

# Vegetable Sector in Nepal: Rapid Post Earthquake Market Analysis

## Emergency Context and the Importance of Markets

On 25 April 2015, at 11:56 local time, a 7.8 magnitude earthquake struck Nepal with its epicentre located 81 km northwest of Kathmandu. As at June 1, 8,698 people are estimated to have died and 22,487 people to have been injured<sup>1</sup>. Furthermore 489,000 homes have been destroyed and 260,000 homes damaged across 14 districts<sup>2</sup>. The degree of destruction varies across and within these districts with six districts (Dhading, Dolokha, Gorkha, Nuwakot, Rusuwa and Sindhupalchok) considered to be the most seriously affected<sup>3</sup>

The international humanitarian response began quickly, with \$302.5 million funds raised to June 01 2015<sup>4</sup>, coupled with a surge of human resources and logistical support across all clusters of assistance. The Government of Nepal (GoN) is coordinating the response, notably through the system of Chief District Officers, in collaboration with the army. The GoN has initiated early recovery discussions, and the Ministry of Finance is about to launch a Reconstruction Fund for the affected areas. In parallel to this, the aid community is planning both conditional and unconditional cash transfers to affected households imminently.

Markets are important for providing income, employment, goods and services to poor people in Nepal. Following a disaster such as the recent earthquakes, it is therefore important that aid transfers avoid undermining markets, and help them recover so that they can continue to service the needs of vulnerable communities. In practice this means:

- a) Understanding, and assisting market players to understand, the impact of the emergency upon key markets that are important for livelihoods, and potentially for early recovery.
- b) Working with and through market players to deliver relief where feasible so that they remain in place for recovery.
- c) Assisting affected markets to recover so that they can return to normality as quickly as possible to ensure affected households can purchase what they need, and return to their normal income-generating activities.

To assist and contribute to this process, the UK Aid funded Samarth- Nepal Market Development Programme (Samarth-NMDP) initiated a rapid market analysis (RAM) of three of its pre-existing sectors: vegetables, dairy and agri-inputs which are important for affected communities.

These RAMs were designed to assess quickly and pragmatically the degree of market functioning in these sectors following the quake, and assist in rapid decision making by relief and development, government and – importantly - *market* actors in the field. However, it is recognised that understanding of the markets will be an iterative process in the months following the earthquakes and that further research will be necessary in designing responses within the sectors.

In approaching this task, Samarth-NMDP has worked with, and through, key market actors that represent their respective industries including the Federation of Fruits and Vegetable Entrepreneurs Nepal (FEFVEN) for vegetables, the Pesticide Entrepreneurs' Association of Nepal (PEAN) for agri-inputs and the Central Dairy Cooperative Association Ltd. Nepal (CDCAN) for dairy. These actors not only have extensive networks

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<sup>1</sup> Source: Nepal Ministry of Home Affairs and Nepali Police (2015) Nepal: Official figures for casualties and damage at June 01 2015. Retrieved from: <https://data.hdx.rwlab.org/dataset/official-figures-for-casualties-and-damage>

<sup>2</sup> Compounding this is a further magnitude 7.4 at 12:50 on 12 May with its epicenter 76km east-northeast of Kathmandu and a magnitude 6.3 located 83km east of Kathmandu.

<sup>3</sup> Source: Nepal Food Security Cluster (2015) Nepal Earthquake: Agricultural Livelihood Impact Appraisal of the Six Most Affected Districts, Draft, 30 May 2015

<sup>4</sup> Financial Tracking Services (2015) FTS summary data, 01 June 2015: <https://data.hdx.rwlab.org/group/nepal-earthquake>

in their respective industries, but also have an important role to play in both delivering and coordinating efforts in early recovery. In partnering with these organisations, Samarth-NMDP has also sought to build their capacity as well as to provide important early warning of market shocks, and indications of recovery afterwards.

## Methodology

This Rapid Market Analysis (RAM) sought to understand the impact of the earthquakes on the vegetable industry in Nepal, specifically smallholder vegetable producers and traders, and to investigate areas of need for early recovery of the industry. It was primarily conducted by the Federation of Fruits and Vegetables Entrepreneurs Nepal (FEFVEN) with the support of Samarth-NMDP. FEFVEN was ideally placed to conduct the analysis through its existing network of producers, collection centres and traders. The analysis used some principals from the Emergency Market Mapping and Analysis (EMMA) Toolkit and is built on the premise of using market players to assess the market.

The RAM was carried out from 16 May to 31 May 2015 in selected vegetable producing pockets and vegetable markets to assess the status of vegetable production and trade. It was primarily conducted by two FEFVEN personnel with support from others in the Federation.

The assessment methodology focused on the districts/vegetable pockets and markets in Kavre, Sindupalchok, Bhaktapur, Lamjung, Lalitpur, Dhading, Nuwakot, and Dolakha; and the markets of Kalimati, Balaju, Balkhu, Baneshwor, and Lagankhel. Methodology included: a half day interaction workshop in Kathmandu with 10 FEFVEN vegetable traders from Rasuwa, Nuwakot, Kavre, Sindupalchok, Dhading, Dolakha, Kathmandu and Lalitpur<sup>5</sup>; field interviews with three to five vegetable producers at production pockets in at least two sites in each district; discussions with District Agriculture Development Officers from 10 districts; and interviews with key commercial vegetable producers. Two FEFVEN representatives travelled to the field to conduct the primary research.

Secondary data from Kalimati Market and from regional markets was also used to inform the analysis.

## Overview of the Vegetable Sector in Nepal

The vegetable sector in Nepal has grown rapidly over the last 10 years, primarily through producers diversifying away from staple crops (rice, maize etc.), although a slight growth in yield has also contributed to growth. Between 2000 and 2010 overall vegetable production increased by an average of 6.9% per annum (45% overall) keeping well ahead of overall average population growth of 1.47% over the same time period<sup>6</sup>. The most significant factor in this increase was the area cultivated (33.2% increase – 4.6% annually), however the total arable land area has not increased over this time period, indicating that vegetables are displacing other crops<sup>7</sup>. Average yield has also increased by 2.2% on average annually (17.7% overall). Furthermore, Nepal's per capita vegetable consumption has increased from 60 kg to 105 kg over last two decades.

Smallholders account for almost all vegetable production in Nepal. According to the 2009-10 Nepal Vegetable Crops Survey, vegetable farming is very common, and an important source of subsistence for over 3.2 million families (69% of all households) in Nepal – 17% of which are female-headed<sup>8</sup>. However the majority (90%) of producers have less than 0.5 hectare (ha) of land available to them and grow mainly for subsistence, with only 18% growing for the market and only 5% deriving their main income from vegetables (7% in the hills and 4.5% in the Terai). For 12% of growers, vegetable farming (income and consumption) sustains them all year round, with a further 37% being sustained for 4-6 months. Vegetables can be grown year-round, including in the off-season for staple crops such as rice, maize and potatoes. This provides an opportunity for increased income generation for producers through intensifying cropping patterns over the year.

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<sup>5</sup> Including one female and nine male traders

<sup>6</sup> As adapted from Government of Nepal Ministry of Agricultural Development (2011) A Report on Value Chain Analysis of Off-Season Vegetables (OSV). Retrieved from: [http://www.ansab.org/wp-content/uploads/2012/01/HVAP\\_VCA-Report\\_Off-Season-Vegetables.pdf](http://www.ansab.org/wp-content/uploads/2012/01/HVAP_VCA-Report_Off-Season-Vegetables.pdf)

<sup>7</sup> Source: The World Bank (2014) World Development Indicators. Retrieved June 6, 2014 from <http://wdi.worldbank.org/table/3.1>.

<sup>8</sup> The poverty line in Nepal is based on the Cost of Basic Needs (CBN) – the level of capital expense needed to meet basic needs which is far below 1.25 USD/d. Also the calorie requirement is set at 2,144/d (CBS (2004). Nepal Living Standards Survey (NLSS 2) 2003/04, Central Bureau of Statistics, National Planning Commission, Kathmandu)

In terms of total hectares (ha) of vegetable crops grown in Nepal, the most prevalent crops include (in decreasing order): cauliflower (33,172 ha), tomato (19,724ha), cabbage (14,306 ha), pumpkin (9,757ha), cucumber (8,634ha), eggplant (8,172ha), okra (7,473ha) hot pepper/chilli (7,007ha) and bitter gourd (4,250 ha)<sup>9</sup>. Major vegetables harvested during the current season (April to June) in affected areas include cauliflower, mustard green (rayo), radish, cabbage and potato in mid and high altitude areas and cucurbits (gourds, cucumber, cowpea, beans and pumpkin) in foothills and lower mid hill areas. Once harvested, vegetables are transported to large market hubs such as Kathmandu, Pokhara and Chitwan. During the current season, the affected areas supply approximately 50-60% of total demand in Kathmandu with the remainder sourced from the Terai.

The earthquakes have affected the entire value chain of vegetable sector. Most of these affected districts are major vegetable growing areas that supply to Kathmandu and other major markets. They are (as per highest production): Kavre, Dhading, Bhaktapur, Lalitpur, Makwanpur, Kathmandu, Nuwakot, Sindupalchok, Gorkha, Dolakha and Rasuwa (Table 1). Furthermore it occurred at the beginning of the peak summer harvest and planting for rainy season.

**Table 1: Annual vegetable production by volume and area in districts worst affected by the earthquake** <sup>10,11</sup>

Districts	Households	Total Population	Area under vegetable cultivation (ha)	Vegetable production (MT)	Average yield (kg/ha/season)
Kavre	80,720	381,937	9,699	133,678	13,782
Dhading	73,851	336,067	5,925	75,458	12,735
Bhaktapur	68,636	304,651	3,243	58,911	18,165
Lalitpur	109,797	468,132	2,476	48,630	19,641
Makwanpur	86,127	420,477	2,500	47,967	19,187
Kathmandu	436,344	1,744,240	3,030	39,248	12,955
Nuwakot	59,215	277,471	3,812	36,110	9,473
Sindupalchok	66,688	287,798	3,418	35,539	10,398
Gorkha	66,506	271,061	2,025	35,186	17,376
Dolakha	45,688	186,557	1,782	19,553	10,976
Rasuwa	9,778	43,300	998	9,906	9,923
<b>Total of Affected Areas</b>	<b>1,179,762</b>	<b>4,801,260</b>	<b>492</b>	<b>4,764</b>	<b>9,692</b>

The affected districts were located in the mid-hills and high-hills regions and most have major vegetable pocket areas that supply to Kathmandu and other major cities, with Kavre, Dhading, Bhaktapur and Lalitpur, typically supplying the greatest volume (Table 1). During the summer and rainy seasons, vegetables such as leafy vegetables, tomatoes, eggplant, radish, cabbage, cauliflower, radish and carrots are able to be grown in the higher altitude areas of Nepal due to cooler temperatures when they are not harvested in the Terai and river basin areas (see Annex 2). Hence, these areas are particularly important in the supply of these vegetables in the coming rainy season when they cannot be sourced from other areas in Nepal.

<sup>9</sup> Nepal Government Central Bureau of Statistics (2011) Vegetable Crops Survey of Nepal 2009-10. Kathmandu, Nepal: Nepal Government Central Bureau of Statistics

<sup>10</sup> Source: Government of Nepal National Planning Commission Secretariat (2011) National Population and Housing Census 2011. Retrieved from <http://cbs.gov.np/wp-content/uploads/2014/03/Volume05Part01.pdf>

<sup>11</sup> Source: Government of Nepal Ministry of Agricultural Development (2014) Statistical Information on Nepalese Agriculture 2013/2014. Retrieved from: <http://www.moad.gov.np/uploads/files/Year%20book%202014.pdf>

## Results and Analysis

### Market Status

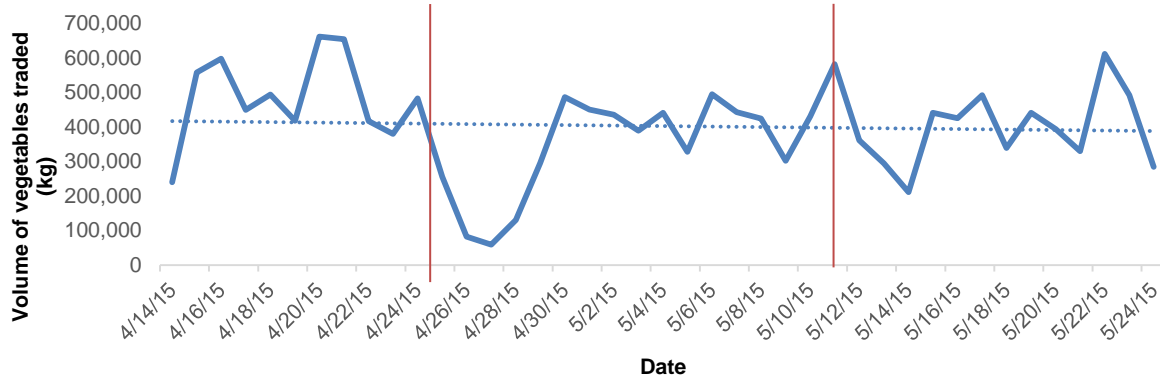
The disaster affected the entire vegetable sector value chain in the affected districts to varying degrees. According to FEFVEN assessments, the **most affected areas with regards to the vegetable sector are Sindupalchok, Gorkha and Dolakha** where the market for vegetables is considered by the Federation to be non-functional/completely disrupted. In these areas, there have been disruptions to transport infrastructure (road/bridges), transport provision, labour, and agro-vet services and hence producers are facing difficulties in accessing markets to sell their vegetables and to buy inputs. Dhading, Lalitpur, and Nuwakot are considered to be partially functional (that is some areas in the district are functioning and others are not). For example, some parts of Dhading are completely disrupted whereas producers from other areas of the district, closer to major transport infrastructure, have access to fully functioning markets. **Kavre, Bhaktapur, Makwanpur and Kathmandu districts are considered to be fully functional.** Market maps in Annex 1 show disruptions to the vegetable market for partially and fully disrupted markets.

**Table 2: Status of market function in affected districts (Source: FEFVEN RAM)**

Districts	Market Status
Kavre	Functional
Bhaktapur	Functional
Makwanpur	Functional
Kathmandu	Functional
Dhading	Partially functional
Lalitpur	Partially functional
Nuwakot	Partially functional
Sindupalchok	Not functioning
Gorkha	Not functioning
Dolakha	Not functioning

### Supply of Vegetables

Supply of vegetables to major hubs was severely disrupted in the days immediately after the first earthquake. Many major production hubs did not harvest vegetables and supply for the first couple of days were very low. Of the vegetables that were harvested early on, much of the supply could not reach to the market as transportation was not available (through price or accessibility). This uncertainty remained for two to three days following the first earthquake. Those wholesalers/retailers that were selling vegetable during these first few days were reported to mainly be sourcing from stock on hand. For example, the volume of vegetables traded through Kalimati Market dropped sharply from 483,135kg on the 24 April to 59,175kg on the 27 April. However, trading volumes subsequently recovered quickly and normalcy returned within around five days following the first earthquake (Figure 1).



**Figure 1: Volume of vegetables traded at Kalimati Market from 14 April to 24 May 2015 (Source: Kalimati Fruits and Vegetables Market Development Board)**

## Demand for Vegetables

The demand for vegetables in the major trading centres also fell following the earthquake. This is thought to be due to several reasons: the mass migration of people from Kathmandu valley directly following the earthquake; cycle vendors who typically sold vegetables door to door also left Kathmandu; many retailers closed temporarily; and, there was decreased demand from schools, restaurant chains and some hotels. Subsequently, prices for most vegetables decreased through reduced demand at the farm gate and wholesale level, which, coupled with obstructions in the supply chain, has resulted in a loss of income for producers, aggregators and traders.

With regards to markets in the unaffected areas, FEFVEN sources report that the areas of Pokhara and Butwal have not been markedly affected in terms of supply and demand in the market, with the exception of the first few days following the earthquake when their normal supply from Dhading was disrupted. Sources in Chitwan, however, have reported decreased demand. This region has vegetable production pockets that largely supply the Kathmandu markets. As demand dropped in Kathmandu due to movement of people out of the region, producers in Chitwan reported witnessing decreased demand for their vegetables together with earthquake affected areas.

Compounding the immediate effects of the earthquakes, there is also thought, by those in the industry, to be a real risk of decreased supply of vegetables, particularly leafy greens, legumes and cucurbits, in the coming months through delayed/cancelled plantings of monsoon-season crops in the most affected districts. Hence, it is predicted that effects may be seen in the income and livelihoods of producers and sellers as well as at the consumer level though a shortage of certain vegetables in regional markets.

The following summarises the effects of the earthquake at different levels of the supply chain, as reported through the RAM.

## Producer Level

The analysis observed that producers in most affected districts experienced a pronounced shift in livelihood priorities following the earthquakes. Where a normal season would see smallholder producers currently harvesting many of their vegetable crops (see Annex 2 for seasonal calendar), there is now a focus on securing shelter before the monsoon. Commercial vegetable producers however have been observed returning to normal practices more quickly.

**Table 3: Effects of the earthquake on vegetable harvest and supporting infrastructure (Source: FEFVEN RAM)**

Districts	Damage to vegetable crops prior to harvest (%)	Damage to vegetable crops post harvest (%)	Price reductions (%)	No. of plastic houses/tunnels	No. of damaged plastic houses/tunnels (% damaged)	No of damaged small scale irrigation systems
Kavre	40	20	45	6,000	2,000 (33%)	5
Dhading	25	20	45	2,000	800 (40%)	1,500
Bhaktapur	35	10	45	5,000	1,200 (24%)	
Lalitpur	40	15	45	12,000	3,000 (25%)	20
Makwanpur	30	25	40	2,000	200 (10%)	
Kathmandu	15	10	45	20,000	10,000 (50%)	
Nuwakot	35	30	45	500	400 (80%)	5
Sindupalchok	40	25	45	1,800	1,500 (83%)	
Gorkha	45	15	50	1,500	500 (33%)	
Dolakha	50	20	50	<i>Not available</i>		2
Rasuwa	<i>Not available</i>					
Lamjung	40	20	45	20	10 (50%)	5

Table 3 summarises the effect on vegetable harvest and supporting infrastructure as reported by key informants during the RAM. During the period of assessment, the producers interviewed reported losses pre-harvest of between 15% to up to 50% in the month following the earthquake (this season). Reasons cited for this included shifting priorities of producers in the period following the quake where they did not return immediately to the field to harvest leaving vegetables to waste in the field. In some instances, a lack of family labour for harvest was also reported as many members of the family were travelling to relief centres to collect relief packages. Labour around Kathmandu was also cited to be in short supply as many labourers left the area and travelled back to their affected districts to assist following the earthquakes.

Interviewees also reported post harvest losses between the farm and the collection centres of between 10 - 30% above normal. Reasons for this were cited as a lack of availability of transport for harvested vegetables due to roadblocks and landslides coupled with a drop in the demand for vegetables in the markets.

In Dhading for example, producers and traders estimated the biggest drop in trade volumes post-earthquake in coriander leaf, pumpkin, squash, cucumber, cabbage, French beans, gourds and capsicum through pre and post-harvest losses. Furthermore, they estimated a reduced price/kg in all vegetables being harvested at that time through reduced demand in Kathmandu.

Producers also noted high losses of plastic houses/polytunnels with particularity high numbers lost in Sindupalchowk, Kathmandu, Lalitpur, Baktapur and Kavre. Producers reported that they, or their relatives, were reusing many of the plastic sheets as shelter if their houses were damaged or destroyed. These plastics sheets will no longer be useable as polytunnels/poly houses however the bamboo frames of the tunnels were reported to still be mostly intact, with only the plastic needing to be replaced. Further, damage to polyhouses in the high-hills is predicted to have a noticeable effect on tomato production in these regions (and some areas of the mid-hills) as the coming months are traditionally when producers transplant and harvest tomatoes from polyhouses to supply to Kathmandu markets (see Annex 2). Producers in Dhading also reported high losses of small, producer-level irrigation systems, primarily due to landslides.

Looking forward, smallholder vegetable producers in the affected districts also reported to be unsure yet as to whether they will plant for the coming season. According to FEFVEN, vegetable producers do not plan their production well in advance. Given this, those affected by the earthquake reported to be considering the possibility of switching to other income generating activities in the coming season, such as working as hired labour. Thus, decreased vegetable prices in the market presently was also reported to be discouraging producers from planting for the coming season due to the perception of increased risk. Decreased planting in affected areas in the coming months are predicted to have considerable supply issues within the sector as vegetables are not harvested from the Terai in this period.



## Aggregation Level (Collector and Collection Centres)

The analysis reported that the business of 50% of the local collectors in earthquake-affected districts have been disturbed by the events. Many are now engaged in other priority work. There are also breaks in the transportation network linking producers to collection centres and psychological effects reported which has also changed priorities, particularly in the most affected areas.

**Table 4: Damage to vegetable collection centres (Source: FEFVEN RAM)**

Districts	Estimated number of damaged collection centres	Estimated total number of collection centres
Kavre	2	65
Dhading	20	70
Bhaktapur	0	30
Lalitpur	15	45
Makwanpur	Unknown	60
Kathmandu	0	60
Nuwakot	5	35
Sindupalchok	Unknown	30
Gorkha	Unknown	25
Dolakha	3	15
Rasuwa	Unknown	15
Lamjung	5	25

Dhading and Lalitpur were found to have experienced the most widespread damage to collection centres. Of the collection centres listed in Table 4 as damaged, the infrastructure is reported to be so badly damaged that it is non-operational. However, the market is still reported to be functioning and collection to still be taking place outside in the open. However, when the monsoon hits, this will no longer be possible without the erection of temporary shelter. Hence, there is a critical need for solutions in the coming weeks to ensure the collection centres remain operational.

## Wholesale and Retail Level

Wholesale markets are reporting an absence of traders, with 40% less demand than before earthquake. Nearly 40% of traders are reporting to have been affected by the earthquake, with problems in transportation and communication.

As per Figure 1, the demand for vegetables, measured through the volume of vegetables traded at Kalimati Market in Kathmandu, dropped significantly in the first three days following the quake<sup>12</sup>. However, trading volumes then quickly appeared to recover to normal levels. For major markets, such as Kalimati, FEFVEN has been coordinating to ensure that these markets do not shut down completely but rather pull some varieties of vegetables from other areas where there is a shortage. They have also been instrumental in facilitating diversion of excess supply of some vegetables (such as potatoes) from the Kathmandu valley to other areas such as the Terai to replace some imports from India.

According to data from the Kalimati Fruits and Vegetables Market Development Board, of the major varieties of vegetables traded, cauliflower, cabbage, pumpkin, okra and bitter gourd have all shown a downward trend in wholesale prices over the period following the earthquake at the Kalimati Market. Tomatoes, however, have shown an upward trend in prices<sup>13</sup> with small and big tomatoes showing wholesale prices of 202% and 146% higher respectively than the same period last year<sup>14</sup>. Conversely, most vegetables have seen a decrease in wholesale price in Kalimati market compared with this period last year with some of the greatest decreases in price seen in cabbage (-71%), squash (-65%), potato (-57%), bottle gourd (-55%), white radish (-54%), local cauliflower (-52%), carrots (-52%) and mustard greens (-51%)<sup>15</sup>. This has corresponded with a lack of demand in the Kathmandu valley. However, as people begin to return to

<sup>12</sup> Kalimati Fruits & Vegetables Market Development Board (2015) Kalimati Market. Retrieved from <http://kalimatimarket.com.np>

<sup>13</sup> Kalimati Fruits & Vegetables Market Development Board (2015) Daily Price Information. Retrieved from <http://kalimatimarket.com.np/daily-price-infomation>

<sup>14</sup> Compared based on average prices between the period 25 May – 1 June 2014 and 25 May – 1 June 2015.

<sup>15</sup> Kalimati Fruits & Vegetables Market Development Board (2015) Comparative Price Information. Retrieved from <http://kalimatimarket.com.np/comparative-price-information>

the valley in the coming weeks, FEFVEN anticipates that prices for these vegetables will begin to rise to normal levels as demand increases.

Wholesale retail prices through Kalimati Market show a similar trend, with a price decrease seen in most vegetable types when compared with the same period last year. The greatest percentage price decrease was seen in cabbage and green coriander (both -68%), squash (-61%), French bean (-53%), white radish (-53%), bottle gourd (52%) and local cauliflower (-51%). As with wholesale prices, small and big tomatoes have seen a large increase in price when compared with the same period last year, by 138% and 71% respectively. This is because, during the current period, they are typically only sourced from areas that have now been affected by the earthquake (or imported) as tomato harvest in the Terai finished around April (see Annex 2).

In some of the most affected areas, there are considerable gaps in the market. For example, in Sindupalchok, FEFVEN reported that the supply chain has been reported to be partially reversed, with vegetable being sent from Kathmandu market to the district when, in a normal season, vegetables would have been travelling from the district to markets within Kathmandu.

Furthermore, as at the producer level, there have also been labor shortages reported at the wholesale and retail level in Kathmandu which has increased the price of available labor in the region.

To compound the current issues, effects of changes in supply of monsoon season vegetables are anticipated in the coming seasons. For example, Sindupalchok and Dolakha are emerging hubs for the production of leafy greens, cabbage and cauliflower vegetables to Kathmandu markets in May/June particularly. FEFVEN anticipates a **disruption to supply particularly of these vegetables in the coming months that will have supply and price implications in Kathmandu.**

## Recommendations for Intervention Areas in the Vegetable Market

As evidenced above, markets in some of the less affected vegetable producing areas are still functioning. Others are facing greater challenges. Minimising disruption to vegetable production and supply is critical to ensure early market recovery in the vegetable sector, for both producers and consumers. The rapid assessment indicates a need for some temporary and long terms interventions to restore affected vegetable production and stabilise livelihoods across the supply chain.

Possible areas for support are covered, in brief, below. Further analysis would be needed to assess the feasibility and exact mechanisms behind these interventions prior to uptake. Consultation with those coordinating the emergency response (including Government) is important when considering implementing interventions related directly to the emergency response (primarily those at the producer and collection centre level). Furthermore, both FEFVEN and Samarth-NMDP are available to make introductions to potential partners, if required.

### Production Level Intervention Areas

<b>Aim</b>	Vegetable producers recover from direct and indirect losses, are resilient to shocks from market distortions and return to vegetable production and trade where possible.
<b>Strategy &amp; Partnerships</b>	<p><b>Initial strategy/options:</b></p> <ul style="list-style-type: none"> <li>a) Rebuild producers' confidence in the vegetable sector and trust throughout the supply chain.</li> <li>b) Support producers to mitigate aversions to production, based on current price decreases.</li> <li>c) Facilitate the uptake of input supplies such as seed, fertiliser, agro-chemicals, crates and plastic houses in partially or non-functioning markets. Nb: generally, the analysis reported that supply of these was available but demand has decreased as producers spend their money on more critical areas such as rebuilding housing.</li> </ul>
<b>Interventions</b>	<b><i>Possible areas for intervention</i></b>



	<p>a) Facilitation of interaction between producers, traders, agro-vets, input suppliers and DADO to address the drop in confidence in the sector and disruptions to relationships.</p> <p>b) Develop contract-farming schemes, or trade-facilitation using temporary transport subsidies to open up new trade relationships – e.g. with Indian traders, or those from other areas of Nepal.</p> <p>c) Provide assistance with cash/credit schemes or limited subsidies for input supplies to increase uptake of inputs and benefit production going forward. <b>It is vital that this be undertaken through the market</b> – i.e. through agro-vets and input suppliers, in order to ensure that these remain open and functional.</p>
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### Aggregation Level Intervention Areas

<b>Aim</b>	Collection centres remain operational to ensure the market remains open for vegetables from the affected regions.
<b>Strategy &amp; Partnerships</b>	<p><b>Initial strategy/options:</b></p> <p>a) Support those collection centres that were damaged in the earthquakes, and now only able to trade outdoors, to erect temporary shelter to ensure trade continues into the monsoon season.</p>
<b>Interventions</b>	<b>Possible areas for intervention</b>
	<p>a) Facilitate distribution of suitable materials for these collection centres to construct temporary shelter for trading and storage. This may be in the form of corrugated iron sheets or other similar building materials. <b>Support in this area is critical in the coming weeks to ensure the markets continue to function.</b></p>

### Wholesale/Retail Level Intervention Areas

<b>Aim</b>	The wholesale and retail vegetable sector ‘builds back better’ during early market recovery.
<b>Strategy &amp; Partnerships</b>	<p><b>Initial strategy/options:</b></p> <p>a) Support interested parties to rebuild through strengthening value adding opportunities throughout the supply chain.</p> <p>b) Improve management/market information systems to provide accurate, real-time information on prices and volume of trade to provide early-warning of price shocks, and indications of market recovery to the industry and to the aid community.</p>
<b>Interventions</b>	<b>Possible areas for intervention</b>
	<p>a) Support wholesalers and retailers, where necessary, in their efforts into post harvest improvements as well as those around trading, packaging, and labeling in line with the principles of ‘building back better’ highlighted within the recent Food Security Cluster Post Disaster Needs Assessment. This can also apply to repairs to packhouses and collection centres.</p> <p>b) Support existing providers of market information systems to develop an improved information platform that allows for volume and price information to be entered and uploaded rapidly<sup>16</sup>.</p>

<sup>16</sup> Samarth-NMDP has an existing intervention in this area.

## Finance Intervention Areas

<b>Aim</b>	a) Market actors (from producers through to retailers) have sufficient access to finance to function in the vegetable sector.
<b>Strategy &amp; Partnerships</b>	<b>Initial strategy/options:</b> a) Support market players to remain active in the sector at a time when their limited resources are being diverted into securing livelihoods and assets following earthquake damage.
<b>Interventions</b>	<b><i>Possible areas for intervention</i></b>
	a) Facilitation of credit schemes and/or contract growing schemes may be appropriate in some instances as may limited, short subsidies on some inputs to re-stimulate the sector in a currently risky climate.

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Federation of Fruits and Vegetable Entrepreneurs, Nepal (FEFVEN)

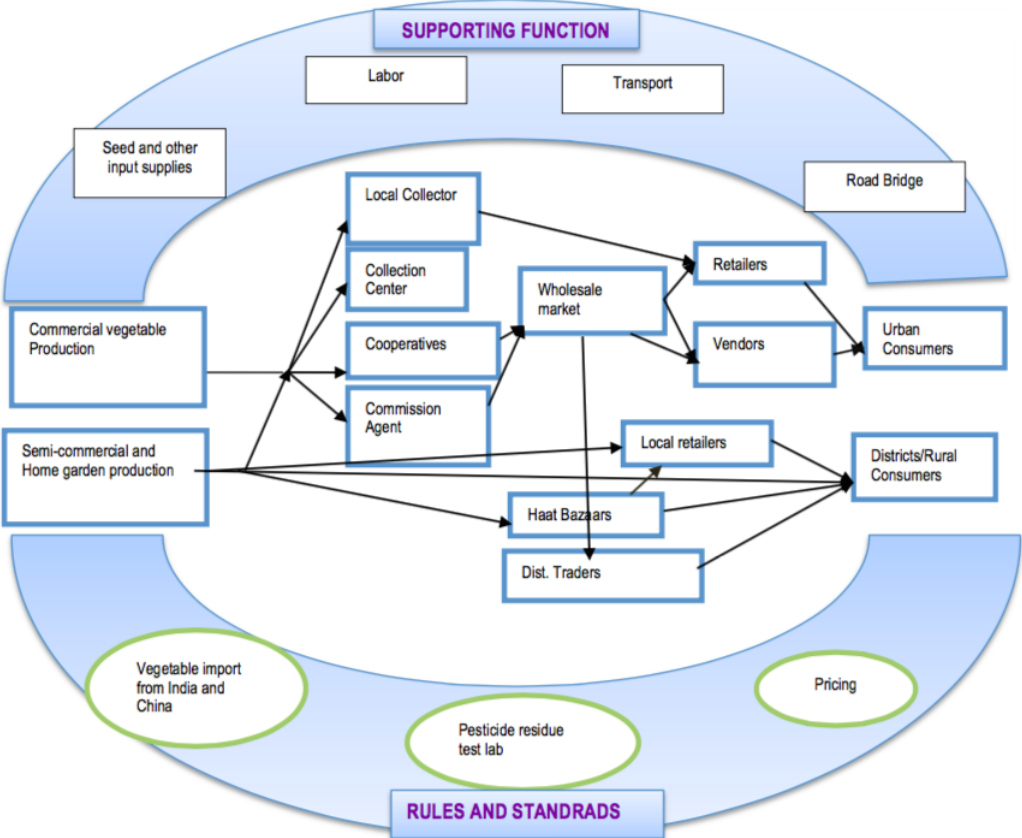
Kuleshwor, Kathmandu, Nepal

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Email: [fefven@gmail.com](mailto:fefven@gmail.com)

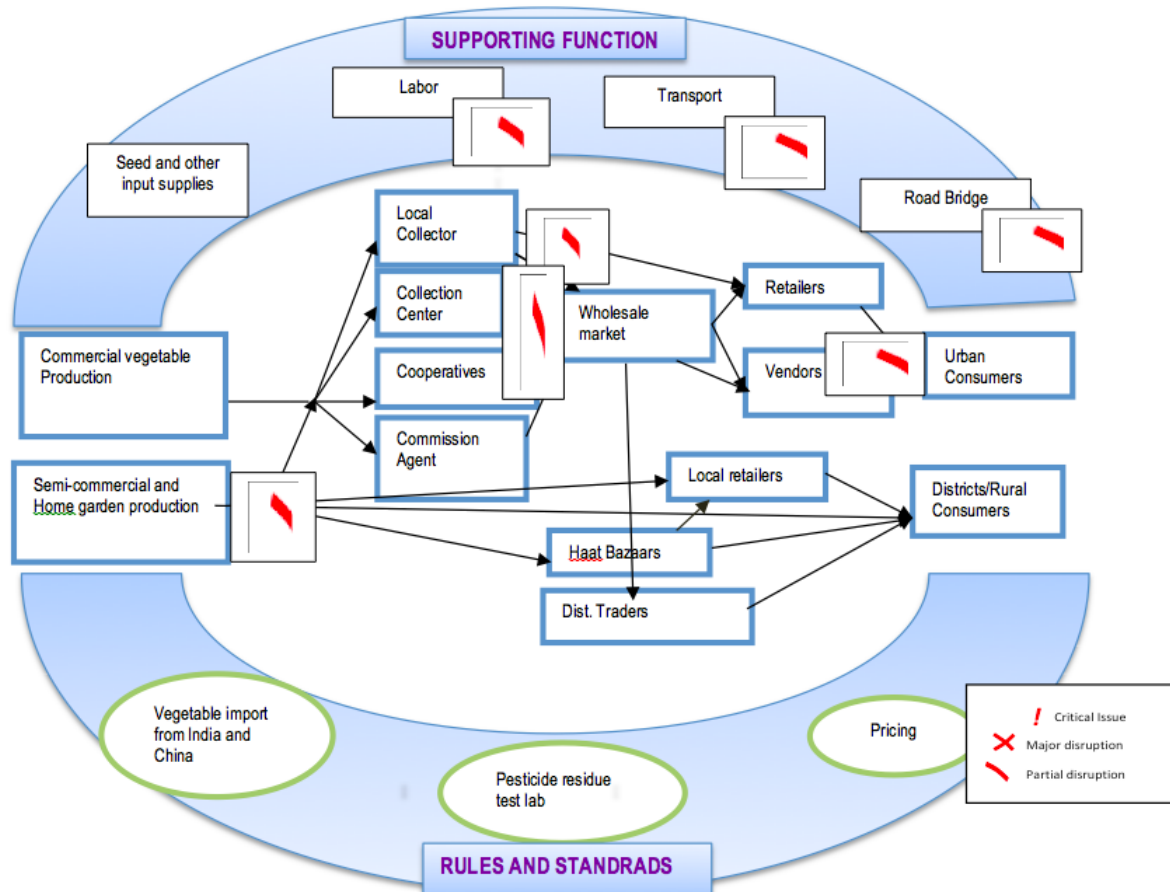
# Annex 1: Market Maps of the Vegetable Sector

## Market map of the sector pre-earthquake

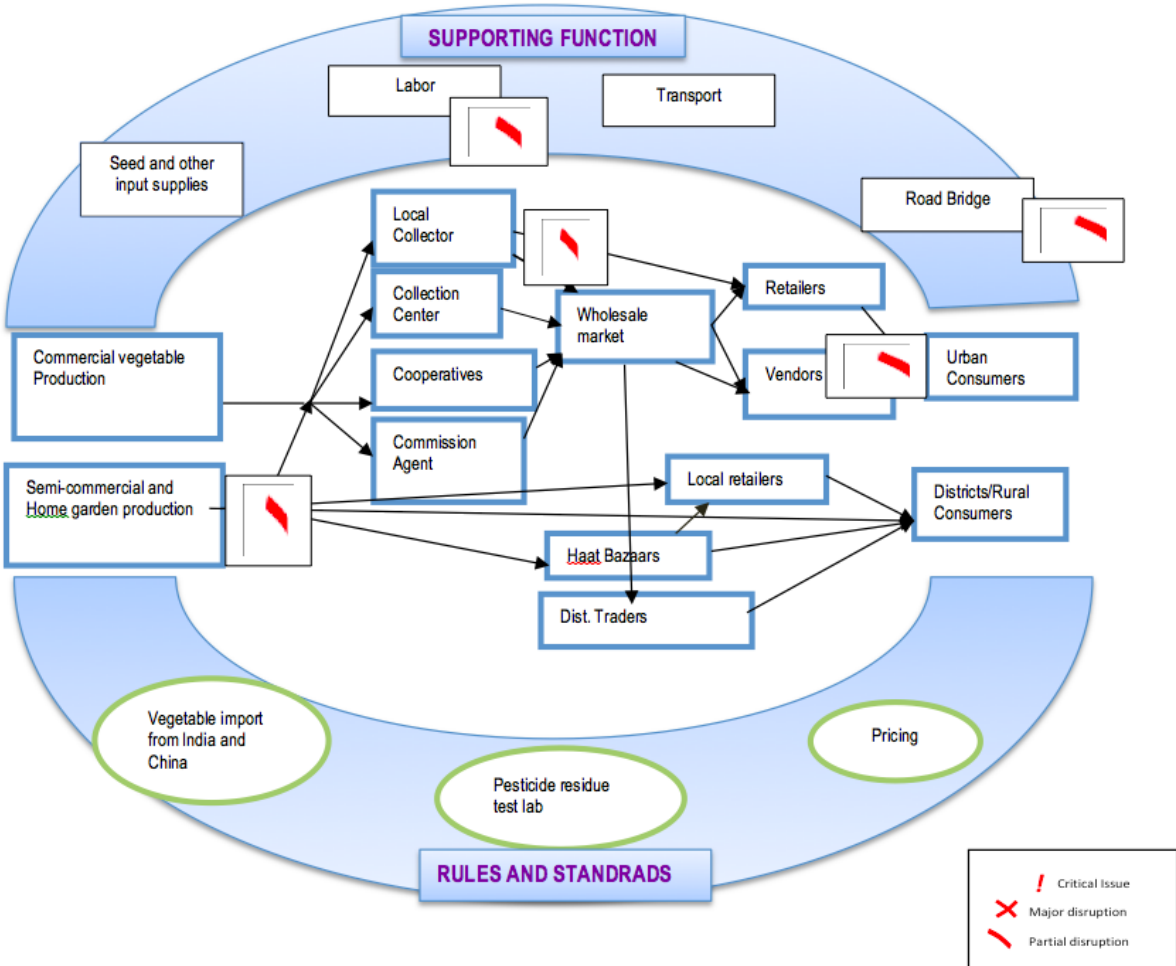


# Market Map of the Sector Post Earthquake

## Non-functioning market areas



Functioning market areas



## Annex 2: Nepal Vegetable Seasonal Calendar

		WINTER				SUMMER				RAINY			
		Nov	Dec	Jan	Feb	Mar	April	May	June	July	Aug	Sep	Oct
High Hills (Above 1500 M)	Cauliflower/ Cabbage						N	TP		H			
	Tomato/ Eggplant/Chili						N (Poly Hou	TP (Poly House)		H (Poly House)			
	Radish							P		H			
Mid Hills ( 1500- 600 M)	Cauliflower/ Cabbage		H								N	TP	H
	Tomato/ Eggplant/Chili	H						N (PH)	TP			H	
	Tomato/ Eggplant/Chili				N	TP			H				
	Okra							P		H			
	Radish		H									P	H
	Cucurbits				N	TP			H				
	Beans/ Cowpeas									P		H	
Beans/ Cowpeas						P		H					
Tarai and River basin below 600 M	Cauliflower/ Cabbage		H									N	TP
	Tomato/ Egg Plant/ Chili		H								N	TP	
	Okra/ lady's finger					P		H					
	Radish		H										P
	cucurbits		N (PH)	TP				H					
Beans/ Cow-peas			H	P			H				P		
P= Planting	TP = Transplanting												
N= Nursery	H=Harvest												
								Earthquake					