

## **BACKGROUND**

How will Nepal feed the millions who live in her cities ? What will the government do to the thousands who have been producing food in urban and peri urban areas to feed their fellow inhabitants ? Will the government have special programmes to help these urban food producers or will it leave them to their own fate and let them fend for themselves ? What do the food producers have to say about their profession and trade? Do they expect a supportive attitude from the authorities or have they got no confidence in them ? These are some important factors which need to be explored and evaluated before any document can be prepared which tries to design a training programme for all the different partners involved in urban and peri-urban agriculture in Nepal. Urban and peri urban agriculture (UPA) was classified according to roles and activities of the practitioners. More than twenty groups have been shortlisted.

A very comprehensive and detailed exploration was done to collect information from all the various sectors involved and those who are interested but not yet directly participating in urban and peri urban agriculture (UPA) in Nepal.

Three approaches were adopted to collect the information.

- A. Direct interaction with individuals and discussions. Evaluation of roles and collection of views.
- B. Collection of information by survey/questionnaires and in group discussions.
- C. Collection of information from local publications, research reports, newspapers and journals. Since there is very little written information available, the bulk of the information was collected through field based studies.

To make the survey more comprehensive and effective, urban agriculture was divided into the following sectors based on major and supportive activities.

Chart: 1

- a. Food grain production
- b. Vegetable production
- c. Fruit production
- d. Meat production
- e. Fish production
- f. Poultry including egg producers
- g. Producers of animal feed; including poultry feed
- h. Cold store operators
- i. Organic farmers
- j. Floriculturists
- k. Dairy and milk producers
- l. Mushroom growers and Bee keepers
- m. Food preservation and Agro Processing
- n. Spices and herb processors
- o. Organic/Urban Waste Managers
- p. Butchers and meat sellers
- q. Local Chicken marketeers
- r. Research organizations/Scientists
- s. Demonstration farms/Roof top Agriculture
- t. Cooperatives
- u. Government offices/Financial Institutions
- v. NGOs/INGOs
- w. CBOs
- x. Lead farmers
- y. Associations
- z. Trouble shooters

Individuals, groups, community based organizations, associations, and the general public involved under each of the major groups were contacted. Their involvement in UPA was discussed. The following chapters describe briefly the result of the discussion and the result from the survey questionnaire. The training manual was designed based on the outcome of the information collection.

## **A. Food Grain Production**

Food grain production is more concentrated in peri urban areas, though lowlands within urban areas are used for growing rice and the uplands for maize. Rice and Maize are the two major crops. 75% of the farmers and groups interviewed said they grew food grains for consumption. All of them said that growing food grains was difficult and not economically attractive but it provided food security. Most of the low land was planted with wheat or vegetables during the winter or in the post monsoon season and this was sold for cash. This cash enabled the urban farmer to buy other essential services. The major constraints with food grain production was farm labour, low quality seeds, disease and pest-susceptible varieties and difficulty in getting fertilizer in time. Farmers also complained about the poor quality of the fertilizer available in the market, specially fertilizer sold by the private sector and imported by them from India.

Grain producers have to spend a large amount on pest control, so they are interested in varieties which are disease and pest resistant and in pest control using locally available materials. They are also interested in green manure crops which can be used for the rice crop because it is very difficult for women to carry wet manure to the field at this time both due to its liquid nature and heavy weight. They want to know about disease and pest resistant varieties of corn and wheat. They would benefit if the amount of fertilizer used could be reduced because its price has sky rocketed recently. The agricultural by-products, and agriculture waste from these major crops are sold for cash, used domestically, or composted so little is wasted to pollute the environment. Irrigation solar dryers, and good grain storage bins are other needs expressed by the grain producing UPA farmers.

## **B. Vegetable Farmers**

Vegetable farming is more widespread in urban areas. Even small areas are devoted to vegetables in cities. Vegetables are also the main crops in Kitchen gardens and roof-top gardens. Vegetables are the main supplement dish in many homes belonging to the urban poor. They are also the main source of income for many urban poor specially women. Since vegetables are harvested within a short duration, they are cultivated extensively in vacant spaces within urban areas. The cultivators were of the opinion that vegetables were safer option if the land had to be vacated at a short notice. The Kathmandu valley possesses almost 48000 ha which can be brought into

potato cultivation. Vegetables are grown in city areas while potatoes are mostly grown along river banks in peri-urban areas. If the potential vegetable and potato areas are developed, they can produce upto 70% of the total vegetable requirement of the valley. Only 23% of the demand is met by the present production.

Similar situations exists in other major urban areas in the country too. The vast potential of vegetable cultivation has not been fully exploited depriving the urban and peri-urban farmers of a good source of income.

Vegetable and potato processing is almost non-existent even in urban areas. Local shop keepers separate potatoes according to size and charge a higher price for bigger sized tubers. Storage facilities for fresh vegetables, like cold-storage, are not readily available to the poor urban vegetable farmer, therefore there is ample chance of the vegetable getting spoilt after harvest or over maturing in the field if it cannot be sold promptly. Our survey data showed about 30-50% wastage due to lack of storage or post harvest processing facilities. The medium sized farmers are the major victims.

Urban vegetable farmers have faced a number of problems which are summarized below.

- a. There is scarcity of improved seeds. Seeds available are not trustworthy. Not enough seed is available for the farmers to plant all the available land.
- b. Disease and Pest problems are serious. Farmers are not trained to identify beneficial and harmful insects. Therefore they use pesticides for all types of insects and pests putting a strain on their economy.
- c. Farmers rush to the nearest agro-vet shop to seek for advice at the first sight of insect or disease (because agriculture extension service is not readily available in urban areas) and are usually sold large number of chemicals and recommended very high rates of application because the shop keeper's intent is maximum sale and profit. This is a serious health hazard to the vegetable consuming public.
- d. The market is very unstable. The middlemen ensure maximum benefit for themselves by controlling the price of the vegetables. The urban poor are forced to sell because of the perishable nature of the vegetables. The poorest lot sell the vegetables themselves while the medium sized use the middlemen.
- e. The urban poor need to be trained on how to preserve unsold vegetables for use in the house and to market preserved vegetables for cash.
- f. The government has identified and selected vegetable market areas in

growers but the growers themselves have received very little support. The technicians are too few and over worked. They don't have incentives to travel to the vegetable farmers to offer advice.

- g. In some areas, farmers have suffered due to misunderstandings and confusion about authority and responsibility between two or more government agencies.
- h. Farmers compost vegetable waste in their small farms, but vegetable waste is a major problem in urban markets. Many major markets spend large amount to dispose the waste. This is a health hazard.
- i. Vegetable farmers do all cultivation activities manually-Mechanization is non-existent in most urban, peri urban farms.
- j. Bio-pesticides are not popular because their impact is slow, they are difficult to make and need large quantity for application. However, most urban farmers (72%) are eager to try home remedies for the pest and disease problems which affect crops if they are trained about it simply because the chemicals available in the market are too expensive now.

The training materials for the urban vegetable farmer need to address these points from the farmers' perspective.

### **C. Fruit Production**

More than 80% of the fruits sold in the three metropolitan cities of Kathmandu, Bhaktapur and Patan comes from outside, with the bulk coming from India. The fruit trade is the monopoly of a few traders who control the source and supply. It is a big business with very high stakes. A few local farmers tried to venture into this business but they were ruthlessly opposed by the regular traders, therefore fruit cultivation has not succeeded on a commercial scale. Fruit is produced in home gardens mostly for home consumption. Some extra yield (about 20%) is sold locally. A few farmers grew fruits on a commercial scale in the peri-urban areas. These farmers grew a limited number of varieties like oranges, and local varieties of pear which do not come from India. The climate and soil is favourable for growing a wide range of fruits. It would be better for the urban and peri-urban producers to switch over to high value fruits like Kiwi, avocado, strawberries, persimmons. They fetch high price and have a good market in urban areas. A few trees would give good profit to the grower because of the high price they fetch. They are not imported from India

like apples, bananas, oranges, so the urban and peri urban fruit grower does not have to compete with the big traders for the market share.

The government has encouraged fruit production in the urban and peri urban areas by identifying "fruit pockets". A few farmers have taken up fruit cultivation as well but the result has not been able to meet the potential.

Seventy fruit cultivators were interviewed, about hundred questionnaires filled up and the following result was obtained about urban and peri-urban fruit production.

- a. There are many interested households who want to grow fruit trees, but getting planting material is a big problem. The seedlings produced by government nurseries are limited and meet only about 5% of the demand. Private nurseries are not trustworthy.
- b. Urban households would like to plant a few trees of fruits with specific reputation. They are prepared to pay a high price for such fruit tree seedlings.
- c. Fruit farmers who have been growing fruits in fairly larger areas (2-5 ha) in peri-urban areas have difficulty in marketing the products. They are forced to sell it to the middlemen who collect the fruits from the orchards but pay a low price for it.
- d. There is no networking or cooperative arrangement between fruit cultivators therefore their grievances are not taken seriously. There is cut-throat competition amongst growers to sell their products.
- e. There is limited publicity and exposure about fruit gardens and fruit products produced in these areas. The fruit growers who produce fruits organically without using pesticides receive no support. Government officers, influential politicians, planners, development workers rarely visit the gardens to provide advice or encouragements. There are no NGO or community groups to voice their concerns or champion their cause.
- f. The farmers are unaware of post-harvest technology. Therefore a large part of their products goes to waste. There is need for special training about processing and preservation of fruits.
- g. The government has identified areas as "fruit pocket areas". They should support the construction of cold storage facilities to enable fruit farmers to get maximum benefits from horticulture. "Cold Store" facilities could benefit vegetable growers, potato farmers, and other farmers too.

- h. Many farmers who have started horticulture in peri urban areas want to get maximum profit from their lands. This is not possible using traditional practices, therefore the government, NGO, INGOs should make up-to-date information of fruit cultivation available to them in the form of newsletters, extension materials, or training booklets.
- i. The government must allocate manpower and assist growers, both technically and financially, in the horticulture sector. Some farmers have quadrupled their profit after switching to fruit cultivation from grain production.
- j. The government cannot cover all the areas with the limited manpower at its disposal. Therefore, they must carefully select, train and support local farmers and encourage them to assist fellow farmers who want to take up horticulture.
- k. No major disease/pest problems have been encountered with citrus fruits. Home remedies and some chemical sprays have done the job. Disease and pest problems remain with other species of fruits for which farmers need appropriate training on bio-tic control or chemical control. High yielding Japanese pears, avocados, grapes are highly susceptible to insect attack, economical preventive measures are necessary.
- l. There is a need for the horticulture department to provide training to interested urban peri-urban farmers on fruit seedling production. They must also inspect, monitor and certify the product. Many private nurseries are cheating customers by selling inferior products. Customers are reluctant to buy fruit seedlings from private nurseries because there is no guarantee of the product and quality.
- m. Many urban and peri-urban fruit growers have complained about the complete lack of follow-up programmes from the agricultural offices. They suggest that monitoring, evaluation and regular discussions must be a regular programme of all district, area, subarea, and sector agricultural offices.
- n. The urban and peri urban fruit cultivators suggest that the government, when they plan a fruit development programme for the area, must have a long term plan which covers all the aspects of fruit cultivation ie. from planting to management to harvest, processing to market. As of now the government limits its role to the selling of seedlings.
- o. The financial institutions are reluctant to finance horticultural activities in  
UDA areas. This attitude must be reformed.



## **D. Meat Production**

Two groups were consulted to find out their views about urban and peri-urban meat production. They are (a) Animal raisers (b) Live animal traders

### **i. Animal Raisers :**

These groups raise meat animals (poultry is discussed in another section) in or around the urban areas in their own homes. They have a few female goats or buffaloes which are raised on household or garden wastes. They take the male off-spring when it reaches market size and sell it to the customer. The goats are sold according to live weight or size depending upon the state of the market. Buffaloes are generally sold to middlemen on previously agreed arrangements. This locally raised animals occupy a very small percent of the total number of animals sold in urban areas (less than 5%). The rest 95% is fulfilled by live animals from outer districts and from India.

Most domestic animal sellers raise local breeds of animals which are more resistant to disease and pests. Their major problems are:

- a. It is a problem to increase the number of animals raised per household to more than 10 because of housing and feeding problems in UP areas. Most urban/peri urban homes have between 1-5 animals.
- b. It is a problem to sell animals for the right price because the price is controlled by middlemen who have a monopoly of this business.
- c. There is no fixed area allocated by the government, for market animals. The municipal authorities and the police harass farmers and ask for bribe money when farmers move their animals from one place to another. This animal movement is necessary to find customers.
- d. Veterinary services are expensive and not readily available for the poor who raise the animals.
- e. The government has no programme which focuses on these urban meat producers because they cover a small fraction of the market.
- f. The number of these meat producers is few and they are not well organized. Therefore they are not likely to become a pressure group that can bring a change in their conditions soon.
- g. These animal raisers have a few demands. These include the need for a goat species which has a faster growth rate. They also want the government to allocate areas which they can use to sell their animals without harassment

**ii. Live Animal Traders :**

There is a registered cooperative called the "Nepal Four Legged Animals Buying and Selling Cooperative Limited" which has branches all over Nepal. They collect animals in different parts of Nepal and also bring and control the inflow of live animals from India. They are mostly involved in the procurement and sale sector and often do not raise their own animals. They are mandated to assist urban/peri-urban animal raisers but have not done so due to lack of funds. The major objectives of the cooperative are:

- a. To buy four legged animals allowed by law and make them available to the customers at a reasonable price. The major (96%) customers are in urban areas.
- b. Take orders from consumers and make necessary arrangements to meet their demand for healthy, hygienic and fresh meat.
- c. Assist the government agencies by supporting private groups to raise healthy animals for meat.
- d. Assist the cooperative members to raise animals for market to enable them to raise their standard of living.
- e. Construct a slaughter house to supply hygienically pure meat to the consumers.

**Some major problems**

1. Though government registered, there is very little support from the government for the cooperative. The cooperative is forced to buy live animals which have not been examined by qualified Vet. doctors because there is no provision for this. Many diseased animals are sent to the market. This is specially true with PPR affected animals. The vaccinated animals are marketed before the effect of the vaccine is neutralized. Farmers are not sure of the result of the vaccination and want to sell the animal before it dies.
2. Local policemen and different government check posts charge bribes to allow the animals through.
3. There is no provision for reimbursements of dead or diseased animals.
4. Only 5% of goats and sheep consumed in urban areas is produced in (Nepal).  
Out of this the percent produced in urban/peri-urban is negligible. Therefore

there must be strict control on quality but the government has not done anything about it.

5. The government and the municipalities are not sensitive to public opinion about meat hygiene and the need for a modern slaughter house. The best example is the proposed slaughter house at Humat tole in the heart of Kathmandu city. The parliament approved the construction of the slaughter house in 1999; but the local population opposed the site selection fearing the accumulation of waste and its effect on the local environment.
6. The live animal traders have become victims of the misunderstanding between the government, which passes the law, and the metropolitan authorities which implement it because the law was not drafted by mutual agreement of both parties.
7. The law proposed that only healthy animals would be slaughtered, and the carcass be re-examined before it was sent to licensed outlets for sale. This practice was opposed because there was no system of examining animals at the border before they entered into Nepal from India which supplies over 70% of live animals.
8. Mr. Durga Datta Joshi from the National Zoolosis and Food Hygiene Research Centre is of the opinion that most of the meat which is sold in the local market is unfit for consumption. The parties who supply the live animals which are slaughtered complain that it is the government that is weak. This is an example of the pass the buck attitude which is prevalent in the meat market.
9. The carcass of slaughtered animals at Human Tole are cleaned with water from the Bishnumati River which is contaminated with untreated sewage.
10. Three hundred and fifty buffaloes are brought to Kathmandu city everyday for meat purpose. The number of goats is much higher.

#### **E. Fish Production**

Very little fish is produced in urban areas of the valley except in some government or historical ponds. Fish raising is a very profitable business in other urban-peri-urban areas of Nepal. Most of the fish sold in the urban areas of Kathmandu comes from the outer districts or from India, specially West Bengal. Like goat and buffalo meat, the fish trade is controlled by a few major traders. They collect fish outside the valley and bring it to Kathmandu from where it is distributed to small

uncertain. The merchants bring "fresh" fish from the districts but it is not sure if they are healthy fish. The fish markets produce a lot of waste everyday. This adds to the urban waste disposal problems. Ninety three percent of the respondents said that they threw the waste in the waste containers. Seven percent gave it to local pig and chicken farmers who collected it from them every day. When asked what would benefit them most, the fish market owners said:

- a. The government must assist them with finances to build cold storage so that unspoilt fish could be marketed and waste reduced.
- b. They would benefit if simple technology could be introduced to enable them to use the waste, which is almost 20% of the fish weight. This would be a direct benefit because this waste is the portion left behind by the customer after paying for the whole fish.
- c. Fish is a perishable item and cannot be stored for long without proper refrigeration facilities. Simple preservation techniques to prolong the quality of fish would be very helpful. Sellers are forced to sell the fish at greatly reduced prices after a day or two.
- d. Government holidays, religious days and the frequent closures and strikes have all affected fish sales. Killing fish must be banned but not selling already killed fish on such days.

#### **F. Local Chicken**

Local chicken have a special place in Nepalese dining rooms. It is agreed in Nepal, that local varieties of chicken taste better than farm raised improved species. Hundreds of urban poor, specially women, are involved in this business. There are three major groups who are involved in the sale of local chicken. (a) Those who collect chicken in different locations and supply them to the middle men who market the birds through different outlets (b) Those who raise local chicken in their villages and bring them to urban areas and sell them themselves (c) Those who raise chicken in urban areas and sell them themselves.

All of them have no other jobs except to sell chicken and the profits are nominal. Seventy eight percent of the those interviewed said they could sell between 1-4 chicken per day. The larger number of sales was during holidays and in the festival periods. They have received no support from the authorities at all. They have been frequently harassed and their birds looted by the police and metropolitan

country and work independently. None of them have considered forming a union but they think it is good idea. The following suggestions were presented during interviews and from the questionnaires.

- i. More than seventy two percent of the women who sell local breed of chicken are from outside the valley.
- ii. Their husbands do simple manual work in the city.
- iii. They have not been allocated specific areas where they could sell their birds, therefore they have to keep relocating. They have not been able to develop a permanent relationship with regular customers which could ensure smooth marketing of the birds regularly because they have to relocate themselves frequently.
- iv. The municipal authorities have become more troublesome than the police.
- v. The birds are caged and fed. Some of them suffer from the over crowding and die. The middle men who provide the birds for sale have to be paid for the dead bird too. The meat sellers even buy these dead birds and sell them to the customers at a profit.
- vi. They will continue in this trade because they have nothing else to do what assistance would they expect from the authorities ?.
  - a. Ninety percent said the metropolitan authorities should allocate specific locations in each ward where local chicken could be sold.
  - b. Sixty percent said the government/metropolitan authorities should make provision for them to get collateral free group loans from financial institutions so that they could build the necessary sheds to house the birds for sale. (They keep them in bamboo baskets at present). They would repay the loans by selling their birds.
  - c. Forty percent of interviewers said. There must be an office where complaints about mistreatment from lower staffs of police and metropolitan office can be lodged. A common practice now is to take away whole basketful of birds as punishment. This should be stopped and reasonable fines imposed if found guilty. Taking away all the birds is a severe punishment for the poor women.
  - d. Twenty percent of respondents want harrassment that occurs while transporting birds to stop. One respondent said he was forced to "bribe checkpoints", at twenty different places while bringing his bird from Dharan to eastern Nepal to

## **G. Poultry Production**

### **i. Nepal Hatchery Association**

There is a government registered Nepal Hatchery Industry Association with membership in most of the major urban areas of Nepal. It was established with the following objectives.

- a. To protect the interest of the hatchery industry and to work towards the improved management of these hatcheries in the country.
- b. To investigate and identify the problems faced by the industry and to try and solve these with effective planning and strong leadership.
- c. To bring all hatchery industries under one organization for effectiveness.
- d. To work closely with His Majesty's Government, financial institutions, and international organizations for mutual benefit.
- e. To encourage the establishment of more hatchery industries and to create jobs for the unemployed.
- f. To provide technical and other help to those industries which are not functioning efficiently and which are at the point of break down.
- g. To create opportunities for training of desirable members after initiating contacts with industries in other countries.
- h. To organize workshops, seminars, exhibitions to promote the hatchery industry.

### **ii. Nepal Poultry Raisers Farmers' Associations**

This is another association which looks after the interests of poultry raising farmers. This includes big farms as well as small farmers who raise a few chicken. Both type of poultry, for meat and eggs, are included. This association also has membership all over Nepal with the majority of members from the urban-peri urban areas.

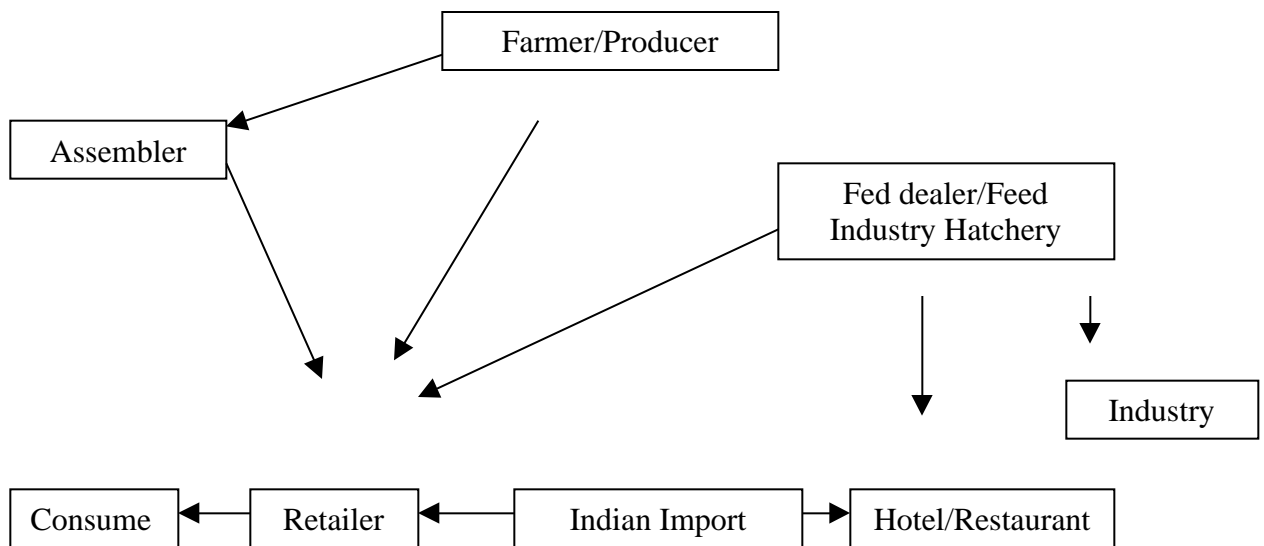
### **iii. Nepal Poultry Marketing Association (Including Cold Store Operators)**

The major objective of this association, established in 1996-1997 with forty three members, is to coordinate the activities of those who produce poultry and those who market poultry products with the major objective of controlling the market price of the products. It also proposes to develop mechanism to soften the fluctuations in the market price of chicken products so that the customers do not get driven away and

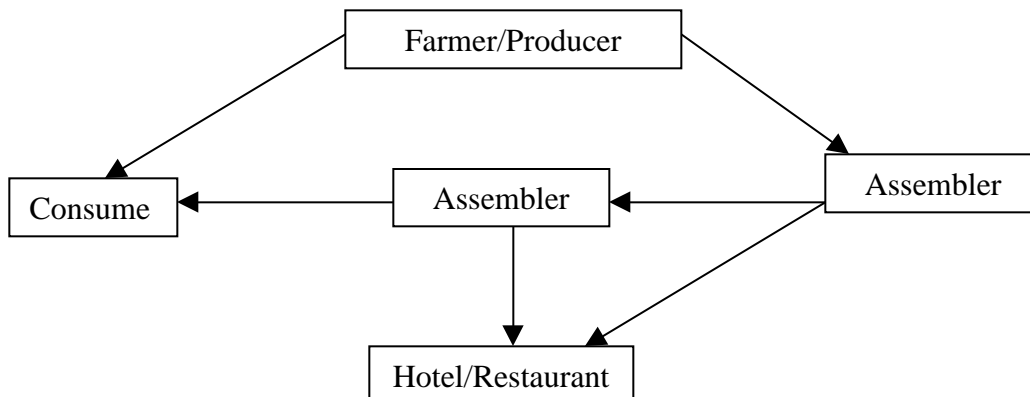
storage facilities in Nepal but there are only around sixty registered cold stores in Kathmandu. Sixty five percent of the meat sold from cold stores is consumed in Kathmandu metropolis; Pokhara city comes next. About five hundred and seventy seven thousand five hundred (577500) kgs. of poultry meat is consumed every day in the whole of Nepal and ninety percent of this in urban and peri-urban areas.

Thirteen thousand and five hundred people directly involved in this trade are getting employment in Kathmandu valley alone. This association has received no support from the government. The biggest problem faced recently by this profession is due to the exorbitant rise in the price of Kerosene which is very important for the cold stores.

**1. Marketing channel of eggs in Kathmandu (Source No Frills consultants)**



**Marketing Channel of Broilers in Kathmandu (Source No Frills Consultants)**



## **H. Animal Feed and Poultry Feed Producers**

There is a centrally registered association with membership in all the major urban areas in Nepal. The basic objective of this association is to produce high quality animal and poultry feed to support animal husbandry and poultry industry in Nepal. The head office is in Kathmandu with branch offices located in other urban centers.

The President of the Association Mr. Ram Lal Shrestha claims that the association has contributed to the improvement of milk, poultry and egg production by supplying quality feed concentrates. Eighty seven percent of milk producing farmers in the urban and peri-urban areas we interviewed claimed that they were using feed produced by the association although they were a little worried about the quality of the feed produced by some members.

The following points were raised by the president during our discussions with him.

- a. The animal feed industries have not received government protection and support.
- b. This association was established in 1990 and registered with the government, but the government has not only not provided assistance, but even refused to listen to some genuine grievances, so the association had to go to court to get justice done.

The major objectives and comments are:

- a. Produce high protein feed and distribute the products all over the country.
- b. Industries registered with the Agriculture Department or the Cottage Industry Department can become members of the association.
- c. The association provides training to interested farmers on feed manufacture. Foreign trainers are generally invited to give the training. Recently, two experts were brought from Israel who organized a two week training for interested members.
- d. There are around 54000 people who have been employed in this industry. Since most industries are located in or around urban areas, it is one of the major employment provider to the urban poor.
- e. The industry would like to explore opportunities to utilize locally available raw materials to replace those which are imported from India. If this could be done, then there would be a chance to reduce the price of feed and make it

more readily available to the non-urban farmers.



- f. One of the major imports is the soybean oil cake. The oilcake produced here is not of good quality. The government has been asked to look into this matter.
- g. There has been no attempt to utilize bones and blood from the slaughter houses because of lack of knowledge. There is a good chance to do it if the municipality or the government initiates an appropriate programme.
- h. The industry continues to pay district development tax for the raw material and also sales tax for the finished product which is unjust to the producer and the consumer.

#### **I. Butchers Association**

This association was established in 1994-95 with its head office in Kathmandu. Membership is open to all those who are engaged in the slaughter and sale of meat. The objectives of the association are

- a. To provide hygienically clean meat to the consumer by selecting and slaughtering healthy animals.
- b. To assist the urban poor who are interested to raise meat animals by providing them with financial support and technical help.
- c. To pay the best price for their animal when they sell it to the association.
- d. To encourage new members to follow our cultural and social traditions when butchering and selling meat.
- e. To help the government and social groups during natural, social and political crises.

This association was very active between 1994-1999 but it is not so active now. This association, which has over 1000 members all associated with the sale of meat, must be involved in any future programme associated with meat marketing and meat hygiene in urban peri urban areas.

This association was responsible for initiating the programme to set up a modern hygienic slaughter house in Kathmandu, but the programme did not succeed because the local people opposed to the establishment of a slaughter house in their location.

#### **J. Dairy and Milk Producers**

There are numerous private and cooperative dairy firms located in all the urban and peri urban areas. There are also hundreds of families involved in milk

some milk cooperatives like the Central Milk Producers Cooperative Union, with membership all over the major urban and peri-urban areas, have been playing an important role in the supply of milk and milk products to the urban areas.

There are more than six hundred cooperative members scattered in peri urban areas of six urban cities namely Hetauda, Kathmandu, Lumbini, Biratnagar, Pokhara and Kohlapur who supply milk to these urban areas.

There are about 83 dairy firms out of which there are about two dozen in and around Kathmandu alone. The total milk produced in the 2000-2001 by government and private dairies was 1210000000 litres. Most private dairies have been accused of mixing harmful milk powder in their dairy to increase the milk production. Most private dairies located in urban and peri-urban areas have been accused of this practice. However, the private dairy owners strongly deny this and claim that it is only negative propaganda to discredit them. A recent report from the Food Technology and Quality Control Department does show that some private Dairies are selling milk mixed with harmful milk powder.

There are hundreds of families in the urban areas who keep a few animals and supply milk to urban households or centers. They work individually and are not tied to any cooperative, dairy firm or group. It is mostly a family business. They are least affected by milk holidays, price fluctuations or government rules and regulations. Upto now they have not been subjected to any trouble by the authorities for rearing cattle in the middle of the cities. The health department and other agencies responsible for public health have not bothered to study the effect of animal rearing in urban areas on the health of the people. The major problem faced by these urban animal farmers are, with adequate supply of animal feed and disposal of wastes. Another major problem with individual families rearing animals is the bull-calf. They are forced to release it in public places once it serves its purpose for milking the cow. Hundreds of such bulls are released every year causing civil disturbances. Small urban milk farmers want the authorities to buy such animals from them and send it to other areas where they could be used for breeding or as agricultural draft animals.

#### **K. Organic Farmers**

There are special groups who have been practicing organic farming in major cities or in peri urban areas. They have specific markets and customers which buy their products at a higher price than products from other farmers. Many profitable products

undertaken organic gardening and domestic waste recycling effectively. The roof top garden and school programme by Green Energy Mission Nepal is a good example.

The Gamcha Organic Farm and Cooperative is a pioneer cooperative in organic farming which has over sixty members. The Farm was established in 1987 by an American lady, Judith Chase. The cooperative encourages the use of appropriate agricultural alternatives (Triple A). The main aim of the farm is to improve the health of people and of the environment by promoting the production and consumption of organic vegetables, fruits, nuts, herbs, and grains in Kathmandu valley. The cooperative farm is located in the peri urban area of Bhaktapur. The customers for the products are mostly foreigners from urban areas in Kathmandu. The farm has done some excellent work in the past 15 years and can be used for urban agriculture technology transfer.

There are numerous other farms and individuals who have undertaken organic farming in peri-urban Kathmandu, Bhaktapur, Lalitpur and in some big cities like Biratnagar, Birgunj, Hetauda. Organic farming is more difficult because the inputs have to be produced in the farms. Many farms complained that they were not getting adequate price for their produce because there was no provision to certify their products as organically produced. They were forced to sell the products like any other product from a common farm.

#### **L. Floriculturists**

Demand for flowers are increasing every day in urban and peri urban areas. At the present, the demand far exceeds supply. Growing flowers for income is a new thing in Nepal. There are around thirty flower shops in Kathmandu at present who supply flowers on a regular basis. Some flower shops have annual agreements with producers who supply seasonal flowers to these shops. Others have started flower production farms in peri-urban areas in collaboration with the land owners. The demand for flowers reaches a peak during marriage festival, and during important religious periods. Flowers have been used to welcome visitors and in big hotels and public places. The floriculture business is an important business which provides employment to urban and peri urban people. Two to three persons are employed in each flower shop and between 4-10 in each flower nursery and almost 70% of these are women. Beside this, a large number are engaged as transport agents who carry the flowers from the shops to their destinations.

Suku Basu (Chhetri) a flower shop owner in Kathmandu said that the flower business is a profitable business in urban areas and it is expanding. The major constraint is flower supply. Flower seed and planting materials are also in short supply. It could prove to be a good business to produce these.

There are more than sixty registered flower nurseries around Kathmandu, Bhaktapur, Lalitpur who compete with one another to supply flowers to the market in these three urban cities.

The agro enterprise center, an active wing of the Federation of Nepalese Chambers of Commerce and Industry, has provided liberal support for the development of Floriculture in Nepal. The Floriculture Association Nepal (FAN) is the leading national organization.

A report prepared by the Institute of Trade and Development (ITAD) for Floriculture Association Nepal (1994) reported that eighty percent of flower nurseries were established in and around the urban areas of Kathmandu, Bhaktapur, Lalitpur and Chitwan. Out of the eighty three nurseries surveyed 28 were sole proprietorship, 2 in partnership, 16 private limited company and 1 government owned. The rest were not registered. There were 554 people employed in the 83 nurseries; out of these 102 (management and owners); 111 (Skilled); 341(Semiskilled and unskilled). This again goes to show that the floriculture industry provides a good opportunity for work to the urban peri urban poor and unskilled.

Need for expertise and training of different types were expressed by all the participants in floriculture.

## **M. Mushrooms and Honey**

Both these items have gained popularity in urban areas in the last decade and the demand for these items is increasing. Both the government and private sector are involved in their promotion. Mushroom and honey production also employs a large number of urban poor.

### **i. Mushrooms :**

The government has selected appropriate locations to extend mushroom technology and identified them as mushroom pocket areas. Every household in some peri urban village has taken up mushroom cultivation. In Balambu, local mushroom cultivators have identified five markets to market their products. They pay Rs. 5 to the

per kilogramme. The price is low during February to March and high during April-June. Two major types of mushrooms are grown:

- a. "Gobre
- b. "Kanya"

The major problem faced by the mushroom cultivators are:

- a. Market
- b. Technical knowledge about other varieties
- c. Waste management

## **ii. Honey :**

The demand for honey is increasing according to Mr. Kishore Shrestha from Dharan in east Nepal. He started honey production with an investment of Rs. 220000; and fifty five hives. He now has 110 hives. He has sold 1425 kg honey in the market. Mr. Shrestha is also the President of Bee Keepers Association of Eastern Nepal. According to him the demand for honey for exceeds supply. He says bee keeping is a good profession in urban areas and he has distributed many hives to urbanites. A study conducted by Mr. Kishore Shrestha, Shambhu Ram Katuwal (Horticulturist) and Mr. Sanu Ram Shrestha (Gandaki Bee Concern) about possibility of honey production in Eastern Nepal concluded that there was good prospect for bee keeping and it would fetch about Rs. 10 million to the farmers. Bee keeping is attractive to the urban poor because its investment is low, does not require large space and gives good returns. According to the experts the major constraints in the expansion of bee keeping are:

- a. Technical knowhow
- b. Financing
- c. Extension and support to the bee keepers

## **N. Food Preservation and Agro Processing**

In Nepal, food preservation and agro-processing has been over looked and neglected. This is specially true with government planners. There are, however, hundreds of small processing plants and food preservation industries operating in the different urban and peri urban areas in the country. Most processing plants have multiple functions, so do the preservation industries. One common thing is that almost all are small family businesses run in sheds in urban areas. They provide employment and income to the urban population. Agro processing and Food preservation both are considered industries in Nepal while the production of many materials comes under

provide training to the fruit farmers on how to process fruits, but the programme is not directed to urban fruit growers. Whatever food processing and fruit preservation work is done in the urban areas it is the result of individual efforts.

We interviewed forty six different owners of mini processor plants and twenty three groups involved in food preservation and not one had received any support from government agencies in technical matters. Some have, however, received small loans to start their business as cottage industries. There is ample opportunity to improve the efficiency of these enterprises. These enterprises could be useful sources for employment. NGOs/INGOs should focus their attention on improving micro level agro-processing and food preservation in urban areas.

#### **O. Spices and Herb Processors**

This group is different from the food processors. These are family businesses which produce spices of different types and also herbs and other seasoning powders. Total consumption of species and herbs run into thousands of rupees worth of these products because Nepalese by nature garnish their food lavishly with herbs and spices. This group operate small grinding machines which are also used for grinding herbs and spices brought to them. The rent for grinding depends on the commodity. It is estimated that there are between 3000-4000 such spice-processing centres in the valley. Each of these employ between 2-5 persons. The introduction of herb and curry powder from bigger industries is a threat to many of these domestic industries. Fifty percent of the owner operators of these processing centers feel uneasy with the entrance of the big brands. Thirty six percent were not worried because they had fixed regular customers for many years. The remaining fourteen percent were not sure if there would be any difference. All the interviewed owners want to improve the quality of their products. They want to produce clean unadulterated products to compete with the big brands which they said were not pure.

They want the government to enforce strict quality controls on the imported raw materials from India and also to enforce price control. Ram Bhakta Shrestha, Raghubir Shah and Sudhir Gautam, all owners of small processing industries producing curry powder, are of the opinion that private homes would continue to use their products because they could blend numerous herbs and produce different products to suit the tastes of the customers. Such blending would not be possible with products blended and marketed by big industries.

## **P. Organic Waste Managers**

The metropolitan committees are the main institutions responsible for waste management in their respective cities. They have used the 3Rs (Reduce, Recycle and Reuse) principle in trying to manage urban waste. Previously, people living in urban areas used to reduce the amount of waste generated at the household level by making compost in their backyards. This was used in their gardens to produce various food items. This system has been discontinued because it has become difficult to get open space for composting; therefore all the waste is disposed off in the garbage heap to be removed by the municipality garbage collectors. The collected wastes go to land fill sites or are dumped along river banks, public land or even on private property.

A number of community based organizations have recently initiated waste recycling and re-use activities. The amount of wastes reused with the help of such organizations is a very small fraction of the total wastes produced in the cities. Women's groups are the principle organizers of this recycling activity. Waste is composted and sold to the interested groups at Rs. 9 per kilogramme.

The Kathmandu Metropolitan city started a campaign called "Kathmandu Recycles". This was a campaign where people were encouraged to use garbage for economic development. This programme was not very successful because the implementation process was not effectively organized and conducted.

Mr. Bed Mani Dahal, a Lecturer at Kathmandu University, reported recently that garbage disposal and waste management activities have been hampered by interference from political leaders because this activity was directly associated with the community. The political leaders forgot that garbage collection and safe disposal was a technical subject (beyond their understanding) and gave it a political hue. The frequent interference has made it difficult for waste managers and environmentalists to work efficiently.

The whole gamut of solid waste management must be evaluated thoroughly before an efficient system is identified from the point of urban agriculture. The best approach would be to involve a large number of communities to reuse domestic waste for improving agricultural production. It can be grain, vegetable production, meat production or milk production.

The simple hypothesis should be the lesser the waste generated the simpler it would be to manage it. With this aim, one hundred and thirty six households were visited in the Kathmandu metropolis, the female members were asked if they were

of garbage littering the streets of Kathmandu. Ninety seven out of the one hundred and thirty six interviewed were eager to participate, twenty three would be ready but only after learning what was required from them, the rest (sixteen) were not free. Viable programmes could be conducted in all the wards of the cities managed by the ward committees.

**Q. Demonstration sites/Roof Top Agriculture**

a) Demonstration sites to expose different appropriate technologies for urban agriculture development have been established by individuals, NGOs, and community groups at different parts within the urban and peri-urban areas in Nepal. Most of these sites are working to improve UPA production. Some of these sites have successfully disbursed improved production technology to neighboring areas. They have also provided employment to the urban poor as hired labour. These demonstration sites can be used to further improve production in other urban peri urban area by bringing urban farmers to study the improved techniques employed in these farms.

Dr. Kedar Budhathoki Ph.D. who runs a research and service center in peri-urban Lalitpur produces off-season vegetable in his farm and has trained local farmers to do the same.

Similarly Mr. Prem Raj Karki a progressive horticulture farmer from Jharuwabashi has used his horticulture farm to train many local women in the art of fruit cultivation. He has demonstrated the advantage of fruit cultivation over other forms of urban agriculture by developing a package of operations where fruit growing is integrated with animal husbandry, domestic waste management and fruit tree management.

The Gamcha Organic Farm and Cooperative is another good example. It is devoted to the development of the organic agriculture sector in Nepal. Some of the technologies developed in this farm can be extremely useful to the roof-top agriculture which is gaining popularity in urban Nepal. They follow the 3A principle of urban agriculture.

These demonstration sites and many other experienced technicians who run similar farms must be utilized extensively to improve UPA.

**b) Roof Top Agriculture or above ground gardening :**

This will become a common practice in all major urban areas, even in Nepal, in the future. The number of roof top gardens has been increasing annually in



vegetables for the kitchen, reduce expenses and to reuse domestic waste. Roof top gardening is still in an infant phase but the tendency is for a rapid growth. Roof top gardens will be the privilege of the rich because it is impossible to have such gardens on the roofs of poor people. Above ground gardening, the practice where platforms are built 4-6 ft. above ground and plantation done in shallow soil on these platforms, may be more appropriate for the urban poor. Tyre gardens, Discarded motor vehicle battery gardens are some other possibilities for the urban poor; who could use these highly polluting items to grow seasonal vegetables in unused municipal land after obtaining permits from the authorities to do so.

#### **R. Government Agencies/Financial Institutions**

The Ministry of Agriculture and Cooperatives; The Ministry of Housing and Physical Planning and the Municipal administration and the peri urban Village Development Committees are the main partners in UPA development in Nepal. These government agencies must be supported by the Ministry of Local Development which has a formidable network of community groups actively participating in Development works. The Ministry of Women Development and Social Welfare; Education, Health, will have roles in UPA development too. The table on page ..... demonstrates the roles of the different government agencies in promoting UPA.

Financial institutions show a bias against urban peri urban agriculturists while allocating loans and evaluating collatorals. Collotal properties are under valued in peri-urban areas while at the same time high value properties are demanded as collaterals to provide low amount loans citng loan repayment and collection difficulties. The Urban poor cannot get loans on group guarantee basis as is the case in rural areas. Appropriate, suitable and the most deserving poor urban producer is usually unable to get loans from lending agencies because his demand is low and not very attractive to the loaning agency.

S.No.	Name of Ministry	Roles
I.	Min. of agriculture and cooperatives	Technology Development, Transfer, Cooperative participation, Management
II.	Min. of Housing, Physical Planning	Allocation of New Areas, Protection of Traditional UPA areas, infrastructure development, town planning, zoning areas in cities.
III.	Municipal Authorities, Peri-urban VDCS	Assist in the implementation of rules and regulations which benefit UPA in their areas. Present and safe guard local UPA practitioners interests with other agencies.
IV.	Min. of Local Development	Involve community groups, Local Governments, Waste management and support to community CBOS.
V.	Min. of Women Dev. and Social Welfare	Activate NGOS, INGOS in UPA development.
VI.	Min. of Health/Education	Assist in supportive activities for awareness and effective support to UPA.

Meetings with Ministry Officials, and field staffs have clearly shown that UPA has not been a priority so far. There is a need to demonstrate the importance of UPA in national development before significant alternations are carried out in the policy. The available infrastructure forums and man-power can bring significant improvement in UPA activities but there is a need to improve the management of available physical and human resources. This will be discussed and presented in the other publication which deals with Training Mannuals for UPA development.

The significant findings from the research can be summarized as :

1. The local practitioners of UPA have received very little support from local agricultural development offices simply because many in these offices are of the opinion that there cannot be any agricultural activity in urban areas.
2. The majority of staffs posted in the local field offices want farmers to come to them with their grievances and are reluctant to go out to the urban farms to help. The farmers want these people to come out of the buildings and help them in their small plots inside towns and cities so there is a catch-22 situation. Nominal incentives to the authorities may do the trick of sending them to urban farms to help the urban cultivators.
3. The practice of target setting and target meeting has been the only means of evaluating the effectiveness of the programmes. In most cases these have no bearing on the actual impact at field level specially in UPA areas. These are no

4. These has to be a significant change in attitude, behaviour and application within responsible agencies to make them effective in the improvement of UPA. We will put forward our views in this matter in the training manual.
5. UPA is different from other forms of agriculture due to its very nature. It is also influenced by factors different from those which affect pure agriculture. A common and evasive answer received from all the authorities in the various ministries pointed to the fact that since UPA was affected by the programmes and activities of a number of ministries and departments there is a need for a coordinating organization who can bring the different government agencies and departments together to act for the development of UPA in Nepal. The municipal or urban development authorities must be made the focal point and given necessary authority and support to increase food production and manage urban waste in urban areas.
6. When asked if poor people could take advantage of available unused state land for growing food, with the government's assistance, senior government officials were discouraging in their attitudes. Some said their responsibilities had been shifted to another agency. Others said they would support such a plan but were unsure if other concerned ministries would also support it.
7. Officials in the Ministry of Housing and Physical Planning were worried about the influx of new squatters and their intention to claim squatters' right if state land was allowed to be used for agriculture purposes.
8. To sum up, the attitudes of authorities, the overall attitude is that residents in cities should not engage in agriculture. The general and majority of the residents do not agree with this notion but the people in change are firm about it. This is what matters because they are the ones who make the laws.

#### **S. Research Organizations and Scientific Manpower**

There is no single organization solely devoted to research on UPA in Nepal. It can however safely be said that research results from work carried out in government or private research centers can be utilized for the advancement of UPA. The best examples are the work with IPM, Waste Management, Vermicomposting, Varietal trials, micro-credit activities etc. They can assist in UPA development in Nepal. The government agricultural research centers are the primary sources of research results which have been used by urban and peri-urban agriculturists to improve their

Local NGOs and INGOs have been active in the transfer of results to urban and peri urban areas within their sphere of work. Few enterprising elderly scientists and retired politicians and bureaucrats have established farms within urban areas or in peri urban areas and these farms are also effective centers for technology transfer.

Nepal can boast of a large number of competent development scientists. They are highly qualified in their disciplines and are mostly employed by the government. Because UPA does not come into government priority, the contributions from these qualified personnel to UPA development is virtually non-existent. Much of the work done by these people on a professional capacity for the government can be supportive of the improvement of UPA though they may not be directly linked to UPA research. The ministry of agriculture and cooperatives, the Universities, Private Institutions NGOs are all conducting research to increase food production. Many of these research and research outcomes can be applicable to improve UPA production. Selection of appropriate findings and extension of the results within UPA areas is important. The list of scientific manpower and research organizations is presented in a separate publication.

It was noted from interviews and discussions with different professionals that extremely little research has been done on the role of urban farming in food security, nutrition, caloric contribution, income generation and public health. Basic research results from agricultural research stations can and have been used to improve individual crop production but the more important aspects of UPA is still not addressed in the research agenda of many research organizations and social scientists.

To summarize : Research on UPA will have to be more multi disciplinary in Nature. It also has to have a policy orientation. It must attract the attention of the authorities and researchers. The results appropriate and applicable to urban environmental management and development goals.

## **T. NGOs and INGOs**

There are over ten thousand NGOs and around hundred INGOs in Nepal. Majority of them work in a few important sectors like poverty alleviation, gender issues, natural resource management. All of them claim to be committed to issues affecting the poorest and the most disadvantaged sectors of society. There is a Social Welfare Council which is supposed to coordinate all the INGOs and NGOs

activities in Nepal (b) to assess the performance of NGOs (c) to ratify their work if necessary (d) to promote their activities (e) to facilitate the functioning of NGOs.

Recent survey by some independent agencies have found that most NGOs are based in cities and are predominantly family organizations. There is also an understanding that national NGOs must maintain a close support with INGOs and all INGOs have to spend their budget through local NGOs.

In our effort to identify efficient NGOs working in UPA, we discovered that though the majority of them were city based, extremely few had UPA related activities. Sixty seven percent of the respondents replied that they were unaware of agriculture in urban areas. There were few of them with good programmes, specially amongst the small vegetable farmers in peri-urban areas. This programme was not a part of UPA activity of the farmer but related to the larger objective of the NGO about vegetable seed production.

When we pointed out that these were thousands of urbanites engaged in food production within urban areas, seventy eight percent of the contacted NGOs expressed willingness to work for their support if approached to do so in the future.

Some NGOs have very successful programmes in urban and peri urban areas about waste management and environmental awareness. The Green Energy Mission a local NGOs has started a roof top gardening and domestic waste management programme involving school children and their parents. Similarly women groups like WEPCO, and other women community groups have effective domestic waste management activities in urban areas.

Our survey further shows that many NGOs have not developed need based programmes suitable and appropriate in their areas but are more involved in the implementation of projects and programmes developed by others elsewhere as extension agents.

The planning sector and implementation part of many NGOs is weak. The best example is the distribution of female goat to the poor for poverty reduction. Poor people are given female goats, but they are not trained about goat husbandry. It is taken for granted that all poor people know how to raise goats. This has not produced desired results. The integration of goat raising with other urban agricultural activities must be the key in such a project but this vital approach is over looked after the goat is handed over to the recipient. Number of peri urban poor who had received goats from a local NGO had no idea about goats and how to raise them profitably. The

groups who were given the goats were landless and belonged to the "Kami" (Blacksmith) group.

To make the NGOs and INGOs more effective in urban and peri-urban areas they have to receive awareness building and training classes, awareness about UPA and training about the practical aspects of management of resources in the UPA setting.

#### **U. Community Based Organizations/Community Group**

There are many community based organizations and community groups in UPA areas. Formation of CBOs and CGs were made mandatory to receive external support in rural areas, but the CGOs and CGs found in UPA areas were mostly organized due to self motivation and desire to function as a group. Effective CBOs and CGs involved in specific UPA activity at different locations have been identified by the government extension agents and grouped them together to designate the area as "Pocket Area". A pocket area is therefore an area where a number of active CBOs or CGs are working in a specific area of UPA. For example if these are numbers of active CBOs and CGs raising dairy cattle at a certain area and if these groups produce a sizeable amount of milk, then this area is designated a "dairy pocket area" or "Animal Husbandry Pocket Area". The same principle is employed for identifying other "Pocket areas". There may be mushroom pocket area, rice pocket area, potato pocket area and so on. The government extension agencies and extension agents are of the opinion that this concept of demarcating areas as pocket areas simplifies their work. Extremely few sectors within the proper urban areas have been included in this pocket area classification system although there are localities within cities which have a bustling UPA activity like milk production, pigery or poultry farming. The pocket area concept is however concentrated in peri urban areas. Which supply products to the urban consumer. The government identified pocket areas in the valley are presented in appendix.

The other types of community based organizations found in UPA areas are specific communities identified on the basis of their work, culture and tradition. One best example is the Jyapu Maha Guthi; Jyapus who were the original and ancient inhabitants of many towns and urban areas in the valley and who are also experts in the production of food in these areas have their own community based organization which is a government registered community organization. Similarly there are

occupation (the butchers, the potters, the traditional dairyman, the vegetable farmers, the oilmen; whose occupation is to run oil presses and sell oil). These CBOs are other formed to highlight their race or tribe. These tribes, ethnic groups tend to congregate at particular areas, locations within urban, peri urban areas from where they can function efficiently to conduct their trade. The dairy group prefer to occupy areas with a good market for their milk. They also would prefer areas where the animals could be grazed. The vegetable growers occupy areas near the urban markets to reduce transport costs and damage. The buffalo farmers would prefer areas with a good source of water where the buffaloes could wallow.

Our study pointed out that most of these community groups function in isolation, there is very little interaction with other groups.

Although each community group has its own identity based on their major activity, urban agriculture by nature is a multi dimensional activity. It will therefore be advantageous to every group if a complimentary attitude is adopted to one another. This will result in better and efficient utilization of scarce resources with improved production from each group. The complimentary activity will also play a significant role in waste recycle and utilization.

## **V. Associations/Societies**

We have already mentioned about associations while dealing with business interests like dairy associations, cold storage associations, poultry producers associations etc. Beside these associations formed on the basis of their business interests there are associations formed on the basis of professional and academic expertise. Most of these associations are headquartered in Urban or peri urban areas. The Agricultural Society, Animal Science Association, The Horticultural Association, The Entomological Association, the Soil Science Association are some such associations. These professional associations and societies have not been activity involved in UPA improvement. They have the potential to do so.

## **W. The Cooperatives**

The government has given priority to the development of the cooperative movement in Nepal. The cooperative legislature of 2048 B.S. and the cooperative law of 2049 B.S. are both aimed at the maximum extension of the cooperative movement. These laws also encourage efficient function within cooperatives with strong monitoring and evaluation systems. There were 92 cooperatives in Lalitpur in 1999

located in or around the urban areas. These cooperatives could prove valuable in the future development of UPA. They have resources from their savings which can be utilized to introduced new and appropriate UPA technologies. They are recognized by the authorities, so they may find it easier to get group credits from financial institutions if the resources they have is not sufficient.

#### **X. Lead Formers**

There are some farmers who have repeatedly won prize for achieving outstanding production levels in UPA. These formers are excellent managers of local resources and some of them have developed efficient systems for waste recycling in their farms. They have perfected crop management systems through years of experience to obtain very high yields. These lead farmers of crops, fruits or animal products should be a part in any urban peri urban agriculture development programme. They should be used to transfer skills to other urban agriculturists to improve overall yield from urban agriculture. The other type of human resource which is available but unutilized in UPA in urban and peri urban areas are those farmers who have received technical training in different agriculture disciplines. Their expertise is not unutilized after they return from the training. They can be used as extension agents too.

#### **Y. Trouble Shooters**

They are essential to increase the pace of UPA development. They will be useful to protect the interests of UPA practitioners too. Journalists, teachers, planners, development workers, senior citizens, and influential political figures can become trouble shooters to assist UPA. Almost every local newspaper now has space devoted to news about agriculture. They could allocate space for UA too. Similarly UPA could become part of the school curriculum. It should be made subject of discussion in public forums, technical meetings and in urban and peri urban planning sessions. Resource persons who are involved with mass-media productions are effective trouble shooters for the benefit of UPA. We have identified more than twenty groups involved in UPA; there may be others who live in expanding cities or in its periphery who have been unknowingly over looked. Their contribution to UPA development is not to be ignored.

The practitioners of UPA are sure about their job and have no confusion about



The preceding pages was devoted to summarizing our findings and perceptions of the different partners involved in UPA. Based on our conclusion from the investigation, we will now proceed to develop a training manual which we hope will be useful to develop UPA further in Nepal.

**Annex - 1****Name of persons contacted during information collection about UPA**

<b>S.No.</b>	<b>Name</b>	<b>Profession</b>	<b>Address</b>
1.	Bishnu Khadka	Organic Farmer (Mostly vegetables grower)	Bhaktapur
2.	Banju Khadka	Organic Farmer (Mostly vegetables grower)	Bhaktapur
3.	Gita Rawat	Organic Farmer (Mostly vegetables grower)	Bhaktapur
4.	Krishna Maya Rawat	Organic Farmer (Mostly vegetables grower)	Bhaktapur
5.	Ram Pd. Shrestha	Organic Farmer (Mostly vegetables grower)	Bhaktapur
6.	Ambika Khadka	Organic Farmer (Mostly vegetables grower)	Bhaktapur
7.	Ishwori Khadka	Organic Farmer (Mostly vegetables grower)	Bhaktapur
8.	Shyam Khadka	Organic Farmer (Mostly vegetables grower)	Bhaktapur
9.	Mina Khadka	Organic Farmer (Mostly vegetables grower)	Bhaktapur
10.	Biddya Pant	Organic Farmer (Mostly vegetables grower)	Bhaktapur
11.	Urmila Pant	Organic Farmer (Mostly vegetables grower)	Bhaktapur
12.	Sarala Pant	Organic Farmer (Mostly vegetables grower)	Bhaktapur
13.	Ram Krishna Khadka	Organic Farmer (Mostly vegetables grower)	Bhaktapur
14.	Shyam B. Singh	Vegetables grower	Kathmandu
15.	Ramesh Makaju	Vegetables grower	Bhaktapur
16.	Mitthi Giri	Cereal crops grower	Kathmandu
17.	Bina Devi Giri	Cereal crops grower	Kathmandu
18.	Nani Maiya Giri	Cereal crops grower	Kathmandu
19.	Makkha Giri	Cereal crops grower	Kathmandu
20.	Maiya Giri	Cereal crops grower	Kathmandu
21.	Mishri Giri	Cereal crops grower	Kathmandu
22.	Nanu Bharati	Cereal crops grower	Kathmandu
23.	Maiya Giri	Cereal crops grower	Kathmandu
24.	Suntali Giri	Cereal crops grower	Kathmandu
25.	Sita Giri	Cereal crops grower	Kathmandu
26.	Subhadra Giri	Cereal crops grower	Kathmandu
27.	Rama Giri	Cereal crops grower	Kathmandu
28.	Radha Giri	Cereal crops grower	Kathmandu
29.	Maiya Giri	Cereal crops grower	Kathmandu
30.	Kamala Rijal	Cereal crops grower	Kathmandu
31.	Kanchhi Puri	Cereal crops grower	Kathmandu

33.	Sani Maiya Giri	Cereal crops grower	Kathmandu
34.	Gumala Budhathoki	Cereal crops grower	Kathmandu
35.	Supari Budhathoki	Cereal crops grower	Kathmandu
36.	Gyatri Giri	Cereal crops grower	Kathmandu
37.	Ambika Puri	Cereal crops grower	Kathmandu
38.	Maiya Giri	Cereal crops grower	Kathmandu
39.	Jamuna Puri	Cereal crops grower	Kathmandu
40.	Laju Khadka	Cereal crops grower	Bhaktapur
41.	Shyam Krishna Khadka	Organic farmer (Mostly vegetables grower)	Bhaktapur
42.	Sudarshan Khadka	Organic farmer (Mostly vegetables grower)	Bhaktapur
43.	Urmila Khadka	Organic farmer (Mostly vegetables grower)	Bhaktapur
44.	Kanchhi Rawat	Organic farmer (Mostly vegetables grower)	Bhaktapur
45.	Kanchha Prajapati	Organic farmer (Mostly vegetables grower)	Bhaktapur
46.	Sarswoti Khadka	Organic farmer (Mostly vegetables grower)	Bhaktapur
47.	Tanka Pd. Chourel	Livestock and dairy farmer	Lalitpur
48.	Durga Acharya	Livestock and dairy farmer	Lalitpur
49.	Hem Nath Bajgain	Livestock and dairy farmer	Lalitpur
50.	Deepak Pd. Dahal	Livestock and dairy farmer	Lalitpur
51.	Jit B. Magar	Livestock and dairy farmer	Lalitpur
52.	Govinda Pd. Banjara	Livestock and dairy farmer	Lalitpur
53.	Krishna Pd. Banjara	Livestock and dairy farmer	Lalitpur
54.	Ram Hari Banjara	Livestock and dairy farmer	Lalitpur
55.	Badri Pd. Banjara	Livestock and dairy farmer	Lalitpur
56.	Ramesh Pd. Dahal	Livestock and dairy farmer	Lalitpur
57.	Ram Pd. Dahal	Livestock and dairy farmer	Lalitpur
58.	Surya Pd. Banjara	Livestock and dairy farmer	Bhaktapur
59.	Laxmi Khadka	Livestock and dairy farmer	Bhaktapur
60.	Dhan Kumar Makaju	Vegetables grower	Lalitpur
61.	Apsara Karki	Fruits grower	Lalitpur
62.	Prabhakar Thapa	Fruits grower	Lalitpur
63.	Nani Kaji Desar	Fruits grower	Kathmandu
64.	Gopal Sapkota	Vegetables grower	Bhaktapur
65.	Dhan Bdr. Rawat	Vegetables grower	Bhaktapur
66.	Sanu Bhai Thapa	Poultry farmer	Bhaktapur
67.	Bishnu Man Sanya	Vegetales grower	Bhaktapur
68.	Ratna Bdr. Tako	Vegetales grower	Bhaktapur
69.	Tulsi Bdr. Tako	Vegetales grower	Bhaktapur
70.	Kabindra KC	Vegetales grower	Bhaktapur
71.	Ram Pd. Sapkota	Vegetales grower	Bhaktapur
72.	Uddav Bdr. Sapkota	Vegetales grower	Bhaktapur
73.	Gokul Sapkota	Vegetales grower	Bhaktapur
74.	Babu Ram Sinkeman	Vegetales grower	Bhaktapur

77.	Latang Kumar Upadhyay	Vegetales grower	Bhaktapur
78.	Laxmi DAs Dongol	Vegetales grower	Lalitpur
79.	Buddhi Bdr. Dangol	Vegetales grower	Lalitpur
80.	Krishna Govinda Maharjan	Vegetales grower	Lalitpur
81.	Krishna Bhakta Maharjan	Vegetales grower	Lalitpur
82.	Krishna Hari Dangol	Vegetales grower	Lalitpur
83.	Dil Bdr. Dangol	Vegetales grower	Lalitpur
84.	Dhan Bdr. Dangol	Vegetales grower	Lalitpur
85.	Shyam Krishna Maharjan	Vegetales grower	Lalitpur
86.	Debananda Maharjan	Vegetales grower	Lalitpur
87.	Tek Bdr. Maharjan	Vegetales grower	Lalitpur
88.	Hari Ram Dangol	Vegetales grower	Lalitpur
89.	Mrs. Madhu Malati Maharjan	Vegetales grower	Lalitpur
90.	Pancha Ram Maharjan	Vegetales grower	Lalitpur
91.	Siddhi Ram Dangol	Vegetales grower	Lalitpur
92.	Tulsi Ram Dangol	Vegetales grower	Lalitpur
93.	Krishna Devi Dangol	Vegetales grower	Lalitpur
94.	Sher Bdr. Dangol	Vegetales grower	Lalitpur
95.	Bekhalal Dangol	Vegetales grower	Lalitpur
96.	Manik Raj Dangol	Vegetales grower	Lalitpur
97.	Santi Lal Maharjan	Vegetales grower	Lalitpur
98.	Natikaji Maharjan	Vegetales grower	Lalitpur
99.	Manik Raj Maharjan	Vegetales grower	Lalitpur
100.	Gyanendra Maharjan	Vegetales grower	Lalitpur
101.	Hari Govinda Maharjan	Vegetales grower	Lalitpur
102.	Hari Prakash Gauchan	Poultry farmer	Kathmandu
103.	Rabin Puri	Poultry farmer	Kathmandu
104.	Surya Bdr. Nakarmi	Vegetables grower	Kathmandu
105.	Khadga Bdr. Thapa	Vegetables grower	Kathmandu
106.	Laxmi Raj Bhandari	Service	Lalitpur
107.	Shyam Kumar Lama	Trader of Poultry fertilizer	Bhaktapur
108.	Bishnu Bdr. Shrestha	Trader Fruits	Bhaktapur
109.	Jaya Singh Shrestha	Trader Fruits	Bhaktapur
110.	Ganesh Khatri	JTA	Bhaktapur
111.	Hridaya Ram Acharya	JTA	Bhaktapur
112.	Gagan Singh KC	JT	Bhaktapur
113.	Indira Dulal	Vegetables grower	Lalitpur
114.	Kiran Dhakal	Fruits grower	Lalitpur
115.	Prem Raj Karki	Fruits grower	Lalitpur
116.	Narayani Karki	Fruits grower	Lalitpur
117.	Jivlal Lamsal	Livestock Officer	Lalitpur
118.	Dr. Shyam Karmacharya	Livestock Officer	Kathmandu
119.	Dr. Binod Kumar	ADO	Lalitpur

121.	Kedar KC	Vegetable grower	Lalitpur
122.	Bipindra Maharjan	Social Worker	Kathmandu
123.	Dinesh Acharya	Assistant Agri. Extension Officer	District Agriculture Office, Kathmandu
124.	Mrs. Yam Kumari Shrestha	Asst. Horticulture Officer	District Agriculture Office, Kathmandu
125.	Mr. Lokendra Bohara	Asst. Plant Protection Officer	District Agriculture Office, Kathmandu.
126.	Ram Babu Shrestha	Asst. Plant Protection Officer	District Agriculture Office, Bhaktapur
127.	Koushal Kumar Poudel	Asst. Horticulture Dev. Officer	District Agriculture Office, Bhaktapur
128.	Bishnu Kumar Gyawali	Senior Scientist (IMP Expert)	Freelancer, Pulchowk, Lalitpur
129.	Ganesh Khagdi	Meat Seller	Kathmandu
130.	Govind Pd. Pokhrel	Social Worker	Kathmandu
131.	Parshu Ram Adhikari	Asst. Plant Protection Officer	Plant Protection Directorate, Kathmandu
132.	Ashakaji Maharjan	Vegetable Grower	Kathmandu
133.	Rabindra Maharjan	Vegetable Grower	Kathmandu
134.	Lok Bahadur Khadka	Manager, Central Milk Producers' Cooperative Union Ltd.	Kathmandu
135.	Shambhu Neupane	Middleman, Vegetable Marketing	Bhaktapur
136.	Ram Lal Shrestha	Social Worker, Feed Industry	Kathmandu
137.	Arjun Giri	Social Worker	Kathmandu
138.	Ratna Kaji Maharjan	Vegetable Grower	Kathmandu
139.	Machabhai Maharjan	Vegetable Grower	Kathmandu
140.	Shyam Maharjan	Vegetable Grower	Kathmandu
141.	Bishnu B. Thapa	Flower and Herbal Specialist	Baphal, Kathmandu
142.	Yam Prasad Poudel	Assistant Plant Protection Officer	Bharatupr, Chitwan
143.	Chandra Gurung	Assistant Horticulture Officer	Bharatpur, Chitwan
144.	Man Kumar Choudhary	Social Worker, (IPM to Trainer in rice and vegetables)	Bhandara, Chitwan
145.	Kaman Singh Choudhary	Social Worker (IPM Trainer)	Bhandara, Chitwan
146.	Gedahi Choudhary (Arjun Choudhary)	Cereal Crops Grower	Bhandara, Chitwan
147.	Buddha Ram Choudhary	Social Worker, Vegetable IPM trainer	Bhandara, Chitwan
148.	Bhuwan Choudhary	Cereal Crops Grower (IPM trainer)	Bhandara, Chitwan
149.	Garbhu Ram Choudhary	Vegetable Grower (IPM trainer)	Bhandara, Chitwan
150.	Sanichar Choudhary	Social Worker. Cereal crops	Bhandara, Chitwan

		grower	
152.	Brinda Choudhary	Social Worker, IPM trainer in rice	Khairahani, Chitwan
153.	Yubak Dhoj G.C.	Lecturer, IPM specialist	Rampur Campus, Chitwan
154.	Ramesh Choudhary	Vegetable Grower (IPM trainer)	Bhandra, Chitwan
156.	Bimala Choudhary	Vegetable Grower IPM trainer vegetable	Bhandra, Chitwan
157.	Gita Choudhary	Vegetable, grower, IPM trainer in vegetable	Bhandra, Chitwan
158.	Surendra Choudhary	Vegetable grower (IPM trainer)	Bhandra, Chitwan
159.	Hira Prasad Choudhary	Vegetable grower IPM trainer, vege.	Bhandra, Chitwan
160.	Kari Choudhary	Vegetable Grower, IPM trainer	Bhandra, Chitwan
161.	Surendra Choudhary	Vegetable Grower (IPM trainer)	Bhandra, Chitwan
162.	Neturi Choudhary	Vegetable grower (IMP trainer)	Bhandra, Chitwan
163.	Diuri Choudhari	Vegetable grower, IPM trainer	Chitwan
164.	Phulmati Choudhari	Vegetable Grower, IMP trainer	Chitwan
165.	Sita Choudhary	Vegetable grower, IPM trainer	Chitwan
166.	Thagan Choudhary	Vegetable Grower rice grower IPM trainer	Chitwan
167.	Hari Narayan Choudhary	Rice Grower (IPM trainer)	Chitwan
168.	Purendra Choudhary	Rice Grower Veg. grower	Chitwan
169.	Dr. Nanda Regmi	Lecturer, VTH Rampur Campus	Rampur Campus Chitwan
170.	Dr. Pradeepchandra Bhattarai	Assistant Livestock Officer	Chitwan
171.	Nara Raj Silwal	Cereal crops grower, IMP trainer in Rice	Chitwan
172.	Chetnath Kharel	Cereal crops Grower, IPM trainer in rice	Chitwan
173.	Hari Bhetwal	Vegetables grower/rice grower and IPM trainer	Chitwan
174.	Hari narayan Thapaliya	Social worker	Chitwan
175.	Pahadi Choudhari	Rice Grower	Chitwan
176.	Bishnu Prasad Kafle	Bee Keeping Expert	Bhairahawa
177.	Yuba Raj Pandey	Horticulture Expert	Bhairahawa
178.	Krishna Aryal	Rice Grower, (TOT in IPM in rice)	Chitwan
179.	Bhoj Raj Devkota	Rice Grower TOT IPM in rice	Chitwan
180.	Ganga Dutta Acharya	Asst. Agri. Extension Officer,	Lalitpur

181.	Resham Gyawali	Asst. Livestock Officer Nepalganj	
182.	Narayan Pd. Bhandari	Beekeeping Expert, Raj Nikunja Mauri Palan Office Dakshin Dhoka, Gokarna	560767 (R ) 473689 (O)
183.	Shankar Sapkota	Asst. Agri. Expension Officer AICc, Harihar Bhawan Pulchowk, Lalitpur	522248 515617
184.	Laxmi Kharel	Asst. Plant Protect Officer, Directorate of Plant Protection harihar Bhawan, Pulchowk, Lalitpur	
185.	Sete Kaji	Contractor Vegetable Market	Tukucha, Kathmandu
186.	Sarada Bdr. Dhital	Vegetable Marchant	Kalimati, Kathmandu
187.	Deep narayan Dhungana	Vegetable Merchant	Kalimati, Kathmandu
188.	Bhagwan Chandra Upreti	Vegetable Merchant	Kalimati, Kathmandu
189.	Ujwol Karki	Vegetable Merchant	Kalimati, Kathmandu
190.	Kedar Prasad Upreti	Vegetable Merchant	Chahabil, Kathmandu
191.	Som Lama	Middleman	Gwarko, Kthmandu
192.	Chandra Bahadur Duwal	Middleman	Kalimati, Kathmandu
193.	Mitra Lal Thokar	Middleman	Thapathali, Kathmandu
194.	Mani Khatri	Middleman	Kathmandu
195.	Saha Dev Yadav	Middleman	Dilli Bazar, Kathmandu
196.	Kiran Lama	Seels local chicken	Bojpur
197.	Janak B. Bista	Goat Seller	Udayapur
198.	Bishnu Gautam	Goat Seller	Kavre
199.	Bala Ram Kunwar	Goat Seller	Kavre
200.	Binaya Shrestha	Planning Officer (KFVWMD)	Kathmandu
201.	Janga Bahadur B.C.	General Secretary, Kukhura Bikri Byabasayi Sangh,	New Baneshwor, Kathmandu 483415
202.	Ram Lal Shresetha	Nepal Feed Industry Association	Balaju, Kathmandu
203.	Indra Suwal	Urban Planning Commission Kathmandu Metropolitan City	270334
204.	Keshari Bajracharya	Nutrition Expert Kathmandu Valley Clinic	224054
205.	Madhukar Shrestha	Community Nutrition Expert New Plaza Putalisadak	412275

**Milk Chilling Centres**  
(Located in Urban/Peri Urban Area)

Dev. Zone	Dairy Corp	Dev.	Private Dairies	Cooperatives	Total
Eastern	6		1	3	10
Central	18		8	1	27
Western	6		10	6	22
Mid-Western	2		-	2	4

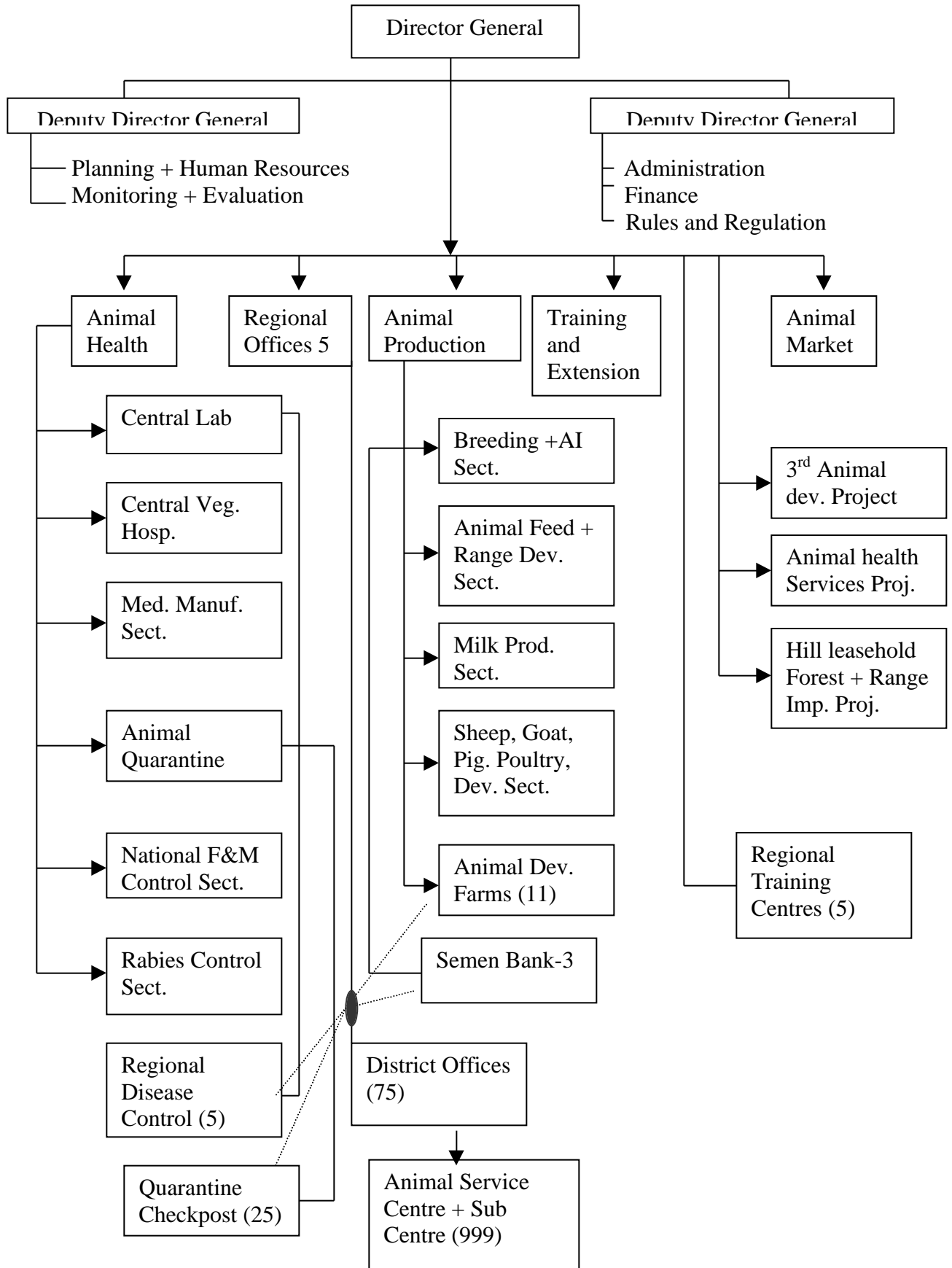
Source: Dairy Dev. Board

Hatchery +Feed Mills.

Locations	Hatchery	Feed Mills
Kathmandu valley	32	65
Chitwan valley	5	25
Pokhara valley	5	11
Kavre Dist.	4	16
Dhading, Rupandehi, Makwanpur, Morang, Sunsari	5	14
Nuwakot, Gorkha, Tanahu, Syangja, Dang, Parbat, Lamjung, Banke, Nawalparasi, Saptari, Jhapa, Siraha, Kailali, Kanchanpur	-	26
Total	51	157



## Administrative Setup of the Department of Animal husbandry.



**Administrative Setup at  
District Agriculture**

