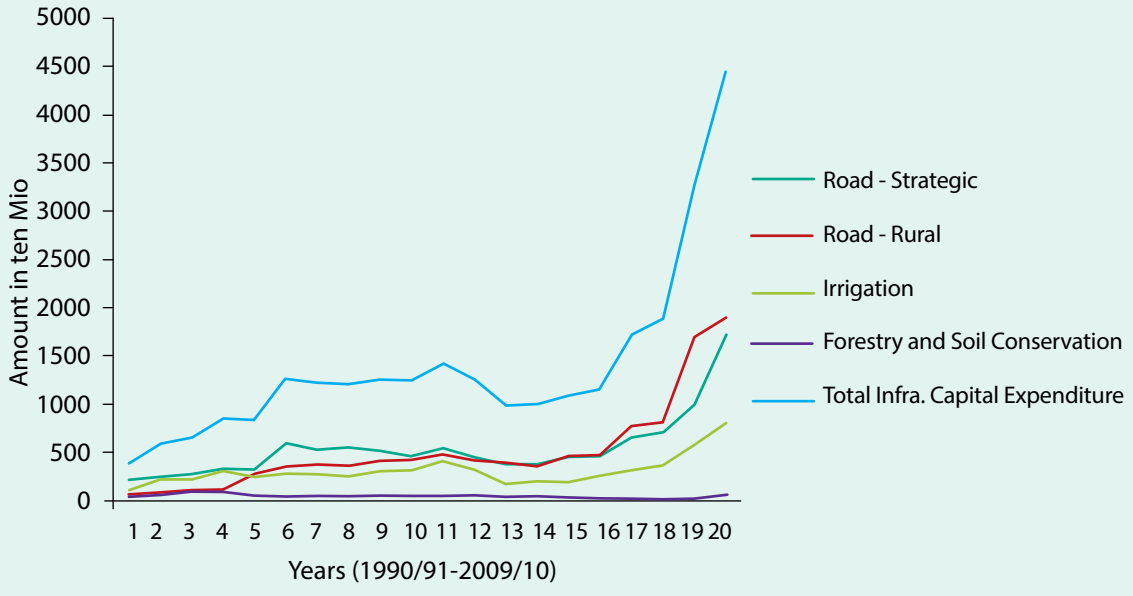
During the 1990s, construction sector attained high growth and grew at a substantially higher rate compared to overall GDP. However, growth rate declined sharply during the 2000s in absolute terms as well as in relation to GDP. During 1990/91 to 1999/2000, the sector grew at an annual rate of 6.27 per cent per annum while GDP grew at 4.73 per annum. The respective growth rates were 3.56 and 3.51 per cent during 2000/01 to 2010/11. Thus, construction sector can no longer be said to be pulling overall economic growth in the country.

[13] These figures are from Government of Nepal (2010). In Bangladesh, for example, the share of the sector in GDP is over 9 per cent.

Figure 9: Share of Infrastructure in Total GDP

Investment in infrastructure, especially in the rural roads sub-sector increased rapidly during the 2000s (Figure 10). In fact, investment in rural roads has overtaken the figures of other sub-sectors.

Figure 10: Capital Investment in Various Components of Infrastructure



The performance of construction sector in terms of employment generation has been rather disappointing. With the introduction of new equipment, the labour component has been decreasing in the sector. Based on the GoN's construction norms which was prepared in 1984 and which was effective until a few years back, the overall labour component was around 60 per cent of the overall budget (HMGN, 1984). However, it decreased gradually and has reached 30 per cent in 2011 (DoR, 2011). It is clear from Table 46 that labour component has declined at a much faster rate in the strategic

roads sector compared to rural roads, irrigation, and forestry sub-sectors. The Department of Roads (DoR) has introduced new construction norms, which permits the use of equipment where practicable and possible. Increasing scarcity of workers is another factor responsible for the decline in the labour content in some areas, particularly in the Eastern, Central and Western Regions.

Table 46: Labour Component in Various Sub-sectors of Infrastructure (% of total cost)

Year	Roads: strategic	Roads: rural	Irrigation	Forestry and soil conservation
1990/91	60	70	80	80
1999/2000	35	65	78	78
2008/09	19	60	75	75

As a result of the decline in labour component, the employment generating ability of the construction sector has been decreasing gradually. The estimated employment of 19 million person-days in 1990/91 has decreased to 8 million person days in 2009/10. Assuming full employment of 300 working days a year, the construction sector generated 62,175 jobs in 1990/91 which decreased to nearly 27,000 jobs in 2009/10[14].

Since the 1990s, there has been a shift in the distribution of investment in various sub-sectors of infrastructure (Table 47). The share of strategic roads has declined substantially while that of rural roads has increased very sharply. The total allocation of NRs. 3,880 million in 1990/91 reached to NRs. 44,412 million in 2009/10 in nominal price, a growth of almost 10 times during the period of 20 years (Table 47). The rural road has been the leading sector, which has overtaken all other infrastructure sectors.

Considering the fact that the labour content is higher for the rural roads sub-sector and has not declined as sharply as that of the strategic roads sub-sector, the observed shift in the allocation of investment can be said to have been conducive to employment generation. Table 47 shows that employment in rural roads increased sharply since 1990/91. But employment in strategic roads Declined sharply which is a result of a decline in labour content as well as a shift in investment away from that sub-sector. As a result, total employment increased from 250,299 in 1990/91 to 319,714 in 1999/2000 - implying an annual growth of 2.78 per cent. But employment declined after 1999/2000, resulting in a negative growth of -2.48 per cent during 1999/2000 to 2008/09. Thus the growth of employment during 1990/91 to 2008/09 was a low 0.22 per cent per annum.

Table 47: Percentage Distribution of Capital Investment Among Sub-sectors of Infrastructure

Sub-sectors	1990/91	1999/2000	2009/10
Roads strategic	51.03	37.88	38.32
Roads rural	8.27	33.37	42.44
Irrigation	28.84	24.56	17.96
Forestry and soil conservation	11.86	4.19	1.29
Total	NRs 3,880m	NRs 12,396m	NRs 44,412m

[14] It may be noted in this context that the employment generation programme such as the Rural Community Infrastructure Works (RCIW) Programme aims to generate employment for 81 days in a year, which is considered to be enough for ensuring food security. India's National Rural Employment Guarantee Programme provides for 100 days of employment per household per year.

Table 48: Employment Generated in Various Sub-sectors of Infrastructure

Sub-sectors	1990/91	1999/2000	2008/09
Roads strategic	111,099	73,287	39,190
Roads rural	21,038	121,695	138,126
Irrigation	83,731	106,565	72,716
Forestry and soil conservation	34,431	18,167	5,236
Total	250,299	319,714	255,268

Use of highly mechanized construction technology in strategic roads is mainly responsible for the situation mentioned above. The rural road sector has been also affected by this phenomenon. However, due to strong donors' position, the labour-based construction technology still prevails, particularly in the donor funded projects.

The labour component in irrigation and forestry and soil conservation sectors did not decline much. Mechanization in both of those sectors is difficult because of the difficulties in transporting equipment in the far-flung and remote areas. However, having very low investment in forestry and soil conservation sector, employment generation has remained low - around 5000 annually. The irrigation sector still generates more than 72,000 jobs annually (Table 49)

Table 49: Elasticity of Employment with Respect to Output Growth in Infrastructure, 1990/91 to 2009/10

Period	Elasticity
1990/91 – 1994/95	0.84
1995/96 – 1999/00	-0.20
2000/01 – 2004/05	-2.91
2005/06 -2009/10	-0.85
1990/91 – 1999/00	0.26
2000/01 – 2009/10	-1.15

Table 49 shows that there was positive relation between the GDP growth rate and employment until 1994/95. The elasticity of employment was 0.84, which means every one-unit increase in GDP would contribute to increase 0.84 unit of employment. This may be considered as normal for construction sector in a country like Nepal. However, the trend reversed after mid nineties because of mechanization. Although GDP in the construction sector was increasing, employment was decreasing. In fact, since the mid-1990s, employment growth has been negative despite positive growth in the sector.

Apart from the technical requirement of strategic roads, a number of factors were operating in favour of mechanization. They included concessional import duty on construction equipment, and scarcity of workers in certain regions. Employers preferred to use equipment because of the perceived difficulty of managing large groups of workers. The desire of quick delivery was another factor behind the use of equipment.

8.3. Prospects of Investment and Employment in Infrastructure

Three scenarios

For the future, three scenarios are proposed: status quo, pessimistic and optimistic. The status quo scenario assumes that the present trend will continue, which implies that the process of mechanization

will continue in the strategic road and rural road sectors. Irrigation sector will experience modest decline in the labour component, with some increase in mechanization. The forestry and soil conservation will also follow similar trend as the irrigation.

In the pessimistic scenario, the labour component of the strategic road is assumed to decrease drastically from 60 to 19 per cent. The reason behind this is that DoR has already introduced equipment-based norms. Equipment is being imported from China at comparably lower cost compared to imports from Japan and other developed countries, and the result has been a lowering of the cost of equipment.

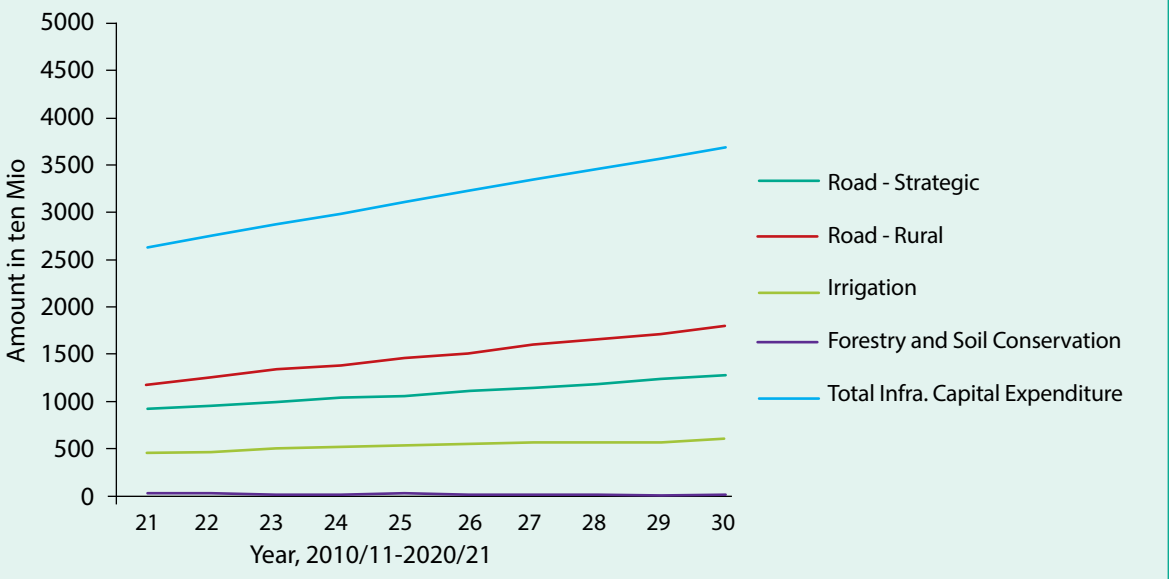
In the optimistic scenario, it is assumed that GoN will introduce proactive measures in order to make labour-based technology more attractive. For example, more import duty will be imposed on the equipment; it will be mandatory to use labour-based technology.

Scenario 1: Status Quo

The past trend shows that the investment in rural road, strategic road and irrigation will continue to grow in the next 20 years. As shown in Figure 11, rural road seems to be the leading sector and will be receiving the highest allocation in future, which is followed by strategic road and irrigation. Forestry and soil conservation is expected to receive relatively lower investment in comparison to other sectors.

There is more than 40,000 km of rural earthen roads, which need to be upgraded. A number of new roads are also under construction. Hence, the rural road sub-sector is going to absorb a considerable amount of resources. As for technology, while District Development Committees (DDCs) are already using bulldozers and excavators for moving earth, all donor-funded projects have been using labour based construction technology. At present, the overall labour component is assumed as 60 per cent of total expenditure.

Figure 11: Projection of Allocation to Different Sub-sectors of Infrastructure: Status Quo Scenario

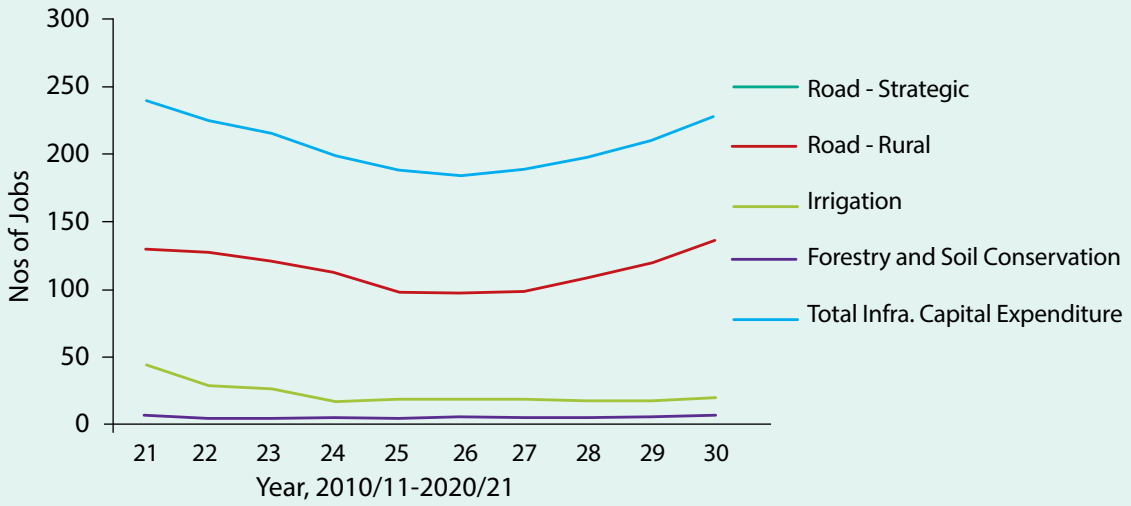


Investment in the strategic road sector is going to increase considerably. The proposed North - South Transit Routes and East West Mid Hill Highway are going to consume huge amount of resources. As

urban population is increasing considerably, the demand for urban road will increase considerably. The demand for high quality roads, for example, Kathmandu - Terai fast track will also absorb sizeable amount. All these factors will lead to investment. However, the increased investment in this sub-sector may not lead to a correspondingly high growth of employment because the strategic roads will require capital-intensive technology. While earth-moving activity in this sub-sector will be executed mainly by equipment, manual labour will be used in only some of the operations. As a result, the labour content of this sub-sector will be approximately 19 per cent of the total cost. Investment in forestry and soil conservation will be stagnant (Figure 11).

In the status quo scenario, employment trend of rural road, strategic road and irrigation is expected to be positive. The rural road sector is likely to be at the top, followed by strategic road, irrigation and forestry. The rural road will continue providing highest employment opportunity reaching to 1,435 thousand in 2020. The number employed in strategic road, irrigation and forestry is likely to remain stagnant.

Figure 12: Projection of Employment: Status Quo Scenario



Scenario 2: Pessimistic

This scenario assumes that the labour component in rural road sector can be increased with some policy adjustment. However, such possibility is not there for the strategic road sector. The irrigation and forestry has significantly high labour component, which has less possibility to increase.

Figure 13: Projection of Total Investment: Pessimistic Scenario

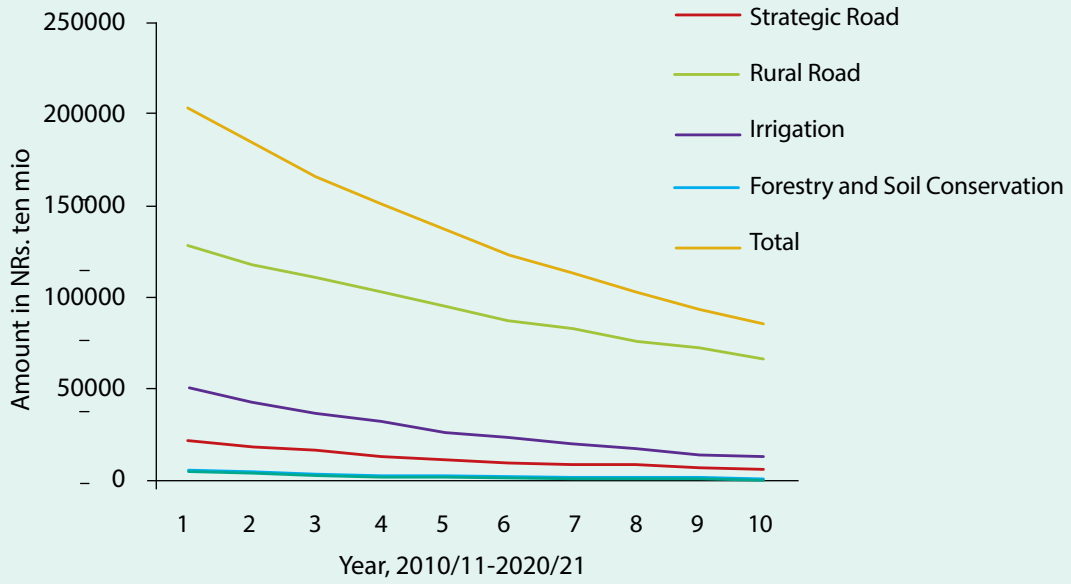
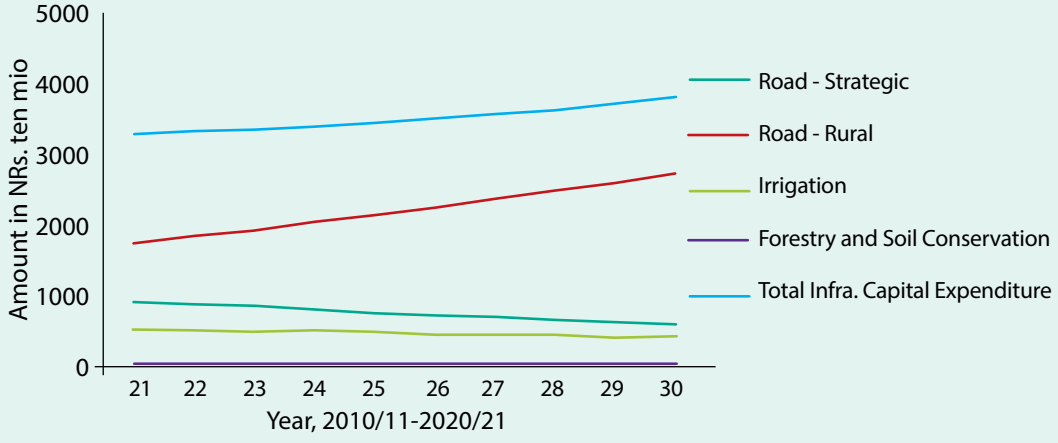


Figure 13 shows that rural road will be the leading sector in terms of investment. Due to relatively small allocation in irrigation sector, employment may not increase significantly. The strategic road sector will continue to use equipment intensive technology, and hence employment will not increase. The forestry and soil conservation will also continue with stagnation in job creation.

Figure 14: Projected Employment: Pessimistic Scenario



Scenario 3: Optimistic

In the optimistic scenario, the projection is based on 2008/09 because the figures in 2009/10 are unusually high. It is assumed that strategic and rural roads will receive 10 per cent increase in allocation. However, irrigation and forestry and soil conservation sectors will receive an annual increase of 5 per cent. With these growth rates, the total investment by the end of 2020/21 will be NRs. 107,240 million. With this increased allocation, the total employment will increase from 275,482 in 2010/11 to 351,101 in 2020/21.

Figure 15: Projection of Total Investment in Infrastrucre: Optimistic Scenario

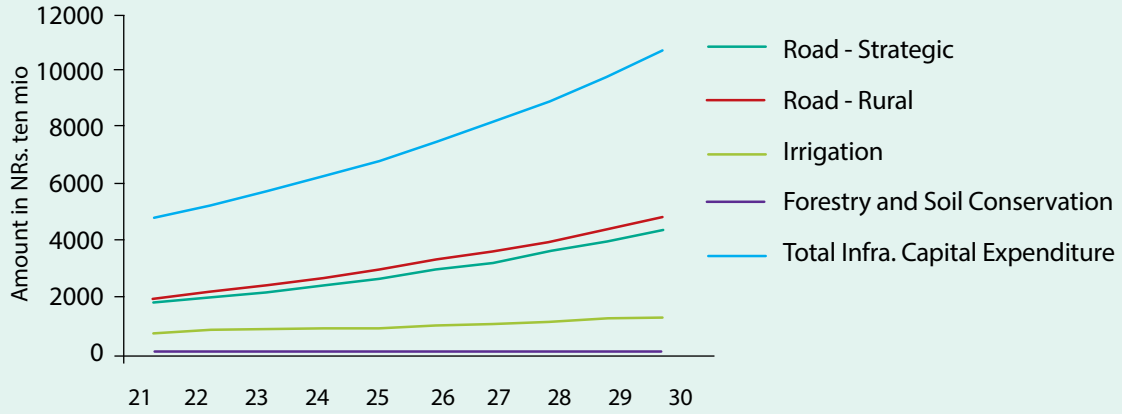
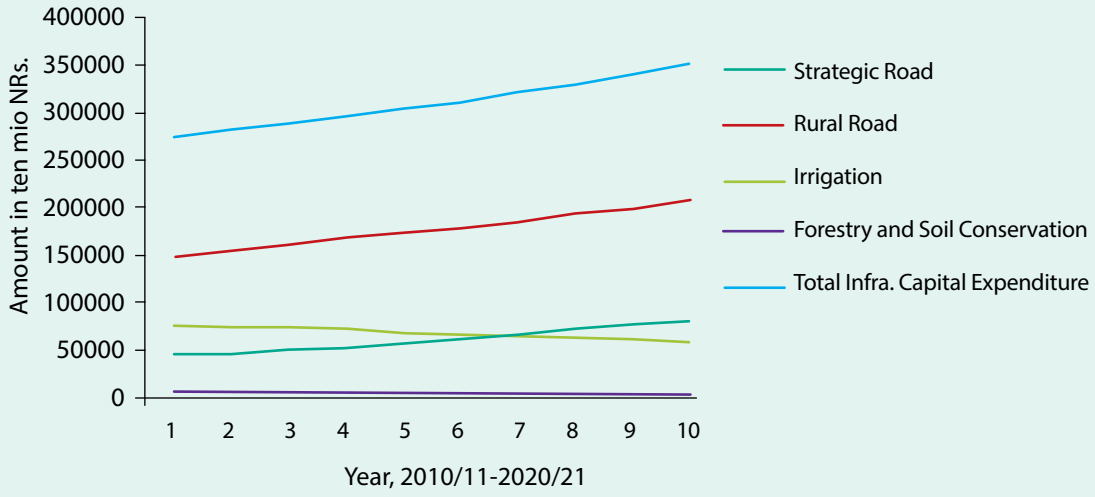


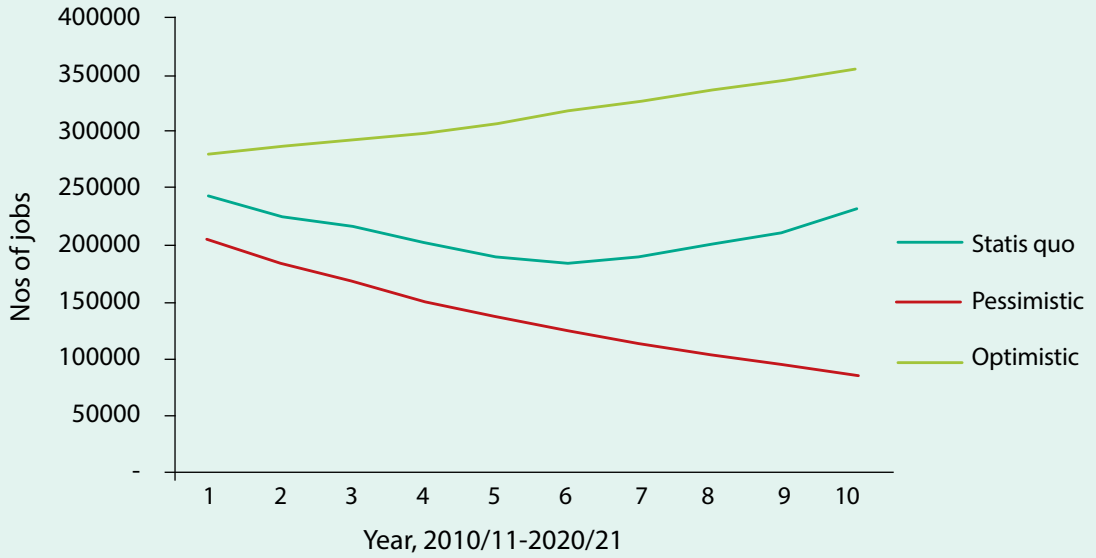
Figure 16: Projection of Employment: Optimistic Scenario



Comparison of various scenarios

Employment will range between 85,000 - 351,000 in four major construction sectors. However, the employment in the most likely scenario (status quo) will be around 228,000. In order to achieve employment of 351,000, GoN needs to introduce some proactive measures such as: increasing import duty of construction equipment, issue a decree restricting use of bulldozer and excavaters for local roads etc. Figure 17 compares numbers of jobs under three different scenarios.

Figure 17: Comparison of Scenarios



8.4. Proposed Programmes and Employment Implications

In August 2011, the National Planning Commission (NPC) approved the first draft of the Employment Guarantee Act that intends to provide a legal employment guarantee for the poor people. The Act was planned to be implemented during 2012-13. The Act provides for a minimum of 100 days of employment per year to at least one member of poor families. For this purpose, the infrastructure sector is conceived as a major employer. If the state fails to provide employment opportunity, the GoN has to provide 50 – 60 per cent of the wage rate as unemployment allowance. For purposes of implementation of the programme, district and village level committees will be formed, headed by Village and District Chairmen. A monitoring committee will be formed under the leadership of the NPC Vice Chair (Republica, 2011).

Since the infrastructure sector is expected to play a major role in implementing the employment guarantee act, a few ideas for possible schemes are provided below. Among the four sub-sectors analyzed in the present report, there is good potential for new schemes in the field of rural road and trail. Road-side plantations along the strategic road networks will be a new form of forestry and soil conservation activity. Some basic information about the proposed schemes is presented in table 50.

Table 50: Proposed Infrastructure Projects

Title (duration)	Description of the project	Total cost	Beneficiaries/Employment
Rural roads (10 years)	All weather roads along with market centres and other peripheral infrastructure	US$ 2 billion (US$200 million per year)	(i) 300,000 jobs per year assuming 100 days per person (ii) 80,000 families from road side plantation
Road side plantation (5 years)	Plantation covering 70 % of the total road length of 20,138 km	US$257 million (US$51 million per year	(i) 28,000 jobs per year (ii) Indirect benefits for 100,000 families
Rehabilitation of historical heritage routes (8 years)	4,000 km of trails to be covered	US286 million (US$ 36 million per year)	(i) 17,000 jobs per year (ii) Indirect benefits for a total of 2 million families

As for rural roads, it may be noted that out of the 40,000 km of total tracks that the local governments opened, only 8000 km is all weather road and the remaining 32,000 kms of tracks are prone to landslides and other adverse environmental difficulties. There is thus a great deal of work that is needed towards improving sustainability of rural roads in the country. In order to improve access of poor and marginalised communities to the markets and services and to provide employment opportunities, a central level national rural road project is proposed. The proposed project would involve undertaking of construction or upgrading of 100 kms of priority roads in each of the 75 districts. In addition to the roads, small-scale irrigation schemes and market centres will also be constructed.

Roadside plantation will be undertaken along this road corridor for protecting the road slopes and for creating employment opportunities for the poorest of the poor. Roadside plantation can be undertaken along the road networks of 20,138 km in Nepal. The Department of Roads (DoR) have acquired Right of Way (RoW) for almost all major national highways and feeder roads. However, a large part of the space has been encroached seriously and acquired land has been used inappropriately, which triggers soil erosion and landslides. On the other hand, RoW has not been acquired for rural roads. This situation has accelerated deterioration of road structures. Due to lack of vegetation on the road slopes, noise and dust pollution increases inducing serious health hazards.

The nation has been losing the national land resources due to improper management of RoW. Assuming that only 70 per cent of RoW land can be used productively, the strategic road will have nearly 18,000 ha of land, which is equivalent to 347,000 Ropanies[15]. The available RoW land will be sufficient for nearly 100,000 deprived families of the neighbouring settlements for their livelihood. This can be a silent land reform. Given the above background, it would be useful to pilot innovative approaches to protect the RoW and to demonstrate how this could be used for protecting roads and poverty reduction.

Rehabilitation of historical heritage routes could be another potential means of productive employment generation. There are thousands of kilometres of historical trails in Nepal. The North South Trails and East West trails are mainly important. These historical trails can be defined as open museums which have temples, monasteries, ancient barracks, Chautaries, Pokharies, etc. , some of which are already destroyed and others are in the brink of destruction. These historical heritage sites have to be preserved for future generation and these can be potential sites for tourism promotion as well. A project of this kind can provide a good basis for a responsible and educational trekking tourism, which would contribute to sustainable development, income generation and poverty reduction of rural communities and to the conservation of cultural and natural heritage.

The proposed three projects cost $2828 million with an annual planned expenditure of $287 million. At the rate of 100days per person, the projects can generate a total of at least 414,000 jobs per year. After the project is over, the beneficiaries of roadside plantation and heritage trails will be involved in longer-term livelihood initiatives. The beneficiaries of road will find other alternative longer-term employment opportunities.

The cost of the proposed projects - US$287 million annually - is approximately 27 per cent of the development budget of 2011/12. This is approximately 50 per cent of the total allocation in the four major infrastructure sectors and approximately 2 per cent of national GDP. This may appear slightly ambitious. However, it should be possible to rationalize some existing projects of similar nature and integrate the new ones with them. With that approach, it should be possible to bring down the *additional* cost of the suggested new projects. Moreover, it may be possible to raise additional resources through more efficient revenue collection.

[15] 1 Ropani = 5476 square feet.

Tourism

9.1. Introduction

Tourism is being increasingly recognized for its economic potential - from the point of view of boosting economic growth as well as of generating employment and reducing poverty in developing countries. World tourism has been recovering strongly since 2010 and is likely to grow faster as the global economy gains steam. One projection puts the expected growth in 2012 between 6 and 8 per cent on top of a 14 per cent growth in 2011 (UNWTO, 2009). Given the labour intensive nature of the activities in the sector, its growth can be expected to be employment intensive.

Given Nepal's location and geography, the country has a natural advantage in tourism. The Government of Nepal, Ministry of Commerce and Supplies identifies tourism as the first exportable commodity having comparative advantage out of service categories, which generates adequate jobs. The strengths of the tourism sector identified by them as reported in GoN (2010) were (i) natural endowments, (ii) attractive trekking areas, (iii) rich in religious and cultural tourism, (iv) service-oriented and courteous people and, (v) innovative services and long experience of some travel operators. Indeed, it is a well-known tourist destination and is already well-established on the global tourism map. It is, therefore, natural to consider this as a sector having potential not only for growth in its contribution to the country's GDP but also for expanding employment in the sector. Given the nature of tourism in Nepal, rural areas can also benefit from employment generated by the sector[16].

It has already been mentioned that although the usual sequence of structural change in developing countries is for the composition of GDP to change towards industry in the first stage and towards services in the subsequent stage, this pattern is not being observed in Nepal. Service sector is appearing as a bigger contributor to growth, and tourism can assume an important role in that context. In fact, tourism (at least the component depending on foreign tourists) is an activity that can grow independently of the growth of industries. It would, therefore be important to look at the potential for growth and employment generation in the sector.

9.2. Growth of Tourism: An Overview

According to Nepal Economic Survey 2010/11, tourism accounted for 2.4 per cent of GDP. That the share of tourism in GDP has not increased over time is indicated by the fact that the share of hotels and restaurants sector in total GDP declined from 1.99 per cent in 2000/01to 1.67 per cent in 2009/10. Of course, a part of other sectors like transport and other services also belongs to tourism. But the contribution of those sectors in GDP is rather small, and has not increased significantly.

The number of tourist arrivals has been increasing steadily during the past two decades and crossed the half a million mark in 2009. By mid-January 2011, the number of tourist arrivals was 602,867 (Table 51).

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[16] According to Banskota and Sharma (1998), Nepalese tourism generates employment for porters, sirdars, guides, cooks and others basically from rural areas. Moreover, they found that plenty of jobs are created by Nepalese tourism in mountain lodges and local teahouses.

However, the share of foreign exchange earned by the sector in total foreign exchange earnings of the country declined from 21.8 per cent in 1990/91 to 15.9 per cent in 1998/98. The declining trend continued during the 2000s: from 8.8 per cent in 1999/2000 to 7.5 per cent in 2009/10 (according to the new format of calculations). This is not entirely surprising because the per capita per day amount of spending by tourists declined from US$65 in 2010 to US$43 in 2011.

Instability in the performance of the tourism sector is also indicated by the fluctuations in the growth of hotels and restaurants sector as shown in Figure 18.

Figure 18: Annual Growth (%) of Hotel and Restaurants Sector

Table 51: Summary of Tourism Statistics, 2010

Indicators Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total Revenues (US$)	140276	106822	192832	179941	148441	162790	230617	351968	377172	329982
Average Income(US$)*	39.6	64.8	79.1	45.1	58.5	55	45	73	65.3	43.2
Travel Agency	691	738	788	877	948	1026	1167	1320	1496	1814
Trekking Agency	580	611	645	705	740	793	872	977	1096	1240
Tourist Guide	1900	2001	2071	2149	2202	2271	2343	2458	2548	2668
Trekking Guide	2745	3094	3457	3930	4395	4663	5098	5356	5987	6745
FOREX Earnings(US$)	162513	101628	134245	168163	164408	162086	181243	313941	359011	396324
Total Arrival (Air)	299514	218660	275438	297335	277346	283819	360713	374661	379322	448800
Total Arrival (Land)	61723	56808	62694	87962	98052	100107	165992	125616	130634	154067
Total Arrival	361237	275468	338132	385297	375398	383926	526705	500277	509956	602867
Length of Stay**	11.93	7.92	9.6	13.51	9.09	10.2	11.96	11.78	11.32	12.67

Source: *Nepal Tourism Statistics (2010).*

9.3. Employment in Tourism

The number employed in tourism was only 90,000 in mid-January 2010 which rose to 110,000 in mid-January 2011. This constitutes less than 1 per cent of Nepal's total employment of 11.78 million.

An attempt has been made to explore how responsive is tourism sector employment (direct and total both) with various tourism related economic variables. The annual time series data set from Nepal tourism satellite account prepared by WTTC (2011), National Account data of Nepal prepared by CBS (2011), and Tourism Statistics of Nepal prepared by GoN/MoTCA (2010) are put together and analyzed. To estimate the elasticity coefficients of different heads double log linear regression model without intercept is estimated using STATA 10 software. Necessary regression outputs like elasticity coefficient, coefficient of determination, F-value and Durbin-Watson statistics have been examined and tabulated (Upadhyay, 2011). The problem of autocorrelation has been corrected using Prais-Winston method. The elasticity coefficients for direct and indirect employment have been estimated and are reported in Table 52.

Table 52: Scenario of Employment Elasticities

Nature of Employment / Headings	Direct Employment			Total employment		
	1988-1998	1999-2011	1988-2011	1988-1998	1999-2011	1988-2011
T &T Direct Contribution to GDP	2.37	1.73	1.55	2.66	1.95	1.23
T & T Total Contribution to GDP	1.91	1.41	1.41	2.16	1.61	1.61
Visitor Exports	2.20	0.81	0.52	2.45	0.51	0.41
Domestic T & T Spending	-0.32	2.03	0.03*	-0.19	2.32	0.27*
Govt. Individual T & T Spending	-0.04	0.00	-0.05*	0.02	0.07	-0.01
Internal T & T Consumption	2.02	1.52	1.53	2.28	1.72	1.68
Leisure T & T Spending	2.19	1.56	0.86	2.46	1.69	0.59
Business T & T Spending	0.06	2.42	0.34	0.13	2.76	0.49
Capital Investment	-0.16	0.06	0.03*	0.09	0.18	0.20
Total Arrival of Tourists	0.42	0.43	0.54	0.48	0.50	0.57
Average Length of Stay (Days)	2.19	2.34	2.27	2.51	2.71	2.61

The results reported in Table 52 are respective elasticity coefficient of the direct and total employment generated by the tourism sector with respect to various travel and tourism related economic variables during 1988 to 2011 and two sub-periods - 1988-98 and 1999-2011. Out of eleven different variables identified and used, average length of stay has the highest elasticity coefficients. The estimates indicate that as average length of stay increases by one per cent, the direct and indirect employment will increase by 2.27 and 2.61 per cent respectively. To be more precise, if the average length of stay, which is 12.67 these days in Nepal, increased to 13 days, on an average 17,323 direct and 19,918 total jobs would have been generated from travel and tourism sector alone, ceteris paribus. This implies that efforts to increase the length of stay by tourists should constitute an important element in the strategy for promoting growth and employment through tourism. On the other hand, the impact of an increase in the number of arrivals is likely to be smaller; the relevant elasticity indicates that one per cent increase in arrivals adds only 0.54 and 0.57 per cent increase in direct and total jobs respectively.

The results of the regressions indicate that the travel and tourism direct and total contribution to GDP both have significantly positive impact on employment. One per cent increase in direct contribution to GDP from tourism sector leads to increases of 1.55 per cent direct and 1.23 per cent total employment.

Similarly, one per cent increase in total contribution of tourism to GDP leads to increases of 1.41 per cent direct and 1.61 per cent total employment. This implies that efforts to enhance tourism receipts would be a good strategy for creating jobs and multiplier effects. This can be further backed by promoting the visitors export, which is capable enough to generate 0.52 and 0.41 per cent additional jobs with each percentage increment. It also has strong multiplier effects.

In order to analyze the contribution of the tourism sector to the national economy, the WTTC (2011) identified and estimated 15 different heads of the macroeconomic indicators, which is mentioned in Table 53. First four indicators are visitors' export, domestic expenditure, international tourism consumption, and purchase of tourism providers, which is basically supply chain. Altogether, these elements constitute the direct contribution of travel and tourism sector to GDP. Except the supply chain (which registered negative growth), growth of the other elements indicates positive contribution to GDP. Negative values of supply chain indicate poor backward and forward linkages of the sector. Thus, strengthening of the linkage effects represents a challenge for the policy makers.

Forecasts made by WTTC (2011) using satellite account data are shown in Tables 53 and 54. These figures indicate that between 2011 and 2021, the direct contribution of tourism to GDP is likely to grow at an annual rate of 4.8 per cent. Direct employment in the sector is likely to grow at an annual rate of 3.9 per cent. Taking into account the indirect effects, these figures are 5 and 4.1 per cent respectively.

It may be noted at this stage that the figure of employment in the tourism sector provided by WTTC (2011) is much higher than the figures presented in government statistics referred to earlier. For example, WTTC's figure of employment for 2011 is 292,600 as opposed to the government figure of 110,000. However, even with the higher figure provided by WTTC, the share of the sector in total employment turns out to be 2.48 per cent.

Similarly, to estimate the total contribution, we consider the macroeconomic variable like domestic supply chain, capital investment, government collective spending, import from indirect spending, and induced expenditure must be clubbed with the direct contribution already calculated. Table 53 reveals that all the components are growing in their own pace as expected but the import from indirect spending is gradually decreasing thought eh weight of this item is negligible. Thus altogether, the total contribution to Nepalese economy from the travel and tourism sector seems growing annually and reached to about 80 billion rupees in 2010. Since almost all the components under considerations are growing besides one with negligible weight, the total contribution is estimated to account at 89.2 billion rupees in 2011 and forecasted to remain at 209.7 billion by 2021. This fact reveals that tourism is going to one of the prominent sector in Nepalese economy in future too.

Table 53: Contribution of Travel and Tourism in Nepal (NPR bn nominal prices)

SN	Items	2005	2006	2007	2008	2009	2010	2011E	2021F
1.	Visitor exports	11.5	11.4	15.6	24.6	30.8	30.5	32.8	80.4
2.	Domestic expenditure	15.3	14.7	15.5	17.0	19.4	22.8	26.1	54.0
3.	Internal tourism consumption*	27.1	26.5	31.5	42.2	50.8	54.1	59.9	136.4
4.	Purchases by tourism providers**	-10.4	-10.2	-12.1	-16.1	-19.7	-20.5	-22.6	-50.5
5.	Direct contribution to GDP (3+4)	16.7	16.2	19.4	26.0	31.1	33.6	37.3	85.9
Other final impacts of Travel and Tourism (indirect & induced)									
6.	Domestic supply chain	8.6	8.4	10.0	13.5	16.1	17.4	19.3	44.5
7.	Capital investment	5.8	5.6	4.9	5.3	7.0	9.8	11.2	29.0
8.	Government collective spending	2.3	2.5	3.0	3.6	4.7	6.1	6.9	14.0
9.	Import from indirect spending	-1.2	-1.6	-1.6	-2.0	-3.1	-3.4	-3.7	-6.9
10	Induced	8.0	7.7	8.8	11.1	13.2	16.0	18.1	43.2
11	Total contribution to GDP ***	40.2	38.9	44.5	57.5	69.1	79.6	89.2	209.7
Employment Generation ('000)									
12	Direct employment	251.3	227.1	251.2	311.0	309.6	287.3	292.6	429.4
13	Total employment	627.7	564.3	597.6	712.0	711.3	705.7	725.6	1,087.1
Other indicators									
14	Expenditure on outbound travel	15.8	19.1	26.7	38.0	39.7	42.0	41.0	96.3
15	International tourist arrivals ('000)	375	384	527	500	510	604	624	1,029

(1+2+Govt. individual spending); (supply chain);*** (5 + 6 + 7 + 8 + 9 + 10); E=Estimated; F=Forecasted*

Source: *Concepts shown in this table align with the standard table totals as described in the 2008 Tourism Satellite Account: Recommended Methodological Framework (TSA: RMF 2008) developed by the United Nations Statistical Division (UNSD), the Statistical Office of the European Communities (EUROSTAT), the Organization for Economic Co-operation and Development (OECD) and the World Tourism Organization (UNWTO).*

Table 54: Some Estimates and Forecasts

	Estimates for 2011			Forecasts for 2021		
Nepal	**NPRbn[1]**	**% of total**	**Growth[2]**	**NPRbn[3]**	**% of total**	**Growth[4]**
Direct contribution to GDP	37.3	2.8	3.1	59.4	3.2	4.8
Total contribution to GDP	89.2	6.7	4.1	144.9	7.8	5.0
Direct contribution to employment[4]	293	2.4	1.8	429	2.7	3.9
Total contribution to employment[4]	726	5.9	2.8	1,087	6.8	4.1
Visitor exports	32.8	25.8	0.0	55.6	26.8	5.4
Domestic spending	26.1	2.0	6.5	37.3	2.0	3.6
Leisure spending	44.7	3.4	1.4	72.2	3.9	4.9
Business spending	15.2	1.1	7.4	22.0	1.2	3.8
Capital investment	11.2	3.9	5.7	20.0	5.0	6.0

Source: *WTTC (2011).*

[1] *2011 constant prices & exchange rates;*
[2] *2011 real growth adjusted for inflation (%);*
[3] *2021 forecasted cost at prices and exchange rates;*
[4] *2011-2021 annualized real growth adjusted for inflation (%).*

9.4. Strengthening the Linkage Effects of Tourism

In addition to its direct impact, travel & tourism can induce significant indirect effects. The UN Statistics Division-approved Tourism Satellite Accounting methodology quantifies only the direct contribution of Travel & Tourism. But WTTC recognizes that travel & tourism's total contribution is much greater, and aims to capture its indirect and induced impacts through its annual research.

According to WTTC (2011), the direct contribution of travel & tourism to GDP reflects the 'internal' total spending within a particular country on "travel & tourism" by residents and non-residents for business and leisure purposes as well as government 'individual' spending - spending by government on travel & tourism services directly linked to visitors - cultural (e.g., museums) or recreational (e.g., national parks). The direct contribution of travel & tourism to GDP is calculated to be consistent with the output, as expressed in national accounting, of tourism-characteristic sectors such as hotels, airlines, airports, travel agents and leisure and recreation services that deal directly with tourists. Therefore, while preparing the tourism policies, all economic activities with linkages to such sectors need to be analyzed. In exploring the employment generating capacity of the tourism sector, variables having stronger impact on employment would need to be targeted, e.g., the average length of stay.

The direct contribution of travel & tourism to GDP is total internal spending after 'netting out' the purchases made by the different tourism sectors. This measure is consistent with the definition of tourism GDP, specified in the 2008 Tourism Satellite Account methodological note. So, the elasticities reported in Table 51 can be useful guidelines to prepare a strategy for policy formulation.

The total contribution of travel & tourism includes indirect and induced impacts on the economy. The 'indirect' contribution includes the GDP and jobs supported by travel & tourism investment spending government 'collective' spending, which helps travel & tourism activity in many different ways as it is made on behalf of the 'community at large' like tourism marketing and promotion, aviation, administration, security services, resort area security services, resort area sanitation services, etc. Domestic purchases of goods and services by the sectors dealing directly with tourists should also be included in the indirect impact - including, for example, purchases of food and cleaning services by hotels, of fuel and catering services by airlines, and IT services by travel agents. The 'induced' contribution measures the GDP and jobs supported by the spending of those who are directly or indirectly employed by the travel & tourism industry.

In order to examine the linkages of the travel and tourism sector with other economic activities, an input coefficient matrix is constructed using the Input-Output Table (IoT) prepared by IPRAD (2007). The input output table disaggregates the total economy into 57 different economic activities and gives the prototype respective pay-offs. Out of them, hotel and restaurants and air transportation are taken as the proxy variables representing the tourism sector. Detailed data on forward and backward linkages of tourism sector in Nepal (hotel and restaurants and air transportation) can be found in Upadhyay (2011, Annexes 2, 3, 4 & 5). Those data indicate that the linkages between tourism-related activities like hotel and restaurant, air travel, etc. and other sectors of the economy vary considerably. Linkages with agriculture (items like wheat, fruits and vegetables, milk) and forestry appear to be rather weak. But the sector has good linkages with recreation services, construction, trade, jute, wearing apparels, paper and paper products, leather, etc. The latter is likely to have positive employment implications because these are labour-intensive activities. Also, it would be useful to examine how the linkages with sectors like fruits and vegetables, forest products, etc. be strengthened.

Boosting Employment through the Sectoral Pattern of Growth: A Policy Framework

10.1. A recapitulation of some key findings

It may be recalled that the present report is based on the premise that a focus on the sectoral pattern of growth would be a good way of formulating strategies for boosting growth with productive employment. With this end in view, four sectors, viz., agriculture, manufacturing, infrastructure, and tourism were selected for in-depth analysis. These sectors together accounted for about 48 per cent of the GDP of the country in 2008/09. In terms of employment, their combined share is much higher because agriculture still accounts for as much as 73 per cent of total employment in the country. While the latter figure shows the continuing importance of agriculture as a source of employment, it also indicates the importance of raising productivity of employment in the sector. The analysis of the four sectors brings out a number of useful facts and issues that would be relevant for formulating a strategy for boosting productive employment in Nepal.

Agriculture has attained respectable growth throughout the period covered by the analysis - although the sector cannot be regarded as the driver of growth. However, productivity growth in the sector has been disappointing, and that is because of the slow growth in yields of major a crop. The latter reflects the level of sue of yield raising inputs in crop production. The use of fertilizers per unit of land has declined over time and the area under irrigation has increased rather slowly. A significant development in the agriculture sector is the shift in the cropping pattern that is noticeable from the change in the share of different crops in total acreage. In particular, there has been a shift away from food crops towards cash crops, e.g., sugarcane, fruits, and vegetables. Within food crops, there has been a shift away from paddy towards potato, fruits and vegetables. While the observed shifts in cropping pattern reflect the change in relative profitability of various crops, it has important implications for employment because of the difference in labour requirement between various crops. Fortunately for employment, cash crops like sugarcane and fruits and vegetables are more labour intensive than other crops. But wheat is less labour intensive than paddy. On the whole, the employment intensity of growth in agriculture has declined sharply and has become negative during the 2000s.

From a policy point of view, it is important to note that prices of critical inputs like fertilizers and pesticides have increased at faster rates compared to prices of agricultural commodities. Availability of credit for crop production has also been a problem.

Growth of manufacturing industries has been declining over time and was negative during 2006-10. This is an extremely unusual and worrisome phenomenon, and efforts need to be made to reverse the trend. Although accession to WTO and the termination of the quota system for garments are widely considered to be the factors responsible for decline in Nepal's industries, data on industrial growth shows that the decline in growth started already in the mid-1990s - well before the termination of MFA. As for the garment industry, there has been a structural change within the industry and the small-scale segment has performed better. Growth in the carpet industry declined mainly because of the inability to sustain the market created with the help of some technical assistance projects and negative image created by the perceived use of child labour. Such instances indicate that in addition to general factors responsible for the decline in investment in industries, problems specific to various industries need to be addressed.

Employment intensity of growth of large-scale manufacturing is found to be negative - a very unusual phenomenon for a country at the stage of development where Nepal is. Quite clearly, there has been

shedding of labour in the fact of difficulties faced by the sector. However, for small-scale industries, employment intensity of growth has become positive during 1999-2008 (though rather low). This, coupled with relatively better performance of small-scale garment industries, indicates that there is potential for growth of industries along with employment expansion, especially in the small-scale segment.

As expected, within both the large and small-scale segments, employment intensity of growth varies considerably between sub-sectors. Within the large-scale segment, carpet, garments, dairy products, food products, wood products, etc. are more employment intensive in nature. In the small-scale segment, the corresponding industries are paper and paper board, garments and textiles, ceramic products, glass products, foot wear, etc. Many of these industries enjoy comparative advantage in Nepal. So, with appropriate policy environment, there is no reason why such industries cannot grow.

Growth of the construction sector and of investment in infrastructure confirms the premise that this sector has potential for growth. However, the employment generating potential of the sector has not been fully realized, and the reason seems to be a premature adoption of mechanization, especially in the strategic roads sub-sector. Even if considerations of efficiency may have warranted this, deliberate policies (e.g., duty free imports of heavy equipment) have also played a role. Within the infrastructure sector, there are components like rural roads, and irrigation where it should be possible to use labour based approaches and deliberate mechanization could be avoided if there is political will.

In terms of contribution to GDP and total employment, tourism is a relatively smaller sector than many other sectors of Nepal. Moreover, if the performance of the hotels and restaurant sector is any indicator, growth in the sector has not been smooth. But given the country's established niche in this field, the experience the country has acquired, and the labour intensive nature of the sector, the sector deserves attention in the context of a strategy for boosting growth and employment.

10.2. Policies for agriculture

The context and challenges of policy making for agriculture in Nepal

The basic objective of policies with regard to agriculture should be to ensure that the incentive structure is conducive to the growth of key food (paddy and wheat) and cash crops (e.g., jute, sugarcane, fruits and vegetables) and of sub-sectors whose products are income elastic and have growth potential, e.g., livestock and poultry. The products mentioned above have the added quality of being employment intensive. Policies would need to ensure that production of the commodities mentioned above is sufficiently profitable to make them attractive. But there are a number of considerations and challenges that need to be taken into account while formulating relevant policies.

First, despite significant reduction in the incidence of absolute of poverty in the last several decades of development efforts, this remains a major challenge for policy makers in the country. An associated consideration is that of food security. Given the large number of people that remain in poverty, ensuring food security is a priority.

Second, given the landlocked nature of the country (which gives rise to various constraints on international trade even in normal circumstances), and the limitations of international trade in ensuring the availability of food grains that have come out clearly during the period of sharp rise in the prices of food grains since 2008, domestic production of food grains has assumed renewed significance.

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[17] Apart from this, Nepal also had the experience, in 1989, of the negative effects of trade embargo imposed by India.

Third, policy making in Nepal is constrained by the existence of a long and open border with India, which enables fairly free cross-border movements of commodities. This makes coordination of pricing and trade policy with India extremely important [18].

Fourth, while membership of WTO does imply the existence of a framework within which policies have to be made, as an LDC, Nepal does enjoy the provision of providing higher level of protection to its producers through a tariff regime that is allowed for LDCs.

Fifth, given Nepal's terrain, the low level of development of infrastructure, and difficulties in improving connectivity between its various parts, implementation of various policies, like those relating to supply of fertilizers, and public procurement of crops, faces additional challenges.

Policies related to prices

As mentioned already, policies relating to prices of inputs and outputs can play an important role in influencing the profitability of cultivating various crops. Given the prevailing incentive structure, cultivation of paddy seems to be less profitable compared to other food crops like vegetables and fruits and cash crops like sugarcane. Despite sharp increases in the prices of food grains (especially rice) since 2008, rise in prices of inputs like fertilizers and labour has shifted terms of trade against production of food crops. This needs to be altered. Production of jute (which is an important cash crop and is labour-intensive) also has become unprofitable. Factors responsible for jute's loss of profitability need to be analyzed.

A look at the historical development of policies with regard to prices of agricultural products and inputs shows that markets were partially liberalized in the 1990s and have been almost completely liberalized since the early 2000s. Liberalization (especially elimination of subsidies) was justified on the ground of budgetary consideration and that the benefits of the subsidy did not reach the poor farmers. But elimination of subsidies has not been associated with any measures to ensure profitability of production and strengthen the ability of poor farmers to apply yield-raising inputs. The Agricultural Perspective Plan (APP) did include provisions for subsidies on deep tube wells and shallow tube wells for irrigation and for moving to an exchange rate that would maintain incentive for exports. The idea behind the latter was to have an enabling environment for exports of food grains, especially to India. But no policy measure was designed to promote growth of output (see Box 1).

The intended objective of APP, especially with respect to the production and export of food grains, does not appear to have been realized as is clear from trade data. Total exports to India registered an annual growth of less than nine per cent during 1985/6 to 2009/10, and the exports of rice and maize declined substantially - at the rate of 16 and 19 per cent per annum respectively[19]. As for exports to countries other than India, the performance has been worse - the annual growth has been less than 8 per cent, and only pulses registered significant growth.

It is thus clear that attention has to shift back to the relative prices of inputs and outputs of agriculture and the profitability of crop cultivation[20]. If the earlier policy of providing minimum support price (MSP) has not been effective, attempt should be made to understand the reasons for that and to adopt corrective measures for providing price support to farmers rather than terminating the policy completely.

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[18] For detailed analyses of the implications of this, see Islam, Khan and Lee (1982) and Khan (2000).

[19] While the depreciation in exchange rate did not contribute much to a boosting of exports to India, various non-tariff barriers posed additional constraints.

[20] Nepal has several policy frameworks in the area of agriculture. Notable among them are the Agricultural Perspective Plan (1996-2015), National Agricultural Policy 2004, and National Agriculture Sector Development Priority, 2010. However, it is not clear whether the issues relating to pricing of inputs and outputs of agriculture, the terms of trade and profitability of crops have been directly and adequately addressed.

Box 1: Agriculture Perspective Plan (1995 to 2015)

The Agriculture Perspective Plan (APP) has been a major long-term perspective plan for agricultural development in Nepal. A major objective of this 20-year plan was to reduce poverty in the country to 14 per cent by 2015 through agricultural development and the underlying multiplier effects on non-agricultural sectors. While the main focus of the Plan was on improving food security, particular attention was also given to diversification and commercialization of agriculture and exploitation of the export potential.

In terms of implementation, the main thrust of the Plan was to increase crop production by making greater use of modern technology (based on improved seeds, fertilizers and irrigation). For example, it was envisaged that the use of fertilizers would increase six times (from the base figure of 30 kg/ha.) and area covered by irrigation would increase from 27 per cent to 50 per cent. Emphasis was put on exploitation of groundwater through subsidies. Development of infrastructure, especially rural roads was a part of the strategy for commercialization and export orientation. An underlying idea was to develop agriculture in the *terai* region and use food produced there for export to India and to meet the needs of the hills and mountains.

Implementation of the APP faltered due to a variety of factors including lack of adequate resources and absence of coordination between various agencies responsible. Another important factor was the practicality of the basic idea behind the Plan, viz., a focus on developing agriculture in the terai region for serving the needs of the other regions and to provide the basis for exports to India. Given the terrain of the country and limited connectivity, it was not very practical to expect food produced in one region to serve the needs of the others. Exports to India did not grow as expected due to a variety of reasons. As for the instruments for raising production, the expected increase in the use of fertilizer did not materialize, not least due to the withdrawal of subsidies and the absence of any countervailing measure to enable farmers to buy the input. Increase in area under irrigation was also slower than expected.

The importance attached to the APP also appears to have waned over time. One indicator is the formulation of different policies that may have overtaken the basic ideas of the APP. One example is the National Agricultural Policy (NAP) of 2004 formulated by the Ministry of Agriculture and Cooperatives with the objectives of (i) increasing agricultural production and productivity, (ii) making the agriculture sector competitive in the global and regional markets through the promotion of commercial and competitive agricultural systems, and (iii) conserving, enhancing and effectively utilizing the available natural resources, environment and bio-diversity. Of course, NAP was regarded as a means of achieving the goals of APP rather than as a new strategic document. But in September 2010, a National Agriculture Sector Development Priority (NASDP) covering the medium term period 2011 to 2015 was formulated. These developments indicate that the APP as originally formulated has not been able to stand the test of time and had to be supplemented by more concrete policy oriented instruments.

The Government of Nepal has already re-introduced subsidy on fertilizers from 2011-12, and is offering subsidy on urea and Di-ammonium Phosphate (DAP) at the rate of 65 per cent and 55 per cent respectively. This has already led to the desired goal of increasing the demand for fertilizers. However, whether the increase in sales reflects an increased application of fertilizers or cross-border smuggling is a question. A second question relating to subsidy is whether the rate is appropriate and the amount of expenditure is sustainable from the point of view of the government's budget. A third question is whether all farmers need to be provided with subsidies or it is only the small and marginal ones who need it. From the point of view of achieving the goal of application of fertilizers at the required rates, especially by small and marginal farmers, a more effective means could be to offer them with cash on targeted basis and continue the practice of open market sales of fertilizers at market prices. This, of course, would require an administrative mechanism at the local level that will be capable of administering the cash subsidy with a reasonable degree of efficiency.

The budgetary allocation for subsidy on fertilizers for the fiscal year is Rs. 2.83 billion. And the Agricultural Inputs Company already estimates an additional requirement of Rs.0.38 billion. On the other hand, if the rate of subsidy is lowered to 25 per cent and it is offered only to small and marginal farmers through cash transfer, the total amount involved will be much lower.

As for the policy of MSP, it would be desirable to announce the price at the time of planting of crops, so that farmers are able to base their decision on relative prices of various crops. In addition, the government will need to have an adequate administrative and logistic capacity (the latter including the tasks relating to the actual procurement and storage) to implement the support price.

Non-price policies

An important element in the framework for policies for the agriculture sector is credit. Data on agricultural credit (Table 55) show that there has been a decline in the growth of credit for the sector over time. The growth of credit during the second half of the decade of 2000 has been very small.

Table 55: Growth of Agricultural Credit, 1985/86 – 2009/10

Period	Growth of agricultural credit (per cent per annum)
1985/86 – 1990/91	10.5
1990/91 – 1995/96	28.9
1995/96 – 2000/01	15.7
2000/01 – 2005/06	9.7
2005/06 – 2009/10	1.3

Source: *Agricultural Development Bank of Nepal.*

Apart from the decline in the growth of credit for agriculture, the difference in the rate of growth between various activities within the sector is also noticeable (Table 56). While growth was very high (40 per cent) for the activity labelled as "housing and land development", for food grains and cash crops, it was only 7.3 per cent per annum. Growth of credit was high also for agricultural industries, marketing, and go-downs, and for agricultural business. It thus seems that activities that are not strictly in the domain of agriculture are receiving credit in the name of agriculture.

Table 56: Growth of Agricultural Credit by Activities, 1985/86 to 2009/10

Activities	Growth of credit (per cent per annum)
Food grains and cash crops	7.3
Agricultural tools and irrigation	5.2
Agricultural business	11.5
Agricultural marketing and go-down	17.0
Horticulture	4.3
Tea/coffee cultivation	8.4
Housing and land development	40.0
Total	13.4

Source: *Agricultural Development Bank of Nepal.*

Reversal of the declining trend in the growth of agricultural credit has to be an important element in the package of policies for boosting growth and employment in the sector. This becomes doubly important in view of the difficulty of implementing a programme of subsidies on inputs. As the adoption of yield raising technology requires inputs whose prices are difficult to control, one way of supporting the farmers is to provide them with easy access to credit.

Research on agriculture, especially on crops of high yielding variety and are resistant to natural calamities is important. Agricultural research in Nepal is found to be seriously under-funded. Moreover, the national context and agenda do not appear to feature very prominently in agricultural research. Thus, it is not surprising that there has not been much success in developing technologies appropriate for the Nepalese context. Although there have been some growth in yield, total production growth is still more due to area expansion rather than yield increase. Since there is a limit to area expansion, future production growth does not have a bright prospect unless yield-augmenting technologies are developed with more indigenous research.

Agricultural extension service is important for transferring the results of research to the field for application by farmers. In a low-income country like Nepal where most farmers are unlikely to have the ability to pay for extension service, the government would have to play an important role in enabling them to adopt new technologies and practices.

10.3. Policies for manufacturing industries

The policy environment

Policies that are important for growth of output and employment in manufacturing industries include policies relating to trade (both import and export), financial sector, infrastructure, administration, and labour market. In the area of trade policy, reforms were initiated in Nepal during the 1980s, which were intensified in the subsequent decades, especially through Trade Policy 1992 and Trade Policy 2008. Key features of the trade policy include flexible exchange rate[21], elimination of import licensing and quota system, and rationalization of tariff structure and reduction of average tariff rate. These came alongside the policy of economic liberalization and privatization that included market based pricing of agricultural commodities and inputs and reduction of subsidies. The tariff structure consists of five rates (of 5, 10, 15, 25, and 40 per cent), and the average has come down to 8 per cent. Imports of industrial machinery enjoy deductions on customs duty ranging from 50 to 80 per cent.

[21] In reality, flexibility in the exchange rate works through the flexibility of Indian currency because Nepal's currency is pegged to the Indian currency, and the former adjusts its exchange rate with third currencies only when the Indian currency also changes the exchange rate.

As a result of the reduction of tariff rates, the effective rate of protection declined from 97 per cent during the late 1980s to 8 per cent in 1996.

Two measures were introduced in the 1980s in order to promote export: the bonded warehouse system and the duty drawback scheme. The former (introduced in 1988) contributed positively to the success of garment exports that was achieved during the late 1980s. But the duty drawback scheme (introduced in 1987) was not very effective because of the cumbersome procedure and inefficient administration. Some export items (viz., pashmina shawl, garments, carpets, and handicrafts) were provided with additional incentives, e.g., lower interest rate on export loans and income tax incentive.

A policy of deregulation was adopted starting with the Industrial Policy 1992, which provided for the abolition of licensing system and simplification of the procedure for registration of industries. Later, a one-window system was introduced to facilitate easy registration and start of business. The Industrial Policy 2010 allowed 100 per cent ownership in enterprises set up under foreign direct investment.

From the description of the policy measures mentioned above, it might appear that the policy environment in Nepal is conducive to growth of industries. However, the ground realty is different. First, the sharp decline in the effective rate of protection implies an extremely competitive environment for industries. Second, with a long and open border with India, it is not easy for a land-locked country like Nepal to pursue a policy of industrialization that would fully reflect the country's comparative advantage[22]. Third, the complexity in rules and procedures that remains even after deregulation does not make it any easier to start and do business in the country. Procedural delays, complicated documentation system and inefficiencies in the implementation of the trade regime add to the cost of doing business.

Inadequate finance is most often cited as a business problem. Financial sector reforms undertaken in the 1990s, together with increase in the amount of domestic credit flowing to the private sector, have helped in providing most manufacturing firms in Nepal access to at least some bank credit. However, high interest rate, large collateral requirements and other factors prevent firms from obtaining as much finance as they need. Furthermore, the majority of the credit is short-term, while long-term credit for fixed asset financing remains scarce. Inadequate information, in terms of accurate accounting, makes it difficult for creditors to assess risk.

Furthermore, problems exist with contract enforcement. Political uncertainty and volatility in the business environment also add to lenders' problems. The risks increase with the long-term, which leads most lenders to offer only short-term loans. In addition, the lack of information forces creditors to demand personal guarantees and high levels of collateral. The requirement for personal guarantees effectively eliminates the advantages of limited liability and discourages entrepreneurs from taking risks.

Trade credit or, supplier credit, can be an important source of funds for manufacturing firms. A well-developed system of trade credit allows firms to conserve working capital and frees up internal funds for investment. Most firms in Nepal extend or receive some trade credit. However the incidence and extent of bank credit is limited because credit providers do not have adequate information on potential customers and have difficulty enforcing contracts. The lack of trade credit, along with the delays in receiving duty drawback and VAT refunds, puts pressure on firms' working capital and reduces the amount of internal funds available for investment. Most investment in Nepal is funded through retained earnings and other internal funds.

[22] Khan (2000), for example, argues that Nepal is in a state of *de facto* free trade with India.

Labour market regulations are often mentioned as a factor adversely affecting investment in and growth of industries in Nepal. This issue needs a careful and objective analysis. The Labour Act 1992 and the Trade Union Act 1993 allow for the formation of trade unions in enterprises with 10 or more workers and lay down rules for hiring of workers. Since Nepal's experience with democracy in general is rather recent and the issue of workers' rights is a relatively new concept, these developments are perceived as adding to the cost of doing business. And enterprises try to find ways of getting around such labour laws in various ways, for example, by keeping size of enterprises small. On the side of workers and trade unions, lack of experience with respect to their rights and the role of trade unions may also have caused some initial misunderstandings and adverse effects on the industrial relations environment. That recognition of workers' rights need not necessarily affect the environment for doing business is indicated by the improvement in industrial relations environment that is already being noticed. For example, the number of trade unions had multiplied initially, but after a thorough inspection, the number has come down (from 1125 in 2006 to 566 in 2008). The number of complaints lodged has declined sharply from 1520 in 2001/02 to 385 in 2008/09. And the number of man-days lost due to strikes and lockouts has also declined substantially - from 60,758 in 2001/02 to 36, 279 in 2008/09. It would thus appear that citing of stringent labour laws as a constraint on the growth of industries is based on lack of experience with regard to the practice of workers' rights, the confrontational attitude adopted during the initial period of such practice, and a general misperception about the industrial relations environment.

Apart from the general problems and issues relating to industrialization in Nepal outlined above, it would be useful to look at specific issues faced by the major manufacturing industries. For purposes of illustration, the policy environment faced by the four industries covered by the present study is examined below.

Food processing

This industry benefits from a number of measures designed to provide policy support; they include:

- Tax incentives for industries like dairy products, fruit processing, sugar, and vegetable oil (e.g., VAT refund for vegetable oil, VAT exemption for capital investment up to Rs. 2.5 million in fruit processing, tax holiday for fruit processing industry in backward regions, etc.)
- Electricity at subsidized rates for cold stores
- Credit at subsidized interest rate for specific industries like tea and coffee, and vegetable oil

However, the industry suffers from frequent price interventions by the government. Examples of such interventions include artificially high prices of sugarcane, preventing the price of milk from rising in response to seasonal shortage.

Other constraints faced by the industry include lack of access to agricultural raw materials at internationally competitive prices, fixed exchange rate with the Indian currency (which precludes the possibility of getting a competitive advantage for exports to India), low level of technology resulting in low quality of products and difficulty in enforcing standards, etc.

An inefficient sugar industry poses a problem for other industries that have to use sugar as an input.

Carpet

It may be recalled that the carpet industry attained high growth in the 1980s and the early 1990s using the benefits of a Swiss technical assistance project and a project funded by the World Bank. The industry was also able to import good quality wool from New Zealand. The growth of the industry during that period was driven mainly by exports (which was almost entirely to the EU). But the demand in that market started declining since 1993/94. While there may have been several reasons for the decline in demand (including competition from other efficient producers like China, India, and Iran), it is also not a coincidence that tow videos documenting the use of child labour in the industry was widely circulated in Germany at that time. Furthermore, the use of "azo" dye also affected consumer demand adversely. Additional problems faced by the industry included:

- Overvaluation of the currency
- Imposition of a floor price by the government (apparently to prevent possible under-invoicing)
- Lack of attention to quality
- Lack of access to finance for export
- Weakness of institutions that could explore and diversify markets
- Lack of serious effort to eliminate child labour from the industry and to tackle the image problem in the export markets

Garment

As mentioned already, the garment industry grew in Nepal using the advantage of the quota system that existed before the expiry of MFA in 2004 when Indian entrepreneurs invested in Nepal to utilize the quota available for the country. However, the present study also shows that the industry (at least the large segment of it) had started to decline even before the expiry of MFA, although the latter contributed to the decline that was already under way.

The industry receives policy support from the government in the form duty free import of machinery, duty drawback on imported raw materials, and exemption of taxes on locally procured raw materials. In addition, in 1998/99, the government set up an institute for training workers for the industry for which the operating costs are borne by the industry. But the industry faces a number of problems like the absence of an export credit guarantee scheme, weaknesses in the implementation of the duty drawback system, low level of discipline amongst workers (for example, works leave when there is high demand in agriculture), and high transport cost. As a result of these problems, the industry is at a competitive disadvantage vis-à-vis other competing countries like Bangladesh.

Furniture

The furniture industry also receives policy support from the government in the form of duty free import of machinery. The industry benefits from the government's forest clearance plan. On the other hand, it faces various administrative bottlenecks. For example, a firm in the wood and wood products industry described the intricate set of rules that it must follow. The Forestry Department prohibits the location of a wood processing business within five kilometres of a forest; so the firm had to locate elsewhere. However, it was allowed to locate within an Industrial District even though it was within five kilometres of a forest. Even though the firm obtained permission from the Forestry Department to remove logs from the forest, it had to wait two years before it could secure permission to cut the wood. The difficulties arose because the environment section of the Department was unable to decide what type of Environment Impact Assessment the firm needed to conduct. The most irritating regulation for the firm is the mandatory requirement to get approval from the Forestry Department to sell furniture outside the district. There is no charge for this service, but it takes up to two days to secure the permission.

In addition, availability of needed raw materials (in addition to basic material like wood, other materials like paint and varnish, glue, and metal products), shortage of required skills, and competition from imports from China and India pose problems for the furniture industry of Nepal.

10.4. Policies for infrastructure

Use of bulldozers

The local governments have been using bulldozers for excavation works involved in the construction of roads. Bulldozers obviously excavate a huge quantity of soil and rock within a shorter time period. However, due to inappropriate application of this equipment, the hill areas of Nepal are threatened by serious landslides. Consequently more than 50 per cent of 40,000 km of earthen tracks are not usable. On the other hand, the earthen roads are inviting frequent landslides and avalanches, which are creating a greater degree of deprivation among local communities. Given the labour displacing effects and other adverse effects of heavy equipment such as bulldozers, a policy for discouraging their use in the rural road sector may be considered seriously.

Introduction of a central level rural road programme

It is widely accepted that the local governments have failed to use decentralized resources effectively for constructing local infrastructure. However, the government has a legitimate responsibility to deliver improved access to all people. In order to achieve this, the government has to introduce a central level rural road programme with clear implementation plan. The Indian Prime Ministerial Rural Road Project is a very good example in this respect.

Productive use of the Right of Way (RoW)

It is essential to acquire RoW. However, some of the strategic roads and some local roads have not acquired the RoW, which has compromised the usefulness of the road. Therefore it has to be mandatory to acquire RoW. Moreover, the acquired RoWs have to be protected. A majority of the strategic roads are encroached seriously. The GoN needs to develop a clear strategy to reclaim the encroached land. Also, such RoW has to be used for the benefits of the poor road neighbours.

New legislation on the heritage routes

The government has to introduce a legislation, which declares all heritage routes as archaeological sites. They should be subjected to no harm while undertaking any development works. Such trails need to be rehabilitated. A central government agency needs to undertake such tasks.

Compliance of District Transport Master Plan (DTMP)

At present, DTMPs are prepared but they are not adhered to. The issue is how to assure compliance of DTMPs implementation.

10.5. Policies for tourism

Although the contribution of tourism to GDP and employment of the country is rather small, given the fact that Nepal is an established tourist destination and has a number of positive elements to attract tourists, there seems to be a potential for higher growth of the sector and employment generation through its growth. Moreover, the country can capitalize on the good experience that it has gained in this sector over the years. The country also has adopted a number of policies and strategies to promote the growth of the sector, the more recent being the tourism policy of 2009 and declaration of 2011 as the year of tourism. However, the policies and strategies could be fine tuned by taking into account the

specific characteristics of the sector and the variables that are important from the point of view of its further growth, generating higher revenue per unit, and strengthening the employment impact.

First, it appears from the empirical analysis of the present study that in addition to the number of tourist arrivals (which has increased in recent years), the average length of stay and per capita spending are important variables in augmenting the sector's contribution to GDP and employment. It would, therefore, be useful to understand how such goals could be attained. The factors that determine the length of stay of tourists and their spending need to be identified. Some possible elements in this regard could be the number and variety of tourist destinations, ease with which the destinations could be accessed, facilities (including basic items like hotel beds, food, etc.) available, the type and number of activities that tourists could undertake during one's visit, etc. In order to obtain a concrete understanding of such factors, it may be useful to carry out a specific study based on surveys of tourists and tour operators.

As for the number and variety of tourist destinations, there are a number of studies (reviewed by Upadhyay, 2011) that analyze the potentials and problems of specific destinations (like Pokhra and Sagarmatha). The findings of such studies (and more such that may be carried out in future) should be taken into account in undertaking measures specific to various destinations.

Second, the linkage effect of tourism with the rest of the economy appears to be mixed. While it is strong in the case of sectors/activities like manufacturing (e.g., wearing apparel, leather, etc.), it is rather weak for agriculture. There should be potential for strengthening the latter because growth in tourism generates demand for food of various types, and there should be good potential for local procurement of many of the food items, e.g., fruits, vegetables, livestock and poultry products, bakery products, etc. From this point of view, it would be useful to identify the factors that are responsible for the low degree of linkage that is currently observed. Based on such analysis, a strategy for strengthening the linkage effects of tourism (which would have both direct and indirect impact on employment) may be developed.

Third, with the growth of income of the people, there should be potential for domestic tourism in the country. A strategy specifically aimed specifically at this segment of tourists could be developed with particular focus on their interests and demands. If appropriately marketed, such tourism could tap the potential that is available due to the topographical and cultural diversity of the country. Rural and ecological tourism could form an important element of domestic tourism in the country.

Fourth, in addition to the supply of physical facilities, the availability of skilled workers could also be a constraint. While tourism is an employment-intensive sector, a good proportion of the jobs would require skills of various kinds including those relating to IT. Hence, in order to realize the potential for boosting employment through growth of tourism, it would be important to ensure the supply of skills relevant for various segments of the sector.

Nepal does not lag behind in formulating policies related to tourism - as is exemplified by policies formulated at various times including the tourism policy of 2009 and designation of 2011 as the year of tourism. However, the real issue is the implementation of the policies and strategies adopted. Inefficient and weak implementation is one of the basic problems that the tourism sector experiences.

10.6. Interlinkages between sectors and policies

Although the above discussion of policies for various sectors have been undertaken separately for each sector, this should not imply that the interlinkages between various sectors can be ignored in formulating

policies needed for boosting growth and employment through a sectoral approach. For example, agriculture can play an important role in: (i) providing raw material for industries, (ii) creating demand for industrial products that serve as inputs for the sector, (iii) creating market for industrial products - by augmenting the incomes of households dependent on agriculture, and (iv) stabilizing food prices and thus fulfilling a basic precondition for maintaining stability of industrial wages.

Some industries that registered good growth (like dairy products, food products, and grain milling) have strong backward linkage with agriculture. Hence, growth of the latter, especially if growth helps augment supply at lower prices, can facilitate the growth of agro-based industries. Reduction in the cost of production of certain crops like sugarcane would be important from the point of view of making the corresponding industry more efficient and increasing the possibility of its growth. Hence, policies for the agriculture sector should provide attention to these aspects.

As already mentioned, growth of certain manufacturing industries creates linkage effects for other sectors of the economy. Apart from the backward linkage with agriculture mentioned above, industries may have both backward and forward linkages with other sectors like construction, transport, and services of various kinds. All these are labour-intensive activities, and hence the total impact of industries on employment (taking into account the indirect effect on other sectors) could be higher than indicated by the direct employment intensity.

Coming to infrastructure, roads and irrigation are important for boosting growth in agriculture. While irrigation is important for the adoption of high yielding varieties of crops, roads - especially rural roads that connect villages with markets - can play an important role in creating/expanding markets for the products. In planning rural roads, it would be important to take into account the issue of providing connectivity to rural producers.

Roads are also critical for promoting tourism - especially if new destinations are to be opened and the existing ones are to be made more attractive. Likewise, roads are important for the dispersal of industries outside major urban centres.

The linkage effects of tourism with other sectors of the economy have already been mentioned earlier. While some linkages, e.g., those with the manufacturing sectors like apparel and handicrafts, already exist, there is potential for developing and strengthening linkages with agriculture (especially dairy products, and other food products like bakery). Expansion of tourism, by generating demand for additional physical facilities, may also boost construction.

10.7. Addressing the employment challenge: an overview

Although the present report was designed to adopt a sectoral approach to boosting employment growth and a few sectors were selected for analysis within that framework, the analysis of the study should enable one to take a broader view and make a few remarks, albeit tentatively, about how the overall employment challenge could be addressed. A few aspects of the employment situation may be recapitulated for that purpose.

First, given the importance of the agriculture sector both in terms of its contribution to GDP and total employment and in terms of its role in ensuring food security, the potential of this sector in employment growth has to be the starting off point. In that respect it needs to be remembered that labour use per hectare has been declining for most of the major crops. Moreover, there is a trend towards

commercialization (which in turn is guided by the relative profitability of various crops). Although some of the commercial crops (e.g., sugarcane and fruits and vegetables) are also quite labour intensive, it would be unrealistic to expect an overall increase in the demand for labour in agriculture. The objective should be to increase the productivity of those engaged in the sector through raising yield per hectare and moving on to higher value crops. In the process, labour will actually be released from agriculture for employment in other sectors of the economy. The role of modern sectors, especially manufacturing, construction and modern service sectors of the economy becomes important in that regard.

The manufacturing sector currently accounts for a rather small share of total employment, and given the process of de-industrialization that the economy has witnessed, there has not been a significant increase in employment in the sector. The trend needs to be reversed. Although the performance of the major industries - especially the export oriented industries in the large-scale segment does not give rise to much hope, the analysis of the present report has identified a number of factors that have been responsible for the observed decline in major industries. Policies need to be geared towards addressing those issues. In addition, the present report has identified a silver lining in terms of the performance of the small segment of the manufacturing sector. Promoting growth in that segment could be rewarding in terms of both output and employment growth. Although it may not be realistic to expect the strategy of industrialization to be the answer to the employment challenge in all countries, it would be wrong to assume that industry cannot play any role at all.

Construction, especially of infrastructure, can potentially be an important means of promoting growth in the economy and a significant source of employment. The potential of this sector has not been fully realized, partly due to inappropriate policies (e.g., encouraging the premature use of machinery through an artificial lowering the prices of equipment). Increased investment in infrastructure and appropriate policies towards the sector could help generate more employment than the sector does at present.

Tourism is perceived as an important source of employment. This may be because of its visibility and the natural advantage the country has in this area. But the present study shows that the amount of employment generated by the sector is not very high in relation to the overall need for employment. However, if the full potential of the sector could be tapped, for example, by undertaking measures to encourage longer stay, strengthening linkages with other sectors of the economy, and promoting domestic tourism, it could generate significantly more employment than at present.

The above account does not include other services such as transport, trade, finance, personal services, etc. The service sector has not been included in the present study. It needs to be mentioned in that regard that conventional approach to economic development and employment assumes the service sector to play an important role during the second stage of development when industry and other directly productive sectors have grown to a stage where linkage effects are created for the service sector to grow in a dynamic manner. However, in countries like Nepal where industrialization does not take place at the expected pace and other sectors do not absorb labour at the needed pace, the service sector does play an important role. But in that context, the different types of jobs created by the service sector need to be distinguished carefully. While there is one segment in the sector where growth is linked to the rest of the growing economy and thus is dynamic, there must be a large segment where people simply eke out a subsistence living and where jobs reflect a distress adaptation to a precarious situation.

From the point of view of addressing the employment challenge through productive and remunerative jobs, the latter category is not very interesting. An employment strategy, therefore, has to address the former segment of the service sector and find ways of boosting its growth for employment.

The above overview of how the employment challenge in Nepal could be addressed may lead one to conclude that the prospect is not very bright. Indeed, unless the economy as a whole moves on to a higher growth path (where GDP growth would be in excess of, say, six per cent per annum) and growth becomes more employment intensive than at present, the employment challenge will remain quite daunting. In such a situation, it would be appropriate for the government to think in terms of a programme for generating employment through direct involvement in infrastructure - roughly along the lines of the employment guarantee programme adopted by India. The cost of such a programme, means of financing it, and the administrative and technical capacity needed for implementing it should be worked out carefully.

References

Agricultural Projects Services Centre (APROSC}/John Mellor Associate (JMA) (1995): "Agriculture Perspective Plan (APP) (1996-2015)". Kathmandu, Nepal

Alarcon, Jorge, Christoph Ernst, Bazlul Khondker, and PD Sharma (2011): "Dynamic Social Accounting Matrix (DySAM): Concept, Methodology and Simulation Outcomes: The Case of Indonesia and Mozambique". Employment Working Paper No. 88, Employment Sector. ILO, Geneva.

Auer, Peter and Rizwanul Islam (2006): "Economic Growth, Employment, Competitiveness and Labour Market Institutions" in World Economic Forum: *The Global Competitiveness Report 2006-07*, WEF, Geneva.

Banerjee, Lopamudra, Anirban Dasgupta, and Rizwanul Islam (eds) (2010): *Development, Equity and Poverty: Essays in Honour of Azizur Rahman Khan*. Macmillan India, New Delhi.

CBS (2011): "National Income Accounts of Nepal". National Planning Commission. Central Bureau of Statistics, Kathmandu.

DOA (2008-09): "Cost of Production and Market Margins of Cereal and Cash Crops, Nepal". Agribusiness Promotion and Marketing Development Directorate, Market Research and Statistics Program, Lalitpur, Nepal.

DoR (2011): "Rate Analysis of Construction Works", Kathmandu, Nepal.

GON (Government of Nepal) (2010): " Nepal Trade Integration Strategy 2010". Ministry of Commerce and Supplies. Kathmandu: Nepal.

GoN/MoTCA (2010): "Summary of Tourism Scenario: Part I", Ministry of Travel and Civil Aviation. Government of Nepal: Kathmandu: Nepal

Heintz, James (2006): "Growth, Employment and Poverty Reduction". Paper presented at a workshop on Growth, Employment and Poverty Reduction organized by the Department for International Development, U.K.

HMGN (His Majesty's Government of Nepal) (1984): "Rate Analysis of Construction Works (Norms)", Ministry of Construction and Transportation, Kathmandu, Nepal.

International Labour Office (1998): "Employment generation for poverty reduction: the role employment-intensive approaches in infrastructure investment programmes". Paper presented at the 273rd session of the Governing Body of the International Labour Office (GB.273/ESP/4/1), ILO, Geneva.

--- (2011): "Employment-led Growth in Nepal". Unpublished paper, Employment Sector, ILO, Geneva.

Ishikawa, Shigero (1980): "East Asian Experience in Labour Absorption in Agriculture: A Summary of East Asian Papers and Some Further Thoughts" in ARTEP: *Employment Expansion in Asian Agriculture: A Comparative Analysis of South Asian Countries*. ILO-ARTEP, Bangkok.

Islam, Rizwanul (2006a): "The nexus of economic growth, employment and poverty reduction: An empirical analysis", in Islam (2006b).

--- (ed.) (2006b): *Fighting Poverty: The Development-Employment Link*. Lynn Rienner Publishers. Boulder and London.

--- (2010a): "Pattern of Economic Growth and its Implication for Employment" in Banerjee, Lopamudra, Anirban Dasgupta and Rizwanul Islam (eds.) (2010): *Development, Equity and Poverty: Essays in Honour of Azizur Rahman Khan*. Macmillan India and UNDP, Delhi and New York.

--- (2010b): "The Challenge of Jobless Growth in Developing Countries: An Analysis with Cross-Country Data". Occasional Paper Series No. 1. Bangladesh Institute of Development Studies, Dhaka.

Islam, Rizwanul, Azizur Rahman Khan, and Eddy Lee (1982): *Employment and Development in Nepal*. ILO-ARTEP, Bangkok.

Islam, Rizwanul and Jean Majeres (2001): "Employment-intensive growth for poverty reduction: what can labour-based technology in infrastructure contribute?" in McCutcheon, Robert and F. Taylor Parkins (eds.): *Work 2001 First International Conference on Employment Creation in Development.* Proceedings of a conference held during 2-5 April 2001 at the University of Witwatersrand, Johannesburg.

Khan, A.R. (2010): "Globalization and Sustainable Human Development: An Assessment of Challenges Facing Nepal". UNCTAD/UNDP Occasional Paper.

Koirala, Govind P. (2011): "Promoting Employment-Intensive Growth in Nepal: Policy Analysis of Agriculture Sector with Potential for Growth and Employment". Background paper, ILO, Geneva and Kathmandu.

Republica Daily (2011): "Government guarantee jobs to poor", August 11, 2011, Kathmandu, Nepal.

SAPPROS/World Bank/NPC (2000): "Delivery of Rural Development Services: A Comparative Assessment of Alternative Institutional Arrangements with a Focus on the Terai", Kathmandu, Nepal.

SNV/Development Vision Nepal (DVN) (2008): "Production and Marketing of High Value Agriculture (HVA) Commodities and NTFPs in the Road Corridors of Surkhet, Dailekh, Kalikot, Jajarkot and Jumla Districts".

Shrestha, Chandra B. (2011): "Investment and Employment in Nepal's Infrastructure Sector: A Policy Oriented Study". Background paper, ILO, Geneva and Kathmandu.

Shrestha, Rajendra Prasad (2011): "Growth of Output and Employment in Manufacturing Industries in Nepal: Achievement, Prospects and Policies". Background paper, ILO, Geneva and Kathmandu.

UNWTO (2009): "UNWTO World Tourism Barometer", Volume 8, Issue 2. World Tourism Organization, Madrid, Spain.

Upadhyay, Rudra Prasad (2011): "Employment Responsiveness of Tourism in Nepal: An Analysis". Background paper, ILO, Geneva and Kathmandu.

World Bank (1994): *World Development Report: Infrastructure for Development.* World Bank, Washington, D.C.

WTTC (2011): "Satellite Account of Travel and Tourism Economic Impact: 2011". World Travel and Tourism Council. London: UK

Nepal: Addressing the Employment Challenge through the Sectoral Pattern of Growth

Taking a broad view of the employment challenges in Nepal, a number of elements emerge clearly. First, it would not be realistic to expect agriculture sector to be able to employ more people. Second, manufacturing employs a small proportion of the labour force, and given its performance during the past ten years or so, it may not seem practical to pin much hope on it. Third, although construction is labour intensive, and should have the potential to absorb a significant part of the additional labour force, that has not been the case in Nepal. Thus, service sector appears to be the major employment-generating sector in the country. However, a few remarks may be made by way of forward-looking policies for growth and employment. First, although it may not be realistic to expect labour intensive industrialization to play a major role in productive absorption of labour in Nepal, efforts should be made to reverse the trend of de-industrialization as highlighted in this report. Second, there are policies that could help realize the real potential of employment in the construction of infrastructure. Third, within the service sector, distinction must be made between those activities, which have potential for dynamic growth and those, which act as sponge for surplus labour when there is very little alternative. Policies need to be geared towards promoting the former type of service sector activities. Fourth, as the normal process of economic growth and employment seems to be inadequate to meet the employment challenge, serious thoughts may be given to the adoption of a more extensive employment guarantee programme, which would act as a source of employment and simultaneously contribute to the growth of the economy by creating much needed infrastructure. Finally, policies need to be geared towards moving the economy to a higher growth path. With economic growth reaching such a level and with the sectoral pattern of growth discussed in the present report, it will be much easier to meet the employment challenge that Nepal's economy faces.

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