NEPAL

INITIATIVE ON SOARING FOOD PRICES

Govt of Nepal - FAO - WFP - IFAD - Asia Development Bank - World Bank Interagency Rapid Assessment Mission

21-31 July 2008

Draft Report of Mission Findings and Recommendations

CONTENTS

Abbreviations

MOAC	Ministry of Agriculture and Cooperatives
ADB	Asian Development Bank
APP	Agriculture Perspective Plan (1995)
ASPR	Agriculture Sector Performance Review
CFW	Cash For Work
CP	Country Program
CPI	Consumer price index
DoI	Department of Irrigation
FAO	United Nations Food and Agriculture Organization
FFA	Food for Asset
FPCRTF	Food Price Crisis Response Trust Fund
FSMAU	Food Security Monitoring and Analysis Unit
FSMAS	Food Security Monitoring and Analysis System
FY	Fiscal Year
GFRP	Global Emergency Food Crisis Response Program
GoN	Government of Nepal
IFAD	International Fund for Agriculture and Development
ISFP	Initiative on Soaring Food Prices
ISFP-AP	Initiative on Soaring Food Prices-Action Plan for Nepal
MOAC	Ministry of Agriculture and Cooperatives
NAP	National Agriculture Policy (20042005)
NARC	Nepal Agricultural Research Council
NDRI	Nepal Development Research Institute
NFC	Nepal Food Corporation
NLSS	Nepal Living Standard Survey
NPC	National Planning Commission
NRB	Nepal Rastriya (Central) Bank
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organization for Economic Cooperation and Development
PRRO	Protracted Recovery and Relief
TYIP	Three Year Interim Plan (GoN)
UN	United Nations
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
UNICEF	United Nations Fond for Children
WB	World Bank
WFP	United Nations World Food Program

EXECUTIVE SUMMARY

A. Overview

I. There are strong indications that the volatility in global food prices will remain for the foreseeable future coupled with an upward shift to higher (*real*) prices in the medium term. This is attributed to a number of supply and demand side factors, most notably: (i) the "knock-on" effect of sharp shortfalls in export volumes from major export countries in 2006/2007 due to adverse weather; (ii) low global food stocks, which are likely to reach their lowest levels in almost 3 decades in 2008; (ii) the high cost of oil which is pushing up the cost of production and transport; (iii) the growing demand for bio-fuels, (iv) increasing incomes and the changing nature of food demand (especially for meat and dairy products) and (v) greater speculation in financial markets in agricultural commodities. These underlying factors have been exacerbated by the re-emergence of protectionism in food markets in some countries. The shift in food prices, nevertheless, poses both challenges and opportunities for the international community which now recognizes the importance of significantly increasing investment in agriculture (after decades of decline) as a means of addressing serious concerns related to global food security and poverty. (Section 3)

II. As in the global context, there are a number of challenges to be met in Nepal due to high food prices, particularly ensuring adequate food security in the short term. In the medium to longer term, however, higher producer prices and returns provide significant opportunities for increased public and private investment in agriculture. Nonetheless, in the short term (6 months to 2 years), the historic low levels of public investment in key areas of agriculture coupled with internal conflict over many years, constrains the sector's ability to respond "*quickly*" to higher prices. In addition, weak data and information systems and poor market integration further limit farmer response to price and market signals. Over the longer term (3-5 years) however, there are opportunities in revitalizing agriculture and enhancing production providing a number of recognized factors can be addressed including *inter alia*; (i) increasing investment in key areas of agriculture (ii) enhancing agricultural productivity (iii) improving outreach of research and improved technologies; (iv) reducing high post harvest and storage losses; (v) diversifying farming and improving market integration; (vi) broadening road connectivity in rural areas; (vii) harnessing significant untapped potential for irrigation; (viii) exploiting comparative advantages in commodities with strong export potential; (ix) introducing policy reforms and providing a more enabling environment for private sector involvement which can play a crucial role in rural and general economic growth. In meeting these challenges and opportunities, it is recognized that future growth strategies have to be inclusive of the poorer and economically backward regions and socio-ethnic groups, as such inclusion is vital for underpinning the peace process.

III. In the short term, the biggest threat to food security lies in the hills and mountains of Far and Mid-western Nepal, several districts in the hills of the central and eastern region and flood some flood and drought affected districts in the Terai. Even though on average

percentage price changes for coarse rice in the Terai and Hills have exceeded those in the Western Mountains, rice is about two to three times more expensive in remote mountain areas compared to other locations. The World Food Programme (WFP) estimates that at least 23 districts in Nepal or more than 6 million people are now chronically food insecure, with 2.5 million in need of immediate food assistance and 3.9 million additional people at high risk of becoming food insecure due to increasing food prices[1]. Unlike the Terai area where markets are reasonably integrated both domestically and with India, poor road access in the hills and mountains of the Far- and Mid–West of Nepal leads to high and increasing transportation costs (aggravated by serious fuel shortages) which in turn has pushed up grain prices further. (Section 4)

B. Key Mission Recommendations- 3 Year ISFP-Assistance Action Plan (ISFP-AP)

IV. The mission proposes a 3 year action plan to address urgent short and medium term assistance needs. The proposed ISFP-AP is consistent with the Government of Nepal's (GoN) Three Year Interim Plan (2007-2010) and its current response strategies to counter soaring food prices (Box 1). However, in the interest of retaining focus, the proposed ISFP-AP only covers a strategic and targeted "slice" of urgent priorities and needs in agriculture and food security and not all planned interventions for the sector. Moreover, the costing and financing gaps indicated in the action plan remain indicative and need to be reconciled with GoN's Medium Term Expenditure Framework.

V. Short term (6 months to 2 years). The main objective is to ensure the food and nutritional security of the most vulnerable groups. The focus would be both on food and food production related assistance. The mission recommends the following intervention in the short term: (Section 5 and Table 1)

- S1-Provide an effective and targeted food safety net to the most vulnerable households through food for work, cash for work and other food distribution modalities, through high priority Government Rural Community Infrastructure Works Programmes.
- S2-Provide agricultural inputs (seeds and fertilizer support) to enable the most vulnerable households produce food.
- S3-Development and rehabilitation of micro-irrigation schemes

VI. Medium Term (1-5 years). In parallel with ensuring that measures and interventions are being taken to address immediate, short term concerns, it is imperative that the Government of Nepal (GoN) is assisted in its efforts to increase food production and stabilize food security through targeted assistance to priority areas over the medium and longer terms. The mission recommends the following interventions in the medium term: (Section 6 & Table 1)

- M1 - National Agriculture, Food Security and Nutritional Surveillance System
- M2 - Medium Term National Programme for Food Security
- M3 - Development of Seed Sub-Sector
- M4 - Fertilizer and Soil Fertility Management

[1] WFP/NDRI Market and Price Impact Assessment, Nepal, July 2008

- M5 - Small Scale Irrigation Development
- M6 - Rural and Agricultural Road Development
- M7 - Post Harvest Management, Storage and Food Distribution [2]
- M8 - Research and Technology Transfer

C Longer Term Challenges to Food Security

VII. This report does not specifically examine emerging and longer term (structural) issues in agriculture and food security in Nepal. However, it is broadly recognized that a number of these issues and challenges will have to be addressed as part of developing a more comprehensive and sustainable longer term assistance strategy for Nepal. Key amongst them are (*a*) protracted Conflict and instability in Government mean that decentralized approaches to empower communities and devolve decision-making power to the local level have to be developed to enhance better service delivery in future; (*b*) as in other parts of the world Climate Change, poses a significant risk to food availability, food accessibility, utilization and the sustainability of food productions systems. Nepal will need to work with the UN system and the international community to mitigate adverse effects of climate change and be proactive in harnessing global initiatives such as the UN and global environment facilities, The Clean Development Mechanism and Carbon Trading; (*c*) fragmentation and distortions in Land Markets- the functioning of land use and markets needs to be analytically reviewed as the basis for future policy to improve administration and titling; (*d*) Trade, Nepal's entry into the WTO presents considerable challenges in terms of food safety rules, quality standards, domestic support programmes and cross border subsidization and impact of competing with India. The country will, therefore, need to develop other avenues to harness its comparative advantages in trade and exports; (*e*) Nepal needs a fuller investment programme in developing its potential for Water and irrigation use both ground and surface water, keeping in mind key issues in sustainability of systems such as user fees for O&M, which have been problematic in the past and resulted in the breakdown of schemes; (*f*) A mountainous terrain and poorly developed roads restrict access to Markets, which *inter alia* have constrained diversification to higher value crops and developing comparative advantages. (Section 7)

[2] This would include the establishment of Market Growth Centers.

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1. Mission Background

1. In response to growing concerns of the potential short and medium term consequences of high food and fuel prices on food security in Nepal, a rapid UN Inter-agency assessment Mission was fielded to the country between 21 July and 1 August 2008. The mission comprised, Ajay Markanday (FAO- Team leader), Hemraj Regmi (GoN/ MoAC – Co-Team leader), Rebecca Lamade (WFP), Kati Manner (IFAD), Govinda Gewali (ADB) and Gayatri Acharya (World Bank). Mr. Rajendra P. Singh served as local FAO consultant for the mission. In making its assessment and recommendations, the mission held extensive discussions with Government, UN agencies, bilateral donors and the private sector.

2. Mission Objectives

2. The objectives of the mission were to assess:

- The emerging impact of high global food and energy prices on food production, supply and security in Nepal.
- Government of Nepal response to high prices and short and interim priorities.
- Short and medium term assistance requirements.
- Recommended interagency assistance for short and medium term priorities
- Formulate a strategic 3 year action plan for assistance to Nepal[3].

3. Food Prices - Global Perspective and Outlook

3. The high international price of food is attributed to a number of supply and demand side factors, the convergence of which has led to unique developments in international and domestic markets and significant price volatility and increases (Annex 1 - Figure 1). The contributing factors can be summarized as follows:

3.1 Supply Side Factors

4. **Weather** - Although, global cereal output reached record levels in 2004, it declined by 1 and 2 percent respectively in 2005 and 2006. Importantly, from the perspective of international markets the output in eight major exporting countries, which constitutes nearly half of global production, dropped by 4 and 7 percent during this period. In Nepal, in 2006 due to drought and floods, there was significant reduction in rice production (some 13% overall and between 20-50% in Eastern and Central regions)[4]. There was a

[3] The plan only covers a strategic and targeted "slice" of urgent priorities and needs in agriculture and food security and not the whole sector. In addition, it does not cover broader longer term structural issues in the agriculture sector, food production, distribution and trade (e.g. land, cross border trade and subsidy issues etc), as these are complex and will need to be addressed in a comprehensive and coordinated manner. (Section 7)

[4] FAO/WFP Food Security Assessment Mission 2007

significant increase in cereal output in 2007 due to favourable weather conditions. The production of major exporters of all the other major food commodity groups, on the other hand, was not affected in a similar way during the same period.

5. **Global Stocks** An additional factor on the supply side that has had a significant impact on the markets recently is the gradual reduction in the level of stocks, mainly of cereals, since the mid-1990s. Since the previous high-price event in 1995, global stock levels have on average declined by 3.4 percent per year. There have been a number of changes in the policy environment after the Uruguay Round Agreements that have been instrumental in reducing stock levels in major exporting countries: the size of reserves held by public institutions; the high cost of storing perishable products; the development of other less costly instruments of risk management; increases in the number of countries able to export; and improvements in information and transportation technologies. When production shortages occur in consecutive years in major exporting countries under such circumstances, as happened in 2005 and 2006 for cereals (Annex 1-Figure 2), international markets tend to become tighter and price volatility and the magnitude of price changes become magnified when unexpected events occur. This is one of the important reasons underlying high cereal prices which are expected to remain high, at least until next season. By the close of the seasons ending in 2008, world cereal stocks are expected decline a further 5 percent from their already reduced level at the start of the season, reaching the lowest level since 1982, when the level of utilization was much less than it is today.

6. **Energy Costs** The increases in fuel prices have also increased costs not only for agricultural inputs, most importantly fertilizers, but also transportation. The increase in energy prices have been very rapid and steep, with the Reuters-CRB energy price index more than doubling over a period of three years since the middle of 2004. Freight rates have also doubled, mainly within a one-year period beginning February 2006. In addition FAO analysis has shown interesting upward correlation between higher fuel and food prices [5] (Annex 1- Figures 3 & 4)

3.2 Demand Side Factors

7. **Biofuels** The emerging biofuels market is a new and significant source of demand for some agricultural commodities such as maize, sugar, cassava, oilseeds and palm oil. These commodities, which have predominantly been used as food, are now being grown as feedstock for producing biofuels[6]. Significant increases in the price of crude oil allow them to become viable substitutes in certain important countries that have the capacity to use them. This possibility is increasingly leading to the implementation of public policies to support the biofuels sector, which further encourages the demand for these feed stocks. Analyses of the links between weekly prices of gasoline, ethanol, maize and sugar, and

[5]Overview Price trends of agricultural and energy commodities: links and impacts on developing countries (Josef Schmidhuber – FAO Global Perspectives Studies Unit 2008).

[6] Recent estimates from the World Bank and IFPRI attribute between 30 and 70 % of the rise in food prices to the use of agricultural commodities in bio-fuels.

between diesel and important vegetable oils such as palm, soybean and rapeseed, suggest that there are statistically significant inter-linkages between the relevant markets. Overall it, therefore, appears that fossil fuel markets appear to exert direct influence on the feedstock markets.

8. **Changing structure of demand**[7] It is widely accepted that economic development and income growth in important emerging countries have been gradually changing the structure of demand for food commodities (especially in China and India). Diversifying diets are moving away from starchy foods towards more meat and dairy products, which is intensifying demand for feed grains and strengthening the linkages between different food commodities. It takes seven to nearly eight-and-a-half kilos of grain to produce one kilogramme of beef, and five to seven kilograms of grain to produce one kilogramme of pork. In China, for example, per capita meat consumption has increased from 20 kg in 1980 to 50 kg now. However, these changes are taking place gradually and are not likely to the cause of the sudden spike that began in 2005. Indeed, looking at China and India, since 1980, the imports of cereals have been trending down, on average by 4 percent per year, from an average of 14.4 million tonnes in the early 1980s to 6.3 million tonnes over the past three years. This means that the growth in feed demand in these two countries, at least up to now, has been met from domestic sources.

9. **Operations on financial markets** Market-oriented policies are gradually making agricultural markets more transparent. Derivatives markets based agricultural markets offer an expanding range of financial instruments to increase portfolio diversification and reduce risk exposures. The abundance of liquidity in certain parts of the world that reflect favourable economic performances - notably among emerging economies, matched with low interest rates and high petroleum prices - make such derivatives markets a magnet for speculators for spreading their risk and pursuing of more lucrative returns. This influx of liquidity is likely to influence the underlying spot markets to the extent that they affect the decisions of farmers, traders, and processors of agricultural commodities. It seems more likely, though, that speculators contribute more to raising spot price volatility rather contributing to price levels.

3.3 Long Term Outlook for World Agricultural Prices 2008-2017

10. The FAO-OECD Agricultural Outlook 2008-2017 forecasts that world prices will retreat from current highs but will remain firm over the medium term. In the context of generally lower global stocks in recent years, biofuels impose an additional dimension to global demand for grains, oilseed products and sugar. Coupled with sustained global income growth which is particularly underpinning demand for food and feed in certain developing and emerging countries, with limitations to land and productivity based increases in supply and with higher oil prices which raises production costs, this situation

[7] Not only change in structure of demand but also the continuing increase in population, and the process of urbanization, especially in developing countries, play an important role in intensifying demand for food over the long term. For example, global population has been increasing by 78.5 million annually (mostly in developing countries)

is expected to underpin international prices. All three of these factors are expected to lift price levels for arable crops that are, on average, substantially higher than in past projections. Higher average crop prices and associated feed costs, in turn, lead to higher livestock product prices over the Outlook period as well. When compared to the average for 1998 to 2007, prices projected for the period 2008 to 2017 will – in nominal terms – on average be around 20% higher for beef and pork, some 30% for raw and white sugar, 40 to 60% for wheat, maize and skim milk powder, more than 60% higher for butter and oilseeds and over 80% higher for vegetable oils (Annex 1- Figure 5).

3.4 Short Term Outlook for Rice Production, Trade and Price Forecast-2008

11. **Production:** The preliminary FAO forecast of world paddy production in 2008 indicates growth of 2.3 percent growth to 666 million tonnes, which would be a new record. The increase could be even more pronounced if recent appeals and incentives to grow rice translate into a larger expansion in planting. All of the expansion is set to stem from gains in the developing countries, foremost in Asia but also in Africa and in Latin America and the Caribbean, while developed countries are foreseen to experience a decline for the fourth consecutive year. In the Asia region for the first time, paddy production may surpass the 600 million tonnes benchmark in 2008. The current forecast, at 605 million tonnes, would represent a 2.1 percent and 13 million tonnes increase from 2007. Major gains are expected all across the region, as producers respond to attractive prices and to government incentives promoting rice cultivation. Bangladesh, China, Myanmar, the Philippines, Thailand and Viet Nam are now expected to register the largest gains, in absolute terms. Among southern hemisphere countries, where the season is well advanced, prospects are buoyant for Indonesia and Sri Lanka despite some recent flood-incurred losses. (Annex 1 – Figure 6)

12. **Trade:** Since the last trade forecast in December 2007, the forecast of world rice trade in 2008 has been lowered by 1.5 million tonnes to 28.8 million tonnes, largely reflecting more difficult access to international supplies after a growing number of countries imposed restrictions on exports. At the same time, following the submission of new official export or import data, the estimate of trade in 2007 has been raised by 1.1 million tonnes to an all time record of 31.0 million tonnes. As a result, trade in rice in 2008 is forecast to decline by 7 percent or 2.2 million tonnes from the record level in 2007. (Annex 1 – Figure 7).

13. **Price:** Rice prices have been soaring since November 2007, underpinned by the repeated launching of tenders by the Philippines for the import of several hundred thousand of tonnes each time and exacerbated by the imposition of export restraints by a growing number of countries. The arrival of new supplies, from 2007 secondary crops in the Northern Hemisphere and from 2008 main crops in the Southern Hemisphere may ease the market situation in the next few months. The recent withdrawal of a purchasing auction by the Philippines already relieved pressure from prices. Although these developments might signal a reversal in tendency, international rice prices are expected to remain at relatively high levels, especially as stocks held by those exporters still allowing unrestrained sales, Thailand and the United States in particular, are expected to

be drawn down heavily. Meanwhile, other large importers are expected to return on the international arena to buy, including the Islamic Republic of Iran, Iraq, Saudi Arabia, Nigeria and Senegal. Thus, while prices might fall below the April levels in the next few months, they are expected to remain extremely firm, at least until the third quarter of the year, when the bulk of 2008 production will be gathered, unless restrictions on exports are eased in the coming months. Even then, prices are not expected to return to 2007 levels, as producers have to pay much more for their fertilizers, pesticides and fuel. (Annex 1- Figure 8)

3.5 Short Term Outlook for Wheat Production, Trade and Price Forecast-2008

14. **Production:** The latest forecast for world wheat output in 2008 stands at a record 658 million tonnes, representing a significant (8.7 percent) increase from 2007. The bulk of the increase is expected to stem from the major exporting countries. In the northern hemisphere, where the wheat crop seasons are more advanced, bigger harvests are expected in all regions with the exception of Asia, where although declining slightly, output will remain close to last year's record high.

15. **Trade** FAO's first forecast for world wheat trade (exports) in 2008/09 (July/June) points to a small increase from 2007/08, to 110.5 million tonnes. Total wheat imports by Asia are currently forecast to approach 49 million tonnes, up 4.7 million tonnes from 2007/08. The increase is mostly a result of higher imports by a few countries. Improved domestic supplies suggest that wheat imports in India are forecast to decline sharply.

16. **Prices** Favourable weather conditions and greater confidence in more plentiful supplies in the new season have driven prices down sharply in recent weeks. International wheat prices began to slide in April and by mid-May, prices stood about 50 percent (USD 240) below their peaks in late February. By April, the price of United States' wheat (No.2 Hard Red Winter, f.o.b. Gulf) averaged USD 382 per tonne, 25 percent down from March but an elevated 80 percent above the corresponding period last year. Depleted old crop supplies continue to provide some support to cash prices in spite of the favourable outlook for the new crop. Supplies in the United States are becoming increasingly scarce with this season's ending stocks falling to a historically low level. The prevalence of export restrictions and the continuing closure of the wheat export registry in Argentina, one of the world's leading wheat exporters, are also sustaining high prices in world markets. (Annex 1- Figures 9 and 11)

4. Food Prices – Nepal Perspective and Outlook.

17. The open 1,800 Km porous border between Nepal and India, not only strengthens already close cultural and religious ties but also integrates the economies of both countries. The movement of inflation across borders is a case in point. A recent study of the Nepal Rastra Bank (NRB – Nepal's Central Bank) finds that a 1% increase in Indian inflation increases inflation in Nepal by 1.37 percentage points (assuming constant domestic money supply growth).[8] Other factors which will determine food supply, demand and prices include:

4.1 Food Supply

18. **Cereal Supply** at the national level has more or less kept pace with population growth**.** Three crops – rice (54 percent), wheat (19 percent), and maize (23 percent) – account for 96 percent of total cereal production and, similarly, cultivated land in Nepal. Over the past decade, of the major cereals maize area has shown a slow but steady increase while wheat and rice area have grown more slowly and erratically (Annex 1 – Figure 12)). Domestic production of maize and wheat shows a near-linear increase over time and has kept up with population growth (Annex 1- Figure 13). On the other hand rice production is more variable than that of wheat and maize due to its high dependence on the monsoon and availability of subsidized Indian rice in bordering towns. Shortfalls in domestic rice production are traditionally absorbed by imports from India. Paddy production this year is up by 17% compared to last year while preliminary estimates for maize and wheat suggest an increase of 6% over last year. Most of these production increases have been in the Terai and percentage increases over last year are somewhat misleading given that 2006-07 was not a particularly good year (e.g. rice production in 2006-07 was 12.5% below the 2005-06 level).

19. **Productivity** Long-term productivity growth in major cereal crops in Nepal has been slow. Over the past 8 years (2000-08), rice yields have been largely stagnant and wheat and maize have shown very limited yield growth (Annex 1-Figure 14). Productivity levels in Nepal are on par with yields achieved in neighboring Indian states**.** At 2.7 metric tons per hectare, productivity of rice in Nepal is higher than in the neighboring Indian states of U.P.(2.0), Bihar (1.5), and West Bengal (2.3), though much less than in Bangladesh (3.5).[9] In terms of productivity of wheat and maize, Nepal's performance is a little below that of its neighbors, but not by much.

20. **Productivity Gaps** There exists a considerable yield gap for most crops in Nepal. Annex 1-Figure 15, illustrates how low yields actually are in Nepal when compared with better performing states in India and with China and Vietnam.[10] This emphasizes the need to strengthen access to inputs, improved technologies and appropriate farm

[8] 'Inflation in Nepal' – Nepal Rastra Bank, Research Department, 2007
[9] "Nepal Development Policy Review", World Bank, 2005.
[10] The difference is even larger when compared with South Korea where average rice yields are 6.8 t/ha.

management practices for farmers, and increase the effectiveness of existing research, extension and input supply systems.

21. **Farming Systems** Many farmers in Nepal produce mainly for own consumption. The share of output sold in the market is relatively low: 21 percent for paddy, 26 percent for wheat, 34 percent for potato, and 43 percent for vegetables. The majority of Nepalese households are net consumers[11] of food. Nepal being a rural country this holds true not only for urban households but also for the majority of farm households whose average land holdings are very small.

22. **Land Most of the increase in production will need to come from productivity gains as there is** limited scope for increasing domestic supply through area expansion. Nonetheless, there is some scope for using unused land which is currently being left fallow though related economic, ecological and sustainability issues of doing so would need to be thoroughly examined.

23. **Irrigation** Improving irrigation facilities would increase domestic grain production. Only 57 percent of potentially irrigable land is currently under irrigation. Furthermore, only 38 percent of irrigated land has year-round irrigation. In other words, only about one-fifth of total irrigable land is under full year-round irrigation at the moment. To increase productivity from existing cultivated land, making optimal use of inputs such as water is important. Opportunities for expanding the area coverage under year-round irrigation are high, subject to adequate water management and public resources.[12] Until concerted measures are taken to expand the area of cultivated and fully-irrigated land, increasing domestic supply of cereals will remain rain dependent, at least in the short run.

24. **Agricultural Inputs** Improved access to inputs is needed to increase cereal production but input use is threatened by increasing costs. Difficult access of many areas outside the Terai greatly increases the costs of input delivery leading to low use of fertilizer and pesticides and low levels of mechanization. In the twenty six most remote districts, where the private sector cannot profitably supply inputs, the government subsidizes the transportation of fertilizer.[13] Rising energy prices are affecting the costs of cultivation, both directly for the operation of machinery and indirectly in the form of more expensive fertilizers and other chemicals. Fertilizer prices are estimated to have increased by 30% during 2007 alone (and have continued increasing in 2008) and reduced use of fertilizers is a likely response.

25. **Agriculture Investment** A declining long term trend in public investment, particularly in agricultural support and productivity enhancing services, such as seed development, research and technology transfer etc limits the sector's supply response

[11] The share of gross cultivated output sold is 21 percent for paddy; 26 percent for wheat; 34 percent for winter potato; and 43 percent for vegetables.
[12] Public investment in irrigation sector decreased from 0.86 percent of GDP in the 9th Plan to 0.48 percent of GDP in the 10th Plan.
[13] The subsidized fertilizer is shipped to the district headquarters but it is not entirely clear who ultimately benefits from it.

capability and its ability to benefit from the rise in output prices. The response mechanism is further compromised by weak price and market signals to producers. (See Section 6.1 M1 below) Nepal, therefore, will need to re-appraise its overall investment financing strategies in the agriculture sector, also including investment in more irrigation and roads.

4.2 Food Demand

26. **Consumption** In Nepal, rice makes up about 67 percent of total cereal consumption but with significant difference between regions and income groups.[14] Wheat and maize constitute 12-15 percent each, and millet and barley account for 3-5 percent. The composition of cereal consumption differs significantly by region. Rice constitutes a relatively smaller share of the grain basket of consumers in the mid-west and far-west regions (Annex 1-Figure 16). In the mid-west, maize and millet make up a fifth each of the basket. The weight of maize flour, at 15%, is particularly high by national standards. In the far-west, however, maize is of much less importance, and wheat makes up 30% of the grain basket. Thus wheat consumption in the far-west is twice the national average. Rice makes up more than 2/3 of the basket in the remaining three—eastern, central and western—regions. Hence a rice shortage will have the largest effect in the three easternmost regions of the country. However, since the mid and far west regions are chronically rice deficit areas, the relatively lower share of rice consumption in these areas may be by compulsion rather than choice. Coarse rice still constitutes a significant (50%) of the total grain basket even in these low rice-consuming areas. The composition of cereal consumption also differs significantly by income group. Coarse rice makes up half of total grain consumption of the poor. Maize, particularly maize flour, is the next important food-item to the poor making up 17-19% of their consumption. Wheat flour is slightly less important to the poorest and the richest quintiles, but constitutes around 15% of the grain basket for the middle three quintiles. Millet makes up around 5% of the consumption of the poorer classes.

27. **Rice** Given that rice dominates cereal consumption, price inflation in rice has a particularly large impact on both the rural and the urban consumer. Rice makes up 84% of the total grain basket of the urban consumer, compared to only 5% for maize and millet together. On the other hand, maize and millet account for more than one-fifth of the grain consumption of the rural population. At the national level, even though the rural population makes up 84% of total population, 96-97% of maize and millet is consumed in rural areas. But rice is also an important element of in the food consumption basket of the rural consumer, with coarse rice accounting for 47% of total expenditure. On a national scale, 91% of the total coarse rice is consumed in villages. On the other hand, while fine rice alone makes up nearly half of the urbanite's grain basket, coarse rice also makes a third of his/her basket, indicating its importance in the urban poor's diet. Besides

[14] In the Central Bank's CPI basket, rice makes up 78 percent of all grains and cereal consumption. According to NLSS-II, rice constitutes 67 percent of total grain consumption by households. The difference probably arises because the Central Bank's CPI only measures urban inflation. The NLSS-II data can be considered more representative of the national consumption pattern.

maize and millet, wheat flour, too, has a larger weight in the rural consumer's basket than in the urban consumer's basket.

28. **Income** A large proportion of household incomes is spent on food- cereals and, therefore, they are therefore negatively affected by increasing prices. For the poorest households, on-farm income and agricultural wages account for 71% of total household income. In terms of livelihood strategies, approximately 29% of rural households are labor-oriented and are therefore likely to be net buyers of food. These households will be adversely affected by higher food prices while also facing increases in input costs. Some of the poorest rural areas of Nepal (e.g. the Far and Mid-Western Hills and Mountains) have the lowest rice yields and since adverse climatic events are also more frequent, many households in these areas depend on purchased rice during substantial parts of the year making them very sensitive to price increases.

29. As households get richer the importance of rice and maize flour in the diet increase whereas wheat and millet become less important. Between 1996 and 2004, the share of rice in total cereal consumption increased for both poor and non-poor households (Table 6). During the same time the share of wheat declined somewhat as did the shares of maize grain and millet (but not that of maize flour whose share increased particularly for poor households).

30. **Post Harvest Losses and Animal Feed**. A simple comparison between cereal supply and cereal consumption would suggest that domestic cereal production exceeds demand in the case of wheat and maize and a small deficit for rice. However, this ignores three things: first, it ignores post-harvest losses which may well be in the order of 10-15%. Second, it leaves out consumption of cereals by livestock and industrial consumption; and third, the comparison is based on actual human consumption patterns from NLSS data given existing poverty levels. In other words, they are not based on dietary requirements and cannot answer the question if current demand is high enough to satisfy nutritional needs. This is highly relevant for rice since it is highly likely that actual rice demand in Nepal is significantly below the level needed to satisfy dietary requirements. That is, a lack of purchasing power at the household level makes the rice demand-supply balance poverty-driven. This point is further illustrated by the data in Table 6 that show that total rice consumption is highly income dependent with the poorest quintile consuming only two-thirds of the intake by the richest quintile. On the other hand it could well be the case that actual informal imports of rice from India exceed the amount suggested by official figures.(coming from unofficial way)

4.3 Food Prices

31. There are various determinants of food prices in Nepal. In the short run, the main determinants of the rice price are total supply (which in turn is determined by domestic production and trade driven by price differentials with India) and demand which is largely driven by growth in population and income (remittances are an important factor here). Private stock demand (by farmers holding on to harvested paddy in order to avoid having to pay higher prices in the future and also by rice mills) and (at least temporarily)

sheer panic of shortage also play a role. Prices in Nepal also need to align with those in India otherwise food stocks would easily seep into India through the 1,800 km unregulated border despite a formal export ban. Increasing input and transport costs caused by fuel price increases also play an important role. Food and beverages make up more than half (53 percent) of the consumer basket in Nepal. As such, it has a significant impact on the overall price situation in the country. Since January 2007 food price inflation has exceeded overall inflation. During the first seven months of FY08, on a year-on-year basis, food prices increased at an average rate of 8.7 percent compared to overall inflation rate of 6.3 percent. But both general inflation and food price inflation (as the major driver of general price inflation) accelerated substantially during the second half of FY08 (see below). Food-price inflation is driven by high prices of cereals (rice in particular) and edible oil/ghee which together make up nearly 40 percent of the food basket. The Nepal Rastra Bank's Consumer Price Index (CPI) measures urban inflation and shows that the price of rice and rice products has increased by 12.4 percent during FY08 as compared to 2.8 percent in FY07. Likewise, the price of oil/ghee has risen by 13.5 percent in FY 08 compared to 6.7 percent in FY07 (Annex 1 Figures 17 and 18). For other food items such as, meat, fish, eggs, and milk price inflation has remained at more manageable levels. Food price inflation has accelerated in 2008 and shows significant variation by region and commodity. During the past five months nominal consumer prices of cooking oil and coarse rice have increased by 30 and 23 percent respectively. In western Nepal where 5 out of every 6 households live below the poverty line, price inflation for coarse rice (the main food staple) has varied between 10 and 40 percent this year (2008).[15]

4.4 Emerging Food Insecurity

32. Nepal is a low-income country characterized by high dependence on low productivity agriculture for the livelihood of most of its population, high rates of malnutrition, and a unique geography isolating many rural areas. Nepal is exposed to high risks from a variety of natural disasters like dry spell in high mountains area, and is likely to feel the – yet undetermined—effects of complex global climate change phenomena[16]. Agriculture's poor performance in Nepal reflects two closely related problems. The first is that there is little arable land that is not presently farmed, so any expansion of cultivated area is either at the expense of forests, or onto low potential marginal lands.[17] The second problem is the low level of agricultural productivity. Low incomes and returns constrain farmers' ability to invest from their own resources, while access to institutional credit is limited. In addition, access to both technology and technical knowledge are limited, particularly in the poorest and most food-insecure areas. As a result, land productivity has been growing very slowly by South Asian standards. For example between 1961-63 and 1997-99 paddy

[15] Even though on average percentage price changes for coarse rice in the Terai and Hills have exceeded those in the Western Mountains, rice is more than twice as expensive in remote mountains compared to the Terai so the absolute price increases have been highest in the Mountains.

[16] The country has also gone through an 11-year long insurgency, with a loss of about 15,000 lives, destruction of scarce infrastructures, and severe social and psychological damages.

[17] . In addition to severe soil erosion, the result is falling average farm size and increasing fragmentation, leading to growing poverty.

yields in Nepal grew at an annual average rate of 0.6 percent, compared with 1.41, 1.43, 1.79 and 1.97 percent respectively in Bangladesh, Sri Lanka, India and Pakistan.

33. Poor agricultural performance has led to a gradual deterioration in the national cereal balance sheet, so that even with relatively low level of food consumption per capita. The major problem relate to food availability and access as they are very unevenly distributed over the country, and that the areas with the lowest production and greatest deficit per capita also tend to be the ones with lowest incomes, highest rates of poverty and malnutrition; they are often the most remote and inaccessible, as well. Furthermore, Nepal is susceptible to several types of natural disasters, including droughts, floods, landslides, windstorms, hailstorms, cold waves, disease epidemics. There are seasonal food shortages from March to July while the early monsoon season is a period of insufficient food supply, increased food prices, employment scarcity and low wages. Food security has been taken as the basic element of human rights. The Interim Constitution of Nepal, 2007 has also given recognition to food sovereignty, as a basic human right.

34. The most poverty affected region is the mountains, with 56% of residents living in poverty, together with the mid and the far western regions where local food production sometimes only covers 3 months of the annual household requirements. (FAO, 2004). Poor accessibility to such remote locations with rugged terrain and a lack of roads results in a lack of food access. In the north western region famine is frequently witnessed (UNDP, 2002). A vast disparity lies in the development status between rural and urban areas with 90% (NPC, 2003) of those citizens identified as poor residing in rural areas. The TYIP indicate that the ratio of the population who are not in a position to consume the minimum calories, at the national level, is 39.9 percent. This ratio for the Mountain region is 45.2 percent, Hill region 41.8 percent and the Terai region 37.4 percent. Similarly, this ratio in the Eastern, Central and Western Development Regions vary from 37.2 percent to 39.9 percent. In the Mid and Far-Western Development Regions, the ratio is 44.3 percent and 44.9 percent, respectively. In this way, in relation to geographical regions, the nutrition position in the Mountains and the Terai, and in relation to development regions of the Mid-west and Far-west are relatively worse.[18] The highest incidence in malnutrition is at the end of the monsoon period prior to harvesting of maize and early paddy when food stocks are at their lowest. Given the close integration between the Terai and the markets in northern Indian states, availability and access to food is influenced by trade policies. According to the Nepal-India Trade Treaty, the trade in primary agricultural products between Nepal and India is free of customs duty and quantitative restrictions. This relationship is seen as having both positive and negative effects on food security in Nepal.

35. During the Tenth Plan period 31,760 metric tons of food grains was distributed at subsidized prices in 30 inaccessible remote food deficit districts. The annual average distribution and sale to the amount of 7,000 metric tons in the deficit districts was less

[18] According to the criteria for assessing the governments capacity to respond to food security crises (UNDAF, draft 3), Nepal may be rated as low to extremely low because the country is among the most vulnerable and food insecure. Economic indicators make it largely dependent on external resources to respond to food security crises. Widespread and extreme poverty makes it difficult for the population to adopt sustainable coping strategies and are reliant on help from the government and external assistance.

than half the demand of 14,250 metric tons in 2006/07. The Nepal Food Corporation (NFC) has maintained a reserve stock of 10,000 metric tons to meet emergency requirements. Besides, it is mandated to maintain SAARC reserve stock and handle the food aid received from the donor agencies. The oversight agencies for ensuring food security in Nepal include; (i) Ministry of Agriculture and Cooperatives, (ii) Ministry of Industry, Commerce and Supplies and (iii) Nepal Food Corporation (NFC).

36. The proportion of total income spent on food is negatively correlated with income level. Whereas households in Nepal spend on average 59% of their total expenditure (a proxy for household income) on food, the poorest quintile of the population spends as much as 73%. These data are based on the 2003-04 Nepal Living Standard Survey (NLSS) and may be even higher today. Given that (1) more than 80% of all households depend on market purchases of food during some part of the year, and (2) wages have not kept up with food prices, malnutrition rates[19] are likely to have increased.

37. Food price inflation potentially wipes out a substantial part of poverty reduction achieved in the past decade. Persistent price rises lower the purchasing power of a given nominal income and therefore affect expenditure decisions. Since nominal wage rates adjust to price increases only after a substantial time lag and even then often only partially, declining real wages lower consumption and economic growth. Because the poor spend a disproportionally large portion of their total income on food (and because food staples account for a large share of the total food expenditures of the poor), food price inflation has serious regressive effects (i.e. increasing the already high inequality).[20] Moreover households that currently manage to escape poverty but live close to the poverty line may fall into poverty. Finally because inflation hollows out the real value of savings, food price inflation is likely to lead to lower investment which further compromises economic growth. Nepal is a nascent state coming out from 13 years of long conflict and as a rise in poverty and inequality could lead to another round of civil disturbances, it is important that these be addressed with appropriate measures in a timely manner.

38. Food price inflation hits the poor harder than the more well-to-do sections of the population. Price inflation in coarse rice (which is mainly consumed by the poorer quintiles of the population) has exceeded price inflation for other types of rice. (Annex 1-Figures 17 & 18) On a year-on-year basis, the price of coarse rice grew by an average of 13.2 percent every month during the first eight months of FY08. The price of fine rice, on the other hand, has grown at an average of 4.4 percent every month on a year-on-year basis. Its price has even declined by 0.7 percent since the beginning of FY08, when overall prices were at a relatively higher level. The average price of all kinds of rice has been growing at an average of 9.4 percent this FY. The increase in wheat prices is more muted at 7.4 percent. The poorer sections of society depend more on coarse rice, maize, and millet. An estimated 64% of total coarse rice consumed in the country is by the

[19] Malnutrition as measured mainly in children as one or (preferably) a combination of the following: stunting (low height-for-age, currently 48%), underweight (low weight-for-age, 39%) and wasting (low weight-for-height, 13%).
[20] Nepal's Gini coefficient is 0.41.

bottom three income quintiles. These quintiles also consume 69% and 66% respectively of maize and millet (74% for maize flour), i.e. increases in the prices of millet and maize affect households in the lowest quintile more than households in other quintiles. Unfortunately, prices of maize and millet are not available from official sources.[21] On the other hand, as two-thirds of fine rice is consumed by the richest two quintiles, inflation of fine rice should be less of a concern –as it is, inflation of fine rice is the lowest.

39. The biggest threat to food security is in the mountains of mid and western Nepal. Even though on average percentage price changes for coarse rice in the Terai and Hills have exceeded those in the Western Mountains (Fig. 4), rice is about two to three times as expensive in remote mountains as elsewhere so the absolute price increases have been highest in the Mountains. Based on a recent survey among traders carried out by WFP, the price of coarse rice is expected to increase by another 11 percent in the next couple of months[22]. According to WFP, at least 23 districts in Nepal or more than 6 million people are now chronically food insecure, with 2.5 million in need of immediate food assistance and 3.9 million additional people at high risk of becoming food insecure due to increasing food prices. Unlike the Terai area where markets are reasonably integrated both domestically and with India, poor road access in Mid- and Western Nepal leads to high and increasing transportation costs (aggravated by serious fuel shortages) which in turn pushes up grain prices even further. Finally, severe drought, hail-storms and heavy snowfall have aggravated the already precarious situation for many communities in Mid- and Western Nepal where in some areas crop production has decreased by as much as 70 percent.

40. As a result, an estimated 40 out of 75 districts in Nepal are now reported to be food deficit.[23] Households living in very remote districts, particularly in Mid and Far Western Development Regions, suffer from chronic food deficit situations for most part of the year[24], resulting into massive seasonal migration to southern border districts of India. Inaccessibility is the single most important factor that has led to extreme level of food insecurity and vulnerability. The situation is especially dear among the landless, marginal farmers and female headed households with no access to remittance funds and who have to depend upon market to make up the deficit from their subsistence production.

[21] This points to the wider problem of a lack of information strategy that is needed to stay on top of price developments and for adequate regional targeting of interventions
[22] WFP/NDRI Market and Price Impact Assessment, Nepal, July 2008.
[23] FAO /WFP Food Security Assessment 2007/ MoAC estimates 2008 July
[24] This is to an important extent due to lack of access to land: WFP estimates that in order to be neither net seller nor net producer of rice, a household needs a minimum land area of 0.45 ha (Terai) and 0.64 ha (Mountains).

Box 1-GoN Response and Strategies for Soaring Food Prices

Immediate Reponses (6 months – One Year)

- Effective Mobilization of food assistance
- Implementation of various support schemes to farmers to enhance productivity and production for the next crop season.
- Distribution of improved seed kits to farmers on large scale
- Support to rehabilitation of micro-irrigation schemes
- Strengthening existing farmer managed irrigation schemes
- Implementation of pro-poor income enhancement programs to increase access of the poor to food
- Development of Market; collection centre(included as suggested by MoAC)

Short Term Responses (1 to 3 Years)

- Revise the domestic food procurement policy of the NFC to
    - Enhance national food production
    - Stabilize market prices.
    - Estimation of cost of production of major food crops to be procured in different ecological zones
    - Differential procurement price for different ecological zones
    - Prepare a food grain distribution plan for different ecological belts
    - Domestic procurement and stocking of food by NFC utilizing full capacity
- Increase the supply of chemical fertilizers through the provision of soft loans for fertilizer import and transport subsidy
- Promotion of location specific product diversification e.g. bread, buckwheat, millet and oats etc
- Utilization of under and un used productive natural resources such as swamps, river sides, streams and forests
- Discourage conversion of staple foods into alcohol
- Market Infrastructure Development

Medium Term Strategies (3 – 5 years)

- Strengthen the seed multiplication programs with farmer groups, the private sector and the Nepal Seed Company (NSC)
- Promotion of research and development of location specific and minor crops
- Whole sale lending at nominal interest rates to micro-finance institutions and cooperatives including small farmer cooperatives
- Increase investment in agriculture infrastructure development, processing, marketing and distribution
- Expansion of rural roads to production areas
- Reduction of post-harvest losses and the use of waste for compost and bio-gas
- Improve soil fertility management

Long Term Strategies

- Development of a land utilization policy to reduce land fragmentation and use of agricultural lands for non agriculture purposes
- Enhance programs for the development of bio-diversity
- Crop insurance schemes
- Watershed conservation and management

5. Short Term Assistance Requirements.

41. The main objective in providing immediate response measures is to ensure the food and nutritional security of the most vulnerable groups "*urgently*". The focus would be both on food and food production related assistance. The following interventions are being undertaken but given the scope of emerging problems would require additional resourcing. (Table 1)

5.1 S1-Targeted Food Assistance

42. **Key Issues:** Rising food and commodity prices in Nepal are having a critical impact on various segments of the population, particularly given the country's heavy dependence on food and oil imports and existing, high levels of food insecurity. Estimates indicate that 41% of the population is undernourished, whilst the 31% are under the poverty line. Forty-five percent of children below five are underweight and almost one in two children is stunted, which represents one of the highest rates in the world. Food insecurity is pervasive throughout much of the country, particularly in drought-prone areas of the Mid- and Far-West regions where chronic malnutrition rates reach up to 76 percent and prevalence of underweight is as high as 63 percent.[25] Levels of acute malnutrition approach 20 percent in parts of the Terai region, particularly among poor, landless and marginalized populations living in remote areas. Moreover, Nepalese spend more than half their income, on average, on food. This percentage reaches 65 to 73 percent among the poor and ultra-poor, totaling some 8 million people. An inverse relationship between rising food prices and food intake has been observed, particularly among the extreme poor and poor wealth groups – which may result in high malnutrition rates. Despite an upward pressure on daily wage rates for unskilled labour by as much as 15 percent during the last six months, the purchasing power of households decreased because of the rise in commodity prices. Based on findings from a recent Market Assessment carried out by WFP and NDRI (Nepal Development Research Institute)[26] assessing the impact of high food and fuel prices on household food security, people have shifted their consumer behavior to buying smaller quantities and cheaper food items and increased buying on credit due to price increases. Sales on credit have increased substantially.

43. **Assistance Requirements:** As a result of these factors, the assessment estimates that approximately 2.5 million people in rural Nepal are in need of immediate food assistance. An additional 3.9 million people, excluding some 525,000 urban dwellers, are at increasing risk of becoming food insecure due to rising food and commodity prices. Further, in June 2008, the Government and WFP launched a rapid emergency food security assessment (EFSA)[27], which showed that 90 percent of the surveyed population in drought affected VDCs in the far and mid west hills and mountains is experiencing food shortages this season, with almost 70% reporting that the shortage is worse than last

[25] WFP Poverty Mapping, 2005
[26] WFP/NDRI, Market and Price Impact Assessment, Nepal, July 2008.
[27] Report on Rapid Emergency Food Security Assessment (EFSA) Far and Mid West Hills and Mountains, Nepal, July 2008

season. Most households (93.8 percent) have experienced an increase in household expenditure, largely due to the rising food prices and drought.

44. **Response and Target Beneficiaries:** In July 2007, WFP launched the Protracted Recovery and Relief Operation (PRRO) "Food Assistance for Conflict-Affected Populations in Nepal" to provide immediate food assistance to nearly 1.3 million food insecure and conflict-affected people in 28 districts to support the peace process through strategies that address peace and food insecurity in the context of Nepal's post-conflict transition. The overall aim of the project is to safeguard lives and restore livelihoods by establishing conditions that promote the rehabilitation and restoration of self-reliance among food insecure, conflict affected populations. The core elements of the strategy for food insecure and conflict-affected populations in Nepal are critical infrastructure; return and reintegration; and non-formal education. In order to respond to the emerging negative impacts of the high food and fuel prices WFP will expand its PRRO activity to cover an additional 1.2 million vulnerable and food insecure people. The programme area will be expanded from 28 to 34 districts of the country to include those districts that have been identified to be most of risk to higher food prices.

45. The objective of the PRRO has been expanded to include prevention of acute hunger and malnutrition due to soaring food prices, often impacted further by additional shocks such as drought. More specifically, WFP food assistance will be used to:

- Reduce vulnerability and improve short-term food security among conflict-affected populations, further impacted by soaring food prices. Particular attention will be given to high-risk groups including women, children, and returnee populations
- Provide a basic safety net to populations affected by multiple shocks (i.e conflict, food price increases, drought) through the creation of quick-impact, economic opportunities and the construction of productive assets and community infrastructure focused on restoring livelihoods.
- Reduce and/or prevent acute and chronic malnutrition.

46. The core element of the operation is the provision of critical infrastructure and livelihood support. It will provide short-term food security to vulnerable and marginalized populations and an opportunity to rebuild/construct critical infrastructure and productive assets through Food for Assets (FFA) or combined FFA and Cash for Work (CFW) schemes. Project activities will include:

- Formation of farmers groups to produce high-value cash crops such as medicinal herbs and aromatic crops unique to Nepal.
- Construction of small-scale and micro irrigation systems to improve crop yields and create cash crop opportunities and through a partnership with FAO, provision of improved seed stocks to farmers.
- Targeted nutritional interventions – with UNICEF to provide a commodity high in micro-nutrients, plumpy nut, for acute malnutrition as well as the provision of supplementary feeding to address chronic malnutrition.

- Integration of cash for work or use of voucher systems where appropriate working with GTZ and Helvetas.
- Community based "Food for Work Light" designed to provide high impact projects that are food security focused.

47. For conflict-affected populations and those struggling from the impact of soaring food prices, a food basket of rice and pulses will be provided via a food for work modality. Participants will receive 40 kilograms of rice and 5 kilograms of pulses for every 10 working days per month for an average of four to six months. More than 80% of commodities are likely to be purchased locally.

48. The highest concentration of rural populations most vulnerable to rising food prices live in the Hills and Mountains of the Far- and Mid-West and in several districts in the Hills of Central and Eastern Nepal. Several districts in the Terai with a high rate of poverty and landless households are also among the areas most at risk. These are the target areas for the expanded PRRO programme.

49. Urban poor at risk to food insecurity due to rising food prices (and estimated 525,000 people) will need to be closely monitored. Additional needs for this segment of the population may be covered under a separate operation in future.

50. To supplement WFP efforts for providing social safety nets and targeted food assistance The World Bank (WB) is proposing a project to support GoN as part of its Global Emergency Food Crisis Response Program (GFRP). The proposed project will be for US $ 36 million of which US$13.5 million will be additional financing for an ongoing WB Irrigation and Water Resource Development Project and US$22.5 million as a credit/grant mix for a new project. Financing will be from restructured and cancelled credits and grants of exiting and proposed WB projects in the financial and telecom sectors. In addition US$ 5 million grant will be made available from the Food Price Crisis Response Trust Fund (FPCRTF)[28]. The financing instrument will include additional financing for the ongoing Irrigation and Water Resources Management project for agriculture components and a new credit/grant facility for the remaining components of the proposed project. This additional financing of the Irrigation and Water Resource Management Project and the financing of the new emergency project, totaling US$36 million, will constitute the Bank's overall support to Nepal's Food Crisis Response Program (NFCRP). The NFCRP would help finance activities to mitigate both the short-term and the medium- to long-term impact of rising food prices in Nepal as a result of global and national food price trends. The proposed interventions will support GoN's national strategy to maintain and enhance food security. It includes support to (i) the implementation of social safety net measures for the most vulnerable households and (ii) expedite a supply response of agricultural production through the implementation of measures to raise the yields and consequently the production of staples (see section 6.2b).

[28]The FPCR TF has been established in conjunction with the Bank's Global Food Crisis Response Program (GFRP), and is subject to Executive Directors' approval and funded out of IBRD surplus subject to the approval of the Board of Governors.

51. Specific interventions under (i) include (a) immediate food assistance for the most vulnerable populations in rural areas through a combination of food for assets and cash for work activities implemented by WFP with the aim to increase the purchasing power of affected populations. Food for asset activities will promote high value crops and quick impact asset creation to improve food productivity; (b) investing in a medium term safety net through a pilot program to transform the existing cash transfer program into a more efficient and transparent system for targeting vulnerable groups which will enable the design of a medium term social protection system.

5.2 S2-Targeted Seed and Fertilizer Assistance

5.2a Seed

52. **Key Issues** In addition to targeted food assistance to vulnerable areas and groups, it is important to provide immediate and wide-ranging support to stimulate the capacity of farm households to increase agricultural production and supplies in the short and medium term. This will be through (i) emergency seed distribution; (ii) emergency fertilizer distribution; (iii) production and productivity enhancement; (iv) micro-irrigation and (v) pro-poor income generation.

53. **Response and Target Beneficiaries:** FAO re-activated an emergency seed programme in Nepal in March 2008 – support, which had been provided previously in response to flooding in the Eastern Terai in 2006. The current programme is part of the international community's consolidated appeal (CAP) for 2008. FAO's emergency seed programme supports government efforts to boost agricultural production in the worst drought-affected areas of the Mid-West and Far-West and immediate support in direct response to soaring food prices. The support provides high quality, certified and locally-adapted wheat, maize and/or vegetable seed. The programme is undertaken in close collaboration with the WFP emergency food aid programme. This ensures that the worst-affected households receive both food and seeds and is in line with international good practice which recommends that food and seed distribution is coordinated to reduce the risk of highly food insecure people consuming the seeds which are chemically treated. Seeds packaging conforms to the highest international standards and seed quality is rigorously tested. Districts are selected on the basis of WFP food insecurity assessments, government priority and underlying human development indicators. The choice of seeds is determined by general production patterns and the cropping calendar. Wherever possible, seeds are procured from domestic markets (100% until the present time). Beneficiary selection is based on the WFP assessments and is agreed in consultation with district level agricultural officers. Distribution is undertaken by a range of national and local NGOs. The basic objective is to provide beneficiary households with small amounts of high quality seed that will enable them to restart crop production and restore household livelihoods. The high quality seeds will lead to improved productivity on the one hand and will enable households to replenish seed stocks and seed quality on the other. Seed packages are usually aimed at providing sufficient seeds typically for 0.05ha (1 ropani). This reflects typically very small and fragmented land holdings in the programme area, the need to avoid undue disruption or distortion to local seed supply systems and the overall aim of reaching as many adversely affected households as

possible. In total, it is expected that the current emergency seed programme will provide approximately 75 000 households, in 17 districts of the Mid-West and Far-West, with a small seed package including either wheat or maize and vegetables, with a total projected budget of USD 2.4 million. Although positive, the beneficiary figures represent only between 15-70% of the most vulnerable and food insecure household identified by the July 2008 WFP assessment. There is therefore considerable need to increase the scale of support to include all of the worst-affected households in these and other districts in the Mid-West and Far-West of Nepal. This would be by (i) scaling up 50% in the covered project area and this will require an additional input of nearly US $ 1.2 million and (ii) incorporating additional districts in vulnerable and affected areas. Suggested districts and coverage are indicated in Annex-Figure 20.

5.2b Fertilizer

54. **Key Issues** In addition to seed, there is urgent need to support the GoN with fertilizer distribution to stimulate agriculture response and enhance production for the next crop season. The price of fertilizer has increased by 30% and fuel shortages and rising fuel prices are placing additional constraints. Presently, the Government is not considering subsidizing fertilizer inputs to avoid market distortions[29]. However, the current policy framework retains a fertilizer transport subsidy for farmers in selected remote districts. The transport subsidy is provided to transport fertilizers and seeds up to district headquarters by air and road. This programme needs to be supported to ensure that supplies are reaching districts for the crop season[30]. There is strong expectation that this program will be curtailed if fuel shortages continue and prices are increased in the immediate future.

55. **Response and Target Beneficiaries** Under the proposed World Bank NFRCP, to assist the GoN mitigate the short and medium term impact of high global food prices (section 6.1 para-47) a component will be included for the short term provision of essential inputs to remote districts. The intervention would be focused on expediting the supply response of agricultural production through supplementing the Government subsidy on seed and fertilizer transport to remote districts.

[29] The government has removed price subsidies on phosphate and potassium fertilizer, but urea prices are only 55% of the actual cost. Prior to 1997, the Agricultural Input Corporation (AIC), a public sector corporation established by the Government in 1966, controlled fertilizer import, distribution, and sale prices. Fertilizer was sold to farmers at a subsidized rate, and the subsidies paid to AIC annually represented a heavy burden to the Treasury. This strategy failed to achieve the desired objectives of increased access by farmers to fertilizer. The supply and distribution of fertilizer was erratic and the subsidies tended to benefit richer farmers more than poorer farmers. In response, government took the decision in 1997 to deregulate the fertilizer sector, as one of the loan conditions under the Second Agriculture Program Loan of the Asian Development Bank. This was achieved through: (i) removing the AIC monopoly and allowing the private sector to import and distribute fertilizers, (ii) phasing out fertilizer subsidies, (iii) decontrolling wholesale and retail prices of fertilizers.

[30] The 3 year interim plan sets the budget amount for this transportation subsidy at 876 million NRS for 30 remote districts.

5.3 S3-Development and Rehabilitation of Micro-irrigation Schemes

56. **Key Issues** In Nepal, micro-irrigation comprises low cost drip systems, rain water harvesting tanks, treadle pumps, rower pumps, and dug-wells, which irrigate up to 0.5 hectare (ha) of land. These systems suit small and marginal farmers, whose productivity and cropping intensity can be doubled with assured irrigation. As these systems involve simple technology, require very low capital investment (ranging from NRs 2,000 to NRs 5,000 US $-30 to 75) and provide quick returns, the technologies are popular among marginal and small farmers in increasing agriculture production and enhancing household food security. It is estimated that approximately 45,000 ha of land has been brought under irrigation through micro-irrigation benefiting 171,000 small and marginal farmers.[31] These technologies were initially promoted by some national agencies (like Agriculture Development Bank) and expanded by some international and national NGOs. However, information on potential area that can be covered through micro-irrigation, resource availability and financing gap in the short and medium term are not available. In recognition of the importance of micro-irrigation on livelihood and food security of marginal and small farmers, the Department of Irrigation (DOI), under the Irrigation Policy 2003, has been promoting non-conventional irrigation technology (similar to micro-irrigation) in various parts of the country, although the target of irrigating 10,000 ha land through this technology during the Tenth Plan (2002-2007) period could be only partially realized due to shortage of funds. DOI has a target to provide irrigation to an additional 533 ha through non-conventional irrigation in FY2008/09. [32]

57. However, the available resource of NRs103 million ($1.5 million) will be sufficient to cover about 90% of the target. Further, as development of many of the irrigation systems started in FY2007/08 are incomplete, out of the NRs103 million, about 50 million ($0.75 million) is likely to be utilized to complete them. This indicates net resource shortfall of about NRs63 million (about $0.92 million) in FY2008/09.

58. **Response and Target Beneficiaries** With support from the Government of Japan under the KR2 program, the Department of Agriculture has been implementing minor irrigation development scheme since 2000. The scheme supports quick increase in agriculture production through development of pond irrigation; procurement of mechanical and manual water lifting devices, pump-sets, treadle pumps; and rehabilitation of small scale irrigation projects. The total budget for FY2008/09 from the KR2 program (NRs200 million) and other sources (NRs36 million) is NRs236 million (approximately US $3.5 million). The DOA estimates that the available budget for FY2008/09 will cover only 40% (2,000 schemes) of the total demand. This, therefore, leaves a financing gap of approximately NRs354 million ($5.28 million). Hence the total resource gap in the short-term for micro-irrigation development is estimated NRs408 million ($6.08 million). It is important to note, however, to ensure that the schemes are

[31] ADB Report on Micro-irrigation Development in Nepal by Deepak Lochan Adhikari, TA 4774 NEP under the Department of Irrigation and Asian Development Bank, November 2007.
[32] Three Year Interim Plan of the Government of Nepal by the National Planning Commission, December 2007.

properly targeted, there is a need to prepare a medium-term program and budget for micro-irrigation development to mitigate food insecurity in the country.

6. Medium Term Assistance Requirements.

59. In parallel with ensuring that measures and interventions are being taken to address immediate, short term concerns, it is imperative that the Government of Nepal (GoN) is assisted in its efforts to stabilize food production and food security through targeted assistance to priority areas over the medium and longer terms (Table 1).

60. **Strategic Planning** The strategic longer term basis are the Agriculture Perspective Plan (APP -1995) and the National Agriculture Policy (NAP of 2005. The underlying objectives of the policy remain to (i) increase agriculture production and productivity through judicious use of the country's biodiversity and (ii) create a sound base for commercialization of the agriculture sector based on comparative advantage and regional and world market competitiveness. The National Agricultural Policy 2005 added a new dimension to provide access of food to vulnerable groups. It has made a provision of free inputs, technical support, leased land and irrigation facilities to landless and small/marginal farmers. The common threads of the policies, programs, and projects related to agriculture include; i) more market-oriented agricultural systems, ii) decentralization, and iii) participatory development involving all stakeholders in the design, implementation and monitoring of agricultural development initiative. To accelerate development the GoN prepared the Three Year Interim Plan 2007-2010 (TYIP), which follows the sprit of the APP, NAP and the Tenth Five Year Plan and emphasizes the completion of the ongoing projects initiated during the Plan period. The TYIP emphasizes the coordinated mobilization of research, extension services, market development, vocational development, food technology and quality control, supply of inputs and rural infrastructure development and promotion work. The overall goal of the agriculture sector in the Interim Plan is to achieve sustainable agricultural growth.

61. In the TYIP, the areas of most importance to this interagency assessment for medium term assistance strategy include initiatives to develop an holistic approach to (i) National Food Security and (ii) increase agricultural productivity and production. In relation to these the focus *inter alia* will be on:

- Giving high priority to agricultural research.
- Transfer of improved technologies to farmers.
- Ensuring the import and distribution system of chemical fertilizers by minimizing the large difference in the selling prices of chemical fertilizers between India and Nepal.
- Making the chemical fertilizer and insecticide distribution system fair and effective in remote areas.
- Development of small scale irrigation
- Development of rural roads

6.1 M1-National Agriculture, Food Security and Nutritional Surveillance System

62. **Key Issues** The empirical basis for agriculture, food security and nutritional policy and related investment program formulation is extremely weak. In production there is a wide divergence in view between estimates of output that are provided by the MoAC and those of the private sector. This year for example the MoAC estimates a good harvest and surplus production, where as the private sector consider there to be crop shortages. This divergence also has a bearing on policies on taxation in processing, transport taxes and value addition and hence the relative competitiveness of the Nepalese food production and processing sectors.In addition, aspects related to the food security and nutritional status of different segments of the population, especially those at risk, need to be included in integrated data and information systems to enhance targeting and the efficiency of response to future disasters. Food insecurity is widespread. During certain months of the year a significant part of the population experience severe food shortages exacerbated by the frequent occurrence of natural disasters. Underlying reasons include poverty, inaccessibility, low education etc. Malnutrition rates are among the worst in the world with almost every other child stunted and 39 percent of children underweight. Acute malnutrition is very high at 13 percent and in certain areas reaches more than 20%. In recognition of data and information weaknesses and in an effort to enhance food security, the Three Year Interim Plan emphasizes the importance of establishing a food security and nutrition monitoring and early warning system.

63. **Response and Target Beneficiaries** To establish sustainable long term systems, the priority will be to build upon and strengthen existing systems of knowledge, information generation as well as human resources available at the MOAC, WFP, FAO and UNICEF. For example, WFP Nepal has developed an extensive Food Security Monitoring and Analysis System (FSMAS) in the last five years, which has been instrumental in providing information on issues such as household food security, crop, market and disaster updates. It currently covers 42 of the poorest and most vulnerable districts. At the district level, WFP field monitors, are working jointly with the district agricultural and health offices, the Chief District Office and Local Development Office, NGO and civil society representations, in monitoring the food security situation by using a food security phase classification approach.

64. FAO has expertise in assembling integrated geographic information management solutions, and has a number of technology and management components ready to apply e.g. the Dynamic Atlas and the GIEWS Workstation, which enable the integration of different types of satellite, geographically referenced and tabular data into a data knowledgebase.

65. UNICEF in consultation with WFP is planning to develop a sentential nutrition surveillance monitoring system as a component of the FSMAS. As part of an integrated, national data and information system the WFP FSMAS could be up-scaled and working with other UN partners could include information on nutrition, health and sanitation. To develop the system, an interagency UN mission will work together to finalize a medium term investment program for financing building on on-going work and existing

proposals[33]. The target ministries will be the MoAC, Health and Nutrition and Ministry of Local Development (MLD) and the Poverty Monitoring Unit currently set-up within the Planning Commission.

66. The following types activities are envisaged (i) identification of food insecurity regions/groups through indicators of food security and risk mapping in the districts; (ii) an existing division (Planning and Foreign Aid Co-ordination Division) under the Ministry of Local Development will function as a food security division and information centre with the MoAC.

6.2 M2-Medium Term National Programme for Food Security

67. **Key Issues.** The major challenges in food security will be to (i) increase the income source of groups/regions that are at risk and the productivity of both agriculture and non-agriculture sectors and (ii) maintain a balance between the issue of self-reliance and dependency with regard to the import of food products. The target set forth for food security relates to (i) Ensure improvements in the availability of food and nutrition position, the Interim Plan has set the following targets and (ii) Food availability will be increased from 280 kg per person in the base year 2006/07 to 289 kg per person in the final year of the Plan (iii) The annual quantity of public food distribution will be increased from 20 thousand MT in the base year to 39 thousand MT in the final year of the Plan. In addition to this, in the three years period, 29,151 MT of food in total will be sold in the remote districts, by the Nepal Food Corporation. Sustainable food security is one of the major development goals of Nepal, and a separate chapter on food security has also been conceived for the three years Interim Plan (2007-2010). Nepal does not have a comprehensive food policy addressing the different dimensions of food security (availability, access, stability and utilization). About 35 percent of the population of the country feels the shortage of food materials and adequate attention is not paid to food security at the national level. The long term vision is to ensure food sovereignty rights of every individual by strengthening in a coordinated way all aspects of food and nutritional security. Maintaining food security is a challenging task for Nepal from supply as well as demand side. There are three facts that have direct bearing in food security. The first and foremost problem has been low crop productivity, with the country falling steadily behind its neighbours. The determined food security strategies and assistance package for attaining the objectives of TYIP are given below:

68. **Response and Target Beneficiaries** To ensure that the GoN develops a sound, comprehensive and coordinated program for food security a number of factors and related activities will need to be addressed. An interagency mission will work together to evaluate the sound National Program for Food Security NPFS and a medium term investment program for financing. The program will establish a cross-cutting rather than a sector driven approach to food security which will bring together the key public sector institutions, decentralized structures and other stakeholders. *Inter alia* the NPFS investment formulation mission will focus on key areas related to (i) strategies and

[33] For example, the FAO, Nepal Food Security and Nutrition Monitoring/Early Warning system- Assessment of current systems, Project Design and proposal, October 2007

programmes to enhance greater long term sufficiency in food, enhance risk management and strengthen agricultural trade in favour of national economy and the strategies to increase productivity/production of basic food originating from agriculture, forest and water. (ii) ensure vulnerable groups/people' access to food and strengthen right to food following the concept of food sovereignty. Implement selected programmes for special groups to remove constraints/restrictions on the basis of social structure and physical facilities (discrimination based on class, region, gender and caste) (iii) Develop essential physical infrastructures like road, electricity, communication, storage, cold storage in the rural/remote areas, (iv) Establish mechanism for production base for indigenous food grains like Chino, Kaguno, millet, Jumli Marshi etc recognizing local culture and consumption base. Enhance consumption base for these grains to other areas by promoting these produce in different parts of the country. Develop standard and safe food and promote food consumption pattern as per national and local requirement and resource availability. In order to attain this objective promote local food culture thru increasing utilization of local food products and (v) Develop and implement food distribution system by developing targeted programs for the identified food insecure regions/groups. Also, establish the system to ensure food supply with built mechanism to avail food at reasonable cost thru distribution of 'food coupon'. Alternatively, 'food credit card' could be distributed in the food insecurity regions whereby mechanism could be developed to provide credit to procure food stuffs. Fair price shops and food depot program could be launched to provide food under 'food coupon'. In this regards, Nepal Food Corporation will be oriented and strengthened to assume new responsibility.

6.3 M3-Development of Seed Sub-Sector

69. **Key Issues** Local Production of Improved Seeds Poor quality seed is considered to be a binding constraint to improving productivity and overall production. The current seed replacement rate is about six percent. This has resulted in the deterioration of seed quality leading to low crop production and productivity. Nepal Agricultural Research Council (NARC) has released several crop varieties but only a few of them have been adopted by the farmers. The government has highlighted the importance of improving local seed multiplication as part of its medium-term response to the current food price crisis, and in line with its broader objectives for strengthening the agricultural sector. Seed quality is a key factor determining productivity. In general times, whilst locally-adapted varieties are widespread through Nepal (critically important, given the very large agro-ecological variations that exist), crop production is highly constrained by very low seed substitution rates. Optimum seed replacement rates for self-pollinated and cross-pollinated crops are typically 25% and 33% respectively. In Nepal, the MoAC estimates that the average seed replacement rate is approximately 5%, with significant variations between crops: rice (6%); wheat (7%); maize (6%); pulses 2% and oilseed 1%. This leads to very significant reductions in productivity (with all other production factors remaining constant) leading to limited domestic supply and heightened household food security.

70. There are two major sources of seed supply in Nepal: (i) formal; and (ii) informal. MoAC estimates that up to 95% of cereal seed supply operates under informal mechanisms, primarily farmer-to-farmer or self-sourcing. The production and supply of

source seed (the foundation for effective seed multiplication) and the limited role of the private sector in seed production are both key constraints. In addition, a series of recurrent natural disasters, most notably flood and drought, have dramatically reduced buffer stocks and have reduced the capacity of small farmers to purchase seeds.

71. The government has therefore prioritized the need to strengthen the seed sector in Nepal. The aim is to improve the production and distribution of locally-adapted high-quality seed to farmers. The District Seed Self-Sufficiency Programme (DISSPRO) for example, supports the development of community-level seed multiplication. MoAC is also keen to support the strengthening of linkages between seed certification and quality control agencies, seed producers and distributors.

72. As part of its medium-term response to the current food price crisis, MoAC is seeking to implement a three-year programme that will: (i) improve source seed production and management; (ii) strengthen DISSPRO and corresponding private sector seed multiplication; (iii) build-up and maintain appropriate seed buffer stocks; (iv) develop seed quality control and marketing systems; (v) build technical and institutional capacity in the seed sector; (vi) support private sector development in the seed sector; and (vii) promote indigenous crops. FAO strongly supports these priorities as part of an effective and sustainable medium-term response to the food price crisis and as a means of tackling a key underlying sectoral problem, namely very poor seed substitution rates.

73. **Response and Target Beneficiaries** To ensure that the GoN develops a sound, comprehensive and coordinated program for development of the seed sub-sector the first step would be to field an expert mission to evaluate the strategic basis and the medium term investment program for financing for the sub-sector.

6.4 M4-Fertilizer and Soil Fertility Management System

74. **Key Issues** Soil fertility and fertilizer use are factors affecting crop production. Genetic potential of the crop can only be harnessed when the required amount of fertilizing materials are applied in a balanced way. Even if there are sufficient amount of plant nutrients these should be made available to plants favored by soil physico- chemical and biological properties supported by climate and irrigation. To date, irrigation facilities are only provided to a limited proportion of crop land and fertilizer use is les than 30 kg/ha. Though campaigns of appropriate use of organic resources have been provided by the agricultural extension agents, farmers have limited knowledge on the proper use of farmyard manure and other organic resources.

75. Results of soil analysis indicate that the level of nitrogen and organic matter in the soil is low and the levels of phosphorus and potassium medium. Soils in the hills are shallow and acidic and severely affected by soil erosion. Soil pH in Terai varies and is characterized by low organic carbon. Micronutrients in both hill and Terai are gradually depleting. Soil textures in hills are dominated by silt indicating low nutrient holding capacity. In some sites in the Terai and river valleys, the soil texture is very heavy and hinders tillage operation. Available irrigation water is a major constraint for crop

production and untimely water supply in some of the major irrigation command areas has caused inundation of crop land delaying crop plantation.

76. All these factors have accelerated soil degradation and contributed to the decline in crop productivity. Balanced application of inorganic fertilizers in combination with good quality organic resources and supply of timely water for irrigation have supported achieving potential yield in most of the high yielding crop varieties.

77. **Response and Target Beneficiaries** Soil fertility improvement is necessary in order to increase crop production. Rehabilitation of degraded lands with proper soil amelioration techniques including replenishment of harvested plant nutrients is needed to improve soil condition and boost crop production. To replenish the harvested nutrients farmers need to take care of their land using judicious inputs in time and in sufficient amounts. Utilization of local resources to improve soil fertility needs to be emphasized. Scientists from agricultural research have recommended balanced fertilizers dose to most of the crops grown in different agro-ecological regions. Farmers have however deviated from the advisory recommendation, which has contributed to the development of adverse soil conditions. Agricultural extension staffs have limited knowledge in soil and soil fertility management which has made the crop production programs inefficient. Use of appropriate and judicious fertilizer application needs to be monitored and the seeds of appropriate crop variety suitable to the specific niche developed and made available to the farmers. Fertilizer recommendation should be provided to the farmers based on site specific on farm studies with emphasis on integrated plant nutrient system. Action research in different agro-ecological regions on soil amelioration and conservation with appropriate local technology and inputs should also be explored. Site specific, simple and small scale water harvest technology needs to be developed and the recommended technology adoption monitored regularly during and after the project. Programs aiming to improve soil fertility and management practices in Nepal have not been sustainable due to lack of ownership and funding. The district agriculture extension staffs have not included the projects in their regular programs and followed-up the implementation of the project activities. Junior staffs with insufficient knowledge in soil fertility and fertilizer management are generally assigned for the projects. There is a need for developing and up-scaling of the existing knowledge and projects for wider adaptation.

78. Most of the projects are not effective because of lack of proper monitoring and evaluation. Proper monitoring and evaluation techniques should be used to ensure that the projects are implemented as envisaged. Local experts with sound knowledge of soil and fertilizers management should monitor the programs as part of the regular activities. Adequately trained staff should be available and a soil laboratory could be established and made functional through public - private partnership. Action research should be carried out with wide participation of farmers.

6.5 M5-Small Scale Irrigation Development Programme

79. **Key Issues**: Irrigation systems with command area less than 25 ha in the hills and mountain, and 200 ha in the Terai are defined as small scale schemes by the Irrigation

Policy 2003. Most of these schemes have been developed through farmers' initiatives and investment, where the Government has later supported for their rehabilitation and improvement. Similarly, groundwater irrigation through deep tubewell, medium tubewell and shallow tubewell also come under small scale irrigation schemes managed by farmers. Out of the total irrigated area of 1,194,628 in the country, 268,637 ha is covered by farmer managed surface irrigation and 253,242 ha by groundwater irrigation. Efficiency of farmer managed irrigation systems (FMIS) has been higher due to participatory operation and maintenance of the systems and reliable irrigation delivery. Hence, it is believed that support for development/improvement of small scale FMIS can significantly contribute to increased agriculture productivity and production in the medium term.

80. **Response and Target Beneficiaries** The Irrigation Development Vision 2005 has targeted rehabilitation of 37,000 ha FMIS during FY2008/09 to 2010/11 with a total cost of NRs2,850 million ($42.5 million). However, it does not indicate resource availability and gap. The Three Year Interim Plan (FY2007/08 – FY2009/10) has targeted to irrigate 56,900 ha through new surface irrigation and 37,400 ha through groundwater irrigation with a total investment of NRs18,000 million ($268.6 million). However, due to budget shortage, the amount was reduced to NRs13,250 million ($197.7 million) at the time of the plan approval. The budget availability is likely to decrease further to NRs12,000 million ($179.1 million). This indicates that the resource gap for the medium term is likely to be about NRs6,000 million ($89.5 million). However, the actual resource gap could be even higher due to increased cost of construction materials.

6.6 M6-Rural Road Development Program

81. **Rural Roads**: Rural roads play an important role in increasing return from agriculture through increased access to input and output marketing. This motivates farmers to produce food for market. However, the country has only 22,000 km of rural roads at present, and standards of the roads vary significantly with less than half being motor-able and of this 60% of this only being categorized as all-weather. Hence, there is a need for development of viable rural roads to increase agricultural growth, which will require major investment in the medium term.

82. **Response and Target Beneficiaries** The Rural Infrastructure Development Strategic Action Plan 2007 targets to improve condition of the currently operational 12,000 km rural roads, and construct 9,000 km rural roads during FY2008/09 to FY2010/11. To optimize benefits from the roads, rural communities will be directly involved in improving and constructing the roads. The Plan has estimated NRs44,030 million ($657.1 million) required to meet the target. However, the total budget available for the targeted work is NRs13,610 million ($203.1 million) with a shortfall of NRs30,420 million ($454 million).

6.7 M7-Post Harvest Management, Storage and Food Distribution System

83. **Key Issues** The management of food supply is coordinated by a team of representatives from the Ministry of Local Development, Ministry of Agriculture and Cooperatives, Ministry of Homes and the Ministry of Commerce and Industry at the central level. Line agencies of these ministries should manage distribution of food at the district level. This unit should be responsible for formulation, implementation and monitoring works on food and nutrition related plans at the district level. General problem in Post Harvest Management, Storage and Food Distribution System relates to:

- Marketing channel for the major crops produced in remote hills of Nepal is non-existent or defined.
- Lack of production of value-added products and their marketing in the remote, hills and the mountains.
- Use of traditional millings facilities such as stone mortar and wooden pestle, treadle husker, rotary quern, watermill for cereal crops.
- Lack of appropriate storage structures or technology available to the household or at community level.
- Limited use of mechanical equipment in processing of food item.
- Lack of storing, grading and packing skills
- Limitations in transportation vehicle in the remote area.

84. Availability of modern mills are limited in the Terai area; whereas, people have to rely on mortars and pestle, treadle husker, rotary quern and watermill in the remote hilly districts, and hence improved milling facilities are required in the remote inaccessible rural areas of the hills and mountains. These could substantially increase food quantities by reducing processing losses. Further savings could be attained by improved storage structures and adoption of improved post-harvest technology on grading, packing and transporting of food item.

85. **Response and Target Beneficiaries** Post-harvest management not only contributes to achieving food security but also determines food quality and safety, competitiveness in the food market and higher profits for producers. In the light of soaring food prices serious efforts are needed to reduce post-harvest losses, improve product quality and safety to modernize the marketing of crops. It is crucial to improve the management and operation of the entire marketing chain and concerted efforts of all actors including the public and private sectors are required to address the existing constraints in order to develop reliable safe and chains.

86. Any development efforts should concentrate in identifying economically viable technology and dissemination information to the people living in the remote areas. This would require building capacity of extension workers in taking identified technologies to the farmer's and assist in adoption. Thus, there is a need to accelerate

the process of identifying the appropriate technology suitable for Nepali condition and disseminate them to farmers.

6.8 M8-Research and Technology Transfer

87. **Key Issues** Agricultural research in Nepal, as in most developing countries, has until recently been primarily a public sector responsibility. Accordingly, a considerable amount of public investment has gone into developing physical infrastructure and human resources over the past 50 years or so. The Agricultural Sector Performance Review (ASPR) stated that "poverty reduction and income increase can be achieved by improving agricultural productivity At the same time, the ASPR noted a number of shortcomings and recommended a number of strategies to strengthen Nepal's agricultural sector, these included; the need to reduce vulnerability of farmers; strengthen Nepal's research and development and extension capacity; enhance stakeholder participation in agricultural development; strengthen post-harvest management and improve agricultural marketing system. Recent policy documents have come increasingly to stress that multiple partnership and competition amongst service providers in the public and private sectors can lead to improved efficiency and greater coverage. This realization has led to shifts in government policy, not only to allow, but to encourage, the private and NGO sectors to conduct research and deliver services.

88. GoN seed policy encourages private sector in variety development and maintenance and seed production/ multiplication; calls for quality control; creates a buffer stock of seed at national level; ensures supply to remote areas and encourages commercialization of public sector agencies.

89. Most of the 'modern' rice varieties grown in Nepal are quite old and have degenerated. In Chaite season in 1997 over 96% of farmers in Chitwan and Nawalparasi grew CH 45 a variety which was released in 1959. The situation for main season rice in the same year, about 75% of the total area was under Masuli, which was released in 1973, while much of the remaining rice area was under another 1970s variety, Sabitri[34]. The above evidence indicates that varieties from the Nepalese research system have not been impacting very markedly on Nepalese rice production. Unsuitable varietal characteristics are only one set of problems, however. Others include:

- A very slow varietal release process: it can take as much as 15 years from the time of crossing to the time of release; this explains the fairly widespread use of varieties that have not been officially released.
- A poor seed supply situation: the production of foundation seed in sufficient quantity has been a major bottleneck for a long time, and
- Inadequate exposure of farmers to such new cultivars as do emerge from the system

90. The situation seems to have turned around dramatically in more recent times. A 2003 survey by the Nepal Agricultural Research Council (NARC)/CIMMYT/Swiss

[34] A Review of Research Impact, Responsiveness and Future Priorities in the Agriculture Sector in Nepal, 2005, ITAD

Development Council, Hill Maize Research Project entitled *Farmers preferences on maize varieties, and adoption assessment on production technologies in the western mid hill districts of Nepal* reported that more than 65% of the maize area is now under improved varieties (NARC-CIMMYT-SDC 2004). However, as with rice, there is the problem that maize is not being replaced as frequently as it should be. Replacement every three years with "true-to-type" seed could have remarkable impact on maize productivity, according to the study. Defining seed that had been recycled by farmers for more than three seasons as "contaminated improved seed" it was found that 24.2% of sampled farmers were growing this type of seed, compared to 55.8% growing "improved seed" and 43.3% growing traditional cultivars (NARC-CIMMYT-SDC 2004b)[35]

91. This is attributable to a number of factors, including improved agronomic practices, lower disease incidence in the Terai, increasing fertilizer use and the spread of modern varieties. Although total wheat area is less than for maize and rice (670, 836 and 1,544 thousand hectares respectively) CBS reports indicate that in recent years sales of wheat seed have averaged about seven times as much as paddy and maize combined. According to the National Wheat Research Programme, privatization of the seed supply business has improved the wheat seed supply situation (NWRP 2004). A major factor behind the success of wheat has been on the demand side, resulting from the expansion of wheat-based industries manufacturing a range of bakery products, such as chapattis, bread, biscuits and noodles. Failure of the public system to produce sufficient seeds or release an adequate stream of new varieties has prompted farmers and seed traders to switch over to imported seeds, including hybrid seeds, but domestic seed production is also on the increase.

92. **Response and Target Beneficiaries** The overarching principle for the seed sector development should include:

- **Scaling up** vegetable seed production through the provision of technical support and inputs to producers areas with high production potential. The Programme will mobilize and strengthen producers and groups for commercial production in pocket areas with nationwide consolidated efforts.
- **Market led approach**. Strengthening the supply chain for foundation seeds by developing public-private contract partnerships between GoN's Vegetable Seed Farms and AIC/private seed growers. Any developed program would adopt the most cost-effective, efficient and locally appropriate management arrangements; and ensured the supply of high quality source of seeds.
- **Varieties to be included for research,** along with wheat maize and rice, research will be conducted for varieties of crops popular in the country including other indigenous crops like millet, barley, Chino, Kaguno etc..

93. The MoAC has underscored the need to combine immediate and longer-term responses. MoAC has identified a series of immediate responses, typically lasting less than 12 months, which will be followed by medium-term initiatives lasting 36-60 months to enhance food production and supply. This includes activities such as:

[35] The total is more than 100% because some farmers grew more than one of these three categories of seed.

- Strengthening seed multiplication;
- Research and development to improve access to locally-adapted crop varieties; and
- Strengthening rural financial services.

94. The government has highlighted the importance of improving local seed multiplication as part of its medium-term response to the current food price crisis, and in line with its broader objectives for strengthening the agricultural sector. Seed quality is a key factor determining productivity. In general times, whilst locally-adapted varieties are widespread through Nepal (critically important, given the very large agro-ecological variations that exist), crop production is highly constrained by very low seed substitution rates

95. The government has therefore prioritized the need to strengthen the seed sector in Nepal. The aim is to improve the production and distribution of locally-adapted high-quality seed to farmers. The District Seed Self-Sufficiency Programme (DISSPRO) for example, supports the development of community-level seed multiplication. MoAC is also keen to support the strengthening of linkages between seed certification and quality control agencies, seed producers and distributors.

7. Longer Term Issues in Agriculture and Food Security

96. The central challenge for rural development in Nepal will be to shift from subsistence to a commercial economy in an environment characterized by widespread and day-to-day insecurity and violence. Agriculture is the principal source of food, income, and employment for the majority, particularly the poorest. Growth in agriculture is, therefore, crucial for reducing poverty, and findings from the National Living Standards Survey indicate that despite the insurgency, the sector has made a significant contribution to poverty reduction. However, agriculture is largely based on low-value cereals and subsistence production, with only 13 percent of output traded in markets. The sector's current percent share in national GDP is declining, although there is considerable scope for increasing productivity and value-added. Despite an increasing reliance on remittances from expatriate Nepalese working abroad, the absence of economic opportunities outside subsistence agriculture keeps most of the population poor.

97. This report does not specifically examine longer term (structural) issues in the agriculture and food distribution sectors. However, as it is broadly recognized that a number of these key issues and challenges will have to be addressed as part of developing a more comprehensive and longer term assistance strategy for Nepal, the main ones are "flagged" below and include:

7.1 Conflict

98. Widespread violent conflict and the inability of the Government to enforce law in most of its territory have severely limited both development efforts and the delivery of public services. Only projects that rely on decentralized approaches, using civil society and NGOs, seem to be able to function. Political uncertainty creates doubts about the prospects for national development. Due to the protracted conflict and instability of the Government, decentralized approach to empower communities and devolve decision-making power to the local level has become the hallmark for better service delivery. The use of non governmental agencies has become an important vehicle to facilitate access to livelihood opportunities and income generating activities, particularly for the most disadvantaged groups. A mix of local, public and private investments in roads, communication and power remain critical to improve access to assets, integration with markets, generate off-season employment, especially for the most backward areas. As political, administrative and fiscal decentralization is brought back on track, role for local government will need to be defined to meet local demands, involve communities and improve accountability.

7.2 Climate Change and Food Security

99. Climate change will affect major aspects of food security in Nepal: (i) food availability, (ii) food accessibility, (iii) food utilization and (iv) the stability of food systems. It will have an impact on human health, livelihood assets, food production and distribution channels, as well as changing purchasing power and market flows. Its

impacts will be both short term, resulting from more frequent and more intense extreme weather events, and long term, caused by changing temperatures and precipitation patterns. People who are already vulnerable and food insecure are likely to be the first affected. Agriculture-based livelihood systems that are already vulnerable to food insecurity face immediate risk of increased crop failure, new patterns of pests and diseases, lack of appropriate seeds and planting material, and loss of livestock. People living in the mountains and dry lands of Nepal are most at risk. As an indirect effect, low-income people everywhere will be at risk of food insecurity owing to loss of assets and lack of adequate insurance coverage. Agriculture, forestry and fisheries will not only be affected by climate change, but also contribute to it through emitting greenhouse gases. They also hold part of the remedy, however; they can contribute to climate change mitigation through reducing greenhouse gas emissions by changing agricultural practices. At the same time, it is necessary to strengthen the resilience of rural people and to help them cope with this additional threat to food security. Particularly in the agriculture sector, climate change adaptation can go hand-in-hand with mitigation. Climate change adaptation and mitigation measures need to be integrated into the overall development approaches. With assistance from the UN system, Nepal will, therefore, need to gear up institutionally to the challenges of climate change working within international initiatives and commitments and access various funds which have been established to mitigate climatic factors such as (i) the UN climate change funds UNFCCC, (ii) GEF, (iii) the Clean Development Mechanism. The country will also need to understand ways that it can work in initiatives under carbon trading through reforestation.

7.3 Land

100. Tenancy restrictions, high land fragmentation, absentee landlordism, and unequal distribution pose key challenges to tenure security and, in turn, private investment. Land disputes are common, yet most cannot afford to file court cases, and judicial process can be lengthy. Moreover, policy restrictions, such as on large-scale contract farming on various commodities (excluding tea), still remain. The idea of creating a "Land Bank" for assisting the poor in accessing land assets by the Government are worth exploring although it is not yet clear how this would function. The functioning of land markets needs be analytically reviewed across different zones. This can support land redistributive policies, achieve a more accessible legal system to address land disputes, and identify market and non-market mechanisms to improve access to land. Measures should be defined to improve land administration systems, particularly cadastral and land title records, to provide greater security of ownership and reduce transactions costs. Work on rural finance should develop strategies to provide services to people in isolated areas, where the traditional Grameen model is unsuitable.

7.4 Trade

101. Nepal’s entry into the WTO presents opportunities, alongside formidable challenges to meet food safety rules, animal health regulations, and quality standards, together with re-evaluating domestic support programs, price controls, and competitive advantage. This is especially so given the country’s unique location between India and

China. Subsidies in India's agricultural sector mean that Nepal's Terai region faces competition with Indian cereal production. However, the diversity of Nepal's agro-ecological zones is promising for exports of off-season horticulture, niche products, and non-timber forest products like medicinal plants. Organic production is practiced by default in Nepal, but such produce cannot currently be certified to meet international standards and price premiums.

7.5 Water

102. Despite significant expansion in the 1990s, Nepal has not reached its irrigation potential. Less than 40 percent of cultivable land is irrigated (only 17 percent year-round), while there is potential to reach two-thirds. Institutional problems and inefficient pricing and fee collection mechanisms result in only 3 percent of operations and maintenance costs being recovered, severely threatening the sustainability of large schemes in the Terai. Irrigation infrastructure can be improved by: (a) promoting both surface and groundwater irrigation for commercial and industrial crops in the Terai, while encouraging high-value horticulture and cereal production in the Mountains and Hills; (b) developing year-round irrigation in perennial flow areas and small storage facilities in other areas; (c) building low pressure sprinklers and drips for high value crops, and shallow and deep tube wells only where profitable; and (d) investing in mini- and micro-hydro facilities, to facilitate power generation and lift irrigation in the hills . The Government should encourage farmer management of irrigation infrastructure, and support matching-grants for demand-driven farm interventions.

7.6 Market Development

103. A mountainous terrain and poorly developed road network restrict access to markets, constraining agricultural growth and diversification into higher value added and non-farm activities. Weak and poorly integrated institutions and inadequate technical support for supply chain development have further limited marketing opportunities. The National Agricultural Policy, places commercialization, private sector-led development, and trade at the forefront of the development agenda. This will require action along several fronts, including policy support, meeting quality standards, capacity building and market information for producers, applied research, and investment in the supply chain for high value commodities. Trade can be promoted by strengthening institutions and systems for quality control and certification, and investing in laboratories, testing stations, and human resources.

Table 1- 3 year Action and Financing Plan

GoN Three Year Interim Plan (TYIP) Policy Priority (Box 1)	Interagency Mission Priority Action	Total Required Resources US $	Confirmed Resources US $	Additional Financing Requirement US $
Immediate	**Short Term (6 Months to 2 Years)**			
Mobilization of Food Assistance	**S1** – Targeted Food Assistance	104,000,000	30,000,000	74,000,000
Distribution of improved seed kits	**S2** – Targeted Seed Assistance	6,000,000	2,400,000	3,600,000
Support schemes to enhance productivity	**S2** – Support to Fertilizer Distribution	5,000,000		5,000,000
Rehabilitation of micro-irrigation schemes	**S3** - Micro- and Non Conventional Irrigation	11,220,000	5,020,000	6,200,000
Short to Medium Term (1-5 Years)	**Medium Term (1-5 Years)**			
Development of Agriculture, Food Security and Nutrition Policies and Programmes	**M1**- Development of National Agriculture Food Security & Nutrition Data Systems			
	M1a – Inter-agency formulation mission to assess needs and investment strategy	600,000	300,000	300,000
	M1b – Investment program for data system development			TBD[1]
	M2 – Medium Term National Program for food security NPFS			
	M2a – Inter-disciplinary formulation mission to assess needs and investment strategy	500,000	80,000	420,000
	M2b – Investment program for development of the NPFS			TBD[2]
Strengthen seed multiplication programs	**M3 –** Development of Seed Sub-Sector			
	M3a – Inter-disciplinary formulation mission to assess needs and investment strategy	500,000		500,000
	M3b – Investment program for development of seed sub-sector			TBD[3]

[1] To Be Determined (TBD) pending the Investment program developed by the formulation mission M1a.
[2] TBD pending the Investment program developed by the formulation mission M2a
[3] TBD pending the Investment program developed by the formulation mission M3a

Table 1- 3 year Action and Financing Plan (Continued)

GoN Three Year Interim Plan (TYIP) Policy Priority (Box 1)	Interagency Mission Priority Action	Total Required Resources US $	Confirmed Resources US $	Additional Financing Requirement US $
Short to Medium Term (1-5 Years)	**Medium Term (1-5 Years)**			
Improve soil fertility management	**M4 –** Fertilizer and soil fertility management	TBD	1,500,000[4]	TBD
Increase investment in Ag infrastructure	**M5 –** Small Scale Irrigation Development			
	M5a – Inter-disciplinary formulation mission to assess needs and investment strategy[5]	500,000		500,000
	M5b – Investment program for development of small scale irrigation sub-sector	268,600,000[6]	179,100,000	89,500,000
Expansion of rural roads programme	**M6 –** Rural Road Development Program	657,100,000[6]	203,100,000	454,000,000
Reduction of post harvest losses Increase investment in food storage and distribution	**M7** – Post harvest management, storage and food distribution system			
	M7a – Inter-disciplinary formulation mission to assess needs and investment strategy for post harvest management, storage and food distribution – including value chain analysis of key marketable commodities	500,000		500,000
	M7b – Investment program for food storage, distribution and marketing			TBD[7]
Promotion of research and development and technology transfer	**M8** – Research and Technology Transfer			
	M8a – Inter-disciplinary formulation mission to assess needs in R & D and technology transfer.	500,000		500,000
	M8b – Investment program for R & D and technology transfer.			TBD[8]

[4] To be undertaken as pilots in four districts based on which a boarder strategy for up-scaling could be developed
[5] The formulation mission will also assess investments required to enhance on farm water management.
[6] Indicative figure subject to confirmation and consistency with the Govt Medium Term Expenditure Framework.
[7] TBD pending the Investment program developed by the formulation mission M7a
[8] TBD pending the Investment program developed by the formulation mission M8a

Annex 1

Figure 1: FAO Basic Food Price Index

Figure 1: Monthly FAO price indices for basic food commodity groups (1998-2000=100)

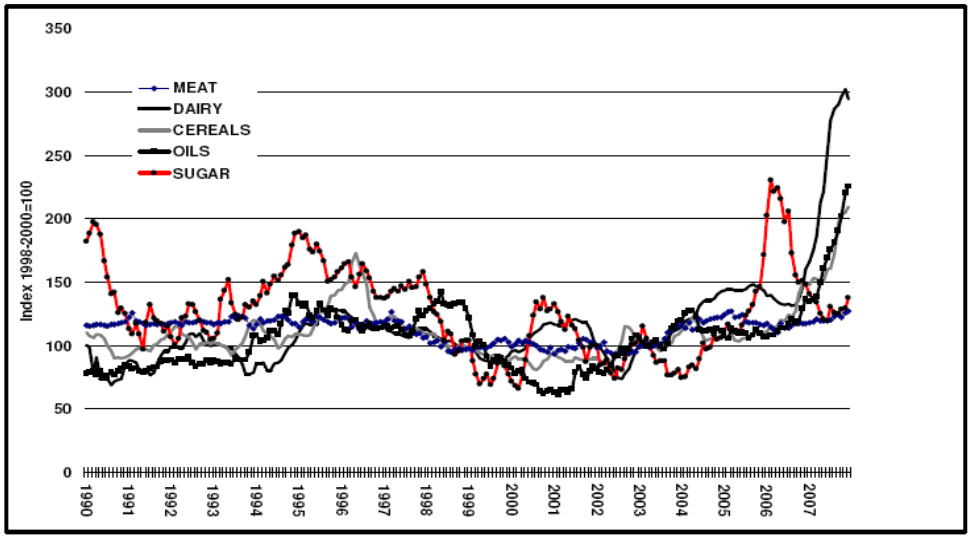


Figure 2: Cereal Stock and Rations of Major Exporters

Figure 3: Cereals stocks and ratios of major exporters

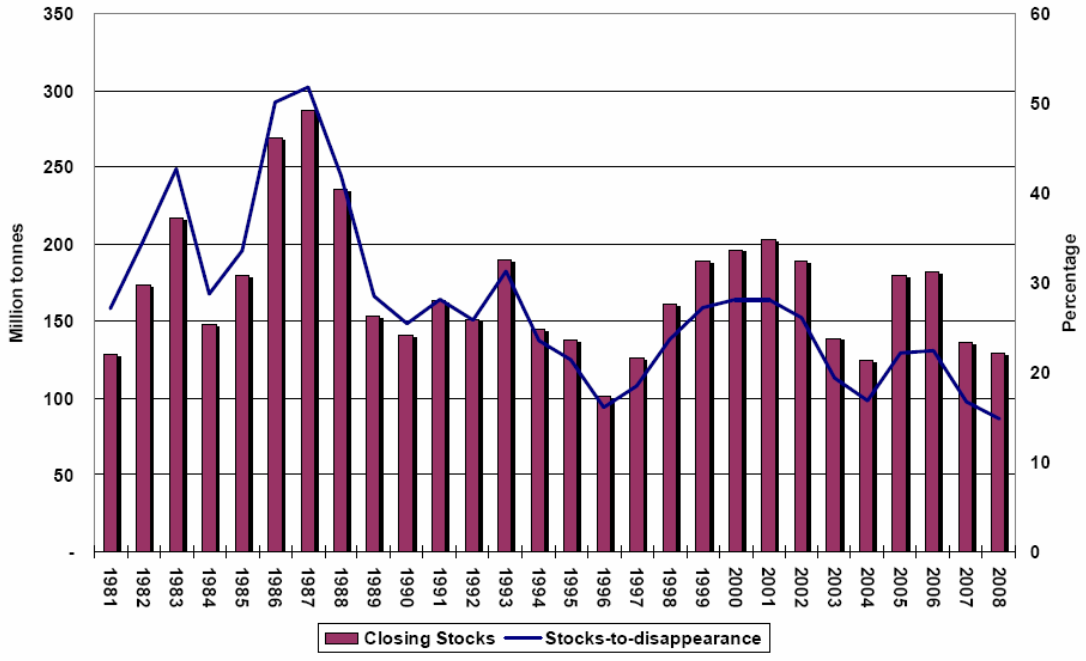


Figure 3: Oil and Fertilizer Price Trends

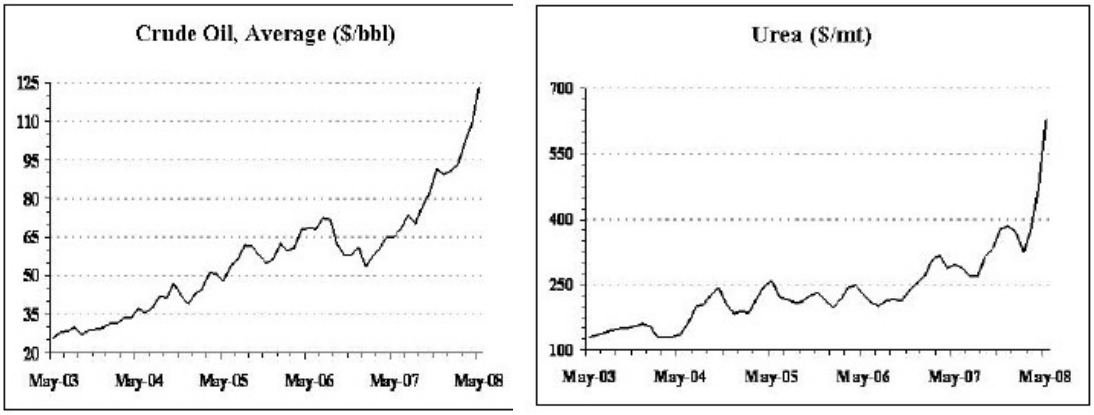
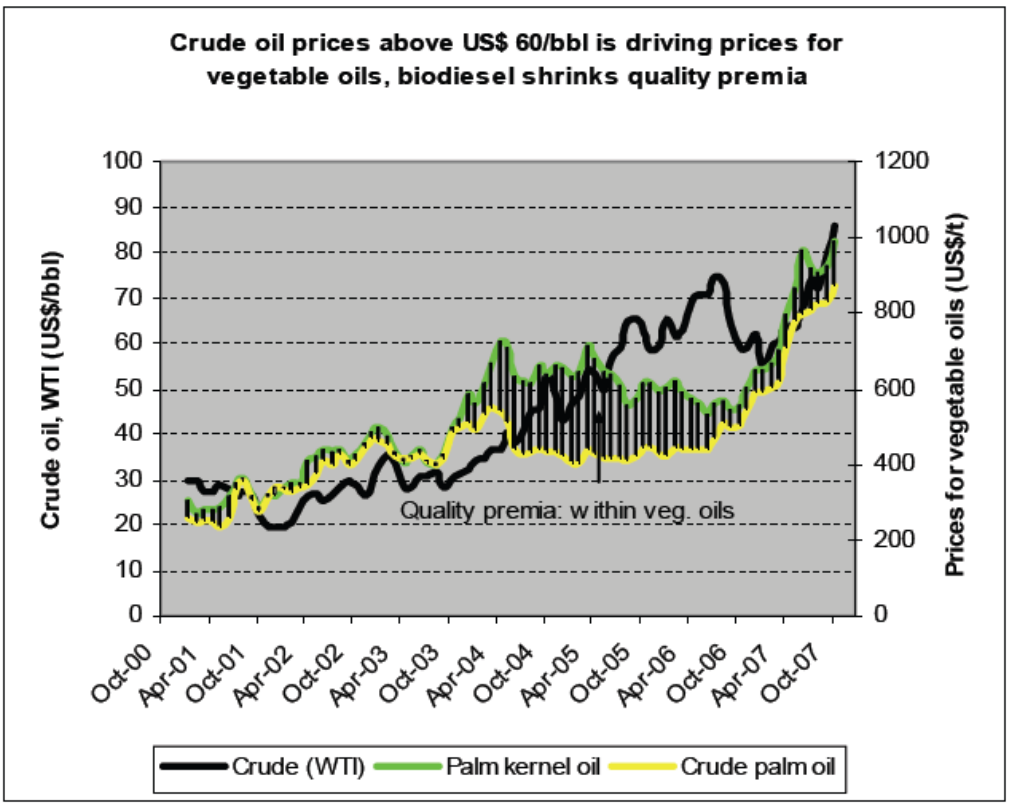


Figure 4: Oil and Food Price Trends



Source: Global Perspective Studies Unit, FAO

Figure 5: Outlook for World Crop Prices to 2017

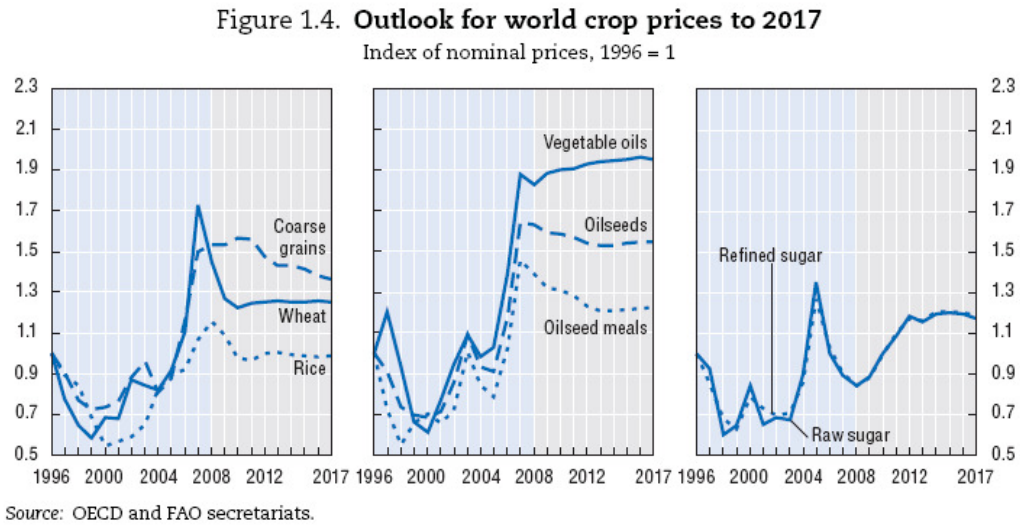


Figure 6: Global Rice Paddy Production and Area

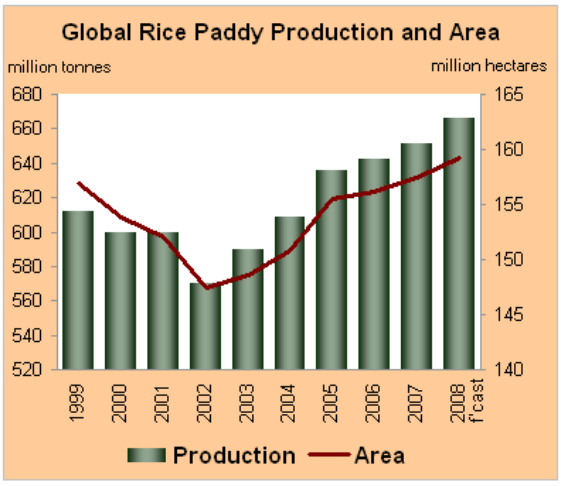


Figure 7: Rice Exports by Major Exporters

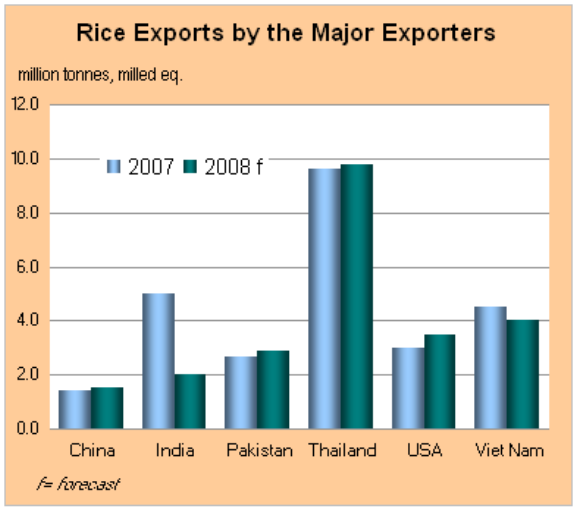


Figure 8: World Rice Market at a Glance

		2006/07	2007/08 *estim*	2008/09 *f'cast*	Change: 2008/09 over 2007/08
		million tonnes			%
WORLD BALANCE (milled basis)					
Production		**429.1**	**435.2**	**445.3**	**2.3**
Trade [1]		**31.0**	**28.9**	**29.8**	**3.2**
Total utilization		**426.7**	**437.1**	**444.9**	**1.8**
Food		371.9	378.6	384.2	1.5
Ending stocks		**105.5**	**105.0**	**105.8**	**0.8**
SUPPLY AND DEMAND INDICATORS					
Per caput food consumption:					
World	*kg/year*	56.9	57.2	57.4	0.3
LIFDC	*kg/year*	69.6	70.0	70.0	0.0
World stock-to-use ratio	%	24.1	23.6	23.5	-0.4
Major exporters' stock-to-disappearance ratio [2]	%	16.0	16.2	15.9	-1.9
		2006	**2007**	**2008**	**Change: Jan-May 2008**
					over Jan-May 2007
FAO Rice Price Index					%
(1998-2000=100)		117	137	234*	81

[1] Calendar year exports (second year shown)
[2] Major exporters include India, Pakistan, Thailand, the United States of America and Viet Nam
More detailed information on the rice market is available in the FAO Rice Market Monitor which can be accessed at:

Figure 9: Forecast Wheat Trade

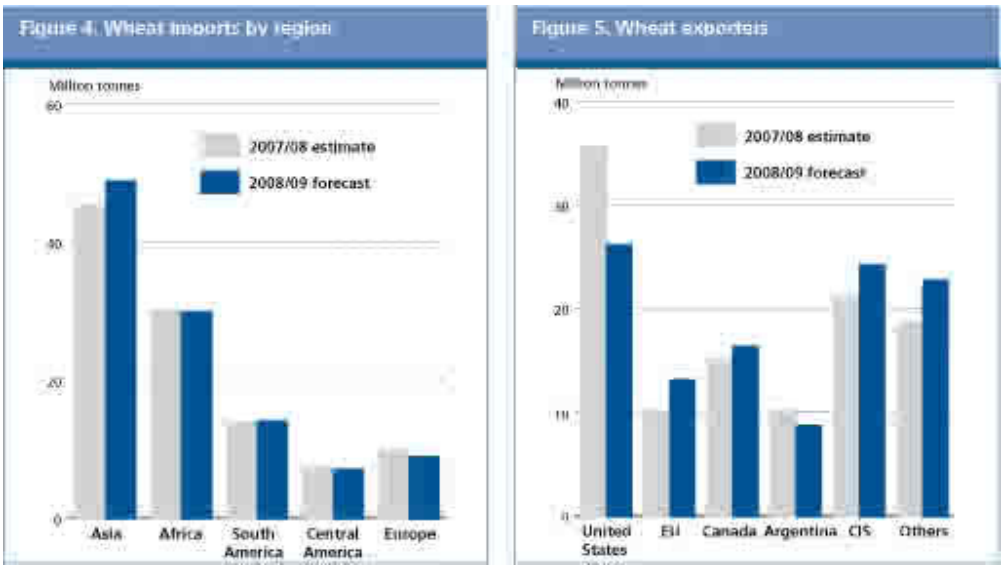


Figure 10: Forecast Wheat Prices

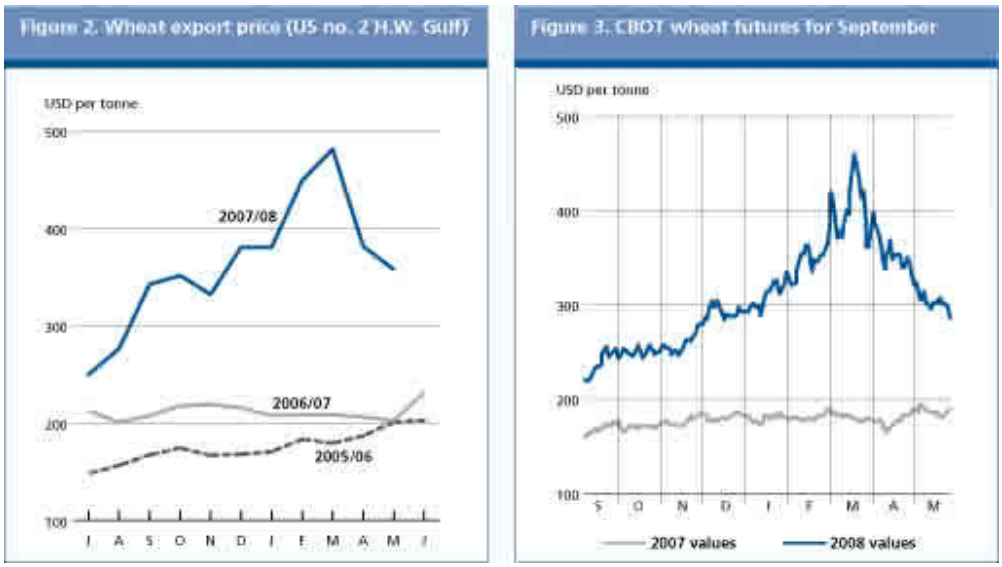


Figure 11: World Wheat Market at a Glance

	2006/07	2007/08	2008/09	Change: 2008/07 over
		estim.	*f'cast*	**2007/08**
	million tonnes			%
WORLD BALANCE				
Production	**596.7**	**605.1**	**658.0**	**8.7**
Trade	**113.1**	**110.0**	**110.5**	**0.4**
Total utilization	**620.6**	**618.1**	**634.8**	**2.7**
Food	442.3	445.5	452.8	1.7
Feed	113.0	109.2	117.8	7.8
Other uses	65.3	63.4	64.1	1.1
Ending stocks	**159.5**	**144.5**	**167.6**	**16.0**
SUPPLY AND DEMAND INDICATORS				
Per caput food consumption:				
World *(kg/year)*	67.8	67.5	67.4	0.0
LIFDC *(kg/year)*	58.6	58.3	58.1	-0.3
World stock-to-use ratio %	25.8	22.8	26.4	
Major exporters' stock-to-disappearance ratio %	14.8	10.0	16.4	
	2006	**2007**	**2008**	**Change: Jan-Apr 2008**
				over Jan-Apr 2007
Wheat Price Index				%
(1998-2000=100)	145	216	371*	126

* Jan-Apr 2008
Derived from IGC Wheat Index

Figure 12: Nepal Cultivation Area of Cereal Crops

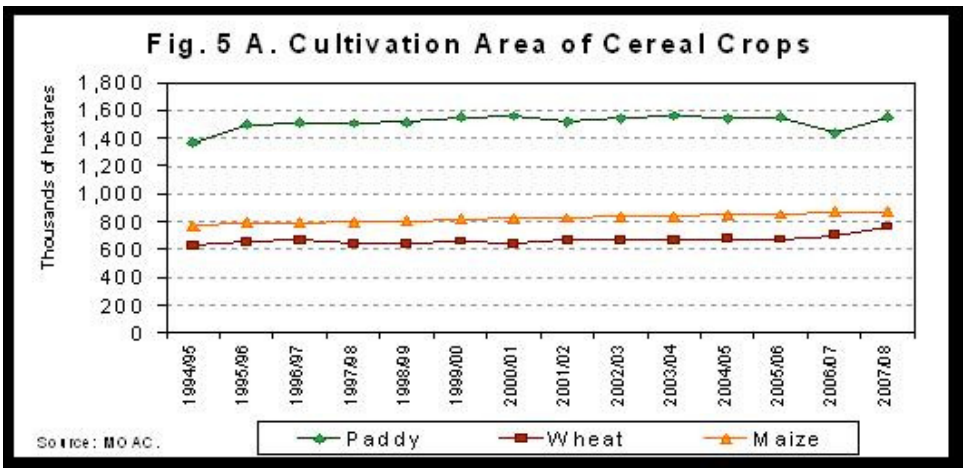


Figure 13: Nepal Production of Cereal Crops and Population

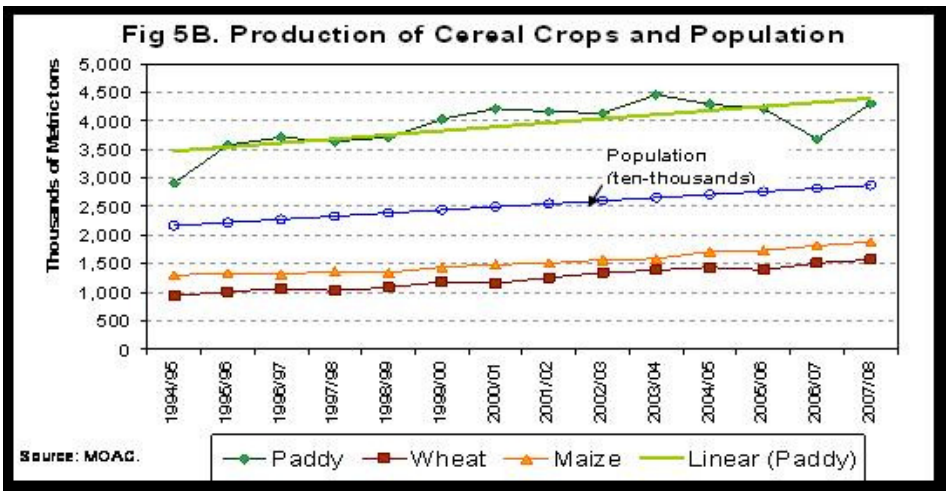


Figure 14: Productivity of Cereal Crops

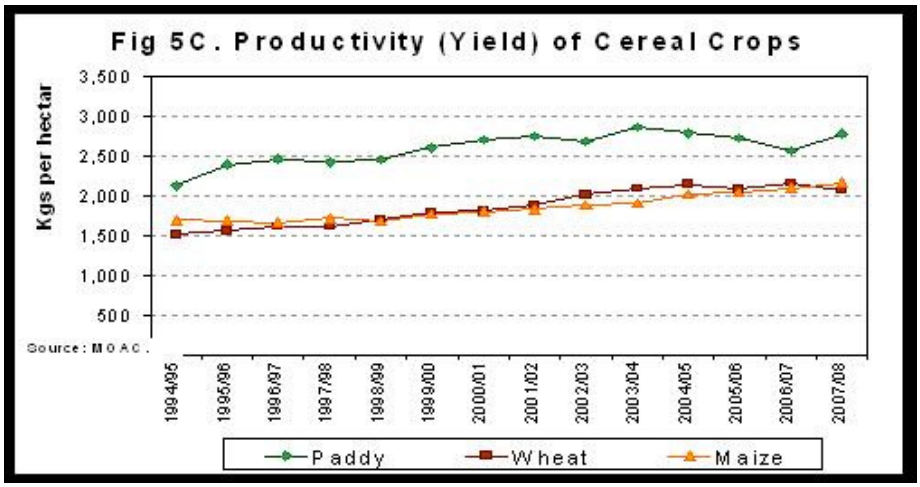


Figure 15: Crop Yields in Nepal and Other Asian Countries (2006-07)

Crop Yields, mt/ha	Rice paddy	Wheat	Sugarcane	Pulses	Maize
Nepal					
Mountains	1.9	1.6	14.0	0.8	1.7
Hills	2.5	1.8	23.7	0.8	2.0
Terai	2.6	2.4	41.8	0.8	2.3
India					
Uttar Pradesh	2.0	2.6	58.2	0.9	1.1
Punjab	3.7	4.2	57.9	0.9	2.7
Vietnam	4.9		55.0	0.7	3.7
China	6.3	4.5	82.5	3.0	5.4

Figure 16: Share of grains in Total Cereal Consumption (% 2003-2004)

	East	Central	West	Mid-west	Far-west
- Fine rice	12.3	35.1	15.4	4.4	3.8
- Coarse rice	56.4	30.2	52.2	50.0	51.2
- Beaten rice	2.5	2.9	2.6	1.0	0.4
Total rice	71.2	68.3	70.1	55.4	55.4
Maize	13.8	14.4	13.6	20.4	10.1
Wheat	10.4	13.7	8.6	21.2	30.4
Millet	4.6	3.6	7.7	3.0	4.0
Total grains	100	100	100	100	100

Figure 17: Monthly Average Increase in Food Prices by Type FY 2007-08

Table 1. Monthly average growth rates of food-prices (year-on-year), FY 2007–08.

	Food and Bev overall	Grains and cereal	o/w Rice and rice prodts	Oil and ghee	Restaurant meals	Vegetables and fruits	Meat, fish and eggs	Milk and milk products
Weights	(53.2)	(18)	(14.2)	(3.1)	(6.9)	(7.9)	(5.2)	(4.1)
2006/07	7.2	6.4	2.8	6.7	3.3	11.4	6.7	7.5
2007/08 1/	8.7	10.8	12.4	13.5	5.2	11.0	6.1	7.0
Difference FY08 - FY07	1.4	4.4	9.6	6.9	2.0	-0.3	-0.5	-0.5

Source: NRB.

1/ First seven months.

Figure 18: Monthly Grain Price FY 07-08

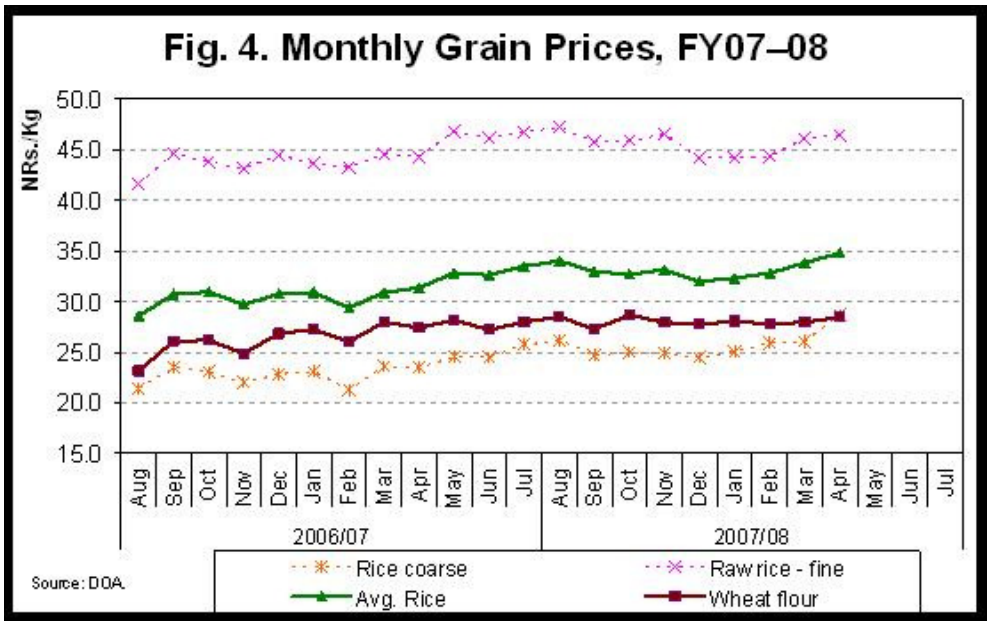


Figure 19: Grain Price Inflation Year on Year FY 08

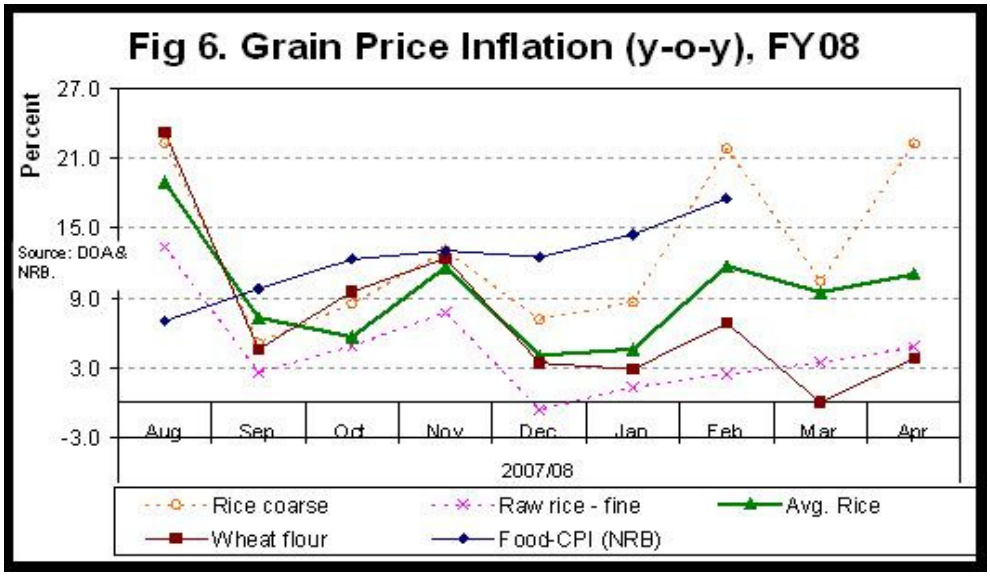


Figure 20: Potential Additional Districts for Emergency Seed Assistance.

	Cultivated area Area		Population.	Self sufficiency	Cost at supply of 50% seed supply	Cost at supply of 25% seed supply
DISTRICT	PADDY	WHEAT	2008	Ratio (%)	$@70;	$@70;
PANCHTHAR	8,854.00	4,115.00	223,170.47	83.59	242.27	121.14
UDAYAPUR	13,300.00	4,830.00	345,019.43	81.47	317.60	158.80
SUNSARI*	53,600.00	17,000.00	769,449.68	94.40	1,195.43	597.71
SAPTARI*	68,000.00	15,500.00	656,424.63	95.60	1,308.57	654.29
SIRAHA*	70,750.00	16,250.00	665,215.90	94.12	1,365.71	682.86
DOLAKHA	3,125.00	4,603.00	229,017.72	44.60	193.53	96.77
RASUWA	1,325.00	882.00	51,276.17	72.11	45.38	22.69
SINDHULI	6,065.00	5,580.00	326,534.32	82.92	260.63	130.31
DHADING	16,100.00	4,785.00	388,211.39	78.82	348.06	174.03
MAKWANPUR	12,660.00	4,203.00	457,831.70	73.94	288.79	144.39
DHANUSHA	54,790.00	27,700.00	777,026.77	99.11	1,575.89	787.94
MAHOTTARI*	46,000.00	22,140.00	648,537.31	86.38	1,284.80	642.40
SARLAHI*	38,750.00	27,395.00	758,750.48	78.98	1,382.11	691.06
RAUTAHAT*	46,800.00	15,300.00	659,135.18	77.16	1,059.43	529.71
KASKI	19,310.00	7,922.00	456,046.94	93.11	492.30	246.15
GULMI	9,517.00	8,095.00	319,820.90	91.06	386.31	193.15
ARGHAKHANCHI	7,419.00	7,300.00	230,008.67	87.53	335.07	167.54
					12,081.89	6,040.94

Note: * indicate terai districts.