



INTERNATIONAL FOOD
POLICY RESEARCH INSTITUTE
sustainable solutions for ending hunger and poverty

MARKETS, TRADE AND INSTITUTIONS DIVISION

October 2005

MTID Discussion Paper No. 88

Trade Liberalization and Food Security in Nepal

Bishwambher Pyakuryal, Y B Thapa, and Devesh Roy

2033 K Street, NW, Washington, DC 20006-1002 USA • Tel.: +1-202-862-5600 • Fax: +1-202-467-4439 • ifpri@cgiar.org
www.ifpri.org

IFPRI Division Discussion Papers contain preliminary material and research results. They have not been subject to formal external reviews managed by IFPRI's Publications Review Committee, but have been reviewed by at least one internal or external researcher. They are circulated in order to stimulate discussion and critical comment.

Copyright 2005, International Food Policy Research Institute. All rights reserved. Sections of this material may be reproduced for personal and not-for-profit use without the express written permission of but with acknowledgment to IFPRI. To reproduce the material contained herein for profit or commercial use requires express written permission. To obtain permission, contact the Communications Division at ifpri-copyright@cgiar.org.

TABLE OF CONTENTS

1. Introduction.....	1
2. Background	13
2.1 Economic and agricultural backwardness in Nepal	14
2.2 History of food availability in Nepal.....	16
3. Structural adjustment: Break in Nepal’s policy landscape	22
4. Elements of liberalization: Integration of domestic market with external markets	25
5. Results from the CGE models	29
6. Food security policies and the place of NFC	32
7. Reforms in NFC	36
7.1 Closure of sales depots	36
7.2 Food procurement	37
8. Effectiveness of the public distribution system (NFC): Pre and post liberalization	39
8.1 Human resources handling efficiency	39
8.2 Transportation efficiency	40
9. Comparison of Effectiveness of the public sector with the private sector	41
9.1 Selling prices	42
9.2 Handling charges	42
9.3 Marketing costs	42
9.4 Losses/leakages	43
9.5 Cost-effectiveness in food imports	45
10. Impact of liberalization on agriculture, trade and living standards	46
11. Impact of Targeted Food Security	50
12. New and emerging trade arrangements	52
13. Implications of WTO membership for Competitiveness/Food Security	54
14. Conclusion	58
References	61

LIST OF TABLES

Table 1:	Profile of South Asia, year 2002.....	3
Table 2:	Food production index, 1989-91 = 100	4
Table 3:	Production, availability and consumption of cereals in South Asia ('000 tonnes).....	5
Table 4:	Food price index, 1995 = 100	7
Table 5:	Average Farm size by Regions (Hectare/holding).....	16
Table 6:	Distributions of Farm Holdings and Operational Land by Farm Sizes	16
Table 7:	Districts deficit in food production, 2000/2001	17
Table 8:	Belt-wise Food Availability and Requirement of Cereals, 2000/2001 (MT)	18
Table 9:	Nepal's Food Production and Requirements (Edible Food grains in 1000 MT)	18
Table 10:	Trends in the share of food grain production and availability	19
Table 11.1:	Export of Food grains from Nepal (Rs. in Million).....	20
Table 11.2:	Growth of Food Trade, 1974/ 75 – 99/ 2000 (in 1984/ 85 Prices).....	21
Table 11.3:	Trade Balance of Food Grains (1993-1998) (Rs million).....	21
Table 12:	Budget allocations to agriculture by plan period (6 th to 10 th plan)	23
Table 13:	Import tariff and bound tariff on major agricultural products (August 2002) (%)	27
Table 14:	Food Distribution Quota and Sales in Different Areas.....	33
Table 15:	Procurement by NFC 1990-2002 (Unit: MT)	38
Table 16:	Public Transportation Cost by Mode of Transportation (Unit: MT Rs. '000').....	40
Table 17:	Marketing Cost of coarse Rice in Kathmandu by Agencies (1982)	43
Table 18:	Marketing Costs and Margins of Private and Public Sector in Accessible Areas	44
Table 19:	Food Import Capacity Index	44
Table 20:	Commodity Import Prices from India and Overseas Countries by Agencies	46
Table 21:	Costing of Sugar Imported by STCL from India	46
Table 22:	Import and Consumption of Fertilizers in Nepal by Type (MT)	47
Table 23:	Changes in Wage Rate Structure (1984-85 = 100)	48
Table 24:	Intra-regional Trade Composition of Nepal with SAARC Countries (1998)	53
Table 25:	Intra-Regional Trades as Percentage of Total Trade (1998).....	53

LIST OF FIGURES

Figure 1: Calories per capita.....	7
Figure 2: Proteins/Capita/Day/Grams	8
Figure 3: Fat/Capita/Day/Grams	8
Figure 4: Hierarchical geography in Nepal.....	10
Figure 5: Share of Kathmandu valley in distribution.....	35
Figure 6: Composition of subsidy (In Rs thousands).....	35
Figure 7: Trends in public procurement Price.....	38
Figure 8: Trends in godown capacity utilization ratio.....	39
Figure 9: Trend of Per Staff Market Distribution Handling Ratios (in MT).....	40

LIST OF BOXES

Box 1: Chronology of government initiatives in food policy.....	23
Box 2: Tariffs and taxes on food trade in Nepal.....	27

EXECUTIVE SUMMARY

Among South Asian countries, Nepal has liberalized most extensively during the 1980s and 1990s on both fronts, domestic and external. Nepal is a least developed country with a gross national product of US \$235 per capita in 2001 and second lowest per capita wealth in the world. In South Asia, Nepal has the lowest per capita income, highest dependence of population on agriculture and second highest poverty rate. At the same time, on an average, Nepal has the lowest tariffs in South Asia and has taken several steps to downsize its public distribution system and remove a host of agricultural subsidies. This twin scenario where the lowest per capita income country is perhaps also the most liberalized makes for an interesting case for policy analysis. This paper reviews the outcomes from the liberalization policies followed by Nepal relating to food security.

The issue at hand is not the beneficial impact of liberalization but the limited extent of it and the asymmetric gains across regions in Nepal. Liberalization seems to have retained the pre-existing regional disparities and might even have worsened it. The central thesis of the paper is that as far as Nepal's liberalization is concerned, the devil is in the details. At an aggregate level, the outcomes from liberalization seem to have worked. Some important indicators of well being did improve in the post liberalization period. Aggregate indicators of food sufficiency and security (per capita food availability, extent of malnourishment) show improvement in Nepal since liberalization. Nepal presents a mixed picture vis-à-vis other South Asian countries. It is doing better on some indicators like extent of undernourished population while on some other indicators like stunting of children Nepal is

actually doing the worst in the region. In particular, since the 1990s the per capita nutrient availability has also improved in Nepal.

The caveats are that many other indicators that are equally relevant for food security like agricultural productivity have shown little or no improvement (for example agricultural productivity). Most importantly, the fruits of liberalization have been shared as unevenly as the prior distribution of economic well being across different regions. Nepal is a landlocked country with a uniquely hierarchical geography. The country is divided into three ecological regions, the mountains, the hills and the terai. These regions are extremely diverse in terms of share in population, arable land, food grain production and the extent of malnourishment and under nourishment. They exhibit different degrees of amenability to markets and access to food.

The outcomes from liberalization have also been different across regions and that's where the experience in Nepal stands out. The impact of liberalization on the ex ante ordered regions has also been ex post hierarchical with terai reaping the fruits and remote regions likely to have been hurt. Different evidences exist that point to this clear stratification of winners and losers from liberalization. The computable general equilibrium models by Cockburn (2001) and Sapkota (2002) clearly show this ordering with mountains being the worse off from liberalization. The evolution of poverty measures and the household surveys reveal a similar pattern. The reason for such an uneven outcome is itself lack of complementary policies from the government that lead to spatial integration of the markets (creation of physical and marketing infrastructure). In other words, having not invested in spatial integration, the rationale for government intervention continues in the

form of creation of safety nets and support programs in the remote regions. That the government policy is often targeted in the opposite direction with a greater coverage of the terai is a different matter.

Consequently, even after downsizing and border reforms, the importance of the government continues in a real sense. The markets have failed to cater to the remote areas and the government has to work as a conduit between the food surplus and deficient regions. In the past, there were traditional arrangements that mitigated the food security concerns. Increasingly, as the traditional mechanisms have diminished in importance, the markets have not assumed the role thereof. The void is there for the government to fill.

With the role of the government in distribution and in providing safety nets being intact, the question is how has the government fared in this role? Where is the scope for improvement? Similarly, how does the marketing and handling efficiency of the government compare with that of the private sector? If it does not compare favorably, then it calls for realignment with greater role of the private sector (substitution or partnership).

The evidence suggests that despite several policy changes, reforms including some simple ones are desirable. Some policy changes are easy to implement and can still yield first order gains. The change in the mode of transport from air to ground is one such change. Also, we find that the government is inefficient relative to the private sector. There is a clear basis for partnership between private and public sector in sharing transportation and storage facilities. Though the policies of government are inefficient on various counts, we do not want to underestimate the role of some exogenous factors. In

particular, we recognize the harsh geography and the Maoist turmoil that have made several policies ineffective.

The policy suggestions for Nepal can be clubbed into two categories. The short to medium run policy should be directed towards greater involvement of the private sector in handling/storage and marketing. The need is to create incentives for greater private sector participation. This could take the form of sharing transportation and storage facilities. Given the adverse geography of the country, the biggest element of subsidy for the government has been on transporting grains. The government has relied excessively on air transport for shipping grains. Shifting to ground transportation will not only reduce costs but also create employment. This, by itself will contribute to food security.

Ultimately in the long run, the government has to take steps for the greater spatial integration of the markets. It has to create marketing and physical infrastructure. Proposals for creating a pulley link between different regions have been in the discussion but have not been implemented. The contrast of Nepal with the experience of Bangladesh is quite stark here. Bangladesh invested in the integration of markets through roadways and to an extent through waterways. As a result, the benefits of liberalization there have been much more even than in Nepal.

In the policies discussed above, the current insurgency and political uncertainty stands as a roadblock. Not only has it affected the atmosphere for private enterprise adversely, implementation of government programs and feasibility of certain policies themselves have been put to question (like transporting grains using ground). At the same time, the extremely scarce government resources have been diverted to military purposes.

TRADE LIBERALIZATION AND FOOD SECURITY IN NEPAL

Bishwambher Pyakuryal, Y B Thapa and Devesh Roy

1. INTRODUCTION

Among South Asian countries, Nepal liberalized most extensively during the 1980s and with continuity in the 1990s on both fronts, domestic and external. Nepal is a least developed country with a gross national product of US \$235 per capita in 2001 and second lowest per capita wealth in the world. In the South Asia region, Nepal has the lowest per capita income, highest dependence of population on agriculture and second highest poverty rate. At the same time, on an average, Nepal has the lowest tariffs in South Asia and has taken several steps to downsize its public distribution system and remove a host of agricultural subsidies. This twin scenario where the lowest per capita income country is perhaps also the most liberalized makes for an interesting case for policy analysis. This paper reviews the outcomes from the liberalization policies followed by Nepal relating to food security.

The issue at hand is not the beneficial impact of liberalization but the limited extent of it and the asymmetric gains across regions in Nepal. Liberalization seems to have retained the pre-existing regional disparities and might even have worsened it. The central thesis of this paper is that as far as Nepal's liberalization is concerned, the devil is in the details. At an aggregate level, the outcomes from liberalization seem to have worked to some extent. Several aggregate level indicators of food sufficiency and security (per capita food availability, extent of malnourishment) show improvement in Nepal since liberalization. The

caveats are that many other indicators that are equally relevant for food security like agricultural productivity have shown little or no improvement. Most importantly, as stated above, the fruits of liberalization have been shared as unevenly as the prior distribution of economic well being across population in different regions. Tables 1, 2, 3 and 4 and figures 1, 2 and 3 present a comparative picture of South Asia. Nepal presents a mixed picture vis-à-vis other South Asian countries. It is doing better on some indicators like extent of undernourished population while on some other indicators like stunting of children Nepal is actually doing the worst in the region.¹ In particular, since the 1990s the per capita nutrient availability has improved in Nepal

¹ Indicators like stunting and wasting depend also on the health delivery systems which are below the South Asian average in case of Nepal.

Table 1—Profile of South Asia, year 2002

Indicator	Unit	Bangladesh	India	Nepal	Pakistan	Sri Lanka
GDP	constant 1995 US\$ millions	53758.7	517263.2	5806.3	75118.6	17048.8
	growth rate (%) ^b	5.1	5.4	3.6	3.2	3.5
GDP per capita	constant 1995 US\$	396.2	493.3	240.7	518.4	898.8
	growth rate (%) ^b	3.3	3.6	1.2	0.7	2.1
Agricultural GDP	% of total GDP	22.7	22.7	40.8	23.2	20.1
	growth rate (%) ^b	3.7	1.5	3.3	2.0	1.6
Employment in agriculture ^c	% of total employment	62.1	66.7	78.5	48.4	41.6
Trade	% of GDP	33.3	30.8	44.9	37.7	79.0
Trade in goods	% of GDP	29.4	20.8	35.8	35.8	65.2
Poverty gap ^d	at \$1 a day (%)	8.1	8.2	9.7	2.4	1.0
	at \$2 a day (%)	36.3	35.3	37.5	22.0	13.5
Poverty headcount national ^e	% of total population	49.8	28.6	42.0	32.6	25.0
	% of rural population	53.0	30.2	44.0	35.9	27.0
	% of urban population	36.6	24.7	23.0	24.2	15.0
GINI	index	31.8	32.5	36.7	33.0	34.4
Under-nourished population	% in 1999-01	32.0	21.0	17.0	19.0	25.0
Underweight children under age five ^g	% in 1996-2002	48.0	47.0	48.0	38.0	33.0
Stunting children under age five ^g	% in 1996-2002	45.0	45.0	51.0	36.0	20.0
Low birth weight	% of births in 1998-2000	30.0	30.0	21.0	19.0	22.0
Infant mortality rate	per 1000 live births	48.0	65.0	62.0	76.0	16.0
Under five mortality rate	per 1000 live births	73.0	90.0	83.0	101.0	19.0

Source: World Development Indicators CD-ROM, World Bank, 2004.

Table 2—Food production index, 1989-91 = 100

Year	Bangladesh	India	Nepal	Pakistan	Sri Lanka
1971-75	67.66	56.84	57.78	52.60	72.54
1976-80	77.50	65.68	62.34	61.90	87.16
1981-85	83.50	78.24	74.14	73.70	103.32
1986-90	92.98	92.38	91.06	91.68	100.70
1991-95	102.48	108.44	104.20	113.64	107.86
1996-00	121.26	126.02	123.14	145.86	111.66
2001	135.80	133.60	136.40	151.00	116.10
2002	140.10	129.80	138.50	153.20	115.70

Source: World Development Indicators CD-ROM, World Bank, 2004.

Notes: Average values for the five year periods are reported except for 2001 and 2002, which are annual data.

Table 3—Production, availability and consumption of cereals in South Asia ('000 tonnes)

Year	Production	Imports	Stock change ^a	Exports	Availability ^b	Consumption	Net imports as % of availability	Per capita per annum (kgs)	
								Availability	Consumption
<u>Bangladesh</u>									
1971-75	11380	2036	-924	0	12492	11512	16.3	174.6	160.9
1976-80	13371	1398	-381	0	14388	13300	9.7	177.6	164.2
1981-85	15668	1854	-688	4	16829	15597	11.0	183.1	169.7
1986-90	17532	2018	177	0	19726	18306	10.2	189.2	175.6
1991-95	18948	1472	1354	0	21774	20025	6.8	185.1	170.2
1996-00	22833	2660	-331	0	25161	23096	10.6	190.2	174.6
2001	25936	2908	-1025	2	27818	25493	10.4	197.5	181.0
2002	26924	2826	-460	1	29289	26912	9.6	203.7	187.1
<u>India</u>									
1971-75	93739	3960	-1116	160	96423	85293	3.9	162.4	143.6
1976-80	109517	1850	-2166	526	108674	95871	1.2	164.3	144.9
1981-85	127882	1560	-3285	529	125628	111248	0.8	171.3	151.7
1986-90	146066	823	401	507	146784	130849	0.2	180.4	160.9
1991-95	166434	431	388	2067	165186	144765	-1.0	184.1	161.4
1996-00	186096	1166	-6607	3350	177305	154244	-1.2	180.5	157.0
2001	196267	43	-8056	5379	182875	157980	-2.9	177.0	152.9
2002	174655	54	23826	9485	189051	165662	-5.0	180.1	157.8

Table 3—Production, availability and consumption of cereals in South Asia ('000 tonnes) (Contd.)

Year	Production	Imports	Stock change a	Exports	Availability ^b	Consumption	Net imports as % of availability	Per capita per annum (kgs)	
								Availability	Consumption
<u>Nepal</u>									
1971-75	2809	4	-156	166	2491	2029	-6.5	193.7	157.8
1976-80	2812	14	-66	60	2700	2272	-1.7	189.2	159.3
1981-85	3186	50	-20	45	3171	2701	0.1	199.4	169.9
1986-90	4083	41	-3	10	4111	3422	0.7	230.6	192.0
1991-95	4478	45	-5	2	4516	3805	0.9	226.1	190.6
1996-00	5361	89	-135	23	5292	4198	1.3	235.5	186.7
2001	5733	55	11	12	5787	4662	0.7	240.5	193.8
2002	5839	38	57	10	5924	4773	0.5	240.7	193.9
2002	24936	287	3818	2965	26076	23099	-10.3	173.9	154.1
<u>Sri Lanka</u>									
1971-75	945	938	112	2	1992	1898	47.0	152.9	145.7
1976-80	1226	1078	-75	6	2223	2106	48.2	157.5	149.2
1981-85	1635	731	-7	1	2360	2205	31.0	155.4	145.3
1986-90	1618	884	72	0	2575	2384	34.3	157.5	145.9
1991-95	1745	1025	-37	16	2718	2509	37.1	155.9	143.9
1996-00	1731	1206	-28	3	2907	2622	41.4	159.0	143.4
2001	1831	952	249	5	3026	2722	31.3	161.4	145.2
2002	1938	1306	-252	10	2982	2745	43.5	157.7	145.2

Source : FAOSTAT, FAO web site, accessed January 2005.

Note : Average values for the five year periods are reported except for 2001 and 2002, which are annual data.

a – Positive (negative) values indicates stock depletion (addition to stocks).

b – Availability = Production + Imports + Stock change - Exports.

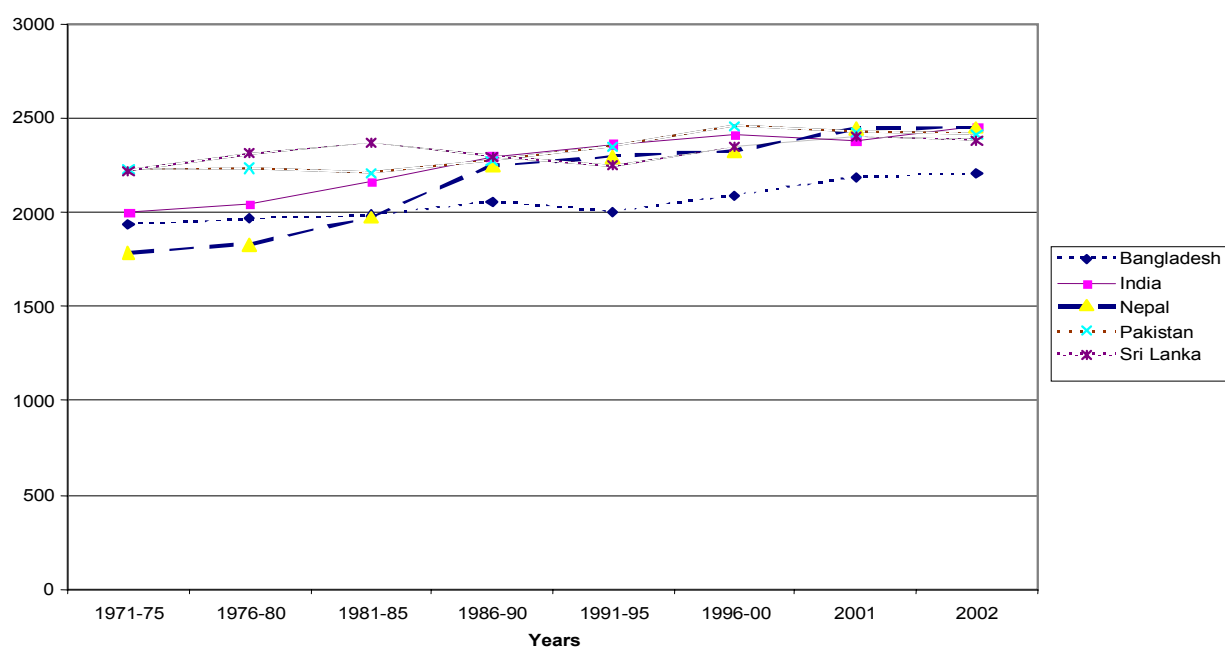
Table 4—Food price index, 1995 = 100

Year	Bangladesh	India	Nepal	Pakistan	Sri Lanka
1981-85	50.29	31.19	29.33	36.43 ^a	28.87
1986-90	79.46	47.59	49.79	47.96	46.56
1991-95	94.92	81.33	85.92	79.16	85.15
1996-00	114.03	121.31	128.64	126.90	141.93
2001	128.28	135.10	142.63	141.35	183.49
2002	131.61	138.62	n.a.	147.06	203.05

Source: World Development Indicators CD-ROM, World Bank, 2004.

Notes: Average values for the five year periods are reported except for 2001 and 2002, which are annual data. Data for the 1970s are not available, and hence are not reported. This is an average over 1982-85.

Figure 1—Calories per capita



Source: FAO STAT (2004).

Figure 2—Proteins/Capita/Day/Grams

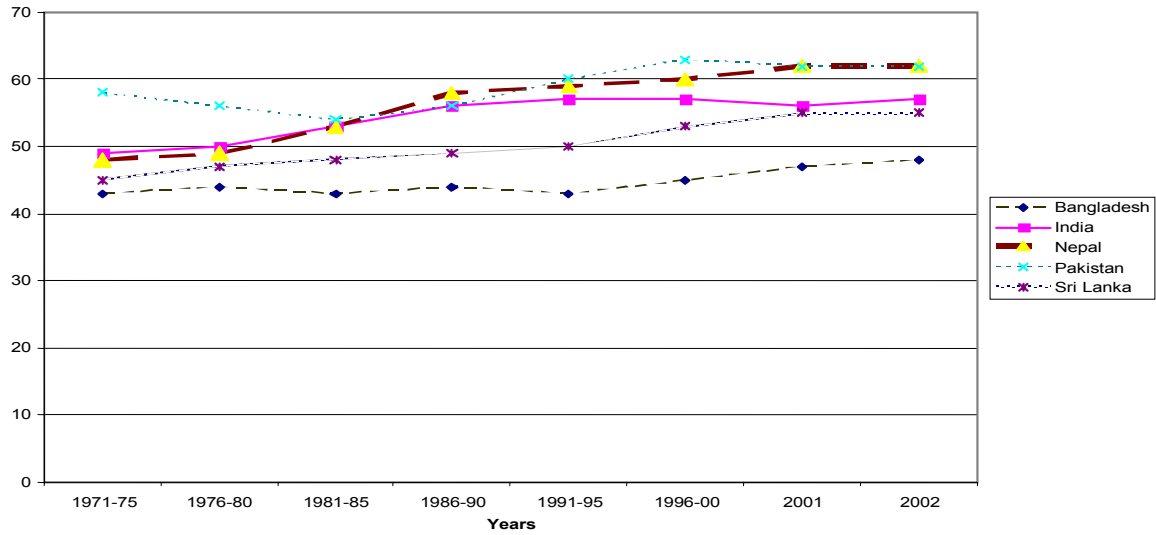
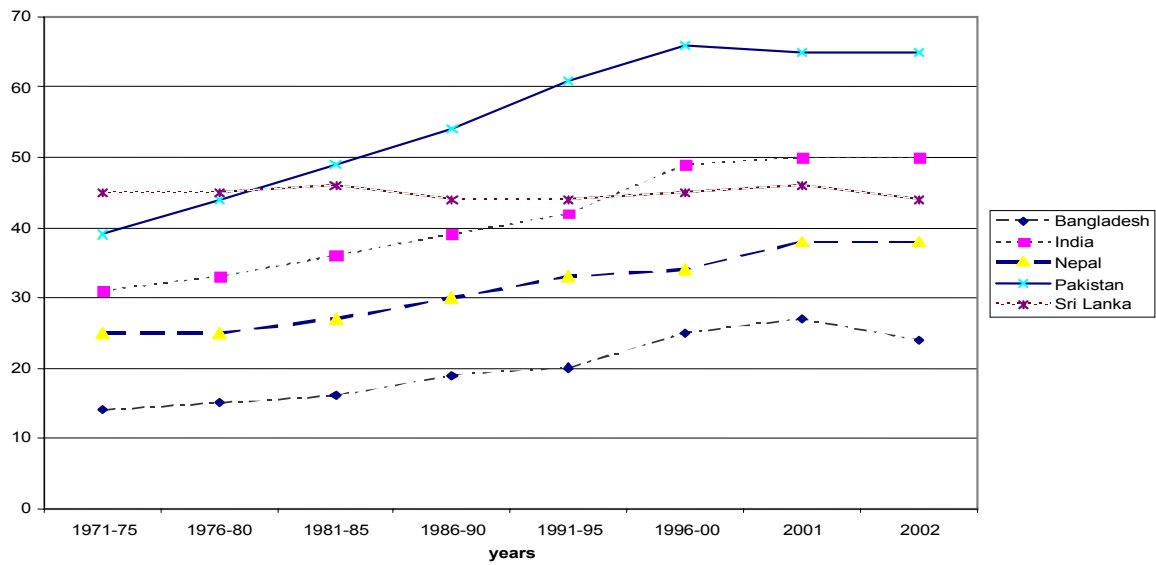


Figure 3—Fat/Capita/Day/Grams



Source: FAO Stat (2004).

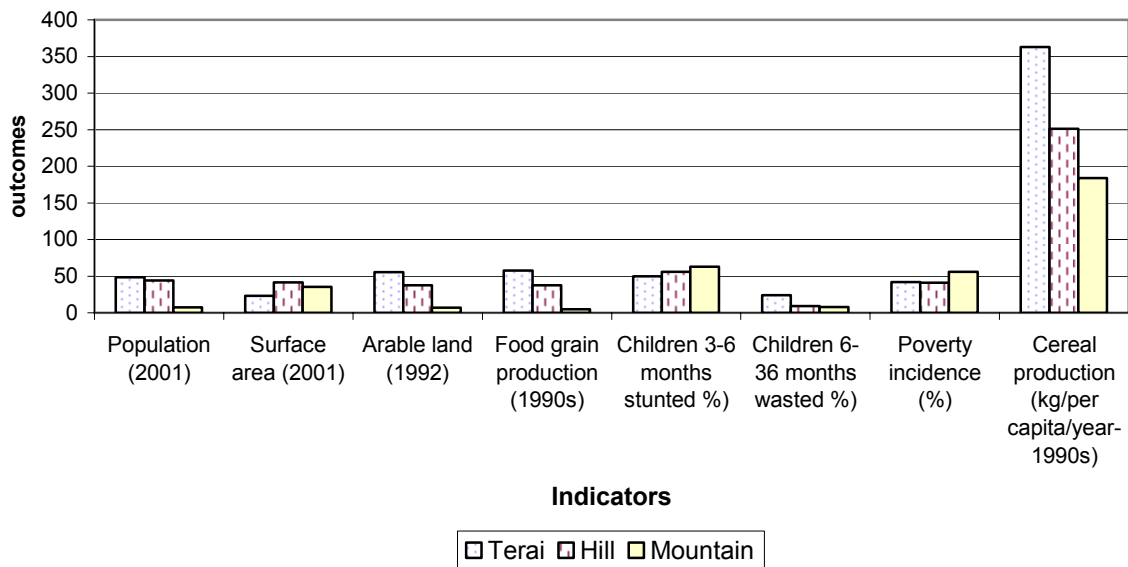
Nepal is a landlocked country with a uniquely hierarchical geography. The geographical and economic features of Nepal present unique challenges for its socio-economic development and make a large section of the population vulnerable to food insecurity. It has a high population density (158 persons per square kilometer in 2001), immense physical diversity and is land-locked. 86% of the population lives in the rural areas. The country is divided into three ecological regions, the mountains, the hills and the terai. These three regions are extremely diverse in terms of share in population, arable land, food grain production and the extent of malnourishment and under nourishment (Figure 4). They also exhibit different degrees of amenability to markets and access to food. The resulting outcomes from liberalization have also been diverse across regions. In this sense, the experience of liberalization in Nepal stands out. The impact of liberalization on the ex ante segregated regions has also been ex post hierarchical with terai reaping the fruits and remote regions likely to have been hurt.

Different evidence exist that point to this clear stratification of winners and losers from liberalization in Nepal. The computable general equilibrium models by Cockburn (2001) and Sapkota (2001) clearly show this ordering with mountains being the worse off from liberalization. The evolution of poverty measures and the household surveys reveal a similar pattern. The role of the government in Nepal can best be understood in this context. Liberalization in Nepal is likely to have affected regions quite asymmetrically. The reason for such an uneven outcome is itself lack of complementary policies from the government that lead to spatial integration of the markets (creation of physical and marketing infrastructure). In other words, having not invested in spatial integration, the government

continues to have a strong rationale for the creation of safety nets and support programs in the remote regions. That the government policy is often targeted in the opposite direction with a greater coverage of the terai is a different matter.

Figure 4—Hierarchical geography in Nepal

(Population, surface area, arable land and food grain production represent percentage shares)



The border trade reforms by themselves are likely to have a limited impact in Nepal. There are at least two reasons for this policy ineffectiveness. First, by sharing an extensive porous border with India, Nepal has always been a *de facto free trading* nation. The trade barriers in that sense have been non-binding. Thus, the dilution of trade barriers is likely to have only a limited impact. Secondly, due to a lack of spatial integration, the gains from liberalization are being shared unevenly across the population in Nepal. The situation is such that parts of terai are much better integrated with India than with rest of the country itself.

Consequently, even though the government has downsized itself and attempted several border reforms, the importance of the government has not diminished in a real sense. The markets have failed to reach the remote areas and the role of the government as a conduit between the food surplus and the food deficient region has remained intact pre and post liberalization. In the past, there were traditional arrangements that mitigated the food security concerns. Increasingly, as the traditional mechanisms diminished in importance, the markets did not assume the role thereof.

Historically, the village communities used intra or inter-community trade as a tool to smoothen food availability across groups. Most villages in the western region had “religious storehouses” (Dharma Bhakari) in which every household contributed food according to their capacity. This food was distributed to people facing food crisis. The initiative was part of a larger concept of community ownership and participation. In Jumla, for example, cooperative societies have been managing irrigation facilities over the last 500 years. Similarly, the Sherpas have 'Newa' systems of forest and pasture management, and Gurungs have the 'Riti-Thiti' system to protect common resources. The traditional institutions helped both in direct targeting of 'food security' and also in a reduction in the vulnerability of the households.

The role of trade and exchange was also important in ensuring availability of food not produced locally. The exchanges took place between ecological regions producing different commodities. For example, the Himalayan people sold herbs, spices and salt to the hill people, and the hill people in return sold food grains. The inter-regional trade has declined since the 1960s. People from food insecure region such as Karnali would move

south (to the hills) during winter to escape cold. They would sell salt and other produce of their region, using the animals for transportation. After spending the winter, they would move back with food grains.

Various economic, political and institutional developments are responsible for the decline in traditional arrangements. The community forestry system was one of the reasons for the break-up. It restricted open grazing and initiated charging of fees for grazing. In recent times the insurgents have further interrupted the interregional movements. An endogenous system of adjustment is thus sorely missed in recent times. In Nepal, the domestic policy at least in the short to medium run (construction of roads or transport infrastructure takes time) has to be focused on distribution in a major way.

With the role of the government in distribution and in providing safety nets remaining intact, the question that arises is how has the government fared in this role? The issues at hand are as follows. Since the transportation of grains has been exclusively in the hands of the government, has the transportation policy being efficient? Where is the scope for improvement? Similarly, the government being the much bigger agency in distribution: how does the marketing and handling efficiency of the government compare with that of the private sector? The evidence from different studies suggests many policy changes. Yet, reforms including some simple ones are desirable. For example, the change in the mode of transport from air to ground shipment can reap large gains. The paper also finds government comparatively inefficient relative to the private sector. In drawing implications of this inefficiency we do want to recognize the role of some exogenous

factors. In particular, we do recognize the extremely harsh geography and the recent Maoist turmoil that have made several policies ineffective.

2. BACKGROUND

Agriculture contributed to 38% of the gross domestic product (GDP) and 66% of employment (75%, if agriculture related trade and manufacturing are covered). During 1991-2001, the agricultural growth (2.66%/year) was marginally higher than the population growth rate.

During 1976-96, the average economic growth rate was 4%, the per capita growth rate per annum was merely 1.6%. The GDP grew by only 0.8% in 2001. This decline is partly attributable to the ensuing political unrest. Agricultural growth rate of less than 2.5% has been disappointing. It has also been volatile due to monsoon dependence. In the 1990s, the growth was negative in 3 out of 8 years, was more volatile and less than the population growth rate. Poverty and food insecurity has been checked to some extent only by the remittances. In 2002, Rs. 100 billion was received as remittances in Nepal.

As discussed, one of the pertinent characteristics for understanding the food security concerns and the policies there of is the ecological setting in Nepal. The remote areas tend to be less food secure due to higher prices of food, weaker political power, and in recent times due to the Maoist turmoil.

The terai region has a high population density and is a major producer of food grains, partly due to better market facilities and infrastructure. The hill has moderate density with lower grain production and market access. The mountain has the lowest

population density, food production and the worst access to markets. Both the hill and the mountain regions have difficult terrains and climatic conditions that make the delivery of public services and food a big challenge. The policy implication of this hierarchical geography is two fold: (i) Distribution policies are extremely important and (ii) there is strong role of facilitation for markets (through the creation of infrastructure) to integrate spatially.

2.1 ECONOMIC AND AGRICULTURAL BACKWARDNESS IN NEPAL

Absolute poverty in Nepal increased from 36 to 42% during 1977-96. The poverty incidence does not vary significantly between the hills and terai but is extremely high in the mountain zone (Figure 4). The Eastern and Central Development Regions are less poor than those in other development regions (NPC 1998). Poverty is more severe in rural areas of Western, Mid-western and Far-western Development Regions (UNDP 2002). In line with the spatial distribution of poverty, the most food insecure region in the country is the Far-Western Region. Poverty is also more visible among the occupational castes and ethnic people like the Limbu, Tamang, Magar, Tharu, Musahar, and other indigenous groups (NESAC, 1998). NLSS 1995/96 estimated that 40% of population (or 9.2 million) was under absolute poverty based on intake of 2,124 calories and expenditure required to procure a minimum level of non-food goods and services (CBS 1996a and b).

If wage rates catch up with food prices then purchasing power for food is maintained. The lag in wages behind food prices in Nepal due to the labor market

imperfections is a very important cause of poverty and food insecurity. A large proportion of laborers are employed in the unorganized sector. There is no formal recording of wage rates (GFont 1999). Government has recently fixed minimum wage rates in farming at Rs 60 per day (8 hours) (which is below US \$1). On an average, only 8.5% laborers are employed in the formal sector. The possibilities of wage rationalization are limited. Minimum wage rates in industries and services have generally been below the inflation rates, although it is reviewed every two years.

In an agrarian economy, land ownership is the most important source of food security, land being the most important asset. Greater landholdings also provide a greater marketable surplus. Land ownership in Nepal is extremely skewed. According to the National Sample Census of Agriculture (NSCA) 1992, the average farm size was only 0.9 hectare per holding (Table 5). Marginal farmers comprise 43% of farm households and operate only 11% of the area (Table 6). The investment in land improvement is less than 3% of household income (NRB 1994). With such sizes, there is little prospect for rise in farm productivity. The current growth in agricultural productivity is merely 0.4%.

Table 5—Average Farm size by Regions (Hectare/holding) (1992)

Particulars	Unit	Terai	Hill	Mountain	Nepal
Area under cultivation	%	38	14	3	16
Farm size	Ha/holding	1.23	0.77	0.68	0.95
Owner-tiller tenure	%	87.1	95.4	94.2	90.9
Gini index with households	Ratio	0.55	0.47	0.43	0.52
Gini index with population	Ratio	0.46	0.40	0.39	0.44

Source: CBS/ NSCA 1994.

Table 6—Distribution of Farm Holdings and Operational Land by Farm Sizes (1992)

Particulars	Marginal (< 0.5 ha)	Small (0.5 – 2.0 ha)	Large (>2.0 ha)
Farm households (in %)	43.1	45.9	11.0
Operational land area (in %)	11.3	46.8	41.9

Source: Compiled from Table 2.6 of CBS (1994).

2.2 HISTORY OF FOOD AVAILABILITY IN NEPAL

At a national level, Nepal was food secure till the early 1970s except in periods of unfavorable weather as in 1972. Food balance for 1970/71 showed a surplus of 294 thousand MT. Estimates for 1974/75 revealed even greater surplus (539 thousands MT).² Food was exported from terai even though the hills remained food deficient. In 1977, the government estimated the deficit at 1.5%. Alternative estimates from Gurung (1989) are however much higher, at 15-19% in 1976 and 18-22% in 1977. During the drought of 1980, Nepal received food aid from friendly countries to meet the shortages.

Nepal, over the last few years has experienced sporadic food insufficiency at the national level. However, the food security concerns are most pronounced at the household level. Recent estimates of the average per capita food deficit are 47 kg in the

² Food and Agricultural Marketing Services Department (1982), *Food Statistics of Nepal 1981*, Page 14.

mountains and 32 kg in the hills even though the per capita surplus is 45 kg at the national level.

The food deficits to requirements ratio has fluctuated heavily depending on the weather. From a deficit of 12.5% during 1990-94, the net food balance moved to 1.9% in 2001. In terms of the district-wise breakdown, in 2001, 36 of the 75 districts were unable to produce sufficient food (Table 7 and 8). The per capita gross food grain production decreased from 376 to 277 kg during 1974-1992 (APROSC and JMA 1995), i.e. a decline of 1.85% per annum. The gross production of 277 kg per capita translates to 190 kg in edible form just slightly more than the official minimum per capita requirements of 180 kg (Wallace 1987:3, Uma 1993: 44). Tables 8 and 9 show the belt-wise food availability and requirement of cereals in 2000/2001 and the data on Nepal's food production and requirements.

The shortfall in domestic production is due to declining productivity of land in the hills and mountains. It is noticeable that this decline occurred in spite of an increase in the use of fertilizers and pesticides. Lack of irrigation facilities and investment in infrastructure such as roads are accountable for this decline in agricultural production.

Table 7—Number of Districts deficit in food production, 2000/2001

Ecological belts	Development Region					Total
	Eastern	Central	Western	Midwestern	Far western	
Mountain	1 (3)	2 (3)	2 (2)	5 (5)	3 (3)	13 (16)
Hills	1 (8)	7 (9)	5 (11)	4 (7)	4 (4)	21 (39)
Terai	0 (5)	2 (7)	0 (3)	0 (3)	0 (2)	2 (20)
Total	2 (16)	11 (19)	7 (16)	9 (15)	7 (9)	36 (75)

Note: Figures in parenthesis are total districts in each block.
Source: Department of Agriculture (2002).

Table 8—Belt-wise Food Availability and Requirement of Cereals, 2000/2001 (MT)

Ecological regions	Population (Thousands)	Food available (Thousands mt)	Food Requirement (Thousands)	Food Balance (Thousands mt)
Mountain	1,715	248	328	- 80
Hills	10,335	1,742	2,077	- 336
Terai	11,189	2,524	2,025	499
Nepal	23,239	4,513	4,430	83

Table 9—Nepal's Food Production and Requirements (Edible Food grains in 1000 MT)

Crops	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
Rice	1,892	1738	1,394	1,827	1,578	1,950	2,003	2036	2,074	2,259	2,357
Maize	877	837	1,100	838	883	930	895	941	920	1,007	1,001
Wheat	652	604	596	687	709	787	827	809	856	935	915
Millet	190	188	194	225	219	236	237	234	239	242	232
Barley	8	8	8	8	8	11	11	10	9	8	8
Total production	3,61,9	3,373	3,292	3,585	3,398	3,919	3,973	4,027	4,098	4,452	4,513
Total required	3,487	3,562	3,634	3,724	3,883	3,948	40,79	4,178	4,279	4,383	4,430
Balance	132	-188	-342	-139	-485	-34	-107	-151	-182	68	83
%	-	-5.3	-9.4	-3.7	-12.5	-0.9	-2.6	-3.6	-4.2	+ 1.6	+ 1.9

Source: Dept. of Agriculture/MDD (2000). P. 102; CBS (2002), MoAC (2002) Statistical Pocket Book, P.88.T: total.

The major grains are paddy, maize, wheat, millet and barley. During 1970-90, the share of wheat in total production has increased, paddy is nearly constant, and maize and coarse cereals has decreased (table 10). The share of terai in grain production increased from 51 to 58% while that of hill and mountains decreased. The food production per capita in the terai is nearly 50% higher than in hills and two times higher than in mountain regions. This implies that the food policy has to be geared in developing efficient means of distribution and not only production.

Table 10—Trends in the share of food grain production and availability

Particulars	1970s	1980s	1990s	Average
<i>Share by crops (%)</i>				
Paddy	58.9	58.7	57.0	58.0
Maize	25.4	22.2	22.2	22.6
Wheat	10.5	14.7	15.8	14.6
Millet & Barley	5.2	4.4	5.0	4.8
Total	100.0	100.0	100.0	100.0
<i>Share by regions (%)</i>				
Terai	51.4	57.2	57.7	56.5
Hill	43.4	38.1	37.7	38.7
Mountain	5.2	4.7	4.6	4.8
Total	100.0	100.0	100.0	100.0
<i>Kg per capita by regions</i>				
Terai	439	381	363	394
Hill	300	246	251	266
Mountain	193	170	184	182
Nepal	346	301	298	315

Source: NPC and CBS Annual Publications.

The export of agricultural products was a major source of foreign exchange until 1979. During 1974-79, food grain comprised 25% of the total merchandise exports (Table 11.1). Since the 1990s, the foreign exchange from other sources is being used to import food. The deficit in food trade has increased from about 1 to 4 billion Rs on three year average basis during 1991-2001. Nepal resumed exporting small amounts of rice and wheat in 2000. Nepal's spending on food imports increased sharply between 1993 and 1999 from Rs. 622 to Rs 1,641 million. The trade balance is positive for a few years only if pulses are included (Tables 11.2 and 11.3).³

³Agricultural Marketing Information Bulletin, 2002: Table 12A-12D.

Table 11.1—Export of Food grains from Nepal (Rs. in Million)

Fiscal year	To India		Food grains export/total export (%)			
	Rice	Maize	Total	India	Overseas	Total
1974/ 75	116.7	0	116.7	15.63	2.6	13.5
1975/ 76	495.4		495.4	55.43	0.0	41.7
1976/ 77	343	1.4	344.4	44.18	0.0	29.5
1977/ 78	46.5	4.7	51.2	10.28	25.2	18.1
1978/ 79	13.3	4.9	18.2	2.80	37.7	20.2
1979/ 80	2.9	2.7	5.6	1.08	6.2	3.9
1980/ 81	117.6	24.5	142.1	14.32	0.0	8.8
1981/ 82	136.5	26.1	162.6	16.35	17.3	16.6
1982/ 83	11.3	0.3	11.6	1.38	0.0	1.0
1983/ 84	75.7	0.4	76.1	6.56	0.0	4.4
1984/ 85	250	10.9	260.9	16.29	0.0	9.5
1985/ 86	93.2		93.2	1.16	0.0	0.4
1986/ 87	14.4		14.4	0.08	0.0	0.03
1987/ 88	0		0	0.01	0.0	0.0
1988/ 89	0	1.3	1.3	0.13	0.0	0.03
1989/ 90		0.1	0.1	0.02	0.0	0.0
1990/ 91		5.8	5.8	0.37	0.0	0.08
1991/ 92			0	0.00	0.0	0.0
1992/ 93			0	0.00	0.0	0.0
1993/ 94			0	0.00	0.0	0.0
1994/ 95			0	0.00	0.0	0.0

Source: Ministry of Finance, Economic Survey, 1996/97.

The most important reason for the decline in competitiveness is the stagnation in agricultural productivity. Yields for most crops, except wheat, were stagnant or increased only marginally during 1985-99 (NPC 2001). Productivity increase was only 1.5% for paddy, 0.2% for maize and 1.9% for wheat. Sharma (2002) compares the yield trends of in Nepal to rest of South Asia. From the 1960s till date, the average yield in Nepal has fallen from 157 to 61% of the South Asian average. The crop yield in Nepal grew by about 1.25% per annum while growth rates in India, Bangladesh, Pakistan and Sri Lanka were 5.28, 1.92, 5.5 and 2.7%, respectively.

Various factors have accounted for this stagnation in productivity: small and fragmented land holdings, lack of irrigation facilities, accessibility for marketing and purchase of inputs, appropriate technology and land degradation. The small land holding *per se* would not be so counter-productive if there were good economic incentives, technology and required infrastructure. In Vietnam, for example, the average land holding of a family is about 0.25 ha. Households in Vietnam are generally food secure and Vietnam is a big exporter of rice to the extent of 12-13% of the world's exports. The land owned by poor is also more prone to degradation due to excessive farming. The environmental degradation has also caused a decline in productivity. Only recently has the forest degradation has been slowed down through community forestry.

Table 11.2—Growth of Food Trade, 1974/ 75 – 99/ 2000 (in 1984/ 85 Prices)

Food groups	Growth rate %/ annum
Export of food and live animals	-0.60
Export of animal and vegetable oil and fat	16.03
Total food exports	7.92
Import of food and live animals	5.91
Import of animal and vegetable oil and fat	18.57
Total food imports	9.14
Export less import growth rates	-1.22

Source: NRB (October 2000) Quarterly Economic Bulletins.

Table 11.3—Trade Balance of Food Grains (1993-1998) (Rs million)

Trade	Commodities	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99
Exports (x)	Rice	0.0	0.0	0.0	0.1	8.0	74.1
	Maize	0.0	0.0	0.0	5.8	4.4	0.1
	Pulses	347.3	456.9	663.4	1,039	1,057.1	1,191.2
	Total	347.3	456.9	663.4	1,044.9	1,069.5	1,256.4
Balance (x-m)	Without pulses	-622.0	-491.3	-821.5	-377.4	-158.4	-1,641.0
	With pulses	-274.7	-169.1	-277.1	511.8	717.1	-595.6

Source: Sharma, 2002.

3. STRUCTURAL ADJUSTMENT: BREAK IN NEPAL'S POLICY LANDSCAPE

Box 1 lists the milestones in the food policy in Nepal. In summary, the period until the 1980s followed a continuity in terms of limited role of the private sector and varying degrees of government intervention. In the mid 1980s, the policy moved towards a greater use of price mechanisms in the agricultural sector. The budget allocated to agriculture increased marginally till the mid-1980s, and has since declined in relative terms (Table 12). The agricultural plans have begun to lay higher emphasis on cash crops. In the 7th plan, for example, the strategy was to encourage commercial agriculture. It began by selling off government farms. The 8th Plan target was to increase production of cereals by 5.4% and of cash crops by 9.1% per year.

The thrust for reforms in 1980s came from structural adjustment programs. Nepal faced severe problems of balance of payment (BoP) and budget deficits in the mid-1980s due to rising government expenditures aimed at offsetting the sluggish economic growth rates during 1975-80. The deficit was financed primarily through an increase in money supply, which fuelled inflation, led to an import surge and consequently large current account deficits. The decline in export earnings and foreign aid inflows led to a crisis-like situation in the early 1980s.

Box 1—Chronology of government initiatives in food policy

- During the Rana rule (1846-1950 AD), the state catered to the food needs of the military and civil servants. Food grain was obtained from Guthi and Raikar lands and for effective distribution, 'food stores' were kept under the control of the Commander-in-Chief
- In 1948, the government established a 'Rice Milling and Sales Company' under military control.
- The 1949, the establishment of the Department of Rice Mills and Sales marked the beginning of public sector intervention in distribution of subsidized food grain in Kathmandu Valley.
- With the multi-party system in early 1950, food administration was separated from the military.
- In 1951, a "Department of Food" was created in the Center with Regional Food Control Offices to procure rice in the Terai and dispatch it to Kathmandu for distribution. By 1951-52, there were 32 stores under this food control office.
- In 1955, the government converted Regional Food Control Office to 'Food Storage and Sales Department' with a purpose to supply rice to Kathmandu cities (about 2,000 MT every year). In 1957, these units were merged to create a new "Food Office".
- In the early 1960s, the government instituted a 'Valley Food Arrangement Committee' and allocated budget from government sources.
- In 1964, the government replaced the Committee by 'Food Arrangement Corporation' to distribute food obtained locally.
- In 1965, "Food Management Corporation" was established under the Corporation Act to replace Food Arrangement Corporation. This institution continued till 1972.
- In 1971/72, the droughts and excess rains in hilly and remote regions of the country underscored the need for a national level agency. Thus, HMG created the Agricultural Marketing Corporation (AMC) by merging the Food Management Corporation and the "Agricultural Supply Corporation. The objectives were to: (i) Provide regular and organized supply of agricultural inputs, (ii) Make food grains available at a reasonable price for the poor in food deficit districts, (iii) Achieve better co-ordination by bringing both the input and output distribution functions under single management, (iv) Promote food grain exports to countries other than India, (vi) Stabilize prices of food grains, and (vii) Increase agricultural production by providing incentives to the producers.
- In 1973, the government integrated the Agricultural Supply Corporation and the Food Arrangement Corporation (FAC) into the Agriculture Purchase and Sales Corporation. The FAC took care of food supply all over the country.
- In 1974, the agriculture Purchase and Sales Corporation was split into the AIC and NFC under the Corporation Act. NFC was responsible for handling food grain distribution while the AIC was responsible for providing inputs to farmers. The NFC was entrusted with procurement, storage and distribution of food grains as follows: (i) Procure, store, transport and distribute food grains at a fair price in order to meet the food requirements in the remote and food deficit areas and to maintain farm incomes. (ii) Ensure adequate supply of food-grains and other essential commodities, (iii) Implement the rice exports program of the government, (vi) Maintain a reserve stock in relation to domestic requirements, and (vii) Construct and maintain warehouses for storage and distribution. NFC was established to distribute food in deficit areas (i.e. mainly hilly and mountain districts) but a major part of the food has mostly been sold in the Kathmandu valley.
- In 1986, the NPC identified one of the tasks to monitor the price movements across the border with India. The Minimum Support Price (MSP) and other prices fixed by the Government of India was one of the factors considered in deciding the level of MSP and the sales price of fertilizers.
- Since 1998/99, the policies have been to downsize the NFC, and increase the role of private sector in food marketing. Since mid-1990s, NFC has reduced its operations.

Table 12—Budget allocations to agriculture by plan period (6th to 10th plan)

Plan periods	Outlay on Agr. (%)	Agr. GDP growth targets (%/year)
Sixth plan (1980-85)	31.3	Agdp 3.0;
Seventh plan (1985-90)	24.5	Agdp 4.3; food grains 4.1; cash crops 5.2
Eighth plan (1992-97)	25.8	Agdp 4.8, food grains 5.4; cash crops 9.1
Ninth plan (1998-2003)	27.1	Agdp 4.0, food grains 5.2; cash crops 6.5
Tenth plan (2003-2007)	24.0	Agdp 4.1, food grains 3.7; cash crops 4.4

Note: The share of agriculture in development outlay was 1st plan 27%, 2nd plan 15%, 3rd plan 21.7%, 4th plan 33.1 % and 5th plan 34.8%. .Source: HMG 1962; NPC 1965; NPC 1970, 1975, 1980, 1985, 1992.

Nepal underwent the IMF-supported "Stabilization Program" since December 1985, and further initiated the "Structural Adjustment Program" with the support of Structural Adjustment Loans (SAL-I in 1987 and SAL-II in 1989), and a Structural Adjustment Facility in 1988. As part of a broader liberalization, the agricultural policies also adopted reforms such as removal of subsidies, privatization of the Agriculture Inputs Corporation (AIC), deregulation and opening up to foreign direct investment. Concurrently, the Asian Development Bank (ADB) helped develop and implement the Agricultural Perspective Plan (APP). The plan had the following objectives:

Raising the growth rate of agricultural sector from around 3 to 5% annually during 1995-2016 and reducing the share of population living below the poverty line from 42 to 15%. The main strategy conceived in the APP was to increase the usage of modern agricultural inputs to enhance productivity. After the change in the government in 1990, the policymakers vigorously pursued several liberalization policies, namely deregulation of interest rates, liberalization in international trade, removal of a number of restrictions on foreign investments, opening of the financial sector to foreign and private sector investment and privatization of public sector enterprises, exchange rate adjustment,

restraining domestic borrowing, lowering of excise duties and sales tax, and an increase in direct tax.

4. ELEMENTS OF LIBERALIZATION: INTEGRATION OF DOMESTIC MARKET WITH EXTERNAL MARKETS

Nepal underwent substantial trade liberalization through the elimination of quantitative restrictions, and reduction and rationalization of tariffs since the 1980s. In 2002, the agricultural tariffs were the lowest in South Asia. Tariffs on live animals and animal products and vegetable products were 5 and 15% respectively. Animal or vegetable fats and oils and prepared foodstuffs faced a rate of 10 and 25%. There is no tariff on staples and there are no quantitative restrictions on imports of agricultural products. Nepal's applied tariff on agricultural imports is 14.5% (Box 2 and Table 13). Nepal's bound tariffs are about 50% lower than that of India.

HMG/N has envisaged a two-pronged strategy to integrate the domestic food market with external markets. First, it includes an effort to strengthen the manufacturing processes of food items. Second, it requires increasing the private sector's role as intermediaries for effective delivery of services. It presumes the role of the government as a facilitator.

The APP envisaged that the hill region would reach food self-sufficiency and even supply a modest amount to the mountains by the end of 10th plan and terai would generate exports. This is far from being realized. Different plans have aimed at encouraging competition among private sectors to increase supply of inputs, expand local markets, and supply of essential commodities. The 9th plan supported market

development in hilly areas through (a) the creation of a network of small-scale ropeway, pulley and suspension bridges and (b) the establishment of collection centers, market stalls and wholesale markets with local initiative. The budget for these activities has decreased due to conflicts. The 10th plan has a follow-on program. However, conflict has dramatically limited the scope for increased expenditure. Since the early 1990s, outward-oriented reforms have led to the rise in the share of trade in the GDP. Nevertheless, the level of integration of Nepal with the world markets has been slow.

Compared to the base year 1975, the food crop productivity index declined to 93 in 1988. It recovered marginally to 125 by 2002. In contrast, the cash crops productivity increased steadily to 176 by 1988 and further to 326 by 2002 . During the 1990s, the import of food and live animals was around 9.4% of total imports, while their share in exports declined from 14.2 to 8.6%. Exports of food grain have declined further in recent years.

**Table 13—Import tariff and bound tariff on major agricultural products
(August 2002) (%)**

Products	India	Pakistan	Bangladesh	Sri Lanka	Nepal	Bhutan
Bound tariff %	Mostly 100% (300% on edible oils)	100-120	50-200 (90 products have 200%; 10 %have 59%)	50% for all agriculture products	42-51%	Not entered into WTO
Cereals	36	25	36	30	10	30
Vegetables	35 (onion:5)	10-20	26-36	30-60 (garlic:12)	10	20
Fruits	35.2-45.2 Dg/bn: 108-113.2	20-25	26-75.8 Betel nuts:102.3	30 Dates: 6	10-15	20
Preparation of fruits and vegetables	35.2-40.4	25	36-86.4	30	25-40	30
Coffee/tea	108	20-25	36	30 (qr for tea)	10-25	20
Spices	35.2-76.8 (qr for cc)	20	26-102.3	6-60	5-10	20
Animals	35.2	10-20.25	11	30	10	20
Poultry	35.2	20-oct	26+qr	30	10	20
Egg	35.2+qr	20	36+qr	30	10	10
Meats and skin	0-35	0-25/oct	0-36	12-30	5-10	10-30
Fish/crustaceans	35.2	10	36-62.5	12	10	20
Dairy products	15-60	20-25	36-86.5	10-30	10-15	30
Rice	87.2	10	26	60	10	20
Wheat and wheat flour	35.2-50	20-25	11-18.5	0-10	10	20
Coarse grain and flours	019.6-50	10-25	3.5-18.5	0-30	10	20
Processed cereals	36-56/qr	20-25	36-75.8	5-30	10	20
Spices	35.2-35.2/qr	20	36-75.8	30	5-10	20
Edible oils	75-85	S	18.5-36	26-30	5-15	30
Fibers	9.2-19.6	5-10	3.5-26	0	5-10	0
Sugar	60+qr	25	86.4	3.5	40	20
Rubber	30-76.8	5	18.5	12	5	20
Raw tobacco	36	25	18.5	90	10	100
Wool, and wood products	5-36	10-25	3.5-36	0-30	5-15	10-30

Source: WTO/Nepal Unit 2002. Q R: Quantitative restrictions, DG: Dried Grapes. BN: Betel nuts, CC: Cardamom.

Box 2—Tariffs and taxes on food trade in Nepal

1. Import tariff- Nepal has the lowest tariffs in the SAARC region in almost all products. The average tariff on agricultural products is 14.5%. For processed or frozen products it ranges between 25-40%.
2. Local development tax (LDT) and security tax are levied on imports. The LDT was levied by removing the octroi levied earlier. The security tax is levied temporarily for maintaining law and order.
3. An export tax of 5% is levied on few commodities like soybean oil, ghee and vegetable oil. Most other countries in the region provide some export incentive.
4. Nepal does not have significant non-tariff barriers except a quarantine standard and product composition standards on inputs such as fertilizers. Nepal has been harmonizing as per the Codex Standards.
5. In WTO, Nepal has committed to an average tariff of 51%, to be lowered to an average of 42% after 3 years.

Since the 1990s the Government aimed to deliver the benefits of liberalization to the poor. Public expenditure was increased in the priority rural sectors for poverty alleviation. The target was to enhance employment and income opportunities to the poor and the disadvantaged by emphasizing social security, physical infrastructure and human resources development. The scope of liberalization was extended to the agricultural sector where the following policies were adopted.

- Removing input and output subsidies in agriculture.
- Privatizing AIC and deregulating the price in agricultural inputs and products. Price determination was left to the market force. NFC too was to be privatized, and subsidies in food distribution were removed.
- Increasing private sector participation in the production, distribution and marketing.
- Reducing the tariff rates on food products, and to open agriculture to FDI.

The government adopted the food security agenda in the Ninth Plan (1997-2002). In line with the Rome Declaration, the government decided to implement the mandates of achieving sustainable food security for eradicating poverty and improving access to food for all.

As far as the impact of reforms and liberalization is concerned, the evidence from the aggregate level points to there being a reasonable improvement in incomes and standards of living. The difference is in the form of diverse impacts across regions in Nepal. The main question is why have reforms worked differently across regions? The

current economic distribution reinforces the prior ordered economic status of the regions. To understand whether the liberalization per se has reinforced this pre existing ordering, we look to the evidence from the Computable General Equilibrium (CGE) models on Nepal that can be used to address this question.

5. RESULTS FROM THE CGE MODELS

The impacts of trade liberalization on poverty in Nepal have been studied using computable general equilibrium (CGE) models by Cockburn (2001) and Sapkota (2002). Both these studies use the same model, but differ in the base data used in the simulation. Cockburn's study is based on the social accounting matrix (SAM) for the year 1986, while Sapkota's study uses the SAM for 1996-97. Their findings, however, are quite similar qualitatively except for some small differences in the magnitude of the impacts.

Since the results from these two studies are vital for the thesis in the paper, it is worthwhile to study the main features of these models. The models distinguish seven household categories based on location and occupational status as urban; small farm, large farm and non-farm Terai; small farm, large farm and non-farm Hills and Mountains. Firms, government and rest of the world are the other agents in the model. The model distinguishes five types of primary factors, viz., unskilled labor, skilled labor, land, agricultural and non-agricultural capital, which are further distinguished along the lines of household categories.

The models consider sixteen commodity producing sectors, with the production desegregated by their location (Urban / Terai / Hills and Mountains). Production is

modeled as a nested-CES structure. The model allows for factor mobility across sectors within each region but not across regions. Households receive income from factor payments and transfers from firms, government and the rest of world. Transfers from the government and the rest of world are assumed fixed. Consumption is modeled using a linear expenditure system. The model allows for imperfect substitutability of domestically produced goods and their imported counterparts and between exports and local sales for the domestically produced goods. The volume of investment, foreign savings, government consumption, world prices for exports and imports, all remain fixed in the model.

The simulation involves elimination of all import tariffs with a compensatory uniform consumption tax designed to maintain government revenue constant. The main findings of these two studies are as follows:

Trade liberalization brings about sectoral reallocation of resources away from some agriculture and industry (mining and manufacturing in particular) towards services sectors (hotel/restaurant, trade and transport/communication), which is reflected as a corresponding fall / rise in the output of these sectors. Output loss in the agricultural sectors is less than one percent. The losses / gains in output amongst the industrial and service sectors range much larger. Prices decline in all the sectors, with agriculture witnessing the maximum decline of about 4.0%– 4.3%. This has a direct bearing on the food security concerns of the agricultural producers.

Most importantly, the changes in agricultural output are not uniform across regions. While paddy output declines in all regions, it is sharpest in the Hills and

Mountains. Output of other food crops increases in Terai but declines in the Hills and Mountains. This pattern is reversed only in the case of cash crops, livestock/fisheries and forestry. Changes (increase / decline) in industrial and services output are more or less similar across regions.

All factor prices decline in all the regions, commensurate with the fall in output in several sectors and fall in prices of all sectors. The maximum decline is witnessed in the case of agricultural capital and land (-4.4% to -5.4%), followed by unskilled labour (-2.9% to -4.3%). Non-agricultural capital is the relative winner as the price decline is least for this factor (-0.6% to 01.7%).

Decline in wages (both skilled and unskilled) is the least in urban areas, while the decline in returns to agricultural capital and land is least in the Hills and Mountains. While all household categories experience a decline in their incomes, the loss is least for urban households (-1.8%), while it is nearly double for the households in Terai and Hills and Mountains (-3.3%). This is because the households in these two regions derive most of their income primarily from land and unskilled labour, both of which witness large fall in their factor prices. Consumer prices fall most in agricultural sectors (-3.0% -3.4%) and in manufacturing (-3.7%) that were highly protected initially and / or import-intensive. As a result, consumer price index falls for all household types. However, there are no regional differences in the decline in consumer price index (-3.1%).

The decline in income levels and consumer prices have opposite effects on household consumption. Equivalent variations in consumption reveal that trade liberalization has little impact on aggregate welfare but there are winners and losers.

Welfare of urban households rise (0.47%) while the remaining households lose in both Terai (-0.09%) and Hills and Mountains (-0.06%). This could be due to the pro-urban bias in income effects seen above.

The impact of trade liberalization on poverty (head count ratio using a poverty line of “one-half of nationwide median income”, which is a relative measure), is a negligible decline (-0.01%) for the country as a whole. At a regional level, there is a decline in poverty in the urban (-0.07%) and Terai (-0.19%) regions but a rise in poverty in the Hills and Mountains (0.15%). The poverty gap measure (FGT index) evaluated for different poverty lines reveal a slight reduction in the depth of poverty in rural areas among the very poorest and a clear rise in poverty among the moderately poor, while the very wealthy households are the main beneficiaries of trade liberalization.

Given this structure of the effects from liberalization where there are losers from liberalization, there is a basis for safety nets that the government needs to adopt. Nepal, has a long history of government intervention in food policy. The most important element of government intervention has been the Nepal Food Corporation, the procurement and distribution agency of the government.

6. FOOD SECURITY POLICIES AND THE PLACE OF NFC

Box 1 documents the origin and the functioning of the Nepal Food Corporation (NFC) as part of the evolution of food policy in Nepal. The basic principle behind the Nepal Food Corporation was a safety net to the vulnerable sections of the population. Food distribution in the remote hill and mountain districts is managed through NFC and

District Disaster Management Committees. The big question is how well has the NFC met its desired objectives?

Table 14—Food Distribution Quota and Sales in Different Areas (MT)

Years/indicators	Inaccessible districts		Accessible districts	
	Quota	Sales	Quota	Sales
1998/99	15,435	17,790	26,000	30,097
1999/00	13,500	14,648	22,500	10,519
2000/01	11,170	9,607	20,000	9,307
2001/02	10,219	7,119	20,000	15,073
Average	12,581	12,291	22,125	16,249
Quota in total (%)	36.3		63.7	
Sales in total (%)	43.1		56.9	
Sales against quota (%)	97.7		73.4	

Source: NFC 2002, Planning Division, Central Office.

During 1996–2001, the sales of NFC have declined by almost 50% but the share of sales in remote areas has been increasing. Wallace (1987) argued that food prices were lower in Kathmandu valley (with richer population) than elsewhere. In Kathmandu valley, the NFC met 15.5% of demand in 1997 (Adhikari and Bohle, 1999a) and 9% in 2002 (Pandey, 2002).

NFC's distribution to remote areas has not been targeted effectively at needy households despite a heavy financial burden on the government. Data for the 1998-2002 indicates that NFC apportioned only 36% of its target quota for the inaccessible regions as against 64% for the accessible regions (Table 14 and figure 5). The leakages and the inefficiency in the system are seen from the following evidences:

Since the 1975 famine, the government started sending food to the Karnali region by air, a region that receives about 40-50% of the subsidized food. A big part of this subsidy accrues to the airlines. The air transport costs in the range Rs 40-60 per kg of

rice. In contrast road transport via Tibet would cost only Rs 20 per kg. Using more labor-intensive means will also generate employment yielding double dividends. In 1988, Jumla received 800 MT of rice. Of the 800 MT, about 615 MT was airlifted in 474 charter flights and rest 185 MT was transported by mules and porters. Transportation of 185 MT to Jumla requires about 27,550 man-days, i.e. 6 man-days for every 40 kg. If the remaining 615 MT were also transported by porters, it would have generated over 92,000 man-days (353 man-year) of employment. To put things in perspective, Figure 6 shows the composition of the subsidies (interest and transport). The transport subsidy clearly dominates the interest subsidy.

In 1998, 60% of allocation in Karnali was for government employees and teachers. NFC's distribution in most food deficit and moderately food deficit areas (38 districts) mitigated less than 4% of the deficit in 1994 (ANZDEC 2002). Much of the distribution of the NFC is directed towards the richer Kathmandu valley as figure 5 shows (Years with * relate to distribution of only rice).

Figure 5—Share of Kathmandu valley in distribution

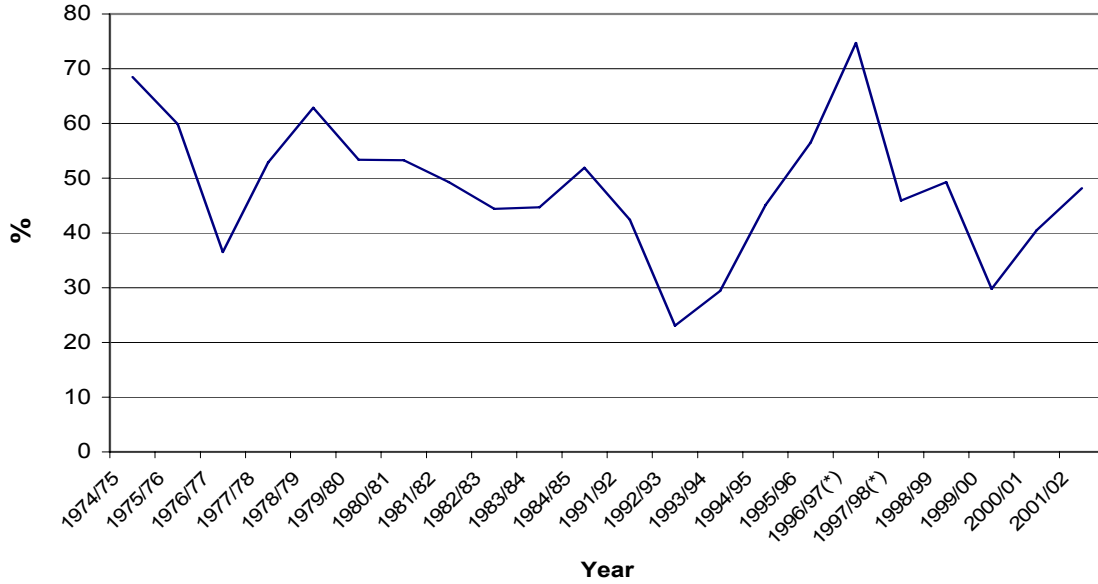
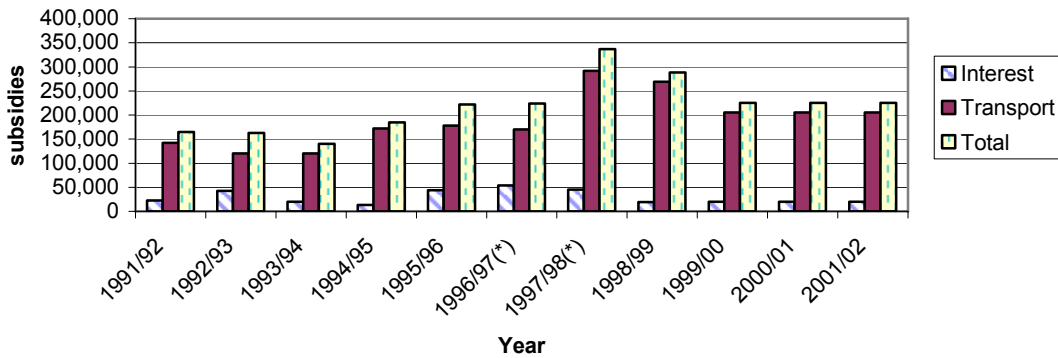


Figure 6—Composition of subsidy (In Rs thousands)



Moreover, a recent study reveals that compared to other SAARC countries, food programs in Nepal are much less cost-effective, mainly on account of more expensive internal transport, storage and handling costs. Part of the higher costs is however attributable to more difficult geography (ANZDEC 2002).

Accumulated losses of the NFC were a whopping NRs. 884 million until 1990 and NRs. 905 million by 1996 (APROSC 1998). Perry (2000) estimated that NFC requires US \$ 7-1,176 per MT depending upon the district as internal transport and handling cost (ITHC). The present study estimates the average ITHC at Rs 27 per kg. The cost of transporting rice is Rs 49.0 per kg. Based on different indicators, NFC does not seem to be well geared in meeting the food security objectives in a cost effective manner. Different reforms have been attempted to better the functioning of the NFC. The next section discusses these reforms and to what extent have they transformed the organization.

7. REFORMS IN NFC

One of the most important elements of liberalization has been the restructuring of the NFC. We discuss below the main reforms in the NFC.

7.1 CLOSURE OF SALES DEPOTS

As part of the restructuring, NFC withdrew sales depots from 29 districts, and reduced number of depots from 135 to 67, with effect from 1st Jan 2000. Branch offices were also reduced from 26 to 19. Most of the 68 abandoned depots are located in accessible areas. It has been proposed that Maoist affected areas should get privileges. The actual implementation of this proposal seems questionable as 2 depots in Maoist inflicted Jajarkot district have also been closed. The depots where accessibility through roads has not improved like Jumla, Humla, Mugu have also been withdrawn. The

government suggested keeping 31 depots in 12 districts as remote depots and another 31 depots in 12 districts as semi-remote depots. As part of downsizing, NFC terminated 305 temporary employees and accepted the resignation from 125 staffs on the basis of voluntary retirement scheme. The current staff strength is 772. Further downsizing seems less likely due to pressures from the employees union.

7.2 FOOD PROCUREMENT

Prior to liberalization, NFC procured food periodically from local markets or directly from farmers at a price equal to or above the minimum support price (MSP) in the food surplus areas. Paddy procurement was concentrated in areas having rice-processing plants (Rajapur and Bardiya district). Rice was procured from the private rice mills or trading houses. The share of paddy in total procurement ranged between 2-5% (Panday, 2002). Following liberalization, the government discontinued the MSP, so the NFC procured rice from the open market. The procurement system of paddy remains the same as before. NFC's major sources of procurement are generally within the country, except in 1994/95 when it procured 35 thousand MT from India as compared to 14 thousand MT from the domestic market. The amount of direct purchase from the farmers varied at different times (Table 15). Figure 7 shows the trends in procurement price. The NFC's procurements seem related with the discontinuation of the policy of MSP. The greater reliance on open market operations has led to the decline in food procurements by NFC and consequent declines in the stocks and go down capacity utilizations (Figure 8).

Table 15—Procurement by NFC 1990-2002 (Unit: MT)

Fiscal year	Rice market		Wheat market	
	Internal	External	Internal	External
1990/91	15,602		17	
1991/92	30,311	25,000	3,567	28,610
1992/93	23,475		2,306	
1993/94	25,512	22,336	1,375	
1994/95	13,800	34,809	1,080	
1995/96	20,659	16,908	1,151	
1996/97	17,912	5,754	12,496	
1997/98	1,715			
1998/99	19,442	14,517		
1999/2000	22,789	5,975		
2000/01	2,138			
2001/02	9,629	8,858		

Total purchase = sum of Rice, Wheat and Maize.

Source: NFC, Planning Division, Central Office.

Figure 7—Trends in public procurement Price

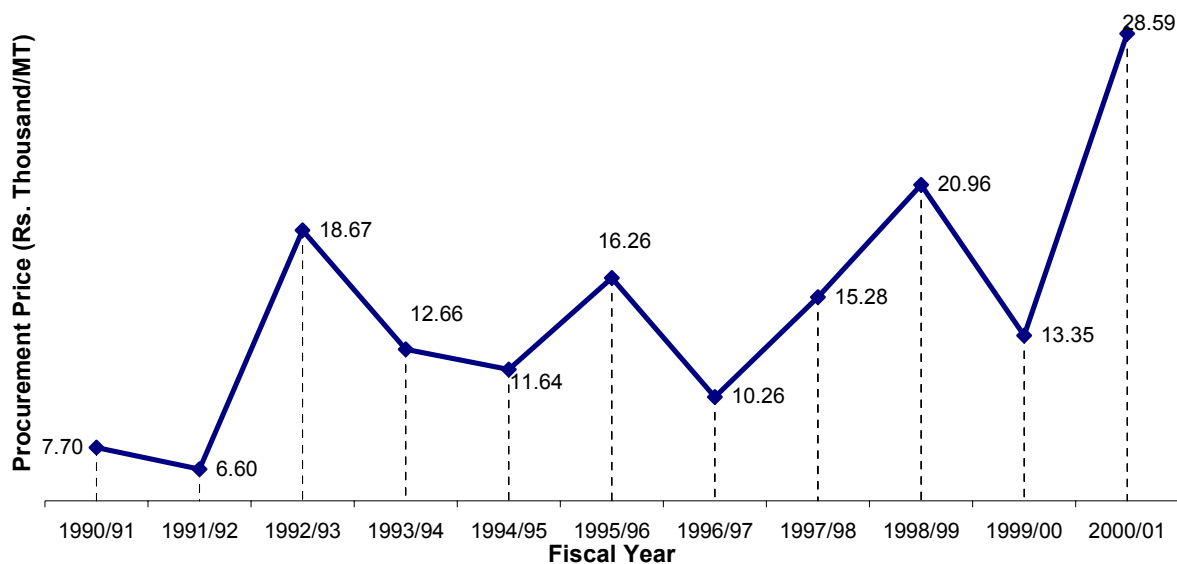
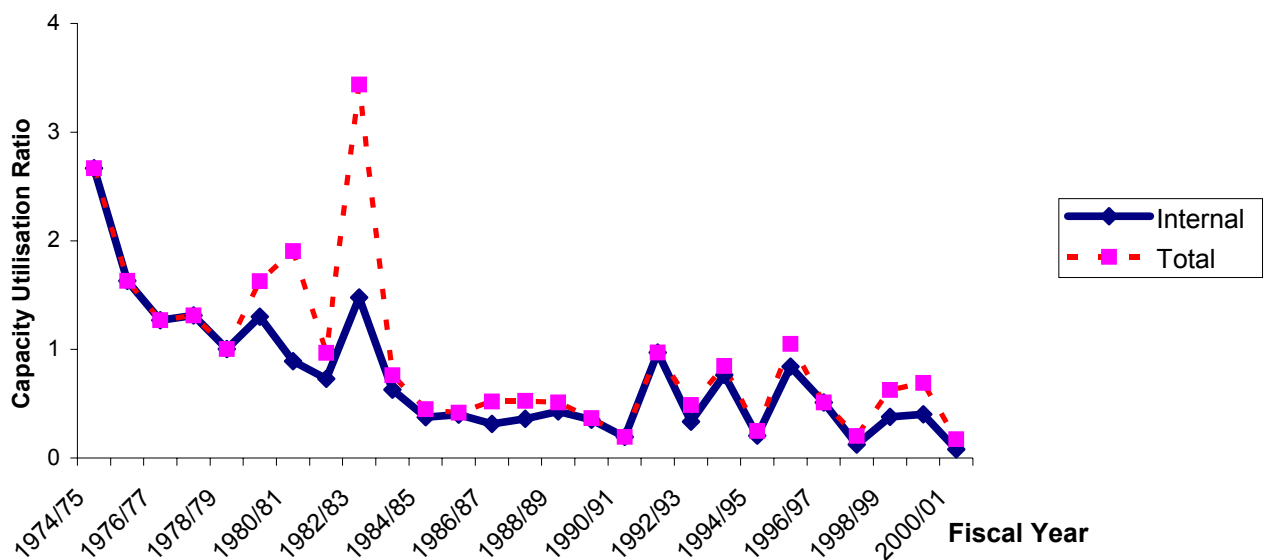


Figure 8—Trends in godown capacity utilization ratio

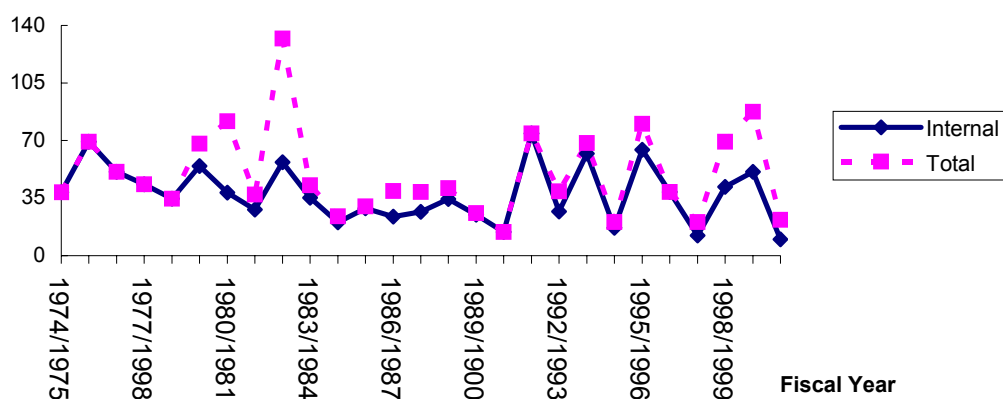


8. EFFECTIVENESS OF THE PUBLIC DISTRIBUTION SYSTEM (NFC): PRE AND POST LIBERALIZATION

8.1 HUMAN RESOURCES HANDLING EFFICIENCY

In order to assess the efficiency of the NFC, we estimate the average market-handling ratio for the total volume as well as the internal purchases. Total market handling peaked to 132 MT per staff in 1982/83. But by 1997/98, the efficiency ratio came down to 20 MT due to an increase in the number of permanent staffs and the lower quantity of handling (Figure 9). The performance for the domestic procurement was even lower. The efficiency declined from 74 MT to 10 MT during 1991-2001.

Figure 9—Trend of Per Staff Market Distribution Handling Ratios (in MT)



8.2 TRANSPORTATION EFFICIENCY

Public intervention in mountain districts involves very high transportation cost as food is being transported by air. Trucks and porters are used in few areas with road networks. The transport subsidy per MT has increased every year except in the last 3 years, and is directly linked with the amount supplied. Transportation by land is considerably cheaper. The air transport cost ranges from Rs 32,432- 45,611 per MT, whereas the surface mode costs only between Rs. 9,341-14,280 per MT (Table 16). Recently ground movement of grains has become more improbable because of the insurgency in mountain areas.

**Table 16—Public Transportation Cost by Mode of Transportation
(Unit: MT Rs. '000')**

Fiscal year	Total			By air			By surface		
	Quantity	Transport cost	Per MT Cost	Quantity	Transport cost	Per MT Cost	Quantity	Transport cost	Per MT Cost
1996/97	15,114	226,819	15.0	3,655	119,780	32.8	11,459	107,039	9.3
1997/98	14,000	267,350	19.1	4,113	157,658	38.3	9,887	109,691	11.1
1998/99	16,367	334,596	20.4	4,278	195,122	45.6	12,089	139,474	11.5
1999/00	14,218	332,804	23.4	6,661	239,967	36.0	7,551	92,837	12.3
2000/01	9,773	232,118	23.8	5,187	176,060	33.9	4,584	56,058	12.2
2001/02	6,792	200,000	29.4	4,255	165,200	38.8	2,437	34,800	14.3

Source: NFC, Planning Division, Central Office.

9. COMPARISON OF EFFECTIVENESS OF THE PUBLIC SECTOR WITH THE PRIVATE SECTOR

To put these changes in a perspective, this section compares the effectiveness of the private sector to that of NFC. The private sector has expanded over the last decade but it is still comparatively small. The main reason for the minimal role of the private sector is the lack of physical and marketing infrastructure that determines the access to the markets.

In the absence of a systematic survey of agro-product markets, it is difficult to determine the market potential for the private sector (Vaidya, 1997). With the development of roads, the private sector has been gradually replacing the public sector in food marketing. Still, the private sector involvement in the inaccessible food deficit areas is negligible except in some tourist trekking routes. Generally, private sector involvement in food supply is up to a six km radius from the road head. A survey with the traders revealed the following reasons for their lack of involvement: (i) absence of appropriate storage facilities in remote areas, (ii) Proportionally higher credit sales in these areas, (iii) low purchasing power of the consumer and the preference for barter trade.

Even though the reach of the private sector is limited, it is worthwhile to compare its efficiency with the public sector because for the latter, it serves as an immediate benchmark. Below, we compare the private and the public sector based on several indicators. The time of comparison is current unless otherwise stated.

9.1 SELLING PRICES

The NFC price of food is below the local market price. In Jumla, for example, the market price of coarse rice is Rs. 50/Kg. while NFC price is Rs. 24/kg. If the cost of air transportation were added to the price, the effective price increases many-folds. In addition, the government has to make provision for go-downs in the food deficit districts. This further adds to the overhead costs relative to the private sector.

9.2 HANDLING CHARGES

The handling charges for the NFC are also much higher, all of which however are not related to inefficiency (Table 17). NFC for example adheres to minimum quality standards as per the Food Grain Quality Act 1966 (in terms of moisture content, foreign materials, organic matter etc). The quality of the private sector in contrast is poor and un-monitored. The transportation costs are also higher for the public sector due to a 10% value added tax. The private sector is free to hire vehicles without any bid bond requirement. Also, the standard truckload for the public sector is lower owing to regulations. The public sector storage facilities are costly and meet higher standards. It is extremely difficult to filter out the inefficiency component from the data.

9.3 MARKETING COSTS

There is little information regarding the marketing cost of the private sector. What is important is the marketing cost as a fraction of the prevailing sales prices of the NFC

(Table 17). The results show that in the Kathmandu Valley, the NFC incurs a loss of 52% of the consumer price. Losses are expected to be higher in remote areas.

Table 17—Marketing Cost of coarse Rice in Kathmandu by Agencies (1982)

Operations	NFC (rs./mt)	Private sector (rs/mt)
Sales price	3,651	5,017
Farmer's share	3,706	3,464
Marketing cost	1,614	951
Transport cost	293	522
Physical losses	115	71
Milling cost	72	67
Packaging	101	24
Handling	580	71
Storage	433	188
Taxes	20	8
Profit margin	(-1,669)	602
Wholesaler	161	251
Miller	13	201
Retailer	55	150
Institution (nfc)	(-1,898)	-

Source: Estimates are based on Munakarmi, 1985.

9.4 LOSSES/LEAKAGES

The losses of NFC are largely attributable to its high marketing costs that are in turn high because of handling costs (36% of marketing cost or 16% of consumer price). On the revenue side, the NFC prices are lower than the open market prices. HMG Treasury bears a part of the losses relating to transport costs. The residual is reflected in the balance sheet, and accumulates year after year. HMG contribution to the NFC shows the subsidy as a direct cost to the government. While estimating total cost, the NFC losses should also be included, especially since the losses are high in relation to the volume of grain handled. Higher administrative costs, interest charges on past-accumulated losses, and a lower sales price resulted in heavy losses to the NFC. Overall,

the private sector's efficiency is 40% higher since the private sector's procurement price is 6.53% lower and the marketing costs are 41% lower (Table 18).

Table 18—Marketing Costs and Margins of Private and Public Sector in Accessible Areas

Marketing cost (% share of each category below)		Private	Public
I.	1. Transport	11.6	18.2
	2. Storage	4.0	26.8
	3. Packing	0.6	6.3
	4. Processing	1.4	4.5
	5. Physical loss	1.4	7.1
	6. Dealers margin	12.2	35.9
A)	Assembler		7.1
B)	Wholesaler/Miller	2.0	
C)	Retailer		3.1
II.	Total Marketing Cost	31.2	44.2
III.	Consumer Price	100	100
	NFC loss to consumer prices at national level		(-52.0)

Source: Author's estimation based on the discussion with wholesaler of Rice at Kuleshower and Miller at Dilli Bazar, 2002. NFC's cost is estimated from profit and loss account.

The overall conclusion is that the private sector has only assumed a limited role and in spite of the liberalization, the public sector continues to be highly inefficient in terms of a host of indicators. The benefits of liberalization has not accrued either in the form of a more efficient public sector or an expansion of the role of the private sector.

Food import capacity (FIC) i.e. the ratio of food imports to total non-food exports, measures the capacity of a country to maintain sufficient foreign exchange to finance food imports. Table 19 shows that a large part of Nepal's FIC is already used.

Table 19—Food Import Capacity Index

Countries	FIC score
Bangladesh	0.27
Bhutan	0.17
India	0.05
Maldives	0.74
Nepal	0.32
Pakistan	0.19
Sri lanka	0.14
Simple average	0.32

Source: Wilson (2001).

Most of the imports are sourced from India that are risky due to unreliable and insecure transport. The transportation cost thus includes the insurance premium. Payments are made directly to Indian suppliers. In case of imports from overseas, the payment is made through a Letter of Credit. The quality of imports does not seem to be a problem. The concerns expressed by the consumers occur at the retail level.

9.5 COST-EFFECTIVENESS IN FOOD IMPORTS

The import of agricultural commodities has been costly due different taxes such as agricultural development fee of 1%, local development tax equal to 1.5%, export duty of 0.5% in India plus transportation costs. The estimated mark-up from the importers to the retailers is around 15%. The imports from India are the cheapest. The CIF price for rice imported by the private sector was Rs. 12,800/MT and Rs. 18,200/MT from India and overseas, respectively, in year 2001 (Table 20 and 21). The CIF price for sugar imported by the private sector is Rs. 16,800/MT and Rs. 21,200/MT from India and overseas, respectively. The price of sugar imported from India by the Salt Trading Corporation Ltd. (STCL) was Rs. 28,341/MT as against Rs. 16,800/MT by the private sector. Even in the case of imports, the cost of imports from India by the private sector is lower due to marketing and distribution efficiency.

Table 20—Commodity Import Prices from India and Overseas Countries by Agencies

Items/agency	Unit	Imports from India by private sector	Private imports from overseas	Public imports from India
Rice (nfc)	Rs/mt	12,800	18,200	15,104
Sugar (stcl)	Rs/mt	16,800	21,200	28,341

Note: Prices for rice imported by NFC are average for three points: Bhairahawa Rs. 14,878/M, Nepalgunj Rs. 14,964/MT and Biratnagar Rs. 15,470/MT. Source: Rungta Trading Co, NFC and STCL.

Table 21—Costing of Sugar Imported by STCL from India

Particulars	Units/rates	Amount (Rs/mt.)
Ex-border price in IRs.	Indian Rs	12,000.0
Exchange rate of NRs. With IRs.	1.60	19,218.0
Custom duty (25%)	@ 25.0%	4,804.5
Local dev tax and special duty on sr. no. 2	@ldt 1.5% sd 3.0%	864.8
Sub-total		24,887.3
Miscellaneous expenses		400.0
Approx cost up to Nepal border		25,287.3
Internal transportation		250.0
Overhead expenses on sr.no.2	@ 1.0%	-
Draft expenses	@ 0.1%	19.2
Interest for 1 month on sr.no.2	@ 13%	208.2
Sub-total		25,764.2
Vat	@ 10.0%	2,576.5
Cost at Birgunj go down		28,341.2
Price per kilogram		28.3

Source: Rungta Trading Co, NFC and STCL.

10. IMPACT OF LIBERALIZATION ON AGRICULTURE, TRADE AND LIVING STANDARDS

The impact of liberalization on agriculture has been mixed in terms of productivity and income growth. Sharma (1994) concludes that liberalization made positive impacts on agriculture but finds no evidence of a reduction in indirect discrimination against agriculture. In contrast, Chapagain (2000) reported that liberalization did not bring any favorable impact in agriculture. Upadhaya (2000) and ANZDEC (2002) indicated that access to fertilizer market and its availability has improved over the years even though their actual consumption has declined.

The per capita growth rate in agriculture increased from (–) 0.5% during the first part of the 1990s to 0.7% in the second part. The agricultural productivity also improved during these periods (ANZEDC 2002). As a result, the country had a food surplus in 2001. But, food production again experienced a negative growth in 2002 owing to unfavorable climatic conditions and the upsurge in insurgency.

One of the main reasons for increase in productivity of late has been the increased use of fertilizers. The private sector has become more involved in the fertilizer sector. The recent decline in the sales of fertilizers from 47 to 24 thousand MT during 1998-2001 (Table 22) is attributable to the unrecorded/illegal import of fertilizers from India and not to a decline in the usage. The amount of such import is estimated to be 20%.

Table 22—Import and Consumption of Fertilizers in Nepal by Type (MT)

Year	Nitrogen		Phosphorus (p ₂ o ₅)		Potash		Total	
	Import	Use	Import	Use	Import	Use	Import	Use
1997/98	51,429	32,629	5,222	13,124	-	1,442	56,651	47,195
1998/99	28,440	32,314	17,800	12,097	-	1,258	46,240	45,669
1999/00	13,800	25,034	-	12,031	-	185	13,800	37,250
2000/01	-	16,397	-	7,191	-	35	-	23,623

Source: CBS: 2002.

Agricultural trade increased from an average of 9.1% of agricultural GDP in the first part of the 1990s to 13% in the second part. Nepal's agricultural trade balance with India changed from a deficit of NRs. 1,849 millions in the year 1995 to a surplus of NRs. 180 million in 2000. This is possibly due to APP's emphasis on the high-value products and the non-reciprocal market access through the India-Nepal Trade Treaty of 1996.

The import of food grains from India has increased since the price of rice in India is on an average 12% lower (mainly due to subsidies on fertilizers and electricity for

irrigation). Nepal imported about 236 thousand MT of rice at an average price of NRs. 11.1 per kg in the year 1999. Nepal's production of rice in the same year was 2.43 million MT. ANZDEC (2002) estimated that about 10% of rice consumed was imported from India. Import from India has been instrumental in contributing towards food security in Nepal. About 60% of the landless households have benefited from cheaper rice but at the same time this has been a distress for the net producers. Thus, about 40% households in Terai, who are net sellers of rice, have been adversely affected by trade with India.

According to the Institute of Integrated Development Studies (IIDS) study (1996), only marginal improvements have been noticed in wages and employment since liberalization (Table 23). According to the study, this happened due to an expansion in industries and service sectors. The study does not isolate the effects from liberalization. It is thus unclear, to what extent has liberalization contributed to this expansion.

Table 23—Changes in Wage Rate Structure (1984-85 = 100)

Labor category	1989-90		1994-95	
	Current	Real	Current	Real
Highly skilled	931.8	524.7	1515.0	508.9
Skilled	752.8	423.9	1313.0	441.1
Semi-skilled	655.6	369.6	1178.5	395.9
Unskilled	546.2	307.6	1036.0	348.0
Carpet (price (wage) rate per sq mt)				
Highly skilled	300.0	169.0	400.0	133.9
Skilled	275.0	154.9	375.0	125.5
Semi-skilled	250.0	140.8	350.0	117.2

Source: IIDS (1996).

The sources of income for the farmers have also undergone a change since 1997/98. According to ANZDEC (2002) during 1997 - 2001, the household income from own farming went down from 77 to 72% whereas the contribution of non-farm sources increased from 11 to 14.5%.

The populace increasingly perceives an improvement in livelihood. In the ANZDEC study, a high proportion of wealthier households feel that they are better off now than in the last 4 years. Importantly, more than half of the poorer households also feel the same. More than 50% of the respondents agreed that their income had increased in last 4 years. ANZDEC estimated that household's income per capita increased by 1.98% per year in the last 4 years of 1990s, which is close to the APP's estimate of 2%.

It is difficult to relate the increase in income to liberalization per se. The income and the employment opportunities have also improved by labor migration especially to gulf countries that has contributed to higher incomes through remittances. Various studies show that about half of the households in villages have at least one migrant in the family. The 2001 Census shows that about 762,000 Nepalese have migrated to other countries for work. Many other migrants are undocumented as they have gone through illegal channels.

Access to common resources through community forestry, the supply of farm yard manure to agriculture fields and also various non-timber forest products are other possible reasons for improving the livelihood opportunities for rural people. The role of community forestry especially in the 1990s in improving livelihood (food security by way of generating income and food resources) cannot be underestimated. There are more

than 10,000 forest user groups in Nepal. These forest users have also generated funds that have been used for investment in social infrastructure and in providing loans to low-income people. Many user groups have also developed enterprises for generating income.

11. IMPACT OF TARGETED FOOD SECURITY

The food distribution system based on political demands, the infrequent allocation of emergency relief funds and the channeling of subsidized food to local pressure groups resulted in big failures for the government in ensuring food security. As the realization of this failure dawned on policy makers, there was a certain shift towards targeted programs. The following targeted measures dot the policy landscape in Nepal.

- (1). Food-for-works** programs such as Rural Community Infrastructural Work (RCIW) generate seasonal employment to villagers by developing sustainable infrastructure. This is an entirely community driven program. The choice of the project is made by the communities, particularly women. At present, the program is under implementation in 25 districts. About 30,000 households from resource-poor and disadvantaged deprived community participate in the program every year. The families are paid food rations and some cash. About 10,000 MT of food per annum is provided under this program (Perry 2000). Imparting literacy and other social activities are also carried out in order to empower people and improve the management of infrastructures. The RCIW program has also led to long-term food security through road construction, prevention from river cutting and protection of land.

- (2). **Primary school feeding program** is implemented in conjunction with the Government's Basic and Primary School Program in food deficit areas. These areas are also low literacy areas particularly for women. The program is run with the help of WFP. The basic aims of the program are to encourage the enrolment, reduce drop-outs and repeaters, stimulate regular attendance, relieve short-term hunger and increase learning ability in 12 districts. The program provides a regular mid-day meal to students.
- (3). **Relief and emergency operations** provide food to the victims of calamities (including the basic and supplementary rations to refugees). The schemes provide assistance during disasters like drought, flood and landslides. Along with the government, the following UN agencies are also involved: UNICEF, WFP, FAO and WHO.

The broad message from the targeted food security programs is that they have been better at containing leakages. They are also community driven thereby raising the level of accountability. In relation to these programs, the NFC needs major improvements. The NFC uses the accessibility criteria for targeting. The accessible areas by roads do not qualify for transport subsidy. Targeting should instead use more comprehensive criteria such as road density, incidence of poverty, and vulnerability to disaster area. There could be a premium in downsizing public distribution system and involving private sector there. Comparing the effectiveness of the food distribution programs as a safety net to the targeted poverty reduction programs for food security is an important area of further research.

12. NEW AND EMERGING TRADE ARRANGEMENTS

On the external front, at least two important changes are either imminent or relatively new for Nepal viz: (i) regional integration and (ii) membership of the WTO. We look at the prospects from these in this section.

Some parts of Nepal are more closely integrated with India than with other regions of Nepal. Nepal lacks surplus rice for exports but it sells to Indian traders during the pre-harvesting season at a cheaper rate compared to other regions of Nepal. Similarly, apples produced in Marfa and oranges produced in Pokhara also reach the Indian market and return in the off-seasons due to lack of domestic cold storage facility.

The major exports to India are the agricultural products such as mustard and linseeds, herbs, ghee, dried ginger, pulses, oilcake, catechu, rice bran oil and jute goods, and those to other countries are carpets, readymade garments, handicrafts, pulses, hides and skin, Nepalese paper, paper products, and medicinal herbs. There are opportunities for value-addition through agro-processing and packaging to increase the competitiveness of products in international markets for various commodities. The 10th plan stressed the development of marketing facilities in the hilly areas for livestock, horticulture and specific crops to raise the outreach in these areas. The Agriculture Enterprise Center (AEC) has provided assistance to commercialize tea, dairy, vegetable seeds etc and improve farm productivity and expand markets for the benefit of farmers and agro-entrepreneurs.

About one third of Nepal's trade is intra-regional. India's share in Nepal's exports and imports is nearly 50% and 25% respectively (Table 24 and 25). Thus, the benefit from regional integration will depend heavily on India's trade policy towards Nepal. There were extremely good returns to Nepal when India offered very favorable terms in the 1996 Indo Nepal treaty.

Table 24—Intra-regional Trade Composition of Nepal with SAARC Countries (1998)

Items	Total intra regional trade	India	Pakistan	Bangladesh	Sri lanka	Maldives	Bhutan
Export (mn \$)	160.8	145.5	0.8	9.6	4.9	0.0	Na
Percentage	100	90.5	0.5	6.0	3.0	0.0	Na
Import (mn \$)	454.0	439.7	6.2	5.9	2.2	0.0	Na
Percentage	100	96.9	1.4	1.3	0.5	0.0	Na

Source: IMF Direction of Trade Statistics 2000.

Table 25—Intra-Regional Trades as Percentage of Total Trade (1998)

Countries	Intra-regional import		Intra-regional export		Total intra-regional trade	
	1990	1998	1990	1998	1990	1998
India	0.4	1.1	2.7	5.6	1.4	3.2
Pakistan	1.6	2.4	4.0	4.9	2.7	3.6
Bangladesh	7.0	17.5	3.1	2.7	5.8	12.4
Sri lanka	7.0	12.9	3.7	2.4	5.6	8.2
Nepal	13.4	31.7	7.7	36.2	11.9	32.8
Maldives	7.4	7.7	13.8	16.6	9.2	9.4
Bhutan	10.9	59.9	9.6	81.9	9.7	71.8
South asia	2.0	4.3	3.1	7.5	2.4	4.9

Source: IMF Direction of Trade Statistics 2000.

India-Nepal Trade treaty allows free access of primary products on a reciprocal basis, and preferential access of manufactures on non-reciprocal basis. In 2000, Nepal's agricultural exports to India were almost 87% of the total agricultural exports and imports were about 48% of the total agricultural imports. In 2002, the renewal of bilateral trade has created some problems when India decided to fix value-addition at 25% in the first

year with the provision for increasing it to 30% for subsequent years, and the imposition of tariff rate quotas. Quantitative restrictions have also been imposed on some items.

The SAPTA/SAFTA aims to open the regional market by harmonizing tariffs among countries. Among SAARC countries, tariff preference ranges between 5-50%, with higher concessions for LDCs like Nepal. The main features of the treaty are: (i) elimination of tariffs (ii) removal of structural impediments to trade, (iii) harmonization of custom procedures, (iv) enhancing trade facilitation and (v) ensuring equitable benefit to all members.

13. IMPLICATIONS OF WTO MEMBERSHIP FOR COMPETITIVENESS/FOOD SECURITY

Nepal applied for full membership in the WTO in 1989 after an 18 month long trade dispute with India. The dispute encouraged policy makers to hedge against risks by opening up to multiple partners. The Working Party on the accession of Nepal was established in June 1999 and held its first meeting in May 2000. The Working Party completed its work in August 2003, leaving the final approval for the Ministerial in September 2003.

After Cambodia, WTO ministers approved Nepal's membership in September 2003 and Nepal became the 147th member and the first least-developed country (along with Cambodia) to join the WTO through the full working party negotiation process. The 5th Ministerial Conference at Cancun in Mexico approved the accession package on September 11, 2003. Subsequently on March 24, 2004 Nepal had solicited to the WTO that the process of ratification and acceptance of Protocol of Accession had been

completed by Royal Ordinance since there was no Parliament in Session. The entry into force of the Protocol occurred 30 days later on April 23, 2004.

Nepal is not yet prepared to compete with other developing countries mainly because of her inexperience in trade facilitation. Nepal seems likely to need preferential access to key industrialized markets on the basis of special and differential treatment and longer time frames to implement the WTO Agreements. There is a need to address all three pillars-export subsidy, market access and domestic support by making Special & Differential treatment an integral part of all the negotiations on agriculture.

In light of the accession, few considerations apply. The APP strategy to commercialize agriculture and develop market links is important because Nepal's farm productivity is lowest in South Asia. The productivity in developed countries is 10-15 times higher for milk and almost 3 times for meat. Therefore, there is a big scope to increase productivity through increased inputs and better management.

The reforms of the 1990s reduced both taxes and subsidies. Direct subsidies have mostly been removed while taxes in Nepal are lowest in the SAARC region. Nepal does not provide domestic subsidy; domestic support to the farm sector has been declining, support to agricultural research and extension is about 2.8% of the agricultural output and falls within the *de minimis* limit of 10% allowed by AoA.

The Uruguay Round Agreement on Agriculture (AOA) has three main components: (a) reduction in farm export subsidies (b) cut in domestic producer subsidies and (c) an increase in market access. Nepal is net importer of food. It is feared that the food bill of the net food importing countries will rise if the subsidies by the exporting

countries get reduced. The Doha declaration made provisions for: (a) food aid and provision to increase amounts under grants, (b) full consideration of requests for financial and technical assistance to improve agricultural infrastructure and productivity, (c) appropriate provision for export credit and (d) short-term assistance in financing imports from international financial institutions. LDCs like Nepal need to take a more proactive approach in the negotiations to ensure implementation of the declaration. The AoA is likely to affect Nepalese agriculture in the following ways.

1. Under the rules for market access, Nepal has committed to tariffication of all non-tariff barriers. The framework in the WTO negotiations is to lower bound tariffs rates. The bound tariff rates in Nepal are higher than the applied. This offers scope for adjustment in tariffs in order to protect farmers if the need so arises.
2. In the AoA, agriculture production support up to 10% of output is exempt; tariff and export subsidy by the least developed countries are allowed. Nepal has negotiated to provide assistance to agricultural producers through research and extension services, natural disaster relief through crop subsidies, loans and grants for irrigation, infrastructure support to small farmers and urea transport subsidies for remote areas.
3. The "green box" support includes government-services to research, disease control, infrastructure, irrigation, food security, direct income transfers to farmers, farmers' assistance to restructure agriculture, direct payments under environmental programs, and government assistance to encourage agriculture production up to 10% of the total output.

4. WTO membership has opened up avenues for private sector to be competitive and capture the opportunities arising from non-discriminatory, transparent and predictable market access in the WTO Member countries.
5. Bilateral agreements of which Nepal is a part are allowed if they are non-discriminating.
6. WTO arrangements do not pose any tight constraint in the LDCs on providing subsidies to farmers for producing staple foods. Developed and developing countries are required to cut tariffs and subsidies in a scheduled manner. The deadline for Nepal to bring down agricultural tariff (from 51 to 42%) is December 31, 2006.
7. The SPS measures are pivotal for exports as the importing country are allowed to impose standards unilaterally as long as they adhere to certain restrictions like being minimum trade distorting among the possible choices or if they are based on ensuring internationally followed standards such as Codex. HMG/N Ministry of Finance has asked the EU for technical assistance on human resource development, capacity and institution building. This will help to minimize the cost of compliance.

Also, Nepal does not provide minimum support prices like India. The accession would not deter subsidy on distribution in food deficit areas. The support to the staple production is allowed. Transport subsidy on food and fertilizers in remote hills (poor regions) is also exempt. In summary, accession would not affect food security initiatives of the government. As a net-food importer, Nepal can also receive special considerations

under the Doha Declaration such as: (i) provision for food aid (ii) consideration of request for financial and technical assistance, (iii) differential terms with respect to export credits, and (iv) short-term assistance from international institutions in financing imports.

The imported agricultural input-costs in production ranged from about 2 to 15 % in Nepal during the Ninth Plan period (1997-2002). The WTO membership is unlikely to affect the cost of farm production. The agricultural inputs are already purchased in the open markets. Nepal is a small buyer there will be no effect on world price because of the entry into the WTO. Development of irrigation schemes falls under land improvement, which is exempt. If the government wants to reintroduce the subsidy in Shallow Tube Well (STW), it can be covered under both infrastructure development and special assistance to the poor farmers. Interest subsidy as support to the poor farmers is also exempt.

14. CONCLUSION

In assessing the impact of liberalization on food security in Nepal, it seems correct to recognize that liberalization did have positive impacts. This shows up in the improvement in several aggregate indicators like per capita food availability and extent of malnourishment. The overall impact however has been limited, the reasons for which are two fold. First, Nepal shares a long porous border with India. Thus, restrictive trade policies have only a limited bite. Secondly, the regions in Nepal are segregated from each other. The remote areas in the hills and the mountains have not benefited from liberalization while the terai has reaped most of the benefits.

The stagnant productivity has meant that Nepal has been uncompetitive in agricultural products. Starting from a national surplus, Nepal has become a net food importer over time. In that scenario, cheaper food imports through liberalization or movement through porous border with India has been critical for lower food prices. The cheaper rice price however has been transmitted only imperfectly as prices in remote areas are much higher compared to terai.

The domestic reforms in Nepal have been mostly in the form of the restructuring of the Nepal Food Corporation. There has been an active downsizing of the NFC with a closure of depots and reduction in personnel. The outcome of the reform has however been not encouraging. The NFC continues to be mis-targeted and comparatively inefficient relative to the private sector.

The policy suggestions for Nepal can be clubbed into two categories. The short to medium run policy should be directed towards greater involvement of the private sector in handling/storage and marketing. The need is to create incentives for greater private sector participation. This could take the form of sharing transportation and storage facilities. Given the adverse geography of the country, the biggest element of subsidy for the government has been on transporting grains. The government has relied excessively on air transport for shipping grains. Shifting to ground transportation will not only reduce costs but also create employment. This, by itself will contribute to food security.

Ultimately in the long run, the government has to take steps for the greater spatial integration of the markets. It has to create marketing and physical infrastructure. Proposals for creating a pulley link between different regions have been in the discussion

but have not been implemented. The contrast of Nepal with the experience of Bangladesh is quite stark here. Bangladesh invested in the integration of markets through roadways and to an extent through waterways. As a result, the benefits of liberalization there have been much more even than in Nepal.

In the policies discussed above, the current insurgency and political uncertainty stands as a roadblock. Not only has it affected the atmosphere for private enterprise adversely, implementation of government programs and feasibility of certain policies themselves have been put to question (like transporting grains using ground). At the same time, the extremely scarce government resources have been diverted to military purposes.

The trading arrangement changes in the form of regional integration and membership of WTO are likely to offer good opportunities for Nepal. The impact of these changes will depend a lot on the creation of the infrastructure in the form of trade facilitation measures. In the regional context the gains depend heavily on the trading arrangement with India.

REFERENCES

- Adhikari, Jagannath and Hans-George Bhole. 1999a. *Food Crisis in Nepal*, Adriot Publications, New Delhi, India.
- Adhikari, J. and Hans-Gorge Bhole. 1999b. "Urbanization, Government Policies and Growing Food Insecurity in Kathmandu Metropolis" in *Studies in Nepali History and Society* 4 (1):191-246.
- ANZDEC. 2002. *Nepal Agriculture Sector Performance Review* (ADB TA No. 3536-NEP). Draft Final Report, Vol. 1: Main Text, ANZDEC Limited, New Zealand (Prepared for the Ministry of Agriculture and Cooperatives, Nepal and Asian Development Bank).
- APROSC and JMA. 1995. *Nepal-Agricultural Perspective Plan*. Agricultural Projects Services Center and John Mellor Associates, Inc., Kathmandu and Washington, D.C.
- APROSC. 1998. *A Comprehensive Study on Future Role of the Nepal Food Corporation*, Agricultural Projects Services Center, Kathmandu.
- Armington, P. 1969. *A Theory of Demand for Products Distinguished by Place of Production*. IMF Staff Papers, no. 16, Washington. D.C.
- CBS, 1992. *Nepal Living Standards Survey Report*, Volume I, Central Bureau of Statistics, Kathmandu, Nepal
- CBS. 1996a. *Nepal Living Standards Survey Report*, Volume I, Central Bureau of Statistics, Kathmandu, Nepal.
- CBS. 1996b. *Nepal Living Standards Survey Report*, Volume II, Central Bureau of Statistics, Kathmandu, Nepal.
- CBS. 2002. *Consumption and Expenditure Survey*. Central Bureau of Statistics, Kathmandu.
- CBS.1994. *Report on National Sample Census of Agriculture*, Central Bureau of Statistics, Kathmandu
- CBS. 2002. *Nepal Multi-Indicator Surveys*, Central Bureau of Statistics, Kathmandu.

- Chapagain, Devendra. 2000. "An Overview of Liberalization and its Effects on Agriculture and Poverty in Nepal" in *Do We Need Economic Reforms Phase II?* Institute for Integrated Development Studies, Kathmandu.
- Cockburn, J. 2001. *Trade Liberalization and Poverty In Nepal: A computable General Equilibrium Micro Simulation Analysis*, Discussion Paper 01-18, CREFA, Universite Laval.
- Dawadi, Hemanta. 1997. "Involvement of Private Sector in Marketing of Food Products in Nepal", Paper presented at the regional seminar on '*Promotion of the Private and Cooperative Sector in Food Marketing for Food Security*', FAO/AFMA/NFC/STC, Kathmandu.
- Economic Survey of Nepal, Ministry of Finance. 1996/97
- FAOSTAT 2004, FAO Website
- Food and Agricultural Marketing Services Department (1982), *Food Statistics of Nepal 1981*, Page 14.
- GEFONT. 1999. *National Labor Policy*. GFONT, Kathmandu.
- Gurung, Harka. 1989. *Nepal Dimensions of Development*. Saroj Gurung, Kathmandu.
- IIDS. 1996. *Impact of economic Liberalization in Nepal*. IIDS, Kathmandu.
- IMF.2000. *Directions of Trade Statistics*, IMF Headquarters, Washington, D.C.
- IMF.2000. *Directions of Trade Statistics*, IMF Headquarters, Washington, D.C.
- MoAC. 2002. *Statistical Information on Nepalese Agriculture (2000/01)*, HMG/N Ministry of Agriculture and Co-operatives, Kathmandu.
- MoF. 2002. *Budget Speech, 2002/03*, HMG/N Ministry of Finance, Kathmandu.
- MoF. 2002. *Economic Survey, 2001/02*, HMG/N Ministry of Finance, Kathmandu.
- Munakarmi, R.B. 1985. "A Case Study: Marketing Cost and Margins of Major Commodities in Nepal", Department of Food and Agriculture Marketing Services, Kathmandu.
- NRB. 1988. *Nepal Multipurpose Household Budget Survey*. Research Department, Nepal Rastra Bank, Kathmandu.

- NRB . 2000. *Nepal Multipurpose Household Budget Survey*. Research Department, Nepal Rastra Bank, Kathmandu
- NESAC. 1998. *Nepal: Human Development Report–1998*. Nepal South Asia Center, Kathmandu.
- NFC. 2002. *Progress Reports (Various Issues)*. Nepal Food Corporation, Kathmandu.
- NPC.1965. HMG/N National Planning Commission, Kathmandu.
- NPC.1970. HMG/N National Planning Commission, Kathmandu.
- NPC.1975. HMG/N National Planning Commission, Kathmandu.
- NPC. 1980. *The Sixth Five-year Plan (1980-85)*, HMG/N National Planning Commission, Kathmandu.
- NPC. 1992. *The Eighth Five-year Plan. 1992-97*, HMG/N National Planning Commission, Kathmandu.
- NPC. 1998. *The Ninth Plan (1997-2002)*, HMG/N National Planning Commission, Kathmandu.
- NPC. 2001. *Approach Paper to Tenth Plan (2002-07)*, HMG/N National Planning Commission, Kathmandu.
- Pandey, Posh Raj. 2002. *Nepal's Accession to WTO and the Agriculture Sector (Initial Draft)*, Kathmandu.
- Perry, S. 2000. *Enabling Development: Food Assistance in Nepal (Final Draft)* submitted to the World Food Program, Nepal.
- Sapkota, Prakash Raj. 2001. *Impact of Trade Liberalization in Nepal: A CGE Analysis*, http://web.idrc.ca/en/ev-7239-201-1-DO_TOPIC.html.
- Sapkota, P.R. 2002. *Trade Liberalization and Poverty in Nepal*, Himalayan Institute of Develop net, Kathmandu, Nepal. (www.geocities.com/psapkota/home/Final_CGE_Reports.doc).

- Sharma, Shankar. 1994. *Economic Liberalization and Agricultural Development in Nepal* Policy Analysis in Agriculture and Related Resource Management, Winrock International, Research Report Series No.26, HMG, MOA, Kathmandu.
- Sharma, Suman K. 2002. "Food Security in Nepal" in *Economic Reforms and Food Security The Impact of Trade and Technology in South Asia* edited by Suresh C. Babu and Ashok Gulati, International Food Policy Research Institute, Washington, DC.
- Uma, G. 1993. "Sustainable Livelihood Security of Villages Surrounding the Pichavaram Mangrove Forest. India" in *The Indian Geographical Journal*. 68(1): 33-47.
- UNDP. 2002. *Nepal Human Development Report 2001*, United Nations Development Program, Kathmandu.
- Upadhyaya, S. 2000. *Farmers in Flux: A Participatory Study of Fertilizer Use in the Context of Economic Liberalization*. Action Aid, Kathmandu.
- Vaidya, Suraj. 1997. "Vision for Domestic Agricultural Trade" paper presented at the Third National Marketing Conference, MOA/AEC/Winrock International, Kathmandu.
- Wallace, Michael B. 1987. *Food Price Policy in Nepal* Research Report Series, No. 3, HMG-USAID-GTZ-IDRC-FORD-Winrock Project, Kathmandu.
- Wilson, John S. 2001. "Liberalizing Agriculture, Trade and the WTO Agenda: A Perspective on Developing Asia" paper presented at the workshop on *Trade Policy Issues*, Singapore.
- World Development Indicators CD-ROM, World Bank, 2004.
- WTO/Nepal. 2002. *Occasional Papers* (Unpublished documents).

MTID DISCUSSION PAPERS

1. *Foodgrain Market Integration under Market Reforms in Egypt*, May 1994, by Francesco Goletti, Ousmane Badiane, and Jayashree Sil.
 2. *Agricultural Market Reforms in Egypt: Initial Adjustments in Local Output Markets*, November 1994, by Ousmane Badiane.
 3. *Agricultural Market Reforms in Egypt: Initial Adjustments in Local Input Markets*, November 1994, by Francesco Goletti.
 4. *Agricultural Input Market Reforms: A Review of Selected Literature*, June 1995, by Francesco Goletti and Anna Alfano.
 5. *The Development of Maize Seed Markets in Sub-Saharan Africa*, September 1995, by Joseph Rusike.
 6. *Methods for Agricultural Input Market Reform Research: A Tool Kit of Techniques*, December 1995, by Francesco Goletti and Kumaresan Govindan.
 7. *Agricultural Transformation: The Key to Broad-Based Growth and Poverty Alleviation in Sub-Saharan Africa*, December 1995, by Christopher Delgado.
 8. *The Impact of the CFA Devaluation on Cereal Markets in Selected CMA/WCA Member Countries*, February 1996, by Ousmane Badiane.
 9. *Smallholder Dairying under Transactions Costs in East Africa*, December 1996, by Steven Staal, Christopher Delgado, and Charles Nicholson.
 10. *Reforming and Promoting Local Agricultural Markets: A Research Approach*, February 1997, by Ousmane Badiane and Ernst-August Nuppenau.
 11. *Market Integration and the Long-Run Adjustment of Local Markets to Changes in Trade and Exchange Rate Regimes: Options for Market Reform and Promotion Policies*, February 1997, by Ousmane Badiane.
 12. *The Response of Local Maize Prices to the 1983 Currency Devaluation in Ghana*, February 1997, by Ousmane Badiane and Gerald E. Shively.
-

MTID DISCUSSION PAPERS

13. *The Sequencing of Agricultural Market Reforms in Malawi*, February 1997, by Mylène Kherallah and Kumaresan Govindan.
 14. *Rice Markets, Agricultural Growth, and Policy Options in Vietnam*, April 1997, by Francesco Goletti and Nicholas Minot.
 15. *Marketing Constraints on Rice Exports from Vietnam*, June 1997, by Francesco Goletti, Nicholas Minot, and Philippe Berry.
 16. *A Sluggish Demand Could Be as Potent as Technological Progress in Creating Surplus in Staple Production: The Case of Bangladesh*, June 1997, by Raisuddin Ahmed.
 17. *Liberalisation et Competitivite de la Filiere Arachidiere au Senegal*, October 1997, by Ousmane Badiane.
 18. *Changing Fish Trade and Demand Patterns in Developing Countries and Their Significance for Policy Research*, October 1997, by Christopher Delgado and Claude Courbois.
 19. *The Impact of Livestock and Fisheries on Food Availability and Demand in 2020*, October 1997, by Christopher Delgado, Pierre Crosson, and Claude Courbois.
 20. *Rural Economy and Farm Income Diversification in Developing Countries*, October 1997, by Christopher Delgado and Ammar Siamwalla.
 21. *Global Food Demand and the Contribution of Livestock as We Enter the New Millenium*, February 1998, by Christopher L. Delgado, Claude B. Courbois, and Mark W. Rosegrant.
 22. *Marketing Policy Reform and Competitiveness: Why Integration and Arbitrage Costs Matter*, March 1998, by Ousmane Badiane.
 23. *Returns to Social Capital among Traders*, July 1998, by Marcel Fafchamps and Bart Minten.
 24. *Relationships and Traders in Madagascar*, July 1998, by M. Fafchamps and B. Minten.
-

MTID DISCUSSION PAPERS

25. *Generating Disaggregated Poverty Maps: An application to Viet Nam*, October 1998, by Nicholas Minot.
 26. *Infrastructure, Market Access, and Agricultural Prices: Evidence from Madagascar*, March 1999, by Bart Minten.
 27. *Property Rights in a Flea Market Economy*, March 1999, by Marcel Fafchamps and Bart Minten.
 28. *The Growing Place of Livestock Products in World Food in the Twenty-First Century*, March 1999, by Christopher L. Delgado, Mark W. Rosegrant, Henning Steinfeld, Simeon Ehui, and Claude Courbois.
 29. *The Impact of Postharvest Research*, April 1999, by Francesco Goletti and Christiane Wolff.
 30. *Agricultural Diversification and Rural Industrialization as a Strategy for Rural Income Growth and Poverty Reduction in Indochina and Myanmar*, June 1999, by Francesco Goletti.
 31. *Transaction Costs and Market Institutions: Grain Brokers in Ethiopia*, October 1999, by Eleni Z. Gabre-Madhin.
 32. *Adjustment of Wheat Production to Market Reform in Egypt*, October 1999, by Mylene Kherallah, Nicholas Minot, and Peter Gruhn.
 33. *Rural Growth Linkages in the Eastern Cape Province of South Africa*, October 1999, by Simphiwe Ngqangweni.
 34. *Accelerating Africa's Structural Transformation: Lessons from East Asia*, October 1999, by Eleni Z. Gabre-Madhin and Bruce F. Johnston.
 35. *Agroindustrialization through Institutional Innovation: Transactions Costs, Cooperatives, and Milk-Market Development in the Ethiopian Highlands*, November 1999, by Garth Holloway, Charles Nicholson, Christopher Delgado, Steven Staal, and Simeon Ehui.
 36. *Effect of Transaction Costs on Supply Response and Marketed Surplus: Simulations Using Non-Separable Household Models*, October 1999, by Nicholas Minot.
-

MTID DISCUSSION PAPERS

37. *An Empirical Investigation of Short- and Long-run Agricultural Wage Formation in Ghana*, November 1999, by Awudu Abdulai and Christopher Delgado.
 38. *Economywide Impacts of Technological Change in the Agro-food Production and Processing Sectors in Sub-Saharan Africa*, November 1999, by Simeon Ehui and Christopher Delgado.
 39. *Of Markets and Middlemen: The Role of Brokers in Ethiopia*, November 1999, by Eleni Z. Gabre-Madhin.
 40. *Fertilizer Market Reform and the Determinants of Fertilizer Use in Benin and Malawi*, October 2000, by Nicholas Minot, Mylene Kherallah, and Philippe Berry.
 41. *The New Institutional Economics: Applications for Agricultural Policy Research in Developing Countries*, June 2001, by Mylene Kherallah and Johann Kirsten.
 42. *The Spatial Distribution of Poverty in Vietnam and the Potential for Targeting*, March 2002, by Nicholas Minot and Bob Baulch.
 43. *Bumper Crops, Producer Incentives, and Persistent Poverty: Implications for Food Aid Programs in Bangladesh*, March 2002, by Paul Dorosh, Quazi Shahabuddin, M. Abdul Aziz, and Naser Farid.
 44. *Dynamics of Agricultural Wage and Rice Price in Bangladesh: A Re-examination*, March 2002, by Shahidur Rashid.
 45. *Micro Lending for Small Farmers in Bangladesh: Does It Affect Farm Households' Land Allocation Decision?* September 2002, by Shahidur Rashid, Manohar Sharma, and Manfred Zeller.
 46. *Rice Price Stabilization in Bangladesh: An Analysis of Policy Options*, October 2002, by Paul Dorosh and Quazi Shahabuddin.
 47. *Comparative Advantage in Bangladesh Crop Production*, October 2002, by Quazi Shahabuddin and Paul Dorosh.
 48. *Impact of Global Cotton Markets on Rural Poverty in Benin*, November 2002, by Nicholas Minot and Lisa Daniels.
-

MTID DISCUSSION PAPERS

49. *Poverty Mapping with Aggregate Census Data: What Is the Loss in Precision?* November 2002, by Nicholas Minot and Bob Baulch.
 50. *Globalization and the Smallholders: A Review of Issues, Approaches, and Implications*, November 2002, by Sudha Narayanan and Ashok Gulati.
 51. *Rice Trade Liberalization and Poverty*, November 2002, by Ashok Gulati and Sudha Narayanan.
 52. *Fish as Food: Projections to 2020 under Different Scenarios*, December 2002, by Christopher Delgado, Mark Rosegrant, Nikolas Wada, Siet Meijer, and Mahfuzuddin Ahmed.
 53. *Successes in African Agriculture: Results of an Expert Survey*, January 2003, by Eleni Z. Gabre-Madhin and Steven Haggblade.
 54. *Demand Projections for Poultry Products and Poultry Feeds in Bangladesh*, January 2003, by Nabiul Islam.
 55. *Implications of Quality Deterioration for Public Foodgrain Stock Management and Consumers in Bangladesh*, January 2003, by Paul A. Dorosh and Naser Farid.
 56. *Transactions Costs and Agricultural Productivity: Implications of Isolation for Rural Poverty in Madagascar*, February 2003, by David Stifel, Bart Minten, and Paul Dorosh.
 57. *Agriculture Diversification in South Asia: Patterns, Determinants, and Policy Implications*, February 2003, by P.K. Joshi, Ashok Gulati, Pratap S. Birthal, and Laxmi Tewari.
 58. *Innovations in Irrigation Financing: Tapping Domestic Financial Markets in India*, February 2003, by K.V. Raju, Ashok Gulati, and Ruth Meinzen-Dick.
 59. *Livestock Intensification and Smallholders: A Rapid Reconnaissance of the Philippine Hog and Poultry Sectors*, April 2003, by Agnes Rola, Walfredo Rola, Marites Tiongco, and Christopher Delgado.
 60. *Increasing Returns and Market Efficiency in Agriculture Trade*, April 2003, by Marcel Fafchamps, Eleni Gabre-Madhin, and Bart Minten.
-

MTID DISCUSSION PAPERS

61. *Trade Liberalization, Market Reforms, and Competitiveness of Indian Dairy Sector*, April 2003, by Vijay Paul Sharma and Ashok Gulati.
 62. *Technological Change and Price Effects in Agriculture: Conceptual and Comparative Perspective*, April 2003, by Eleni Gabre-Madhin, Christopher B. Barrett, and Paul Dorosh.
 63. *Analyzing Grain Market Efficiency in Developing Countries: Review of Existing Methods and Extensions to the Parity Bounds Model*, September 2003, by Asfaw Negassa, Robert Myers, and Eleni Gabre-Madhin.
 64. *Effects of Tariffs and Sanitary Barriers on High- and Low-Value Poultry Trade*, February 2004, by Everett B. Peterson and David Orden.
 65. *Regionalism: Old and New, Theory and Practice*, February 2004, by Mary E. Burfisher, Sherman Robinson, and Karen Thierfelder.
 66. *Grain Marketing Policy Changes and Spatial Efficiency of Maize and Wheat Markets in Ethiopia*, February 2004, by Asfaw Negassa, Robert Myers, and Eleni Gabre Madhin.
 67. *Achieving Food Security in a Cost-Effective Way: Implications of Domestic Deregulation and Reform under Liberalized Trade*, May 2004, by Shikha Jha and P.V. Srinivasan.
 68. *Economic Liberalisation, Targeted Programmes and Household Food Security: A Case Study of India*, May 2004, by S. Mahendra Dev, C. Ravi, Brinda Viswanathan, Ashok Gulati, and Sangamitra Ramachander.
 69. *Managing Price Volatility in an Open Economy Environment: The Case of Edible Oils and Oilseeds in India*, May 2004, by P.V. Srinivasan.
 70. *Impacts of Trade Liberalization and Market Reforms on the Paddy/Rice Sector in Sri Lanka*, May 2004, by Jeevika Weerahewa.
 71. *Spatial Integration of Maize Markets in Post-Liberalized Uganda*, May 2004, by Shahidur Rashid.
-

MTID DISCUSSION PAPERS

72. *Evidence and Implications of Non-Tradability of Food Staples in Tanzania, 1983–1998*, July 2004, by Christopher Delgado, Nicholas Minot, and Marites Tiongco.
 73. *Are Horticultural Exports a Replicable Success Story? Evidence from Kenya and Cote d’Ivoire*, August 2004, by Nicholas Minot and Margaret Ngigi.
 74. *Producer Support Estimates (PSEs) for Agriculture in Developing Countries: Measurement Issues and Illustrations from India and China*, October 2004, by Kathleen Mullen, Dongsheng Sun, David Orden, and Ashok Gulati.
 75. *Domestic Support to Agriculture in the European Union and the United States: Policy Development since 1996*, November 2004, by Munisamy Gopinath, Kathleen Mullen, and Ashok Gulati.
 76. *Post–Uruguay Round Price Linkage between Developed and Developing Countries: The Case of Rice and Wheat Markets*, November 2004, by Navin Yavapolkul, Munisamy Gopinath, and Ashok Gulati.
 77. *Agricultural Diversification in India and Role of Urbanization*, November 2004, by P. Parthasarathy Rao, P.S. BIRTHAL, P.K. Joshi, and D. Kar.
 78. *Agricultural Policies in Indonesia: Producer Support Estimates, 1985–2003*, November 2004, by Marcelle Thomas and David Orden.
 79. *Agricultural Policies in Vietnam: Producer Support Estimates, 1986–2002*, December 2004, by Hoa Nguyen and Ulrike Grote.
 80. *Grain Marketing Parastatals in Asia: Why Do They Have to Change Now?* January 2005, by Shahidur Rashid, Ralph Cummings Jr., and Ashok Gulati.
 81. *Exchange Rate Misalignment and Its Effects on Agricultural Producer Support Estimates: Empirical Evidence from India and China*, February 2005, by Fuzhi Cheng and David Orden.
 82. *Agricultural Policies in India: Producer Support Estimates, 1985–2002*. February 2005, by Kathleen Mullen, David Orden and Ashok Gulati.
 83. *High Value Products, Supermarkets and Vertical Arrangements in Indonesia*, March 2005, by Shyamal Chowdhury, Ashok Gulati, and E. Gumbira-Said.
-

MTID DISCUSSION PAPERS

84. *Tell me Where it Hurts, An I'll Tell You Who to Call: Industrialized Countries' Agricultural Policies and Developing Countries*, April 2005, by Xinshen Diao, Eugenio Diaz-Bonilla, Sherman Robinson and David Orden.
85. *Vertical Coordination in High-Value Food Commodities: Implications for Smallholders*, April 2005, by Pratap S. Birthal, P.K. Joshi, and Ashok Gulati.
86. *Doha Scenarios, Trade Reforms, and Poverty in the Philippines: A CGE Analysis*, July 2005, by Caesar B. Cororaton, John Cockburn, and Erwin Corong.
87. *The Dragon and the Elephant: Agricultural and Rural Reforms in China and India*, September 2005, by Ashok Gulati, Shenggen Fan and Sara Dalafi.