

# **MORE THAN ROADS**

**USING MARKETS TO FEED THE HUNGRY IN NEPAL**



**WORLD FOOD PROGRAMME  
NEPAL**

**JULY 2010**

## **MORE THAN ROADS : USING MARKETS TO FEED THE HUNGRY IN NEPAL**

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## **MORE THAN ROADS : USING MARKETS TO FEED THE HUNGRY IN NEPAL**

### **Executive Summary**

As population growth in Nepal outpaces growth in agricultural output, the role markets play in household food security is becoming increasingly important. Simultaneously, food prices continue to rise and not in the least in remote and food insecure hill and mountain districts of the Far and Mid-West. Here, the market price for rice—a key traded staple food—can be up to three times that of Nepal’s agriculturally productive and more populous lowland region, the Terai.

In the Karnali<sup>1</sup>, markets are comparatively few, far between, and lack strong linkages with more dominant and nationally important markets. Commodity costs are much higher in Karnali markets due to high transportation cost. Market accessibility and thus food availability are dampened by seasonal road blockages (e.g. landslides) that stifle supply flows and cause transportation, and thus food, costs to jump.

In response, market vendors adopt risk averse strategies such as pre-monsoon commodity stockpiling and opting not to restock at the seasonally higher prices even when foods are depleted.

For many poor people, wages are low enough that savings incurred by purchasing food from larger more remote markets, which supply goods at lower market prices than their smaller closer competitors, counterbalance resources expended on travel and its implied daily wage losses.

Market capacity and the trail of markets along un-tapped trade corridors in the Far and Mid-West hills and mountains could grow by (1) advancing agricultural production within, as well as access to, these areas and in turn to supply markets, (2) increasing the number and/or size of suppliers and (3) by reducing consumer-to-market distance and facilitating demand driven market growth.

Market growth can only occur if driven by demand and supported by risk reducing interventions, e.g. agricultural investments, livelihoods creation, and functional transportation corridors. Understanding the risks faced by consumers, suppliers and transporters can help to shed light on appropriate interventions that ultimately ensure longer-term food security.

The research shows that WFP cash for assets programmes, under which food insecure communities build productive assets such as for example irrigation channels, roads and trails in exchange for a daily cash allowance, have a positive impact on market development and household food security. With beneficiaries spending the cash overwhelmingly within the local economy, markets are stimulated and food supply and diversity improved.

This report focuses on the importance of markets and road infrastructure by highlighting the services they provide, the challenges they face and opportunities for market stimulation.

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<sup>1</sup> Karnali comprised five mountain districts, Humla, Jumla, Mugu, Kalikot and Dolpa, in the Mid-Western Development Region.

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WFP staff in Kathmandu, Nepalgunj, Dadeldhura and in Rome and New York provided invaluable support and advice. In particular the research team is grateful for the support provided by the Kathmandu Food Security Monitoring and Analysis team in planning the fieldwork, analyzing data and offering general advice. Abesh K.C., Monika Shrestha and Man Bahadur Kshetri deserve special thanks for their technical input.

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## Introduction

This research takes as its starting point the emerging orthodoxy that markets are crucial to understanding food security.

Better understanding of how markets do (and do not) operate at the district level is needed to inform longer term food security strategies which can move beyond emergency and subsidized food provision.

Road infrastructure is widely regarded as a crucial part of long term development in remote regions. This is supported by research in other countries which has shown that poor transport infrastructure underlies many of the disadvantages faced by remote rural areas – whether mountain, desert, or swamp – including high food prices, high costs to transport agricultural produce to market, access to services and the opportunity costs of travel.<sup>2</sup>

There has been much that is not understood about the ways in which road development has stimulated markets and its limits as a stimulant. Particularly given the slow pace of road development, it is important to consider other short term measures that could support market development and linkages. There has also been limited understanding of what other conditions are necessary, such as increased purchasing power, reducing transport costs, or improving market infrastructure.

The goal of this research was to develop a detailed profile of market functioning and obstacles at a district and sub-district level and recommend ways to overcome these obstacles. Of particular interest is the potential of using WFP programming such as cash-for-work, to stimulate markets by increasing purchasing power and demand. The focus of the study was on the Karnali region and in particular the impact the opening of the Karnali highway in 2007 has had on markets and food security.

The report is divided into five sections. Section one, *the study*, describes the basis for and approach to research. Section two, *the context*, provides the foundation for understanding the market environment, its obstacles and strengths. Section three, *markets and market players*, expands on section two by focusing on area markets and by looking at the constraints and behaviours of consumer/producer households, food transporters and traders in the Karnali. Section four, *a market-base approach to food security*, provides an overview of WFP's cash for assets programming, its impacts on markets and market players in Far-Western Nepal, and explores how cash transfers might improve market performance. Section five gives the *conclusion and recommendations*.

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<sup>2</sup> Chronic Poverty and Remote Rural Areas, Chronic Poverty Research Centre Working Paper no 13 (2002)

## Section 1 : The Study

### 1.1 Goals & Objectives

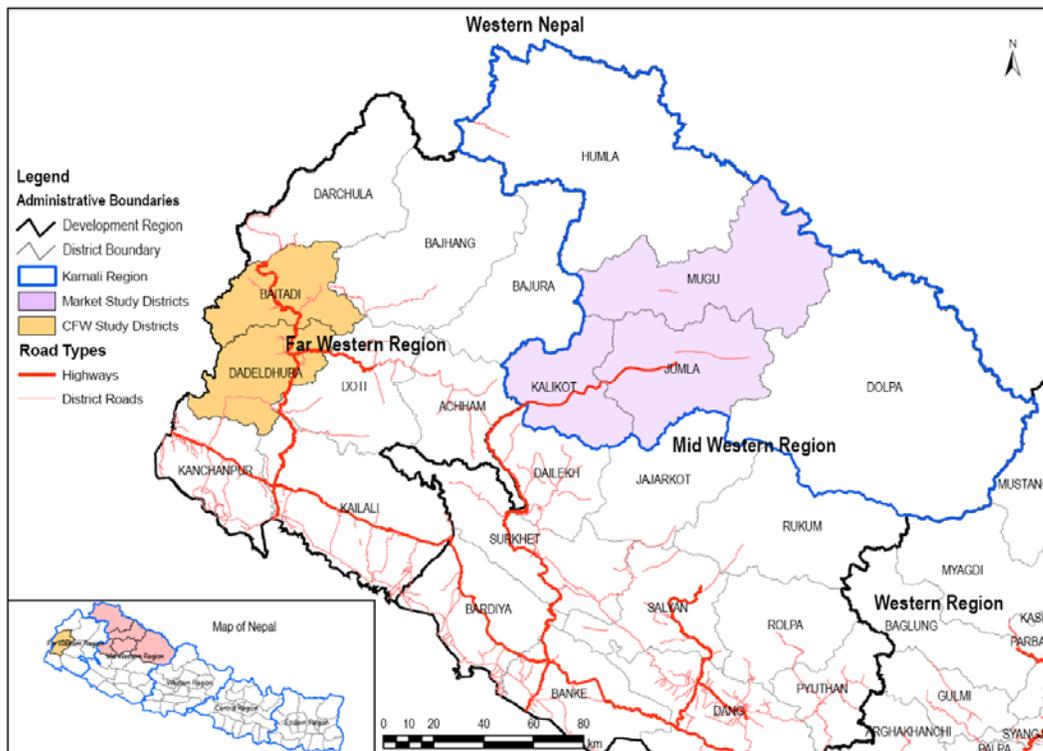
The goal of the research was to develop a detailed profile of market functions and obstacles. The research attempts to answer why some markets fail to function and if a market-based approach, in this case cash for assets, could be used to improve market performance in the Karnali sub-region. The research further intends to inform broader discussions regarding developing a food security strategy for the Far and Mid-West hill and mountain region of Nepal.

The research objectives were as follows:

1. Critically examine particular market functions, integration and linkages within the focus area;
2. Discover the relative significance of supply and demand side market constraints and propose avenues for overcoming them; and
3. Identify the impact of food/cash for assets on food market performance.

### 1.2 Methodology & Scope

This report represents the end product of three mutually supportive research endeavours. These include (a) a survey of 19 markets in the Mid-West, (b) an exploration of cash for assets incorporating household and trader surveys, and (c) a transportation sub-study. All research was conducted between July and December 2009, applying quantitative and qualitative methods in order to triangulate findings. Surveys and interviews were carried out in the Karnali zone, and in Baitadi and Dadeldhura districts of the Far West.



Map 1: Market and Cash for Assets study districts

### a. Mid-West Market Survey

The Karnali zone (Humla, Mugu, Dolpa, Jumla and Kalikot districts) in Nepal's Mid-Western Development Region was selected as a suitable case study area for understanding markets and infrastructure in remote regions. Here, WFP programming is widespread, markets are poorly developed and road construction efforts are beginning to have an impact. In 2009, some 20 percent of WFP's food assistance to Nepal was distributed within the Karnali.

Market research focused on three Karnali districts: Kalikot, Jumla and Mugu. These were selected on the basis of completed or planned Karnali Highway construction. The Karnali Highway constitutes an evolving market corridor linking the mountains to the Terai. To a lesser extent, Dailekh, Surkhet and Banke districts were also included as part of the same trade corridor.

The selection of markets for the Mid-West market survey component was purposeful and designed to include main "road-head" markets (i.e. those on or near roads which were able to support motorized traffic) and minor markets and shops (i.e. smaller markets located along minor road, tracks or footpaths). The main feeder markets supplying the Karnali road corridor, Nepalganj (Banke) and Birendranagar (Surkhet) were also included.<sup>3</sup>

In all, 106 traders were interviewed. These included wholesalers (19), retailers (72) and combination retailer/wholesalers (15). In each Karnali market surveyed, ten customers were chosen at random and interviewed. Additionally, 422 households were sampled using household travel time to markets as the selection criterion. Household travel time was categorized in terms of the following: (1) proximity to a main road-head market does not exceed a four hour walk in any one direction; (2) proximity to a minor market does not exceed a four hour walk in any one direction; and (3) proximity to either a major or minor market exceeds a four hour walk.

Finally, the study team conducted random, unstructured trader and household interviews along the Karnali road corridor. These allowed the team to gain a more nuanced understanding of relevant issues.

**Table 1: Survey design**

	Markets	Traders	Market customers	Households
Jumla	5	30	50	<b>149</b>
Kalikot	5	30	50	<b>154</b>
Mugu	4	16	40	<b>119</b>
Banke (Nepalganj)	1	10	-	-
Surkhet (Birendranagar)	1	10	-	-
Dailekh	3	10	-	-
<b>Total</b>	<b>19</b>	<b>106</b>	<b>140</b>	<b>422</b>

### b. Exploration of Cash for Assets (CFA)

The exploration of CFA included a study of the Far-West districts of Baitadi and Dadeldhura in order to study the impact of current WFP CFA programming. In addition, all markets studied in the Karnali were equally assessed to determine the potential of increasing the use of cash in these districts.

<sup>3</sup> In these markets 10 traders were randomly selected.

This research component planned to assess the impact of cash transfers on markets and livelihoods. The insights gained from examining the CFA were used to evaluate the use of cash transfers as a means to stimulate Karnali markets.

To realize the goal and intended output, trader and household surveys specific to 18 markets located in CFA project areas were created. Random trader sampling was carried out in each of the 18 markets with the sample size dependant on market type: two traders in smaller rural markets and four traders in larger road-head markets. Random household sampling also took place. Households were differentiated in terms of WFP CFA beneficiary status. In equal distribution, a total of 216 beneficiary and non-beneficiary households were randomly sampled. Beneficiary and non-beneficiary households were comparable in terms of geographic location, livelihood and food security status.<sup>4</sup>

### **c. Transportation Sub-Study**

The transportation sub-study was conducted in order to shed light on freight transport along the Karnali Highway and to determine the role, if any, that alleged transport syndicates have on movement costs.

For the purpose of this sub-study, the research team held discussions with district government officials, NGO employees, traders' associations, chambers of commerce and other key informants. Findings were also used to inform discussions related to the role of markets, their functioning, WFP programming and development priorities and goals. Detailed findings of this sub-study were presented in the report "Study on Transport Constraints in Western Nepal" (WFP/DFID, February 2010).

## **1.3 Limitations**

Despite the use of numerous and varied secondary information sources, available district level datasets were, from time to time, incomprehensive and/or incomplete. Moreover, the quality of primary data was limited by the ability of respondents to recall figures (e.g. household expenditure) and their willingness to provide factual, balanced information (e.g. trader profit margins). Please note that the survey samples were designed to highlight issues limiting market participation and were not necessarily representational in nature. Therefore, care must be taken when interpreting and generalizing the results.

The study was undertaken at the end of monsoon in Nepal, heavy rains and resultant landslides and unpredictable flying conditions created significant logistical challenges for the survey teams. Because of this seasonal weather pattern, only a portion of planned interviews or surveys could be completed. The monsoon posed particular challenges in Kalikot district.

Nepal's most important religious festivals, Dasain and Tihar, also coincided with the research (September and October), reducing the time available for fieldwork. Finally, market shutdowns in Mugu district, and political demonstrations in Kathmandu also presented obstacles. That said, perseverance on the part of the research and survey teams meant that the research could be completed sufficiently enough to draw conclusions.

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<sup>4</sup> In fact, non-beneficiary households were identified for the next round of CFA activities.

## Section 2 : The Context

### 2.1 Nepal

Factors undermining food security in Nepal have long since been at play. National food deficits have become more pronounced over the past thirty years due in large part to a rapidly expanding population and overall declines in agricultural growth rates. In the past ten years alone, national cereal production has increased by almost 16 percent, while the domestic consumption requirement has increased by more than 20 percent. Divestments in the agricultural sector, the ways in which a changing climate has affected cropping cycles and productivity, and a widespread shift towards reliance on remittance income and food procurement are additional undermining forces.<sup>5</sup>

Because Nepal is in a protracted period of political transition and stability is far from the norm, strikes, protests and road blockages cause frequent disruption to food movement and market services throughout the country. The Maoist led *People's War*—Nepal's decade-long civil conflict, which lasted from 1996 until the signing of the Comprehensive Peace Agreement (CPA) in 2006—weakened core national systems, destroyed critical infrastructure and caused over 13,000 deaths nationwide. An additional 50,000 Nepalese became internally displaced during the course of the armed conflict. Over half of those displaced originated from the rural Mid- and Far-Western development regions: the birthplace of the insurgency. In terms of food security, the conflict saw restrictions on free movement of food and reduced importation of goods. Internal displacement concentrated in rural areas meant that agricultural fields lay fallow, and that rural works, political posts and livelihood activities were largely abandoned. While the movement of market commodities was disrupted during the conflict, markets were affected only to the extent that they could not supply or lacked demand for goods. Because they were not destroyed, the signing of the CPA inadvertently led to relative market improvements. The slow, and as yet incomplete, return of displaced persons to rural areas following the war also meant comparative growth in agricultural productivity after 2006, but not enough so that the country could become self-sufficient.

Amplified reliance on purchased food, be they international or domestic, across Nepal has heightened the country's dependence on international food markets, in particular those in India. As a result Nepal is now, more than ever, exposed to international price shocks. Demonstrating this vulnerability, the Global Food Crisis of 2007/2008 led to rapid and enduring domestic food price increases.

So while there are clear indications as to many of the internal and external forces influencing Nepal's food security, the specific ways that these affect market functioning, particularly in food insecure areas, are not clearly understood from the district or household perspective.

What is known is that today, Nepalese households rely more heavily on home production, and domestic and international markets alike to meet daily food needs and to maintain some measure of food security. It is further understood that the foundations of the markets upon which they rely are concentrated either abroad or in agriculturally intensive areas along Nepal's more productive and accessible southern belt (i.e. the Terai).

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<sup>5</sup> The Future of Food: Creating sustainable communities through climate adaptation, WFP, December 2009

## 2.2 The Mid-Western Mountain Sub-Region: The Karnali

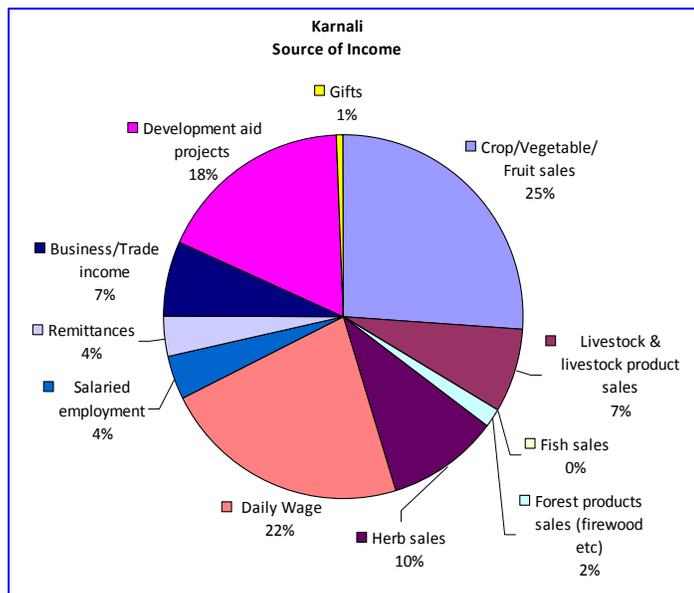
Nepal’s Mid-Western mountain sub-region, the Karnali, is made up of five districts: Humla, Dolpa, Kalikot, Jumla and Mugu—of which this study takes a critical look at the latter three. Bordered by China, India and the Himalayan foothills, the Karnali is defined in part by its mountainous terrain and high prevalence of natural disasters.

The Karnali rates at 48.1 on the Human Poverty Index (HPI-1)<sup>6</sup> and as such is the most impoverished sub-region in Nepal. When compared to the global HPI-1, the Karnali ranks between Sierra Leone and Guinea, the sixth and seventh most impoverished nations in the world.<sup>7</sup> The five Karnali districts are rated as highly food insecure according to the Nepal Food Security Monitoring System (NeKSAP—*Nepal Khadhya Surakshya Angaman Pranali*); all are above 30 percent food deficit. According to WFP’s Sub-Regional Hunger Index, the Mid-West mountain sub-region is the hungriest in Nepal: on par with the hunger prevalence in the Democratic Republic of Congo.<sup>8</sup>

Population density is low and aggregated in the disparate pockets of arable land where cultivation is possible.

Agricultural practices in the Karnali are largely void of technological or improved inputs and little of the cultivated land is irrigated. As such farmers are virtually reliant on rainfall to water their grain (wheat, paddy, barley, millet, buckwheat and oat), fruit and vegetable crops. Lower than average rainfall and snowfall in recent years have caused crops in the Karnali to suffer noticeably in terms of productivity. Survey findings indicate that households can rely on their own production for 3.8 to 6.5 months.

**Figure 1: Contribution of livelihood activities to household income**



Source: WFP field surveillance 2009, NeKSAP

Because there are few, and in some places only one cropping cycle per year, income diversification is adopted by many as a livelihood strategy. The majority of households rely on subsistence farming as their primary livelihood, and yet a large part of household income in the Karnali comes from uncertain and seasonal daily wage labour. Development assistance has

<sup>6</sup> The United Nations Development Programme (UNDP) Human Poverty Index (HPI-1) is measured on a scale of 0 to 100, where zero is the least impoverished.

<sup>7</sup> Nepal ranks 99 out of 135 developing countries for HPI-1, meaning that there are 36 countries determined to be more impoverished and 98 countries less impoverished than Nepal. When compared to countries listed in the UNDP HPI-1 (2009), the Karnali ranks between Guinea and Sierra Leone (128 and 129 out of 135) countries.

[http://hdrstats.undp.org/en/countries/country\\_fact\\_sheets/cty\\_fs\\_ETH.html](http://hdrstats.undp.org/en/countries/country_fact_sheets/cty_fs_ETH.html)

<sup>8</sup> A Sub-Regional Hunger Index for Nepal, WFP Nepal 2009. The hunger index is constructed according to international standards, looking at the three dimensions of insufficient food availability, child nutrition shortfalls and child mortality.

gained in importance in recent years with almost one fifth of household income being derived from participation in development projects (Figure 1).

Seasonal migration and credit are coping strategies adopted by many Karnali households.

Food insecurity in the Karnali has been on the increase, responding to successive years of drought and poor production, the 2009 winter crop harvest decreased by 40 percent in mountain districts as compared to 2008. This came on top of a variable 2007/2008 harvest and a severe 2006 winter drought combined with extensive summer flooding.<sup>9</sup> Eighteen months of sustained high food prices driven by the Global Food Crisis only served to worsen food security in the Karnali. Hailstorms and crop disease have also taken their toll on productivity. As a consequence, only a few Village Development Committees (VDCs – i.e. lowest administrative unit) in the Karnali can be considered generally food secure.

#### **Brief economic history of the Karnali**

Historically, Karnali was an important and wealthy Himalayan kingdom, with its centre in Jumla. In its heyday during the Malla rule between 1400 and 1700 AD, its location on the trade route between Nepal and Tibet ensured its prosperity. Salt from the high Tibetan lakes was traded with grains and other products from Nepal. The Nepali language has its roots in Khas, the language of the Karnali.

Karnali's fortunes gradually began to wane after Nepal was unified in 1769, for a number of reasons. The defeat of the Karnali kingdom by the Gorkhali army marked a political shift from it being a dominant regional power to a marginal vassal subservient to the centre in Kathmandu. At the same time, trading patterns gradually shifted, reducing the importance of the salt trade as more goods were brought from British India during the 19<sup>th</sup> century and Tibet's dependence on food grains from Nepal reduced. After Tibet's annexation by China in 1959, cross-border livestock movement and trade was heavily restricted and traditional livelihoods further disrupted. The salt caravans of yaks which would return after grazing in the Tibetan pastures have been in chronic decline. Deforestation of traditional grazing areas in the mid-hills reduced the pasture for nomadic groups.

And, whether through active marginalization or passive neglect, this historically functioning trade route is now a "spatial poverty trap". A last famine occurred relatively recent in 1972. Since then, government and international food assistance has prevented widespread hunger in the region although local food shortages are frequent. Concentric circles of vulnerability and caste discrimination are common, while political voice and infrastructure, along with access to education, income generating opportunities and productive land are markedly limited.

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<sup>9</sup> Crop and Food Security Joint Assessment Report, May 2009

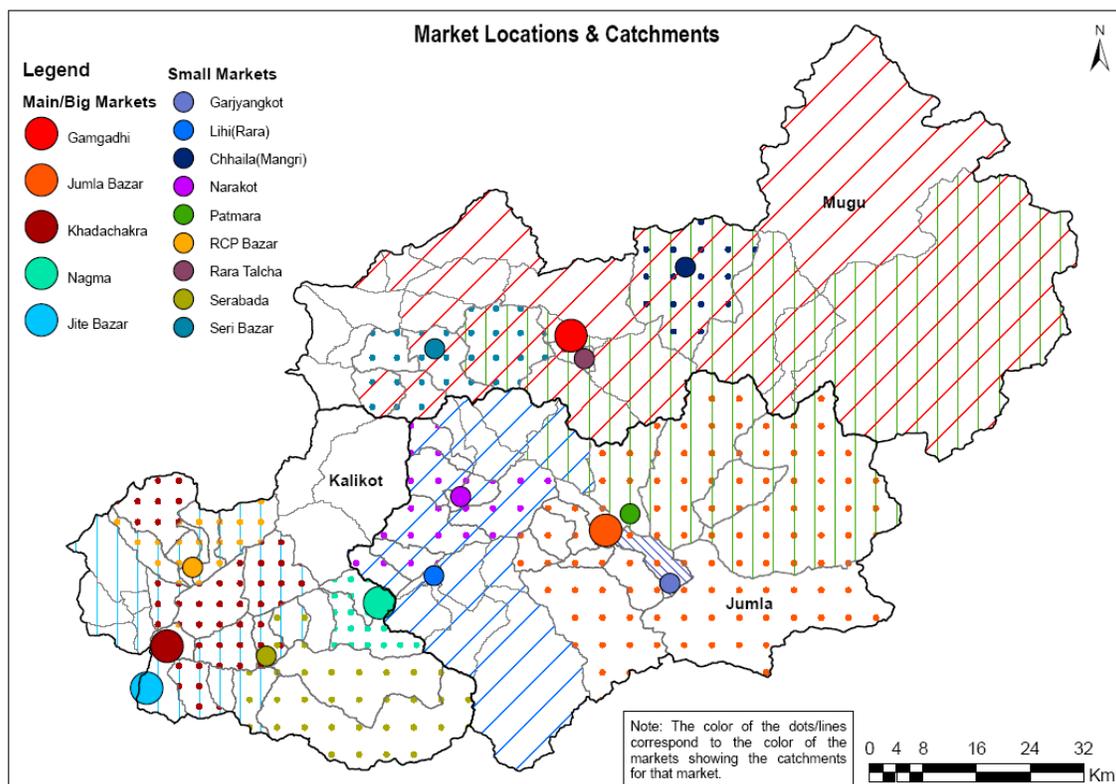
## Section 3 : Markets and market players

### 3.1 Karnali Markets: accessibility, prices and the flow of goods

A clear picture of how and where markets form and develop is important to understanding how they can improve food security.<sup>10</sup> Consumer demand and road infrastructure are the key determinants of market development in the Karnali. This sub-section describes the market infrastructure of the Karnali while the next explores consumer demand.

A well functioning market is one where prices are integrated with national and/or international supply markets, where availability is sufficient and households can access food. Market development implies net expansion of existing markets and the creation of new markets. In general, markets form at key junctions that are near to population centres and provide adequate space for several market traders.

In the Karnali districts of Jumla, Mugu and Kalikot there are only a few relatively large and well-functioning markets. These larger markets are located in district headquarters, while more rural markets are small (two to ten traders) and serve local and adjoining VDCs. The limited number of markets in these districts (see map on Market Locations & Catchments) is influenced by a scarce population and the insufficient incomes of that population, and by poor road infrastructure that increases the cost of transport making food prices high relative to other, more well-integrated markets.



**Map 2: Market locations and catchments**

<sup>10</sup> For the purposes of this study, markets can be anything from a single tea shop that sells food to an organised site with dedicated stalls or shops all operating under one roof.

Larger markets have a greater range of products and availability than smaller markets established along minor trails. On average in a month large markets sell between four to six times that of small markets (in terms of quantities).

The (effectively misnamed) Karnali Highway is the zone’s only major inroad. From Nepalgunj (Banke district) to Birendanagar (Surkhet district) runs a reasonable tarmac (‘blacktop’)/gravel 100km road, which is trafficked by many buses, trucks and private vehicles. From there the 224km Karnali highway devolves as it moves north into Dailekh, Kalikot and Jumla. It starts as a reasonably useable earthen track until it reaches the town of Khidkijula in Dailekh district. Approximately 20 kilometres before ever reaching Kalikot, Karnali’s southern-most district, the road transitions to a rough earthen track, highly prone to monsoon-induced landslides that effectively cut off the Karnali for consecutive months every year. Any semblance of the Karnali Highway effectively ends in Kahalanga, Jumla.

The route had long been planned but only in 2004 was the Nepal Army instructed to open the track to Jumla. The work was delayed due to sabotage by the Maoists among other reasons and was officially opened to Kalikot in March 2007 and to Jumla in May 2007.

At its very best the journey from Surkhet to Jumla takes 3-4 days’ driving. At its worst it can take more than a week. The sections of the road through Dailekh and Kalikot are very dangerous in places, particularly where the road runs along steep hillsides where falling debris is common. The road from Nagma to Jumla is less prone to landslides and is open almost all year round to jeeps, tractors and some passenger transport.

The other three districts in the Karnali (Mugu, Dolpa and Humla) are accessible only by minor roads, footpaths and herding trails. Roads are often seen as the most important and effective intervention for improving local food markets but they are less effective without complementary interventions, moreover, road building and upkeep are costly and time intensive.

While less than dramatic, the construction of the Karnali Highway has seen an increase in the number, size and degree of integration of the area’s markets. The road has led to new market

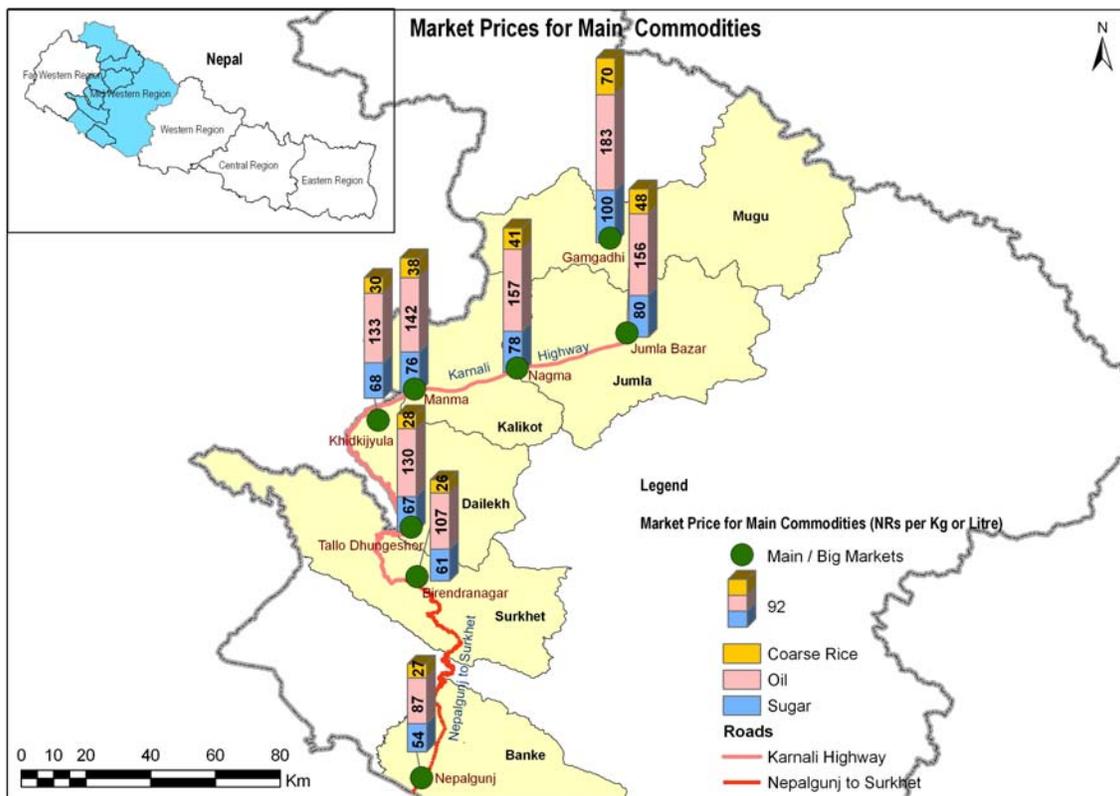


**Map 3: Karnali highway**

development in Nagma in Kalikot district and Raralihi in Jumla district, which have grown to become important market centres. Additionally, most of the market centres along the road in Kalikot have increased in size. Smaller markets have also formed since the opening of the highway (e.g. Jubika in Kalikot district). Of at least equal if not more importance, the road has made the Karnali district markets better connected, economically and physically, to the fertile Terai—a source of less costly market products.

While some markets have been stimulated, some markets have also declined as a result of the road. In Dailekh, district headquarters and Dadi Madi market (Bhari Kalikatum VDC) have both declined as people move towards the highway which skirts the district’s western boundary, and the cheaper markets found along it. In Kalikot, Padma bazaar in Chilkaya VDC has lost 75 percent of its business as Serrabada market in Pakha, on the Karnali highway, is cheaper (because of porter transport needed to Padma) and only 2 hours away.

Commodity prices in the Karnali can be two to three times those in the Terai. The map below shows prices differences for a selection of key commodities along the Karnali highway.



**Map 4: Commodity process along the Karnali Highway**

Analysing the way prices compare and change over time between different markets reveals a number of impacts since the opening of the road. As the graph of rice prices shows (Figure 2), when the Karnali highway opened, there was an effect after about 4 to 5 months, reflecting the time taken for the market to adjust, for existing stocks to be sold at the previous higher price, and transport means to be found. Both Kalikot and Jumla prices show a marked fall from pre-road prices. The effect is complicated by the fact that prices in Nepal had been rising during 2007, therefore an additional price impact of the road development was to minimise the

effect of increasing national prices on local markets which benefited from the road. Across all of Nepal the price of key commodities increased by around 40-70 percent between 2006-2009 due to poor domestic production and the international food crisis, this trend was clearly curbed in areas where the road had been introduced.



Figure 2: Trend of rice prices in Nepalgunj, Kalikot, Jumla and Mugu

There is a small but clear increase in correlation between prices in the western Terai district of Banke and those in the mountains. This suggests slightly more integration between markets in the Karnali with national supply markets.

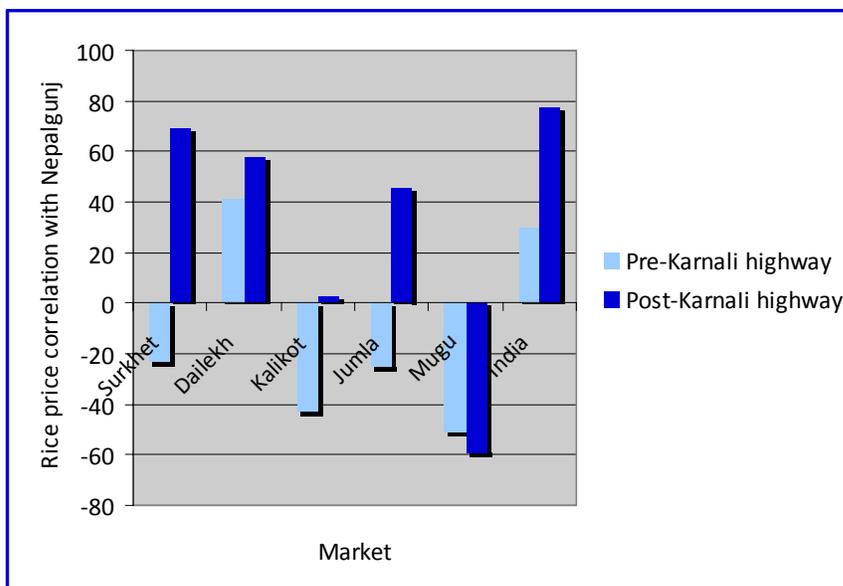


Figure 3: Price correlations

Price fluctuation (i.e. volatility) also reduced after the highway extension to Jumla was completed. While there is still greater volatility in the mountain markets as compared to those in the western Terai, it is less so than before the road.

Despite improved integration and other market enhancements, the flow of goods moving from the hills and mountains to the lower hills and Terai is still very limited and largely one directional, moving from the south (i.e. India and the Terai) to north.

Roughly half of the produce sold in the Karnali is done so at the farm gate and the little that is sold throughout the zone is, for the most part, consumed locally.<sup>11</sup> Nominal local production and minimal local provision of goods to the market place play a role in the one-way flow of goods. As does poor road infrastructure and its associated high transport costs which preclude moving goods from the north to the south unless they can be sold at high prices.

*The table shows the price volatility in selected markets before and after the opening of the Karnali highway to Jumla. The more positive the figure, the less volatile the price fluctuation compared to Nepalgunj. This shows a higher level of integration between markets.*

*Price volatility before and after the Hwy*

Market	Pre-road	Post-road
Surkhet	-0.2	0.5
Dailekh	0.4	0.8
Kalikot	-5.6	0.1
Jumla	-3.3	-2.6

**Table 2: Price volatility**

### 3.2 Consumer Households: Jumla, Mugu and Kalikot

Household food expenditure Karnali is low with an average of around 4,800 Nepali rupees (NpR) per household per month in the three survey districts.<sup>12</sup> WFP data indicates that 34 percent of the population living in Mugu, Jumla and Kalikot are highly food insecure, with the greatest concentrations in Mugu (57%). Throughout the Karnali, households can rely on their own production for only 3.8 to 6.5 months per year. Because home production cannot meet year-round food needs, markets have gained in importance with regard to household food security. Table 3 shows the substantial cereal gap that markets need to supply to fulfil people's food needs.

**Table 3: Food supply and requirement in Mugu, Jumla and Kalikot (mt)**

District	Cereal requirement 09/10	Food deficit (09/10)	NFC 09/10 allocation	WFP 09 (planned)	Balance needed from market
Jumla	19,923	5,414	1,000	1,907	2,507
Kalikot	23,628	8,537	670	1,423	6,444
Mugu	9,906	5,016	670	2,040	2,306

Sources: MoAC, NFC, District Agriculture Development Offices, WFP field staff, WFP logistics

<sup>11</sup> WFP household survey, September 2009

<sup>12</sup> Idem

Households in the study districts purchase, on average, 50 percent of their rice requirements from the market. As rice is an elemental food in Nepal bearing significance not only in terms of food intake, but also in religious and socio-economic importance (and is thus highly sought after), purchases of the aforementioned quantity show that market access is a fundamental food security concern for households.

**Table 4: Source of rice consumed by households in Mugu, Jumla and Kalikot (percentage)**

District	Own production	Market purchase	NFC	WFP/NGO
Jumla	19.5	44.7	18.4	17.4
Kalikot	30.1	56.3	8.2	5.4
Mugu	13.3	42.6	19.1	25.1
<b>Total</b>	<b>21.7</b>	<b>48.5</b>	<b>14.8</b>	<b>15.0</b>

Source: WFP Household survey Sept 2009

Chiefly based on income, households make a number of decisions about the market from which purchases will be made. These decisions often take into consideration market proximity and product price and availability. One-third of households in Mugu, Jumla and Kalikot identify, each, high food prices and insufficient cash as key issues in accessing market foods. At the same time, limited product availability, distances to markets and lack of access to credit was a problem for about 13 percent of respondents. To know why distance plays a significant role in the decision whether or not to utilize a given market, it must be made clear that the majority of consumers in the three study districts walk to-and-from markets, carrying their purchases.

In general, more distant, larger markets are chosen for cheaper prices, variety and availability. Table 5 compares food prices between larger and smaller markets. For all traded commodities, rice, wheat flour, oil, salt and sugar, prices are higher in smaller proximate markets. The opposite is true for locally produced commodities such as dal, black grams and beans. On average, prices are 19 percent higher in smaller markets compared to larger markets.

**Table 5: Commodity prices (NpR) by market size across Mugu, Jumla and Kalikot**

Type	fine rice	coarse rice	wheat flour	musuro dal	black gram	oil	salt	sugar	maize	beans
<b>Large Market</b>	53.21	43.13	40.33	104.00	89.29	155.42	32.00	82.39	100.00	100.00
<b>Small Market</b>	55.68	52.24	45.93	94.00	88.00	171.78	46.16	97.52	100.00	81.82
<b>Difference</b>	<b>2.47</b>	<b>9.11</b>	<b>5.60</b>	<b>-10.00</b>	<b>-1.29</b>	<b>16.36</b>	<b>14.16</b>	<b>15.13</b>	<b>.00</b>	<b>-18.18</b>
<b>Percent Difference</b>	4.65	21.13	13.87	-9.62	-1.44	10.53	44.24	18.37	0.00	-18.18

Source: WFP trader survey, Sept 2009. (Large markets are DHQs, Nagma, Bharta).

While the Karnali highway has made accessing larger and cheaper markets easier, the reduction in food prices after the road opened was lower than expected. However, this was because the quality of the road was poor and, at the time, national food prices were on the rise.<sup>13</sup> Local markets (i.e. those located in the household's VDC) are visited at least once a week by 80 percent of those who visit them. Yet the smaller, more proximate markets are comparatively expensive and used only for frequent purchases of lesser quantities. Over half of survey

<sup>13</sup> At the time the Karnali Highway was built, national food prices were increasing due predominantly to poor domestic food production, increased international food and fuel import costs, and ongoing political stability.

respondents indicated that proximity governed their decision to shop at these minor markets. Comparatively, 40 percent of those who visit District Headquarter (DHQ) markets go at least once a week, while an additional 40 percent shop these markets once in a month. Thus there is a consistent picture from the research that households travel further but less often to access key commodities (e.g. sugar and rice) at lower prices and in larger quantities.

But is the savings so great that it should warrant time, and by association income, lost en route? In Mugu at the time of our fieldwork, coarse rice was selling for Nepali Rupees (NpR) 70 per kilogram (kg) in Gamgadhi, a small proximate District Headquarter market compared to NpR 41 per kg in Nagma— a larger road-head market located on the Karnali Highway four days walk from Gamgadhi. Households therefore save NpR 1,450 on every 50 kg bag of rice. Such savings amount to almost 30 percent of surveyed households' typical monthly food expenditure.<sup>14</sup>

In fact, the results of this study show that the opportunity cost of spending even up to four days travelling to-and-from the market equates favourably to the official unskilled district daily wage rate of NpR 250 to 295 per day.<sup>15</sup> This is especially so when one considers that rice is but one of the purchases typically bought at these road-head markets, thus savings are to be had on multiple key commodities. The finding implies that transportation costs must be lower than the daily wage rate in order for consumers to see the benefit in purchasing locally from the smaller markets. Without this shift, these markets will and can not develop to their potential.

Not as yet discussed is that significant home-to-market travel time is likely to have a greater impact on vulnerable households (e.g. female headed families, which make up approximately 12 percent of total households in the Karnali). Therefore, there is a greater likelihood of these families having to purchase more food from local shops where they will pay higher prices and be dependant on irregular supplies. This also affects migrant households during periods of the year when male members have left for India or elsewhere (see next page for further discussion on migration).

The economic dimension of low incomes in the context of high food prices is that the saving made from buying food by travelling further for cheaper prices often outweighs the potential income for the time taken to travel, but only for relatively less vulnerable households. These findings highlighting the need for improved home and/or local agricultural production in conjunction with market and road development, and for cash infusions that could be used to drive local demand and which allow vulnerable households to become more food secure.

Few households see the market as the first port of call to access food, instead relying principally on home production. In some cases households may opt to conserve home produced goods, such as grain, in favour of market products, but this is not the norm. Because of household consumption patterns, it becomes imperative that markets have sufficient supply at consumer-friendly prices when home produce has been depleted.

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<sup>14</sup> WFP Household survey in September 2009 gave average Mugu household monthly food expenditure of NpR 5,300, average for the 3 districts NpR 4,800. According to the regular WFP VAM household surveys, in many remote areas, household food expenditure is half of that. The cost saving from travelling is therefore even greater proportionally if using the VAM expenditure figures from more remote areas which could not be reached during the household survey for this research project.

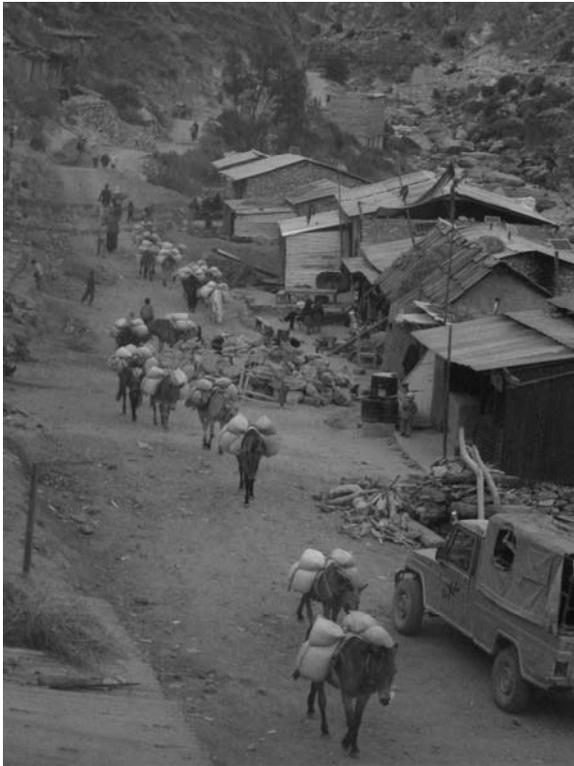
<sup>15</sup> Official wage rate for Jumla and Kalikot is NpR 250/day. For Mugu it is set at NpR 295/day.



**Plate 1: The Karnali**



**Plate 2: Construction of the Jumla – Mugu road**



**Plate 3: Karnali road-head market**



**Plate 4: Portering fire wood**



Plate 5: Goat transport

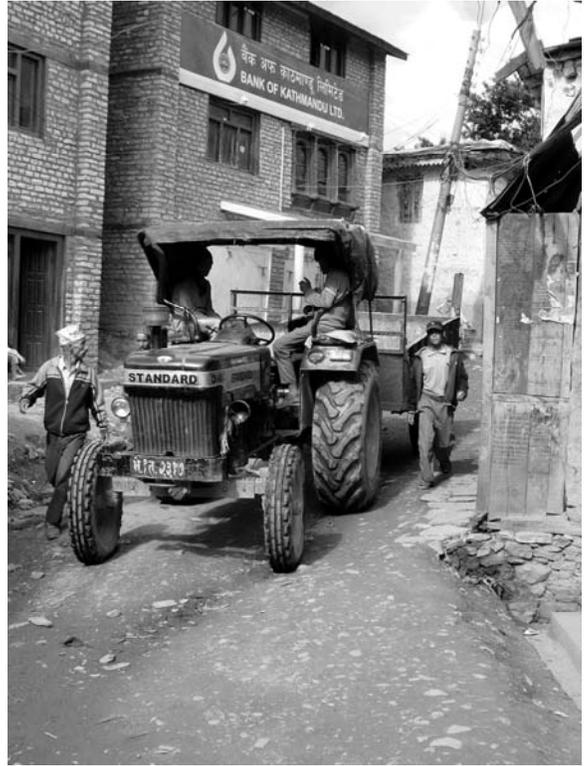


Plate 6: Tractor transport in Jumla

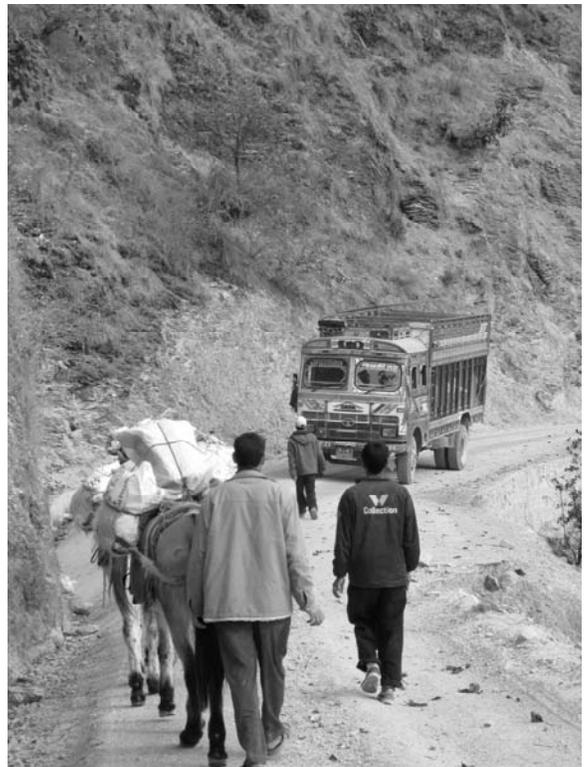


Plate 8: Transport by mule and truck



Plate 7: WFP helicopter

Despite a high degree of reliance by households on markets, markets are not ensuring household food security. One third of households said that they do not have sufficient money to purchase food, and 26 percent have to borrow money regularly to buy food. Households report relying on credit for 29 percent of their food purchases over the past year. Thirty nine percent use credit to get them through the lean season when income and food supplies are short. Moneylenders are the most common source of cash credit (45%), followed by family/friends (16%), then traders (14%). The average annual interest rate paid from all sources is 31 percent.

The root problem is a lack of income opportunities, despite the diverse livelihood strategies found in the mountains, meaning that many households cannot afford the high prices caused by transport costs. The major reliance on wage labour is unpredictable and seasonal. Although Karnali households derive significant income from selling agricultural or livestock products, this is limited as an income source due to the unreliability of local production. In addition, 50 percent of sales of such products are made at the farm gate, suggesting farmers are not realising the maximum from their produce. The lack of market information, access to means of transportation, and time needed in number of travel days prevent the farmer to take his produce to the market.

To maintain sufficient annual income and manage credit incurred debt, seasonal migration has long been an important part of Karnali households' livelihood strategies both for income and to reduce the burden on food stocks. Interviews reveal that households look for employment opportunities in their home areas first and migrate as a second option. Migration from Karnali is mainly to India, with migration from Kalikot more significant than from Jumla and Mugu. The main destinations are Uttaranchal and Himachal Pradesh – districts bordering the Terai. Kalikot migrants tend to travel further to Mumbai and Ahmedabad.<sup>16</sup> Typically, migration of male household members takes place twice a year between the primary agricultural work seasons.

Migration, however, is simultaneously shown to be an unreliable source of income for those with little education and lack of skills training, as is the case for the vast majority of Karnali migrants. Uneducated migrant workers, who typically travel to India, often return with very small amounts of money. Working in the Middle East and other countries tends to be more lucrative. Nevertheless, the relatively high upfront costs of migration and the repayment of exorbitant interest loans to cover the cost of migration often consume much of the remittance received.<sup>17</sup> To illustrate this, 82 percent of households surveyed had outstanding debts, averaging NpR 39,000. This figure is skewed, however, by a small number of very high debts; the median is NpR 25,000, while the most common amount is NpR 20,000. A quarter of households that have debts take credit regularly to buy food; and so the cycle renews itself.

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<sup>16</sup> Passage to India: Migration as a coping strategy in times of crisis in Nepal, WFP/NDRI, 2008

<sup>17</sup> Idem

### 3.3 Transporters

Transport is by far the most significant contributor to high food prices in the mountains. Road access and condition, which influence risk and travel time, and fuel costs are the primary determinants of land transport prices with the former playing a more significant role than the latter. It is also worth mentioning as was done earlier that because supply movement is predominantly one-way and transporters tend to return south without substantial or any product, traders become responsible for two-way transportation fees. The volume of freight carried into the hills and mountains is double the volume carried out of them. Cereals and food items constitute the majority of products channelled into the hills and mountains, while natural resources are funnelled back down the Karnali Highway. Increasing two-way transport for export (i.e. generating more substantial or marketable supply in the Karnali) would clearly make more effective use of the Karnali highway. Besides the economic benefit for Karnali producers, such an exchange could imply a reduction in transport tariffs (to be discussed in greater detail below) since they are mostly fixed on the basis of one-way transport only.

Fuel is the major component of transport costs, although this becomes less on worse roads where distances travelled are less and wear and tear on the vehicle is higher. Fuel prices show a reasonable degree of correlation over time with food prices (see Table 7). Fuel supplies can be unreliable, although this was not identified as a major issue by transporters.

**Table 6: Transport price from Nepalgunj (NpR /kg)**

	Dry season	Monsoon	% ↑ in Monsoon
Surkhet	1.2	1.3	8
Kalikota	8.0	13.5	69
Jumla	16.6	21.6	30
Mugu	39.0	52.0	33

Source: WFP trader survey Sept 2009

**Table 7: % Correlation of rice price with diesel price 2006-09**

Market	% Correlation
Nepalgunj	70.5
Surkhet	74.1
Dailekh	62.8
Kalikota	48.3
Jumla	-21.7*

Source: WFP & MoAC data sets, 2006-09.

\* The negative correlation for Jumla may be the result of the significant impact of the road on transport prices and hence food prices. In addition Jumla has significant local production which also impacts price movements.

**Table 8: Distances and transportation costs along the Karnali corridor**

Route	Road distance/km	Cost per tonne km (NpR)
Nepalgunj-Surkhet	100	10
Surkhet-Jumla DHQ	224	80
Nagma-Gamgadhi*	88	340
Jumla-Gamgadhi*	40	630

Sources: Road distances from Department of Roads, except Jumla-Mugu, author's estimate; transport costs from WFP trader survey Sept 2009

\*Nagma-Gamgadhi and Jumla-Gamgadhi are trails used for portering or mule transport

Because of the monsoon's obstructive and often destructive effects on roads, movement in the rainy season becomes extra risky, travel time more intensive and the modes of transport restricted. Increased wear and tear, the likelihood of breakdown, and the risk of total loss are such that transporters operating along the Karnali Highway factor in a significant risk premium to transport fees. In response to amplified road hazards, the study identified apparently high



**Table 9: Karnali Food Transport Options**

Transport Type	Truck	Light Truck	Tractor	Airplane	Helicopter	Porter	Mule
Capacity	7-10 mt	7-10 mt	3 mt	1 mt	3-4 mt	50 kg	50 kg
Minimal Infrastructure	Paved Road	Unpaved Road	Unpaved Road	Short Runway	Landing Pad	Rough Track	Trail
Monsoon Conditional (Y,N)	Y	Y	Y	Y	Y	N	N

The ready availability of various forms of transport can also influence movement costs. Where there is relative abundance of transport modes, thus leading to fair competition, prices are lower. This is more likely to be the case in areas supported by quality road infrastructure. Conversely, areas far from road-heads and where roads are poor or nonexistent are less accessible by multiple forms of transport the lack of which precludes competitive pricing.

The following table compares the cost of transport per kg from Surkhet to Gamgadhi (Mugu) using different transport types, as well as the different tonnage capacities and travel time. This shows that airplane transport is twice as expensive as road transport, and helicopter is twice the price again of airplane transport. Monsoon weather patterns also affect the frequency and volume of air transport resulting in restricted and more costly transport, with considerably less food movement during the rainy season.

**Table 10: Transport costs per kg from Surkhet to Gamgadhi**

Transport type	Typical Cost (NpR/ kg)	Capacity/Vehicle (kg)	Time	Road Distance (km)
Helicopter	173	3,000-4,000	1 hr	278
Aeroplane	90	1,000	1 hr	278
Road and trail	45		>120 hrs	278
• Truck/tractor from Surkhet to Nagma	18	10,000 (truck) 3,000 (tractor)	>3 days	190
• Mule/porter from Nagma to Mugu	27	50	>2 days	88

Also influencing the price of road transport are four transporter-formed associations along the Karnali trade corridor. Association membership is voluntary and annual membership fees range from NpR 25,000 to 81,000 per vehicle. Members benefit as the associations lobby with district authorities and negotiate on their behalf to resolve disputes and insurance claims. Previously, transport associations had been responsible for operating a freight cartel known as *syndicates*, which controlled transportation routes and the market, and fixed prices. Vendor pressure and government action effectively eliminated such syndicates roughly a year prior to this study.<sup>19</sup> The result is not only a healthier transport market, but also one that allows traders to negotiate

<sup>19</sup> While this statement is valid for when the study was done, it is a changeable market as indicated by the recent syndicate move whereby odd and even number plated trucks are only allowed to operate on different days. This with the purpose to spread the limited available loads over the many operators and keep prices up by creating an artificial shortage.

to a greater degree transport tariffs.<sup>20</sup> However, some residual syndicate-like behaviour still persists such as the collection of *trip sulk*—an illegal trip charge for vehicles passing through previously syndicated routes—usually amounting to a few hundred rupees per vehicle (a cost that is then transferred to traders).

### 3.4 Traders

There are only a limited number of retailers and wholesalers operating in the Karnali. Smaller markets generally have less than ten retailers and no wholesalers. Some key markets consist of as little as two traders. In larger markets one normally can find a number of wholesalers and a minimum of ten retailers or more.

**Table 11: Key markets in Mugu, Jumla and Kalikot and the number of wholesalers and retailers**

District	Market	No of wholesalers	No of retailers
Banke	Nepalgunj	30	50
Surkhet	Birendranagar	35	80
Dailekh	Tallo Dungreswor	1	69
	Ramghat	2	25
	Khidkijyula	2	2
Jumla	Jumla Bazaar	15	35
	Garjyangkot	0	8
	Urthu	0	11
	Raralihi	2	13
	Narakot	0	10
Kalikot	Khadkachakra Bazaar	6	14
	Jitegada	8	15
	Serabada	0	7
	RCP bazaar	0	7
	Nagma	5	12
Mugu	Rara, Talcha	0	2
	Chaila (Mangri)	0	2
	Seri Bazaar	0	9
	Gamgadhi	0	30

Source: WFP survey 2009

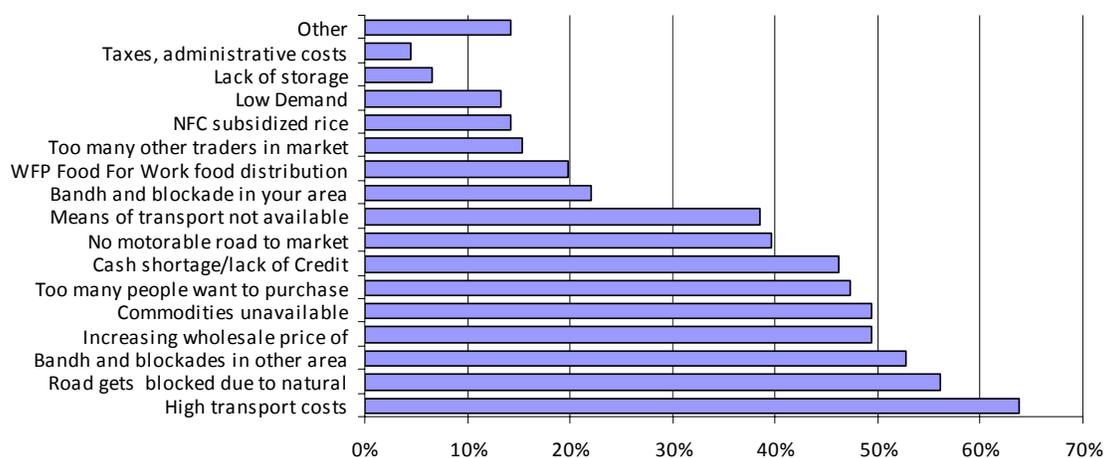
Traders in the Karnali face a number of challenges. High transport cost and low demand mean only small food markets can be sustained in much of the Karnali. Supply uncertainties due to road closures necessitate pre-positioning supplies before the rainy season, but varying market prices can leave traders exposed to losses. Therefore, many traders adopt a risk adverse stocking strategy that leaves supply particularly low or depleted at the end of monsoon.

For traders, the three most mentioned problems affecting their business relate to transport: high transport cost (64 percent of traders), roads getting blocked due to natural causes (56 percent) and bandhs/blockades in other areas (53 percent). After this, the increasing wholesale price of commodities (49 percent) and too many people wanting to buy on credit (49 percent) are most frequently listed as the key issues. Unfair competition from WFP food for assets

<sup>20</sup> Study on the Transport Constraints in Western Nepal, Farhad Ahmed (ITT) and Punya Prasad Regmi (NDRI), November 2009, funded by DFID Nepal.

programmes or subsidized rice sales by the Nepal Food Corporation was mentioned by about one fifth of the traders. Low demand and lack of good storage facilities was listed as a key problem by 13 and 7 percent of traders, respectively.

**Figure 4: Main problems affecting traders business in Karnali**



In general, traders in Kalikot, Jumla and Mugu do not have their own transport, but instead rely wholly on transport providers. For the vast majority of Karnali traders (60%), the opening of the highway meant decreased transport costs and time, as well as increased business.<sup>21</sup> This indicates that markets in the Karnali grew, driven by cheaper supplies and increased sales. However, shortage in means of transport and access to these means of transport remains a key issue.

Due to landslides the Karnali Highway and many other minor roads zigzagging along hill and mountain slopes are closed off during the monsoon period.

**Table 12: Closure of Karnali highway, 2007-2009**

Year	No of months closed	Period
2007	5	July – November
2008	3	July – September
2009	6	July -December

Politically motivated bandhs and blockades are a regular feature of Nepali life, particularly as the country moves through the transition from the civil war to a new political settlement. The 13 day Terai bandh in April 2009 called by Madhesi political groups led to nearly 40 percent of hill and mountain markets having insufficient or depleted supply of major commodities. Other more localised protest activity can have a marginal effect – including the blocking of roads by relatives seeking compensation for the injury or death of family members by vehicles, or general strikes called by trader associations.<sup>22</sup>

<sup>21</sup> Before the highway was built, transport travel from Surkhet to Jumla took 12 days and was restricted to mule. Following the construction of the Karnali Highway, transport time decreased to three to four days as the road made vehicular traffic an option.

<sup>22</sup> For example, in November 2009 the Mugu chamber of commerce called a general strike and restricted access to the Talcha airstrip which supplies the district, complaining about high costs of air transport. This led to short term food shortages.

Traders set their prices according to purchasing price, transport cost, their stock levels, perceived risk and the market price. The trader survey identified purchasing price and transport cost as making up 90 to 97 percent of business costs in the Karnali districts (see table 13).

**Table 13: Break down of business cost (%)**

	Nepalgunj	Surkhet	Dailekh	Kailkot	Jumla	Mugu
Commodity purchase	87.9	92	79	71.4	85.1	72.2
Transport and loading//offloading	3.8	3.3	13.2	22.7	12.1	25.4
Rent	3.1	1.6	1.1	1.5	0.6	0.5
Losses	0.4	0.6	4.3	2.9	1.4	1.2
Storage	0.3	0.6	0.4	0.1	0.1	0.1
Wages	1.5	0.2	0.4	0.2	0.1	0.1
Utilities	2.3	0.9	0.3	0.2	0.5	0.1
Taxes/donation	0.6	0.8	1.3	0.8	0.1	0.2
Other	0.1	0	0	0.2	0	0.2

The selling price is then determined on the basis of current stock levels and an assessment of what the market will bear. There is little space for price increases due to low purchasing power among Karnali households. Traders reported profit margins of a few rupees per kilo. This corresponds to our analysis of the difference between wholesale and retail prices for traders who sell both (average margin was only NpR 5).

In order to purchase goods, traders either travel to suppliers or order by telephone. It is clear, then, that communication links are important for traders to be able to make orders and check market prices. The same is true of farm households who, without proper communication methods, sell product from the farm gate at below market rates. Landline and mobile services are available in all District Headquarters (DHQs), as well as in many other larger markets, giving these markets an added advantage over those that are smaller and less well connected.

Food storage is an issue for many traders in the Karnali and interviews suggest that it could become even more so if markets were to grow. Because of the lack of temperature regulated or other appropriate facilities, storing goods in the hot, wet monsoon weather for more than a month can cause food to spoil. The competing forces of product spoilage and inaccessibility compel traders to make certain judgements about how much to order prior to monsoon. Very few, if any, risk ordering supplies during the monsoon.<sup>23</sup> In large part this is done based on empirical evidence suggesting that traders would not be able to sell goods at the higher price necessitated by rainy season transportation cost hikes. From the perspective of an individual trader, if other traders still had goods that could be sold at the pre-monsoon market rate, the newly transported stocks would have to be sold below cost price. Or, if the road would open again sooner than expected, other traders would be able to procure food at cheaper prices. In addition, with the road being blocked, transport prices are at or above local daily wage rates for unskilled labour and therefore customers may decide to purchase their foods in more distant markets, as discussed earlier in this report, thereby reducing demand.

Customer financial constraints and their tendency to diversify based on price means that when food runs out in the rainy season, market mechanisms can no longer provide it as there is no incentive for traders to move product. Fieldwork informs that during the monsoon, when the road is blocked, smaller traders close their shops and households revert to pre-road behaviour, travelling further to access food. The consequence of this risk adverse behaviour is that it

<sup>23</sup> During the fieldwork in October 2009, almost all traders in Jumla and Kalikot had run out of rice since the road was blocked longer than expected (and longer than in 2008); rice had been available in Jumla in August during the 1st phase of fieldwork.

significantly reduces food availability in local markets and, as such, makes households vulnerable to food insecurity.

In the Karnali, traders have to balance the need to maintain sufficient stocks to meet demand with the pressure this places on cash flow and capital. Many traders face credit and/or cash crunches, often having to supply more goods on credit to poor households than they are able to finance from their small turnover and credit sources. Thirty to forty percent of customer sales are made on credit, which limits traders' working capital and ability to procure stocks.

Because larger more distant source markets are more reliable in terms of ensuring lower prices and greater availability, road-head traders (i.e. those with greater access to source markets) do not source locally. Even many small traders find it advantageous to source directly from the cheaper and better stocked markets in Nepalgunj in Banke District or from Surkhet District.

For mountain traders, Nepalgunj and Surkhet are equally important supply markets, but which one is used depends on commodity prices at the time of sourcing. Since the transport cost between Nepalgunj and Surkhet are quite low, different market prices drive trader sourcing decisions. Wholesaler-trader relationships also factor into sourcing decisions as traders may be able to receive lower price quotes or make more purchases on credit if the relationship with the wholesaler is positive. To illustrate the need to maintain such relationships, 70 percent of traders report using credit to purchase goods (mainly to increase business and stock for special periods). In order to repay credit-based purchases, traders must pay an average annual interest rate of 24 percent.

### 3.5 Nepal Food Corporation

The Nepal Food Corporation (NFC) acts as a specialist supplier distributing subsidized rice through the Public Food Distribution System (PFDS) as a "protective measure" aimed at vulnerable sections of the population. The NFC is important as it is an alternative source of food for households and hence has an impact on local food markets.

The NFC has a presence in 30 out of Nepal's 75 districts. Rice is sold through NFC outlets at a below market rate set centrally which effectively subsidizes the cost of transport. Food is sourced from both in-kind contributions (particularly from Japan) and local procurement. The NFC delivers around 10,000 mt of food per annum nationally, a quarter of its mandate and food supplied by the World Food Programme.

**Table 14: NFC Coarse rice prices compared to market price**

	NFC price/kg	Market price (District average, Sept 09 survey)
Jumla	33	47.4
Mugu	32	66

Note: Prices are a few rupees higher for people with employment.

There are concerns from various stakeholders that NFC rice does not primarily benefit the most vulnerable as it is generally only available for purchase in the DHQ rather than in poorer parts of the districts, and allocation of rations without a proper targeting mechanism means that food is often sold to influential, better connected and wealthier households.

NFC's primary impact on the market is in operating as a supplier of last resort. For example, in October 2009, NFC rice was the only rice available in Karnali markets after blockages on the Karnali highway meant private traders had exhausted their supplies.

## Section 4: A market-based approach to food security

### 4.1 WFP Assistance: What is Food/Cash for Assets?

WFP food or cash-for-assets (F/CFA) activities support vulnerable communities to develop assets and enterprises aimed at reducing hunger and mitigate the effects of shocks while meeting immediate household food needs. F/CFA participating households build critical infrastructure in exchange for food and or cash, with the aim of linking farmers to markets, improving the agricultural output of small-holder farmers and providing necessary social safety nets. Communities build roads, trails, irrigation and hydro-electric infrastructure. Such asset building fosters an environment within which household incomes can rise. Moreover, it reduces household and community vulnerability to environmental and financial shocks.

In highly-food insecure areas, WFP F/CFA has reduced negative coping strategies and allowed beneficiaries to not only pay off high interest rate loans, but also to reduce the need for seasonal out-migration.<sup>24</sup> Thus F/CFA actively works to stem the cycle of poverty and hunger, and increase local capacity. For the most effective coverage and to prevent dependency, WFP assistance is carried out between planting and harvest periods when household food stocks are leanest.

In the context of WFP in Nepal, FFA food assistance amounts to 4 kg rice and 0.5 kg pulses per participant per day of work. In general, one member of each household (estimated as 5.6 persons) in the targeted community participates in the F/CFA activity for ten days per month across a four month period. Thus, the food provided is programmed to meet a single household's cereal requirements for a total of two months during the lean season.

CFA cash transfers are determined based on the area-specific market rate for the equivalent amount of rice and pulse provided under FFA. Food and cash provisions are distributed once monthly (i.e. 40 kg rice and 5 kg pulse or their cash equivalent per participant per month) for the duration of the project.

Cash transfers can impact markets positively or negatively, and the size of the effects will be bigger the smaller the size of the markets (and/or bigger the amount of transfers). If food is available in local markets at acceptable prices and supply can be easily increased, then providing beneficiaries with cash instead of food is likely to have positive effects on the local economy, since an increase in the demand for food and/or other items will activate local markets. However, if the supply side is not flexible enough to adapt to changes in the demand, cash injections are likely to put inflationary pressures on prices. In the worst case scenario, markets could run out of food stocks and the cash would not be able to provide food security.<sup>25</sup>

In terms of WFP programming, cash distributions may or may not be cheaper than commodity-based alternatives depending on the transportation and handling and storage costs for food. According to the following table, cash transfers would be significantly cheaper (in commodity equivalent terms) where WFP currently flies in supplies – which it does because markets and roads are non-existent. Please note that table 15 does not take into account other transaction costs involved in the food distribution (apart from transport, handling and storage) or the costs associated with distributing and delivering cash. In addition, it does not factor in the indirect

<sup>24</sup> Household and traders CFA survey in Far West, October 2009.

<sup>25</sup> For a full discussion on cash transfers, please refer to Ugo Gentilini, WFP, 2007. Occasional Papers 18; *Cash Transfers: A Primer*

effect of stimulating the market. It simply compares the cost of WFP rice against prices availing in the market.

**Table 15: WFP commodity delivery costs compared to market prices (NpR)\***

	Whole sale price of coarse rice/kg**	Road transport cost/kg	Air transport costs/kg	Food handling and storage costs/kg	Total cost/kg	Market price/kg
<i>Kalikot</i>	27	7.5		16	50.5	41
<i>Jumla</i>		20		11	31	48
<i>Jumla</i>	27		61	11	99	48
<i>Mugu</i>		55		23.43	78.43	70
<i>Mugu</i>	27		118	23.43	168.43	70

\* All costs calculated with Nepalganj as place of origin

\*\* Price in Nepalganj

Source: CFA evaluation (WFP 2009), figures from WFP logistics

The remainder of this section focuses most specifically on the cash transfers aspect of WFP's CFA programme.

## 4.2 Improving Market Flow: Lessons from CFA in Far-Western Nepal

The following section is informed by field experience and research conducted in Nepal's Far-western hill districts of Dadeldhura and Baitadi, where WFP has implemented and continues to carry-out CFA programming. This section is meant to illustrate some of the pros and cons of CFA assistance. To do this, a comparison is made between CFA beneficiary and non-beneficiary households, but otherwise identical in their socio-economic status, in the same or adjacent communities.

In Dadeldhura and Baitadi, cash distributions were made in September and October 2009 amounting to NpR 2,600 or more per household participant.<sup>26</sup> This represented on average 55 percent of the household's income during that month.

In the Far-West, CFA beneficiaries spent nearly three-quarters of their cash on foods, with grains at the top of that list. Households are not bound to use cash transfers towards foods. The amount of cash spent in this way is at the discrepancy of the household's financial decision-maker. Recognizing this, some of WFP's cooperating partners (e.g. Mercy Corps) opt to distribute cash transfers solely to the female head of household; regardless of the CFA participant's sex (this is done on the basis that the female head is more likely to expend resources on family needs). The household decision-maker will likely govern the primary aspects of food purchases in terms of quantity, quality and variety.

When not spent exclusively on food, cash transfers are most often spent on loan repayment, education and clothing (not necessarily in that order). As an aside, an interesting finding is that beneficiaries spent 75 percent more than non-beneficiaries on education.

<sup>26</sup> Actual amount per household depended on actual days worked and output achieved according to established work norms.

Survey findings on use of the cash reveal that there is very little investment in agriculture, livestock and business. This is attributed to the fact that cash transfers are of small quantities and given in a period when households lack sufficient income to respond to daily expenses. So while many households use the transfer sums to pay off debt, the timing and size of the transfers may preclude large investments. If this reaches the main objective of meeting acute expenditure deficits during period of short term economic problems, it underestimates the importance of investment to push poor household towards livelihood protection thresholds in subsequent years representing a more sustained impact.

Regardless of the purchase(s), it is rare that households spend the total transfer amount in a single day of shopping. What is far more prevalent is that households prioritise and spend according to household needs. CFA does not represent a consistent increase in income and households therefore tend not to drastically modify their consumption pattern. Moreover, households know that CFA support is of short duration. Nevertheless, household spending does increase following cash distributions and while many households, CFA participating or otherwise, rely quite heavily on credit to purchase food, the amount of food purchased on credit was slightly less for beneficiaries than for others (42 as compared to 46 percent).

Following cash distributions, participant households continued buying quantities comparable to pre-cash distribution months, but with greater frequency. Consequently, this had an affect on traders, a significant portion of whom (30%) experienced the corresponding increase in the frequency of sales. A likely response to market stimulation is to increase the quantities and/or variety of foods available to consumers. As reported by the vast majority of consumers and traders, the Far-West did not diverge from this progression.<sup>27</sup> The cumulative impact of more frequent sales meant that traders sold greater quantities.<sup>28</sup>

In exchange for their work, households were given the necessary resources and incentive to purchase closer to home. Thus local market sales increased more so than was experienced in the larger road-head markets (18 versus 13 percent), at least for the two months directly following cash distributions. Only 1.1 percent of the cash was spent outside the district. This implies significant beneficially impact to the local economy also considering that the CFA cash represents a significant proportion of cash circulating in the local economy during the months of project implementation - 28 percent in the case of Baitadi district.

Encouragingly, small village traders reported that they were able to satisfy the increased demand almost as efficiently as were larger traders. When traders of any size were unable to increase supply to meet demand, it was attributed to limited access to or obstructed roads.

CFA has an important affect on migration. Households participating in CFA had fewer than half of the number of family members migrate than non-beneficiary households. This being said, it is speculated that the impact on migration, as well as on income, is likely to be limited to the few months during or directly following CFA activities.

CFA appears to have had a positive impact on immediate and longer-term food security in the Far-West. Under CFA, participants are less likely to risk assets in order to meet immediate food needs than without the programme, thus supporting more sustainable livelihoods. The Far-West

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<sup>27</sup> In Baitadi and Dadeldhura, 58 and 71 percent, respectively, of traders had increased their stock levels and 25 and 6 percent, respectively, offered more variety.

<sup>28</sup> Eighty five percent of traders reported that as a consequence of CFA, their sales had increased.

also shows us that markets need not be large in order to benefit in terms of sales nor are smaller markets significantly less able to meet amplified consumer demand given access to roads. And that with increased household resources, there is a corresponding drive to stimulate local economies through proximate purchasing behaviour.

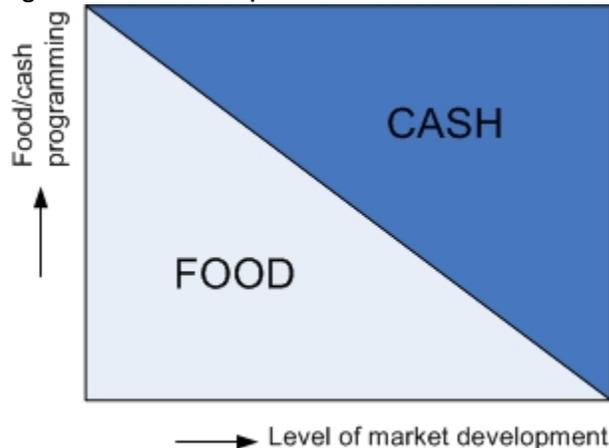
### 4.3 Using CFA to Stimulate Markets

The research undertaken in the Far-West illustrates how CFA can have a stimulating effect on markets, as well as possibly a longer term effect on food security by reducing asset consumption and debt. In the Far-West, a substantial driver of market improvement was the ability of customers to clear their debt and a decreased reliance on credit to purchase foods. Consumer debt clearance had positive transfer affects on traders who, as a result, had more access to cash and thus the means to replenish stock relative to demand.

The main difference between the Far-West and the Karnali is that markets in Karnali are not as well integrated with Terai markets, prices are higher, transportation more difficult and supplies less reliable. The literature on cash and food would suggest in this situation that cash programming (as a means of addressing immediate food insecurity) would not be appropriate. This is particularly so given the significant number of households relying on WFP food, and the importance of this food to ensuring a basic level of food security.

Figure 5 represents a market approach to food and cash programming. The level of market development on the horizontal axis summarises a number of variables, including market accessibility, stability in supply and price fluctuations. The vertical axis indicates the food/cash composition of the resource transfer. Generally, the higher the level of market development the more cash could be provided, and the lower the level of market development the higher the need for food support in food insecure areas.

**Figure 5: Market development and selection of food versus cash programming modality\***



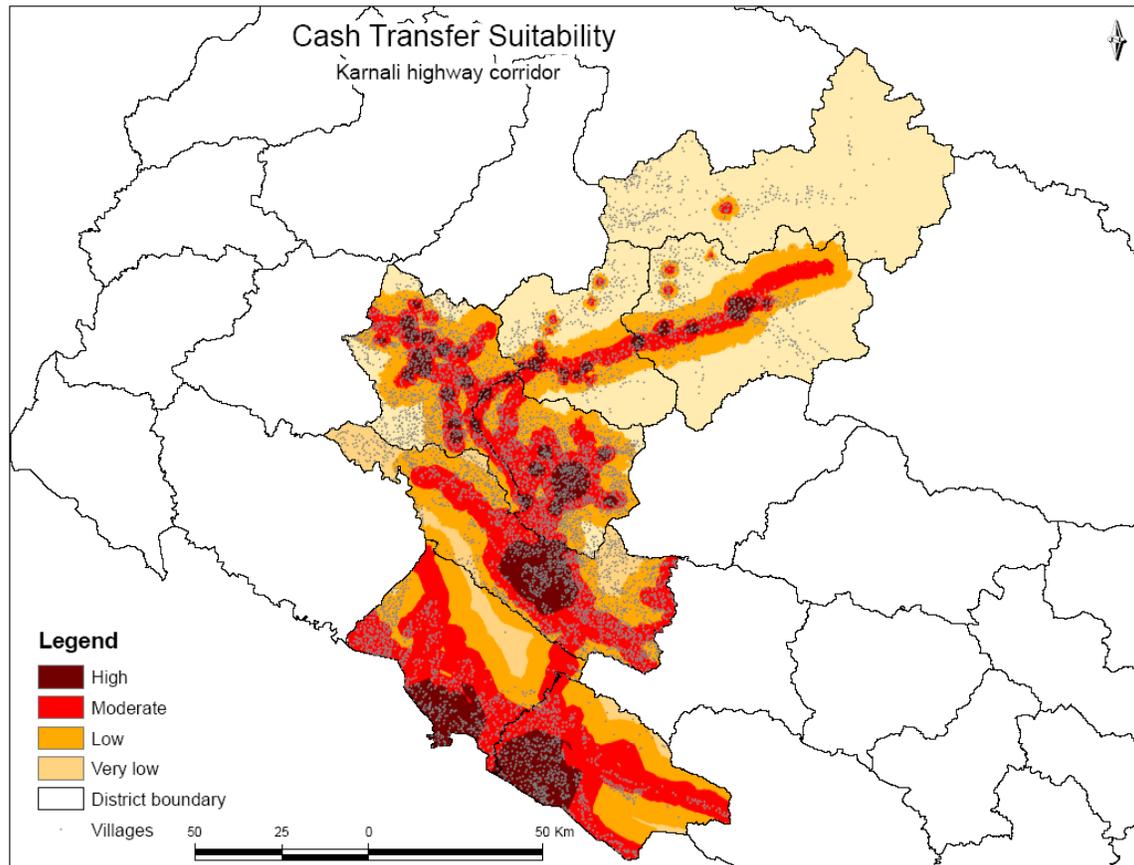
\* Note that in practice one would promote a step-wise introduction of cash, taking into account programme costs associated with cash transfers or a combination of food and cash transfers. These costs may prohibit a gradually introduction of cash when markets are developing.

Based on this, a food/cash suitability map was prepared for Nepal. The level of market development in a particular geographical area was approximated by taking into consideration the condition of the road infrastructure (highway/metal top, gravel seasonal roads or seasonal

roads), and the size of the market centres (large, medium, small). The appropriateness for cash transfers was subsequently defined by calculating travel distances taking into account the slope/elevation of the terrain.<sup>29</sup>

Map 5 shows the areas most appropriate for cash transfer interventions along the Karnali highway corridor. High cash transfer suitability is found in the proximity of main markets where sufficient traders can be found and food commodities easily supplied.

**Map 5: Food/Cash transfer suitability map**



Large areas of the Terai and the middle hills are moderately suitable for cash transfers. Ideally a combination of food and cash should be introduced in these areas with a higher emphasis on cash. Note that these areas stretch into the Karnali zone as far as the northern part of Jumla. In low suitability areas, it would still be possible to introduce cash but the main part of the transfer basket should consist of commodities. Food transfers are the recommended safety net transfer for most of the extremely remote parts of the Karnali districts, where roads and markets are non-existent or extremely limited.

Food for assets is currently implemented in Jumla, Kalikot and Mugu districts. The map shows that introducing a full or partial cash component could be feasible in the better connected parts of these districts, safe for Mugu, where markets function relatively better. Jumla has specifically

<sup>29</sup> Calculations were carried out using ArcGIS Spatial Analyst extension. The analysis leaves out many factors that determine the level of market development and the resulting map should therefore be used carefully and for initial guidance only. Further, more in-depth follow-up at the field level is necessary to determine whether cash transfers are indeed appropriate.

potential given the ability of traders to continue to supply from storage in Nagma during periods of road blockages in Kalikot and Dailekh, which disrupt supplies within those districts, and the fact that most of the district communities are accessible within one day walk. Mugu would be least favourable given the small market potential, and lack of road connectivity.

## Section 5: Conclusion and recommendations

### 5.1 Conclusion

Karnali is an area marked by chronic food insecurity. Despite once being a major regional power, and having significant potential in terms of natural resources and tourism, it is currently stuck in a 'spatial poverty trap'. This study highlights the huge food security challenges of this area related to insufficient local production, widespread poverty and as such limited market participation, isolation and poor road infrastructure. This in turn underlies the poor market development, high food prices, and the stagnant local economy, kept afloat through remittances, unpredictable wage labour and development assistance.

It also shows the opportunities for development of the area if appropriate actions are undertaken. There is significant potential for development interventions to stimulate markets, build productive infrastructure and create synergies with other initiatives to improve road access and quality, improve livelihoods, increase incomes and finally achieve food security.

In order for local markets to flourish, roads or improved access are essential. The key is to bring transportation cost down to below labour cost in order to make it attractive for people to purchase in local markets. Roads are often seen as the solution and the Government of Nepal is planning to connect all District Head Quarters by road before 2015. An enormous challenge and engineering achievement considering the slope and heights these roads have to cross to reach the ultimate destination. However, roads are not a panacea; demand and thus livelihoods will also need to improve for markets to develop and food security to improve. In addition, the cost of building roads has to be compared with the potential benefits of the investment. For example, the government road sector strategy (2007) provides a cost-benefit analysis showing that the road connecting Gamgadhi to the Karnali Highway at Nagma (Kalikot district) was not economically viable (due largely to the low population served by the road). Notwithstanding the economic cost, road construction does however provide a multiplier effect on other investments in livelihoods and agriculture.

Other solutions to bring transport cost down would also need to be considered. As the research showed there is a general lack in the means of transport, including mules. Setting up trading cooperations, for example, that own mules, yaks and other means of transport used on mountain trails could help. Developing high value cash crops and setting up value-added and markets chains that promote transport down hill from Karnali to Terai would promote two-way transportation which should over time reflect in lower transport tariffs.

To decrease the volatility in the availability and prices of goods in a context of volatile supply due to road blockage, either due to landslides or trade bandhs, traders would need to stockpile sufficient quantities. Reducing the risk of food pilferage, through appropriate storage facilities and management as well as ensuring demand, through for example a cash-transfer or food voucher programmes, would provide strong incentives for a trader to stock greater quantities.

In addition, the role of the Nepal Food Corporation will need to be reviewed and potential for public/private partnerships explored to ensure food supplies in the months during and immediately following the monsoon.

This research has presented a number of technical recommendations but their success will depend crucially on broad-based political support. One of the greatest challenges is to consider the multiple factors behind poverty and food security in Nepal on a geographical basis. While there are a number of development partners and government bodies working in the Karnali,

there is no overall strategy for creating food security in the region. The different recommendations summarised below would have most impact if designed in synergy. WFP's role could be to pilot F/CFA approaches and bring together other key actors involved in food security so that the complementary conditions required to improve food security can be brought into alignment. Cash interventions should be piloted in the more remote areas in potential cash suitable areas as indicated by Map 5 in section 4.

Successful implementation will be supported by WFP's broader objective of strengthening the capacity of the Government of Nepal and strengthening partnerships with national and international organizations in order to address long-term food insecurity.

## 5.2 Recommendations

Specific recommendations arising from the results of the research include the following:

### Government:

- In the to-be-developed national food security plan, consider a regional-based approach to food security;
- Improve upon the implementation of the current road strategy to ensure high quality, well maintained roads;
- Increase investment in agriculture in the Karnali region, in line with priorities already identified in different government agricultural plans;
- Reduce the impact of bandhs on markets, linked to the wider political atmosphere as well as law enforcement capacity, especially in remote areas;
- Strengthen the role of Nepal Food Corporation in providing a food safety net – particularly through improved targeting mechanisms aimed at supporting the most food insecure households - and consider establishing public/private partnerships;
- Manage outstanding transport association issues such as illegal trip charges and prevent resurgence of cartel behaviour;
- Explore insurance and licensing approaches to strengthen transport services on poor mountainous roads (particularly for tractors).

### World Food Programme and development partners:

- Re-focus public works schemes on creating productive infrastructure;
- Explore potential and initiate a market-based approach to food security involving cash transfers in areas with more advanced market development;
- Support the revitalisation of agriculture and production of valuable cash crops including mushrooms, fruits and medicinal plants;
- Support initiatives to increase farmer incomes and means of mountain transportation through cooperatives and collection centres;
- Some potential initiatives to be explored further for their feasibility in terms of F/CFA projects are:

**Irrigation:** rainfall is unpredictable in Karnali and area under irrigation is extremely limited.

**Seed production and reproduction:** improved varieties of grains and traded vegetables (carrot, radish) are required. Seed nurseries need to be set up.

**Storage:** improved storage facilities would limit the risk of putrefied foods and enable traders to stock-pile food items prior to the start of the monsoon. It would also open the possibility to store fresh fruits and vegetables produced in the Karnali region.

**Grain banks:** community grain banks would allow households to sell and purchase food at a more favourable than market rate.

**Cash crop cultivation and processing:** Set-up of nurseries and orchards, improved marketing channels, pilot demonstration programme, and conducting farmer field schools. Processing and improved packaging provide an opportunity to increase hygiene, product duration and marketing.

**Tourism:** Construction of foot trails for trekking and or community-owned accommodations, campsites and restaurants.