

## 2.3 Present Conditions of Marketing System and Market of Fruits and Vegetables

### 2.3.1 Marketing System

#### (1) Supply and Demand

The demand of fruits and vegetables in Santa Cruz City has been estimated as 314 kg per capita in a year at the time of the M/P survey carried out by JICA study team in 1994. The total demand in Santa Cruz Dept. became  $520 \times 10^3$  t in 1998 (Table 2-10) owing to its population increase at an annual rate of 3.15%. Since the urban population is increasing at a more rapid rate than that of department average, the consumption in Santa Cruz City is estimated as  $287 \times 10^3$  t out of departmental  $520 \times 10^3$  t, while the rural population in the Valley area are kept as steady or slightly decreasing. The consumption in this area has not increased since 1994.

The supply of fruits and vegetables from the department is increasing moderately on potato, tomato and banana while both cassava and plantain are not increasing. Some leaf vegetables in the Valley areas keep good reputation because of its quality and thus are distributed to the market in La Paz. Regarding supply volume, product in the lowland occupies a far greater portion than those in the Valley areas particularly on fruits such as citrus fruits and pineapples. These products are also marketed to other departments though not outside the country. Supply and demand of fruits and vegetables have been summarized as tables showing its balance in 1994 and 1998 (See Tables 2-11 ~ 2-18).

#### (2) Origin and Destination of Fruits and Vegetables

As shown from the production quantity, the production of potato and banana in the department is not sufficient to fulfill the demand of the Santa Cruz Dept. These products need to be transported from outside the department. Per capita consumption of potato in Bolivia is about 50kg in 1996. The department needs about  $83 \times 10^3$  t potato for their consumption, while its production is merely  $63 \times 10^3$  t at 1996/97. To fulfill the demand of potato and banana, fairly large amount shall be transported from other departments, mostly from Cochabamba and some imported from Argentina. On the contrary, tomato and cassava has been produced sufficiently in the department. These products should find market outside the department.

Origin and destination of fruits and vegetables have been summarized in the tables (See Tables 2-19 ~ 2-26, also Fig. 2-7). About 90% of products consumed in the Santa Cruz City have been traded in Abasto Market. The rest is traded directly from producers at the retail market including supermarkets as well as the first class hotel to meet their quality specification. There are 18 supermarkets and 19 hotels of 4 and 5 stars in the city. They do not prefer to purchase fruits and vegetables from the existing Abasto Market for sanitary reasons.

#### (3) Inflow Volume of Fruits and Vegetables to Abasto Market

The inflow volume of fruits and vegetables to Abasto Market has been investigated by counting the numbers of incoming trucks and asking drivers on its loaded product and quantity, and their origin. The investigation has been conducted in August 1998 of the 1st phase survey for successive 7 days and also in November 1998 of the 2nd phase survey for two days. The figure in the case of November was calculated as 7 days equivalent for

the convenience of comparison. The result is summarized in Table 2-27.

In August, inflow volume was  $3.23 \times 10^3$  t in total among which banana, potato and onion were the dominant products. In November, the inflow volume was  $2.7 \times 10^3$  t in total among which potato, banana and tomato were dominant. Apparently, there is a seasonal variation on incoming products. In November, it was the season for banana (including plantain) and onion was already out of season. The major origin of banana was Cochabamba Dept.

The significant difference between August and November was observed in potato. Due to the drought in the Altiplano, the major potato producing area in the country, the production of domestic potato decreased, which allowed more import of potato from Argentina. The imported potato has occupied about 80% of the potato in the market in November 1998. The price of imported potato is cheaper than that of domestic potato.

In November, 65.3% of total incoming products to Abasto Market was comprised of products from outside the department. This means the products from within the department have decreased to 34.5% from 44.1% observed in the survey in August. Since this phenomenon seems to be of temporary nature due to climatic causes and seasonal factor, the revision of the figures on supply and demand prepared in the survey during August 1998 is not necessary.

The ratio of truck capacity coming to Abasto Market was 50.0, 19.4, 16.7, and 13.9 for less than 5t, 5 to 10t, 10 to 20t and 20 to 30t respectively. This is almost the same ratio as surveyed in August. Generally speaking, products from the Valley areas come in smaller trucks and from outside department including imported products come in larger trucks (See Tables 2-28 and 2-29).

Regarding the origin of the truck, the largest portion came from outside Santa Cruz Dept., then followed by the Valley areas, other countries and lowland.

93% of the fruits and vegetables that entered Abasto Market were handled by traders. The break down is as follows: 65.5% for wholesalers in Abasto Market, 18.1% for retailers in Abasto Market and 9.1% for retailers in other markets. A significant increase in the handling volume by retailers was noted. It increased from 7.5% in 1994 to 18.1% in 1998. The reason comes from the disorderly increase of small retailers in Abasto Market that brings chaos in the market. The handling volume by public consumers and supermarket has decreased to 7% of the total volume from 14% at 1994. Wholesalers sell 53.2% to retailers in Abasto Market, 21.3% to retailers in other markets and 21.2% to public consumers. The volume sold to public consumers has increased to 21.2% from 11.3% in 1994. This is ascribed to the increased number of small retailers in the market (See Tables 2-30 and 2-31).

#### (4) Pricing Mechanism

Market price of fruits and vegetables has been decided by the balance of supply and demand. Since the demand is stable because of strong purchasing power of the Department of Santa Cruz due to its highest income level among other departments in the country, supply should be a limiting factor for pricing and its fluctuation. Due to poor irrigation facility and poor farming management in the production area, supply of fruits and vegetables in Bolivia is unstable. Pricing mechanism shall be clarified focusing on major products such as potato and tomato.

1) Potato (Fig. 2-2)

Normally, the wholesale price of tomato is in between Bs.1.0 to 2.0/kg (Bs.12 to 23/arroba) and it has been kept rather at a lower price from July to September in 1997. From the beginning of 1998, it has increased as high as Bs.2.5 to 3.0/kg. The farmgate price at the time was Bs.1.12/kg in average in the Valley areas. Another survey carried out in production areas revealed that producers' net income for potato was US\$220/ton that is equivalent to Bs.1.21/kg. The potato price has been stable and became slightly cheaper in the middle of the 1st phase study during July to September 1998. During the period, there was imported potato from Argentina in the market, although its occupancy ratio was about 35% of potato in the market.

It was revealed that the occupancy ratio of imported potato has reached more than 70% in the market in November 1998 during 2nd phase study. The reason is the reduced production of domestic potato due to the drought in the Altiplano, which is the major potato producing area in the country. The wholesale price of domestic potato is as high as Bs.30/arroba (Bs.2.61/kg). While imported potato price is merely Bs.15/arroba (Bs.1.30/kg) even it has been paid transportation cost from Argentina. This market price situation is almost the same in Santa Cruz and in Cochabamba.

Regarding price fluctuation of potato, in Santa Cruz, the ratio of maximum and minimum prices was 2.71 from the data for the past 2 years (See Table 2-32). The price fluctuation in Cochabamba was similar to Santa Cruz, and the price in La Paz was less than that in Santa Cruz and Cochabamba in the same season.

The price fluctuation of imported fruits such as apple from Argentina is very small in the 3 cities surveyed. This will be attributed to the controlled delivery by traders well-acquainted with the market.

2) Tomato (Fig. 2-3)

The wholesale price of tomato in 1997 was normally in between Bs.1.0 to 1.5/kg at the market. But it went up over Bs.2.5/kg from August to October 1997. Farmgate price at that time was Bs.0.74/kg in average in the Valley areas. Every farmer in the Valley areas has begun to grow tomato since then resulting in excess production in this season. The wholesale price in November 1998 in Abasto was less than Bs.1.0/kg. Another survey carried out in production areas revealed that producers' net income for tomato was US\$135/ton that is equivalent to Bs.0.74/kg.

Tomato is the typical product showing severe price fluctuation in the market of Santa Cruz. During the past 2 years, the ratio of maximum and minimum price showed 8.45, as clearly indicated in Table 2-32. Farmers have well recognized that tomato is a risky product. The transportation cost from the Valley areas to the consumption area is usually Bs.4 to 5/box which equals to Bs.0.2 to 0.25/kg. Farm management practice should be well organized for farmers to avoid severe price fluctuation.

In Cochabamba and La Paz, the price of tomato does not fluctuate so much as in Santa Cruz. There are many reasons to be inferred. One of the major

reasons is the controlled delivery by wholesalers in Cochabamba or in other departments, because Cochabamba and La Paz are non-tomato-producing areas and have to import them from other departments, mainly from Santa Cruz. The second reason comes from the wider commercial zone. The market of Cochabamba includes distribution to La Paz and Orulo. Their urban population is twice that of Santa Cruz. As a proof, producers in Caballero Province, such as Comarapa and Saipina prefer to send their products to Cochabamba because of its larger market size and better accessibility than Santa Cruz. It was also recognized in the workshop held in Comarapa that traders and transporters in Cochabamba have given the credit for farmers in this area to secure the collection of product. This appears to be an additional reason why producers in Comarapa and Saipina sell their products to the market in Cochabamba even for a cheaper price than in Santa Cruz.

(5) Daily Tendency of Sales Volume and Price in Abasto Market

A survey was conducted on November 20 and 21, 1998 at every 3 hours on periodical price fluctuation and sales volume in Abasto Market, when the number of incoming trucks and its cargo volume was investigated. The wholesale and retail price of major products and volume of sales has been collected to examine margins for traders. Also the data on losses during sales were collected.

1) Incoming Time of Trucks to Abasto (Tables 2-33~2-35)

Almost all large capacity trucks from outside the department are entering Abasto from late in the evening till early in the morning. Trucks entering in the daytime are small trucks coming from the Valley areas and Cochabamba Dept.

2) Sales Volume and Pricing (Figures 2-4 and 2-5)

Potato wholesalers can sell almost all the commodity by evening both domestic and imported without reducing the price whereas tomato wholesalers are suffering excessive supply from the Valley areas. They can sell about 70% by evening without adding any surcharge on the price when purchased. Banana wholesalers are in a similar situation to tomato wholesalers. They have to reduce the price of the product in the afternoon less than the purchased price. Wholesalers of other vegetables, such as lettuce, carrot and green pepper are enjoying good business. They can sell out their product rather within a short time by adding 10 to 20% surcharge. The loss of product is very little at the stage of wholesaling.

Potato retailers can sell their product by adding Bs.2 to each arroba (Bs.0.17/kg) as surcharge and never reduce their selling price. The price at the end of November 1998 was as high as Bs.28/arroba (variety: harinosa) that corresponds to Bs.2.5/kg. Tomato retailers share the wholesalers' problem. But they have a good business by kilogram-basis trade. Plantain retailers have to reduce the price less than the purchasing time before noon because of the newly arrived fresh product in the market from the production area. Lettuce retailers also have to reduce the selling price in the afternoon because of its deteriorated nature. The margin for retailers is not clear because they use different weight unit when they purchase and when they sell.

There are some losses of product discarded by retailers. The lost quantity of each product is as follows: 4 to 8 pieces/arroba for potato; 0.5kg per 20kg box for tomato; 0.5 basket per 4 basket for lettuce; 0.5 bag per 30 bags for green pepper.

#### (6) Transportation Cost

Fruits and vegetables are transported by trucks, and railway is not utilized due to lack of network established in the country and inconvenience of loading and unloading work derived of incomplete packaging system.

The truck association decides the cost by weight and by product. Tomato and vegetables generally require higher transportation cost than potato because they need much space for wooden boxes and lighter specific gravity.

Among the data, most reliable was collected in Comarapa. This is just in between Santa Cruz and Cochabamba, and the distance is 240km. The transportation cost for potato is Bs.6/QQ (Bs.129/t) and Bs.3.5/box for tomato (Bs.175/t).

According to traders in Cochabamba, about 35% of potato coming to Cochabamba is sent to La Paz, and 25% is transported to Santa Cruz by large capacity truck (480 QQ = 22.3t). The transportation cost to Santa Cruz is Bs.10/QQ that corresponds to Bs.108/t. Tomato has never been transported to Santa Cruz from Cochabamba due to its perishable nature.

Regarding the transportation cost of imported potato from Argentina, it is Bs.15/QQ (Bs.323/t) from the boarder (Yacuiba) to Cochabamba. The distance is 1,026 km. The transportation cost from the border to Santa Cruz is Bs.140/ton. The distance is 564 km.

It should be noted that the transportation cost is one of limiting factors to decide the market price of fruits and vegetables, but it is not everything. The purchasing capacity also relates to the pricing of products. The price of potato is rather cheap and stable in Cochabamba and La Paz, than that of in Santa Cruz because the former cities are in the production area. The price of tomato is also cheap and stable in the cities in higher elevation than that of in Santa Cruz. Although Santa Cruz is located in the production area of tomato, sometimes the price become cheaper and the price fluctuation is considerable. This comes from poor farming management and uncontrolled shipment among farmers. It is strange that the price of citrus fruits in La Paz is cheaper and stable than that of in Santa Cruz located in the center of the production area.

#### (7) Comparison with International Price

The wholesale prices of fruits and vegetables in the market of Buenos Aires, Argentina and Sao Paulo, Brazil have been collected for the price comparison with Bolivian products (see Table 2-36). The prices in Buenos Aires are monthly averages from January to September 1998 and that of Sao Paulo was observed in November 1998. For the convenience of comparison, the figures are converted into Bolivian currency equivalent.

##### 1) Argentina (Table 2-37)

Potato price has never exceeded beyond Bs.1.0/kg equivalent. It is usually Bs.0.5 to 0.8/kg. Argentine potato has a good price competitiveness even with the transportation cost to cross the boarder when the price of Bolivian potato goes up to Bs.1.5/kg. Apparently the figures for Bolivian potato are far behind

those of Argentina and Brazil.

Tomato price is lowest in February (Bs.1.5/kg equivalent) and become highest in August (Bs.4.7/kg equivalent). The ratio of maximum and minimum price is 2.70, that is to say, very stable. Bolivian tomato may have an opportunity for exporting to Argentina in winter. Suitable packaging should be required besides the clearance of phytosanitary inspection if to be exported. Onion and carrot prices are almost the same with the prices in Bolivia. There is no opportunity in both export and import.

Banana price is stable throughout the year and ranges between Bs.2.02 and 3.5/kg equivalent. The highest price appears in August, when it is winter in Argentina. The comparison of prices is difficult since no price data is available in terms of weight in Bolivia. There are many black spots on the skin of banana in the market. It is difficult for the Bolivian banana to be an international trade commodity from the aspect of product quality.

Citrus fruit price is also stable throughout the year ranging between Bs.1.18 and 1.85/kg equivalent. The Bolivian citrus fruit price is usually Bs.8 to 10 per 25 pieces. That is estimated as Bs.1.8 to 2.0/kg. There is no price competitiveness for Bolivian citrus fruit for export to Argentina.

Pineapple price is highest from April to June marking Bs.5.04 to 5.38/kg equivalent. It is usually Bs.280 to 435 per arroba depending on variety and size. It may have an export opportunity in winter season only for the large size variety.

Peach price suddenly becomes as high as Bs.30/kg equivalent in August and September. It is Bs.45 to 57/arroba in Bolivia. It may have price competitiveness when the package problem could be solved.

## 2) Brazil

The wholesale price of potato in Sao Paulo is less than Bs.1.0/kg equivalent that is almost the same as in Buenos Aires. The distance of transportation from Sao Paulo to Santa Cruz is about 4 times longer than from Argentina. This is the reason why Brazilian potato never comes to Bolivia. Tomato, onion and carrot have similar prices to those in Bolivia. There are no opportunities for both export and import.

Among fruits, only pineapple price seems slightly higher than that in Bolivia. There may be an export opportunity for Bolivian pineapple when packaging, transportation and phytosanitary problems are solved.

## (8) Standardization of Weight System

In Bolivia, every transaction of fruits and vegetables has been made on the basis of traditional weight system such as bolsa (bag), canasta (basket), racimo (stalk), caja (box), arroba, quintal, dozen and piece. Sometimes one bolsa signifies different quintals or arrobas, and different types of package such as bolsa and canasta is used for the same product. Banana (including plantain) traders purchase by racimo (stalk) and sell by dozen. Lettuce is also purchased by canasta and sold by piece. It is very difficult to convert into metric weight system and to discern the scale of margin between transactions. The seller's side, mostly producer-farmers, usually bears the disadvantage.

The weighing system adopted at the market in Bolivia is far behind the international standard. It should be urgently improved along with the international metric system. It is also inevitable as one of countermeasures to prepare Bolivia's MERCOSUR participation. The need of transferring to metric system has been referred to as one of topics in the President Banzer's Action Plan (1997 to 2002). No attempt has yet been observed for this action plan.

(9) Countermeasure for MERCOSUR Participation

Sanitary inspection of fruits and vegetables is a big problem for Bolivia to participate in MERCOSUR. The Prefecture's Department of Agriculture and Livestock has started a project entitled "Integrated service for agriculture and livestock sanitation in the Dept. of Santa Cruz" from 1998. The project has a plan to install 11 control points for the sanitary inspection. It requires US\$12 million for 5 years and some portion shall be managed by the service to issue sanitary certificate for export and import. In 1998, their budgetary allocation is merely US\$300,000.

Another division of the Prefecture, Dept. of Export Promotion, has a plan to conduct the "Study of implementation of collection center for export promotion" from January 1999. This is a very comprehensive study covering from production technology to international marketing focusing on sanitation and quality. The budget of the study is estimated as Bs.216,000 or US\$38,000. Close cooperation with farmers, traders and government officials who relate to sanitation and trading should be essential. The Dept. of Agriculture and Livestock is not mentioned in this project.

The phytosanitary inspection of fruits and vegetables has its current system in which, for export, the exporter consigns the examination requested by the destination country to research institutes such as university, and the Dept. of Agriculture and Livestock at the Prefecture would authorize the result as guarantor. According to CADEX, the headquarters of MERCOSUR has sent to Bolivia a protocol to be followed if Bolivian products are to be exported to its member countries, to which no measure has been taken. As for import, a protocol is required for each product to be prescribed by the Bolivian government, though no relevant national law/ regulation exists.

Not only phyto- and zoo-sanitary inspection, but also residual pesticides has been concerns for worldwide trading of fruits and vegetables. The joint committee of WHO and FAO has prepared an international standard for maximum residue limit of various foods including fruit, vegetable, meat and milk. In Bolivia, CIAT has a function to conduct experiments of pesticides for its efficacy and to authorize its registration for use in the field. There is a list of pesticides that are prohibited to apply in the field. But there is no laboratory to have analysis on residual pesticides quantity for every food including fruits and vegetables in Bolivia. The Dept. of Control and Prevention is trying to obtain the budget from the central government but has not succeeded so far.

There are many plans and projects to improve sanitary and safety conditions of fruits and vegetables particularly on the products that are produced in Santa Cruz. No coordination and cooperation can be seen between the central government and the Prefecture, and within the Prefecture regarding implementation of the project/study. Every section has its own plans and projects, causing waste of time, budget and human resources.

(10) Investigation on Cold Storage Installation

Requests from farmers and wholesalers have been heard for a cold storage in the public

wholesale market for fruits and vegetables. At present, there are a few private refrigerating companies in Santa Cruz that preserve fruits imported from Argentina. The investigation has been made as follows.

1) Assumption for the Operation and Management of Cold Storage

Technical aspect

- Washing and sterilization is necessary before storage to avoid disease infection.
- Pre-cooling operation is necessary.
- Wrapping with paper/polyethylene film is required to avoid water evaporation.
- Each commodity has its appropriate temperature for cold storage (see the table in 3) below).
- Some kinds of fruits cannot be stored in the same room with others due to gas evolution.

Economic aspect

- Supply of electricity and water should be stable.
- Commodity of high commercial value should be selected for effective storage.
- Users have to pay depreciation and operation cost throughout the year.

Judging from the present situation of Abasto Market in Santa Cruz, it cannot be likely to wash, sterilize and wrap products prior to cold storage due to incomplete packaging system and also personnel allocation for such necessary handling procedure. Technical deficiency will not allow cold storage installation before examining financial feasibility.

Moreover, there was a cold storage in the existing Abasto Market when it was built. It was said that this cold storage was granted from Argentina. But this facility has disappeared from the Market even before being operated. The elucidation of evidence is necessary if the Bolivian counterpart hopes to have reinstallation of a cold storage in the public market.

2) Case of Frigorifico Santa Cruz

Frigorifico Santa Cruz is a private company located in the Industrial Park of Santa Cruz. They import apples from Argentina and store it in the cold room before delivering to the market. The quantity of imported apples is 1,000 boxes (1 box contains 20 kg) each delivery and usually 48 to 50 delivery has been made in one year. Refrigerating trucks are used for the transportation from Argentina. The peak harvest season of apple in Argentina is March. Nonetheless, they can keep stable price throughout the year due to good post-harvest technology and facility in the country. Carton box or wooden box is used for the transportation and storage. When import, they submit MACA the phytosanitary inspection certificate and pay its charge. The operation index for cold storage is as follows:

- Capacity of cold room: 10m x 10m x 5m (500m<sup>3</sup>) with 15 HP refrigerator. They can store 6,000 boxes or 120t of apple. (1 box of apple costs Bs.100)
- Rental fee of cold room: US\$ 1,000/month = US\$ 12,000/year. This cost



is similar to the depreciation cost (It has passed 18 years since established).

- Running cost: US\$ 800/month including electricity, water, labor and spare parts.
- Required operation cost: US\$ 1,000 + US\$ 800 = US\$ 1,800/month = Bs. 10,116.
- Burden of cold storage operation for imported apple:
- Operation cost/ Commercial price of stored commodity = Bs. 10,116/ Bs. 600,000 = 1.68% (1 month). This means the cost of apple will increase 1.68% when stored in the cold room for 1 month.

### 3) Case study of using a Cold Room Similar to Frigorifico Santa Cruz.

Typical fruits and vegetables are selected for case study. The ratio of cost increase when they are stored was calculated based on cheap market price. The volume of stored product is 120 tons respectively.

	Tomato	Peach	Pineapple	Mandarin
Most preferable temperature for cold storage	12 – 13°C	0°C	10 – 13°C	4 – 6°C
Shelf life	1 – 2 W	2 – 4 W	2 – 4 W	4 – 6 M
Operation cost for one month storage	Bs.10,116	Bs.10,116	Bs.10,116	Bs.10,116
Market price when stored	Bs.12/caja	Bs.45/arroba	Bs.200/100 pieces	Bs.12/100 pieces
Commercial value of stored product	Bs.72,000	Bs.470,000	Bs.240,000	Bs.144,000
Ratio of cost increase	14%	2.15%	4.2%	7.0%

- Commercial value of tomato is cheap, causing high ratio of cost increase for storage. The extent of shelf life is also short. Tomato is not suitable for cold storage.
- Commercial value of peach is the highest among fruits produced in Santa Cruz. The ratio of cost increase is almost the same with apples imported from Argentina. The problem is short shelf life. The effective marketing is inevitable.
- Pineapple is the only fruit being exported from Santa Cruz, although its quantity is decreasing year by year due to packaging problem and high transportation cost.
- It is difficult to judge the effect of cold storage for mandarin. The Japanese Cooperative in San Juan is undertaking an experiment of mandarin storage at a warehouse located in high altitude. The ambient temperature is about 10°C throughout the year.

### 2.3.2 Fruit and Vegetable Market

#### (1) General Outline of Market in Santa Cruz City in 1998

There are two fruit and vegetable wholesale markets in Santa Cruz City. One is Abasto Market where all kinds of fruits and vegetables are traded and the other is Mutualista Market where only fruits are traded. Both markets have wholesale and retail functions. On the other hand, there are 32 municipal markets in Santa Cruz City as of 1998. These markets are retail markets and a wide range of commodities including fruits and

vegetables are handled. Besides these markets, there are 18 supermarkets in the City at present. Total consumption volume of fruits and vegetables in Santa Cruz City is  $287 \times 10^3$  t in 1998, approximately 90% of which ( $258 \times 10^3$  t) is marketed through Abasto Market. The remaining  $29 \times 10^3$  t (10%) is traded through Mutualista and other markets.

#### (2) Marketing Volume and Intra-market Route in Abasto Market

Total inflow volume of fruits and vegetables in Abasto Market is  $258 \times 10^3$  t/year in 1998. Out of this volume, only 7%,  $18 \times 10^3$  t/year was directly sold to consumers. The remaining  $240 \times 10^3$  t/year (93%) is handled through traders (wholesaler, retailer and intermediary). Therefore it is fair to say that Abasto Market is no longer a farmers' market but a municipal market.

Most of the inflow volume is traded through wholesalers ( $170 \times 10^3$  t/year, 66%). Wholesalers sell  $90 \times 10^3$  t/year (35%) and  $34 \times 10^3$  t/year (13%) to retailers in Abasto Market and other markets respectively. Also, wholesalers directly sell consumers  $36 \times 10^3$  t/year (14%) that is almost equal to the volume sold to retailers in other markets. The remaining little volume is traded to big consumers/supermarkets and outside Santa Cruz. These volumes are  $7 \times 10^3$  t/year (3%) and  $3 \times 10^3$  t/year (1%).

Producers directly sell  $47 \times 10^3$  t/year (18%) and  $23 \times 10^3$  t/year (9%) to retailers in Abasto and other markets respectively, less than the volume transacted through wholesalers. Marketing volume and share in Abasto Market by marketing route in 1998 and 1994 is shown in Figures 2-8 and 2-9.

### 2.3.3 Law/Regulation, Institution and Operation of Market

#### (1) History of Market Development

In the initial stage of the historical development of fruit and vegetable markets in Bolivia (the beginning of 1980s), MACA established several farmers' market through legal procedure in order for farmers to directly sell fruits and vegetables to consumers. Several years after the introduction of the farmers' market, municipal markets were legally authorized by the municipal government according to the municipal law and regulations. In these municipal markets, all commodities, not only fruits and vegetables, were handled by retailers and wholesalers. Abasto Market is composed of farmers' market and municipal market. Initially, farmers were the leading party of the farmers' market. Farmers gradually got excluded from Abasto Market, since the number of traders, not only those for fruits and vegetables, increased year by year, narrowing the space for direct sales by farmers. The decentralization policy under the present Bolivian government was an additional force to sap the farmers' influence in the farmers' market of Abasto Market (Table 2-39).

#### (2) Market Law/Regulation

Market law/regulation on the development and management/operation of the farmers' market, municipal market and Abasto Market are as follows.

##### 1) Law / Regulation on the Market before the M/P Stage in 1994

##### a) Farmers Market

Supreme Decree No. 17921 of 1981

This decree authorizes MACA to acquire a loan from Bolivia's Central Bank with the purpose to construct and equip Farmers Markets to be installed in each of the department capitals. The total number of markets will be 15 (fifteen).

Supreme Decree No. 18057 of 1981

This decree modifies the above by settling that the Municipal Government will be the one in charge of the execution/carrying out of the mentioned project.

Supreme Decree No. 18245 of 1981

This decree authorizes MACA to delegate the administration of these markets to one of its affiliated bodies, which will be in charge of the retention of the sources generated by the market that serve to pay for the credit. If this money is insufficient, the issuing agent will debit one of the accounts of the General Treasury of the Nation. MACA prepares budget for such entries in accordance with the timetable for the loan payment.

Ministerial Resolution No. 548/81 of 1981.

This Resolution, authorizes the National Office of Agricultural Marketing (DNMA) entity depending on MACA, to carry out the functions of organizing and administrating the activities of the Farmers' Markets Project, in technical aspects relating to general supervision and contract.

Supreme Decree No. 20015 & 20427 of 1984

These decrees, dictates/authorizes that the Farmers' Markets built in the capitals of departments, are to be handed over from MACA to the Federation of Farmers, so they can hasten their construction and begin their operation in coordination with MACA. The Farmers' Markets in La Paz, Cochabamba, Oruro, Potosi, Sucre and Tarija have been transferred to their respective Departmental Farmers Federation.

Supreme Decree No. 20136 of 1984

This decree prescribes about the establishment of the Departmental Administration Committee for the management of the Farmers Market. The members of this committee are composed by the representatives of: Unique Federation of Farm Workers' Syndicate of Santa Cruz (FSUTCSC), Agrarian Farmers' Corporation (CORACA), MACA, Corporation of Regional Development (Corporacion Regional de Desarrollo) and the Municipal Government. Decision-makers are: FSUTCSC and CORACA.

Supreme Decree No. 21493 of 1987

This decree prescribes that the Departmental Administration Committee is reorganized to Regional Council of Livestock Supply and Marketing (CRAMA). Members of CRAMA are: MACA, Corporation of Regional Development, Municipal Government, FSUTCSC and the Association of Producers.

b) **Municipal Market**

Organic Law of Municipality on January 10, 1985

Municipal Government is in charge of the construction, administration, and maintenance of the Municipal Markets.

c) Abasto Market

Regulations on the management of Abasto market by CRAMA, 1987

Regulations about the management of the Abasto Market was planned by CRAMA, and only one regulation concretely refers/directs about function and management of Abasto Farmers Market. This regulation directs/leads the following items: management and organization, management committee, collection and announcement of marketing information, registration of users, selection criteria for users, inspection of products, selling system, forms of payment and rules to be formulated such as entering, circulating and parking of vehicles, charge system for users, the utilization of facilities and prohibition/penalties, etc. This plan of regulations applies only for the Abasto Farmers' Market, though it has not been applied and implemented yet.

Municipal Ordinance No. 21/90

According to this ordinance, and considering the necessity of establishment of Farmers Market and/or Wholesale Market and also the urgent necessity of proper programming, organization and implementation planning of the Municipal Market; Municipal Council dictated the general policies for the Municipal Markets, which include the following:

- implementation of a test plan for transfer/relocation of merchants (not only agricultural products but also other commodities) from Abasto Market to U.V. 30 and 54.
- shared planning and coordination with the different associations and cooperatives.
- function of Farmers' and/or Wholesale markets.
- investigation of commodity supply system and hasten of the market construction.
- communication of market's policies to population in general.

2) Law / Regulation on the Market at the F/S stage in 1998

After M/P stage in 1994, there are no new law/regulations, concerning market at the national and departmental level, except for the Decentralization Law.

a) Decentralization Law No. 1654 of 1995

Central Government conferred the following powers to the Prefecture:

- To make out and execute programs and projects for public investment within the framework of a departmental development plan in the areas of:
  - Programs for municipal works.
  - Other issues related to Municipal Government
- To channel requirements, and relations among Municipal Governments.
- To set administrative resolutions, contracts and agreements, delegate and decentralize technical-administrative tasks.

Central Government conferred the following power to the Departmental Council:

- To set up interinstitutional agreements.
- To promote coordination with Municipal Governments and other institutions within their jurisdiction.

After Decentralization Law it is not necessary to conform to Supreme Decree No. 21493 on establishment of CRAMA, since the Prefectural Resolution established by the Departmental Council is enough to establish an organization such as CRAMA.

b) Municipal Market

Municipal Resolution No. 360/95 of 1995

Approves the applying of the USUFRUCT System for Association of Commerce 15 de Febrero, in Ramada Market.

Municipal Resolution No. 160/96 of 1996

Division of one part of the new building of Mutualista Market constructed by Municipal Government for Association 13 de Agosto.

c) Abasto Market

Expansion of parking area by Municipal Ordinance No. 55/95 of 1995

This ordinance authorizes the expropriation of a real estate with an extension of 12.108 m<sup>2</sup>. This land site neighbors the Abasto market (Pirai) and will be used for the expansion and ordering of the mentioned market. This ordinance was implemented. The real estate is actually being used as a parking area for big trucks that transport fruits (banana, citrus fruits, etc.) and as a settlement of several shops of wholesalers and retailers.

Preparation of regulation of Abasto market (wholesale farmers' market)

Coordination and Follow-Up Committee of M/P has prepared and revised regulations of Abasto Market done by CRAMA and has planned a draft regulation for the management of Abasto market by the end of August 1998, which has already been submitted to the Municipal Council for investigation on 27 August, 1998.

The major contents included in this regulation are on management committee, structure of the management body, collection and distribution of market information, registration of users, inspection of products, selling system, forms of payment and rules to be formulated regarding entering, circulating and parking of vehicles, charge system for users, utilization of facilities and prohibition/ penalties, etc. Regarding legal procedure of the regulation of Abasto Market, this regulation is not established according to the law and the Coordination Committee and Municipal Government are investigating in preparation to authorize its legal status.

(3) Related Agriculture Marketing Organization/Institution

1) Related Organization / Institution at the M/P stage in 1994

The summary of the organizations in relation to the marketing of fruits and vegetables:

a) Central Government

The functions of MACA had been passed over to the SNAG of the Ministry of Development of Human Resources that took charge of driving the agricultural politics. Under the control of SNAG, CIAT existed and was added the function of agricultural promotion besides the investigation function that

UPRA of CORDECRUZ had executed in the past years.

b) Local Governments

Local governments

Basically, the execution of the projects were passed over to the Municipal Governments, with the collaboration of CORDECRUZ. The Municipal Governments of Santa Cruz took charge of the construction, administration and maintenance of the Municipal Markets.

CORDECRUZ

This corporation took charge of elaborating the development projects from its planning to the final execution in the whole area of the Department of Santa Cruz. CORDECRUZ was limited to spread and to adjust matters of credits or international support.

c) ASOHRUT

ASOHRUT gives technical assistance such as improvement of quality, technical assistance of production and information on marketing.

2) Related Organization/ Institution at the F/S Stage in 1998

a) Central Government

SNAG was promoted to MACA in considering the importance of production of agricultural product and its marketing. MACA has been renamed as Ministry of Agriculture, Livestock and Rural Development.

b) Local Government

CORDECRUZ was dissolved and transferred to the Prefecture, Municipal Government and private sector based upon the decentralization policy in 1995.

(4) Management Organization/Institution of Abasto Market

1) Management Organization/ Institution at the M/P stage 1994 (refer to Table 2-40)

- A municipal ordinance by the Municipal Government of Santa Cruz decided the construction site of Abasto Market in 1978, but it was not until 1983 that the construction of Abasto Market was agreed by an inter-institutional agreement between MACA and Municipal Government. The construction of the Abasto Market located between the 3rd ring road and Pirai Ave. was agreed by both parties. In order to have a better operation, they agreed to have only one administration for the facilities and services for the entire market, subject to special regulations. Two buildings were constructed in 1983 by the fund of Argentina inside the Abasto Market site.
- In 1987, CRAMA in Santa Cruz was established as the organization in charge of the Abasto Market's management. The members of CRAMA were composed of the representatives of: Corporation of Regional Development of Santa Cruz (CORDECRUZ), MACA, FSUTCSC and ASOHRUT.
- Due to the request made by CRAMA in 1990, the basic structure inside of

Abasto Market was developed/funded by the Social Emergency Fund (FSE) of Bolivia, Regional Development Corporation of Santa Cruz (CORDECRUZ) and the Municipal Government.

- In 1990, Municipal Government in Santa Cruz approved that Cooperativa 2 de Junio to construct the building inside Abasto Market by USFURUCT system. Since then, the Farmers and Municipal Market have existed side by side legally inside Abasto Market.
- CRAMA's activities lasted until 1990. The actual management of the Abasto Market, stopped due to the existence of political disagreements concerning individual interests.
- Abasto market was operated and managed by the Municipal Government and three private organizations (FSUTCSC, ASPROA, Cooperativa 2 de Junio).

2) Management Organization/ Institution at F/S stage in 1998 (see Table 2-40)

As CRAMA was no longer active, the national law from which established it was made invalid with the introduction of the decentralization law.

a) Establishment of New Committee in the Place of CRAMA

- Committee of management of Abasto market was created on July 1995 by the inter-institutional agreement of relevant organizations. However, this committee had no legal status and disappeared at the end of the same year due to the opposition of farmers'/laborers' associations.
- Master Plan Follow-Up Committee was established by an inter-institutional agreement in place of committee of O/M of Abasto Market in 1996. This committee also had no legal status. After that, the mentioned committee was reorganized to the new "Coordination and Follow-Up Committee of Master Plan". This committee was established by an inter-institutional agreement in November 1997. The members of this committee are composed of the representatives of Prefectural Department, Municipal Government, CAO, ASOFRUT and FSUTCSC. This committee also has no legal status.

b) Splitting of Operation Organizations

FSUTCSC and ASPROA have split into seven associations because of poor management such as corruption and political discord. FSUTCSC does not have strong power as before and only one association is affiliated under it. The other associations belong to Central Obrera Boliviana (COB). As of 1998, there are eight users' organizations; Cooperativa 2 de Junio, Asociación 19 de Marzo, ASOPROCA, ASPROA, ACPAMA, 24 de Sept, AIPPA and ASOPROCE. Each organization manages and operates its own marketing area.

c) Coordination and Follow-up Committee of Master Plan

The objectives and functions of the said committee are as follows:

Objectives

- to take necessary measures for the implementation of the Master Plan in all various stages.
- to commit and to assure financial and human resources necessary for the implementation of the Master Plan.

- to formulate the administrative and operational procedures for the implementation of the M/P and the feasibility study and the final design for the operation system.

#### Functions

The members of the committee from the following bodies have their respective functions below:

- Prefecture  
It officiates as the counterpart-institution related to all studies and the construction of the facilities in coordination with the Municipal Government.
- Municipal Government  
It takes responsibility for the reorganization of the Abasto Market, financing all the expenses of improvement of its infrastructure. It prepares the necessary regulation for the management and operation of the current wholesaler marketing system. It will acquire the necessary land for the construction of the New Wholesale Market. It will provide all the necessary information to elaborate the plan construction designs, norms, regulations and inspection of the relevant works.
- CAO, ASOFRUT  
They support the technical teams of the prefecture and municipality in all respect to the coordination of the activities to develop different requests, financing administrations, land selection in provinces for the construction of the collection centers, technical support with personnel for emergency cases.
- FSUTCSC  
They will support the technical teams of the prefecture and municipality and will develop and facilitate the works of the reorganization of the Abasto Market, support the legal dispositions approved by the Municipal Government. They will also instruct their associates in provinces, support the Provincial Committees in all with respect to the new marketing system, construction of collection centers, sorting and distributing products, etc.

(5) Facilities/Infrastructure and Operation/Maintenance of Abasto Market at the F/S stage in 1998

1) Facilities and Infrastructure (refer to Table 2-40)

#### Facilities

In 1994, Cooperativa's building was under construction for its expansion, which was completed in 1995. Its floor area increased from 7,000 m<sup>2</sup> to 14,000 m<sup>2</sup>, and the number of sections increased from 220 to 482. Most of sections have been rented to merchants such as tomato wholesalers, grocers, flower shops and snack sellers. In the Cooperativa's building, consumers have significantly increased between 1994 and 1998. There were four temporary sheds for fruits and vegetables, cereals and grocery merchants in Farmers' market area in 1994. In 1998, the number has increased to 12 sheds. In addition, many beach parasol type shops are newly introduced.



### Infrastructure

- **Rehabilitation of Basic Infrastructure**  
Infrastructure has been improved based upon the M/P recommendation. The Municipal Government rehabilitated the infrastructure such as paving the unpaved area inside the market and covering drain trench outside market along internal 3rd ring road / Pirai Ave. This covered trench is useful as pedestrians and parking area of consumers and taxis. The Municipal Government invested US\$301,000 for the rehabilitation.
- **Parking Area**  
The Municipal Government established the parking area for large vehicles for fruits in the neighboring land of Abasto Market. About 10 trucks/day have used this parking area. There were parking spaces for about 90 trucks. Now these spaces have decreased to about 50 trucks due to occupation of passage by small retailers.
- **Garbage Area**  
In 1994, existing garbage area was located at the south west corner of the market. In 1998, this area is occupied by banana traders' shops. Hence garbage area is divided into three spaces along the road outside the market.

### Utilization of Facilities

Cooperativa 2 de Junio had its own building in the market and expanded in 1996. FSUTCSC and ASPROA occupied two main buildings each and utilized as selling spaces for their members in 1994. In 1998, FSUTCSC is no longer influential, and its building is taken over by 19 de Marzo, an ex-constituent of FSUTCSC.

### Number of Shops within the Market

Approximately 1300 shops existed within entire market in 1994. In 1998, the number has increased to approximately 2300 shops. There is no more space for new merchants.

## 2) **Operation and Maintenance**

### Operation and Maintenance by Municipal Government

The Municipal Government is short of personnel and lacks funding for the undertakings as regards the maintenance of Abasto Market. Except for the fee system, the undertakings remain the same in 1998 as in 1994 i.e.; security control, price and weight control, control of vehicle circulation, sanitary control, mediation of conflicts and garbage collection.

Fee for entry and parking charged by the Municipal Government was non-existent in 1994 and was not found either in 1998. Fee for merchants including fruit and vegetable wholesalers, retailers and other commodity sellers was Bs.1 in 1994, which was no longer collected as of 1996, and remains as such in 1998. According to the Director of Industry and Commerce of Municipal Government, which is in charge of administration of Abasto Market, collection of annual fee from merchants is now being considered and planned.

### Operation and Maintenance by Users

On the other hand, users' organizations operate and manage their territories. Their undertakings remain the same in 1998 as in 1994, and they are: security

control, cleaning, control of vehicle parking, mediation of conflicts and maintenance.

In 1994, members of users' organizations were charged Bs.0.5 per day. As of 1998, the daily charge is Bs.0.5~1, depending upon the scale of organizations. Larger organizations tend to own better equipped facilities that demand higher cost of maintenance. Users' organizations did not charge entering trucks as of 1994, though in 1998, Bs.0.5~1 per day (larger vehicles charged more) is charged for parking fee in their territories.

(6) **Implementation of Law/Regulation of Operation and Management in Abasto Market**

Law/Regulation of wholesale market has mostly been ineffective or only partially implemented in Abasto Market as shown in Table 2-41. Only laws/regulations for transaction system of direct negotiation, security control, mediation of conflicts and garbage collection have been effective. Laws/regulations on collection of marketing information, operation days, price/weight control, control of entrance, circulation and parking of vehicles and sanitary control have been partially implemented. Important laws/regulations on qualification and registration of users, fee system and standardization of products have never been effective in past years.

**2.3.4 Problems and Issues in the Marketing System of Fruits and Vegetables**

a) **Handling volume of Abasto Market**

In reviewing the supply and demand and the product inflow volume, there is a tendency for the ratio of imported product volume from neighboring countries and the inflow volume from outside the department to be relatively larger in comparison to the product volume supplied from within the department. Furthermore, this tendency is expected to increase rapidly following Bolivia's membership into MERCOSUR.

Approximately 90 percent of the consumption volume of Santa Cruz city is handled by Abasto Market. An efficient wholesale market capable of handling this high distribution ratio within the market does not exist.

b) **Business transactions at Abasto Market**

Presently, the majority of the product that is delivered to Abasto Market is handled by traders. According to the M/P implemented in 1994, it was common practice for farmers to directly transport and sell their product at Abasto Market. However, with the enactment of the Rural Decentralization Law in 1995, the retail competitiveness of the production area farmers in Abasto Market declined, their advantage to market access also fell in correlation with rapid urbanization, and there has been an overcrowding of the market due to an increased number of informal sector businessmen (the majority are petty wholesalers). All of these factors have contributed to the retreat of marketing activities in the city by farmers. The growing mixture of wholesalers, retailers, and traders at the Abasto Market has become a severe problem and it has made efforts to raise the efficiency of wholesale operations all the more difficult.

c) Establishing a pricing mechanism

The wholesale product price in Santa Cruz city is higher than the wholesale price in other areas in Bolivia and they are prone to extreme seasonal fluctuations. In addition, the wholesale price is much higher in Bolivia than in neighboring countries. This is due to the smaller scope of operations of product producing farms which are unable to keep up with the growing demand for increased production. With the exception of certain crops, this is also an indication of the declining self-sufficiency ratio of unviable farms. The profit margin of wholesalers in Abasto Market is fixed and they are not subject to price fluctuations. This is due to a distortion in wholesaler competition.

d) Burden of transport costs

The ratio of transport cost in the price of the product from the production to the consumption site is high (especially for product requiring rapid packing to maintain freshness) and rationalization of transport operations is an important issue. The transport cost per t/km successively decreases according to distance and there is a tendency for the range of long distance transports to grow in the case of product, including imported products.

e) Countermeasures to improve international competitiveness

In addition to the production issues explained in the section on " Issues and Development Needs in Production", an organizational and legal system in the area of marketing is conspicuously lacking.

Marketing is characterized by such factors as small transactions, difficulty in securing a stable supply of product, the lack of competitive pricing, etc. Product transactions are dependent on traditional quality control techniques and various units of weight are utilized and it is essential that quality and unit of weight are standardized.

Basic knowledge of the legal and organizational aspects of product marketing by government personnel, farmers, and traders is inadequate and they have been unable to gain sufficient experience in these areas in the past. Adequate training and guidance for relevant personnel are essential to improving international competitiveness by implementing a systematic and organized system of marketing and establishing communal use of production and marketing facilities. In tandem with these guidance and training activities, a plant inspection system for imported and exported product is also needed.

f) Socioeconomic conditions

Although the average income level of farmers engaged in product production is higher than the income of the average Bolivian citizen, the discrepancies in income between farmers are large, due to the difference in the scope of farming operations. Furthermore, the scope of operations of traders is small and the difference in the income level between farmers and traders is minimal. An important issue is rationalizing the marketing system of both the production and consumption sites by organizing small farmers and traders.

The major underlying reasons why attempts to organize farmers and traders have been unsuccessful is the farmer/trader distrust of parties responsible for

and consumption sites by organizing small farmers and traders.

The major underlying reasons why attempts to organize farmers and traders have been unsuccessful is the farmer/trader distrust of parties responsible for managing the organization, the unclear management of the financial system, and the lack of technical knowledge on organizational management.

**Incomes of Farmers/Traders and Their Household Expenditures (1998)** unit: Bs.

	Annual Income			Household Expenditure		
	Avg.	Min.	Max.	Avg.	Min.	Max.
1 Producer						
(1) large-scale	69,280	36,915	117,144	30,658	11,560	50,039
(2) middle-scale	39,546	13,966	63,277	15,302	9,408	22,684
(3) small-scale	24,251	12,007	40,204	12,727	6,989	26,880
2 Intermediary (Small-scale, by place of residence)						
(1) S.C. City	33,950	9,600	100,000	22,489	5,250	53,160
(2) Rural area	32,590	8,000	75,000	22,093	13,360	47,440
3 Retailer (operating in Abasto)	18,857	-	-	11,207	6,400	18,100
4 Wholesalers (operating for side-business in Abasto)	18,800	-	-	15,456	10,560	22,160

**Remarks:**

- 1 Obtained from the F/S survey "Socio-economic Survey" (implemented August 1998)
- 2 The figures for annual income/expenditure each indicate the average, maximum, and minimum value for each target group

**g) Legal system and operations of the Abasto Market**

The Abasto Market is a regional city market (public market) and farmers' market established in accordance with the Santa Cruz municipal ordinance based on the MACA law. Integrating these two dissimilar types of market into one entity has created confusion legally and operationally. An attempt to draw up a legal system to administer market operations was carried out several times in the past, but it was never implemented. Moreover, CRAMA, the ineffective the operating committee overseeing Abasto Market, inevitably lapsed following the enactment of the Rural Decentralization Law. As a result, the Abasto Market has continued to exist as an unregulated and segmented market operating according to the interests of various user groups.

**2.4 Financial Organization and Credit System**

**2.4.1 Credit System**

- (1) **FINDESA S.A.M. (Financiera de Desarrollo de Santa Cruz Sociedad Anónima Mixta)**

FINDESA was formed in 1986 by CORDECRUZ, CAO and CAINCO (Cámara de Industria y Comercio de Santa Cruz). Their source of finance comprise 74.7% from the Prefecture of Santa Cruz Department, 24.1% from Central Bank of Bolivia ("Banco Central de Bolivia"), and 1.2% from other sources.

They support the productive sector by financing small and large producer, especially helping small producers that do not have access to commercial private banks.

FINDESA is to be privatized. The Board of Directors of FINDESA in 17 Nov 1997, directed that the privatization process be accomplished as soon as possible.

(2) FDC (Fondo de Desarrollo Campesino)

FDC gets its funds from World Bank, KFW, IBD, Japan and Belgium. A small proportion of the funds is in a form of donation whereas the majority is loan. The Japanese donation is in the form of fertilizers.

The beneficiaries of FDC are in the rural areas defined as municipalities with fewer than 5,000 inhabitants. The project to be financed has to show social impact benefits, economic viability and environmental sustainability.

The FDC finance is in a form of aid with no need for repayment. The promoting institution (eg. municipality, NGOs, associations) is expected to fund about 5 ~ 40% of the project cost.

The beneficiary community is to bear about 5 ~ 25% of the project cost. This can be in the form of money, labour, and / or material.

FDC funds are used for construction of basic infrastructure such as roads, bridges, community centers, collection centers, protective structures, dams, conservation and productive structures, technical assistance, community processing production, institutional building, pre-investment studies, etc. The fund cannot be used to buy machinery or equipment.

(3) Cooperativa De Ahorro Y Credito "La Merced" Ltda

This Saving & Credit Cooperative has 15 agencies in 12 provinces of Santa Cruz Department. They have about 11,000 members in the rural areas and about 15,000 members in the urban areas. Membership fee is Bs70/year.

They had a loan from BID of US\$500,000 with an interest of 1% for a period of 40 years with 10 years grace period. Other than this, they have their own financial resources from members' fee and savings. Their total capital is about US\$5 million.

They give credit to the small-medium producers in agriculture sector (about 50% of their investment), commerce, housing, and micro-enterprises.

(4) BOLINVEST

BOLINVEST was formed in 1989 in La Paz, and 1991 in Santa Cruz, as a private non-profit organization with funding from USAID and contribution from other organizations/individual. It has offices in La Paz, Cochabamba, and international offices in Holland, Peru, Argentina, and Colombia. Around US\$17m has been invested from 1989 to 1997 by BOLINVEST. Their objective is to promote commercialization / export of Bolivia products and promote foreign investment.

They are working with producers to improve their production volume by providing technical assistance at all stages of production. They want to improve the production volume and quality for commercializing. They also act as technical "guarantor" for loans application by producers.

They are also looking at promoting processing (semi-processing) of agriculture products for export. There are several projects going on in the Valley areas.

BOLINVEST promotes foreign investment in Bolivia by providing information/ technical & financial evaluation / advice to foreign investors.

(5) FONDECO

FONDECO is a private non-profit association. It receives contributions and loans from Holland, Germany, Spain and EU. It was established in 1991 as a specialized credit unit under Center for Research and Promotion of Peasant Population (CIPCA) to manage its revolving loan fund. However in 1995, it became an independent non-bank financial institution based in the city of Santa Cruz de la Sierra.

It has offices in 18 municipalities. In Santa Cruz Department, it operates in 8 municipalities in the lowland areas. Its clients are small farmers, rural entrepreneurs and small traders of various ethnic groups who do not have access to formal financial systems. Nearly 50% of its clients are female in the rural areas involved in small scale trading, cattle, pork, poultry breeding, and dairy products. Presently, FONDECO does not operate in the Valley areas.

Its loan amount is normally less than US\$1,200 as more than 50% of its clients are small scale female traders. In principle there is no loan limit and loans greater than US\$70,000 for machinery have been made. As guarantee for the loan, FONDECO requires that the title for the land be deposited with them, an application form for the loan to be filled in, and/or a credit solidarity group be formed to guarantee the loan on a collective basis.

(6) ASOFRUT

Their loan amount normally varies from US\$300 ~ US\$1,000/ha. Lending is normally to a group (comunado) with loan guarantee of house or land titles. In the case of lending to an individual, it is required that another person act as guarantor. Their credit is for production, planting, and plant production. As such the loan period is normally for 6 ~ 8 months to be repaid at the end of the loan period when the product is sold. Their interest rate is 12% per year. At the moment, they have roughly about 1,000 farmers taking loan.

(7) Agriculture Credit in the Valley Areas

Agriculture credit services available for farming purpose in the Valley areas include the services provided by ASOFRUT, Saving and Credit Cooperatives and other non-governmental organizations as shown in Table 2-42.

The terms and conditions of major agriculture credits available in the Valley areas are shown in Table 2-43.

In addition to the above formal credit services, the existence of informal credit facilities is reported. Although not common, example of such informal credit is the supply of seed potatoes and farm inputs by intermediary or wholesaler on conditions that products be sold to them. This was observed in Pampa Grande, San Isidro, Saipina, Vallegrande, and Comarapa. In such cases, farmers' position in product price bargaining is usually weak. Another informal credit common in all the major producing areas is credit selling of farm inputs by seed and chemical suppliers. In addition, relatives are reported to be sources of financial support in case of emergency needs.

From the results of the socio-economic survey it appears that fruit and vegetable growers

in the major producing areas, irrespective of their scale of production, have relatively stable income and lifestyle. Although they have the potential to apply for credit, the needs for agriculture credit appear to be not so high.

(8) Possible Source of Fund for Collection Center

The sources of funds can be broadly categorized into 2 groups, i.e., banks and non-banks financial institutions. Refer Table 2-44 for summary of possible fund source for Collection Center.

In the Department of Santa Cruz, the banking institutions dedicated to agriculture credit are FINDESA and Banco Ganadero. When FINDESA is privatized, the agriculture sector will have to compete with other sectors for funding. Private bank that deals with the agriculture sector is the Banco Ganadero.

Non-bank institutions that deal with credit to the agriculture sectors are ASOFRUT, Cooperativa De Ahorro Y Credito "La Merced" Ltda, BOLINVEST, FONDECO and FDC. FDC fund although not dedicated for the agriculture sector only, would be available if the project complies with their guidelines for qualification. Fund from FDC is in the form of an aid with no repayment required.

#### 2.4.2 Budget & Balance Sheet

(1) Prefecture of Santa Cruz Department

According to the balance sheet for the months of Jan ~ Jul, 1998 for the Prefecture, the annual budget is Bs.811 million (about US\$146 m). Of this budget, the major expenditure are for personnel cost which accounts for about 47%. Budget for equipment and construction which is categorized in the Real Assets item is about Bs.191 million (US\$34 m) or 23% of the total budget. Of this item, construction and improvement of properties accounts for 76% and supply of machinery & equipment accounts for 18%.

(2) Municipality of Santa Cruz

For 1997, the Municipality had an asset of Bs.237.3 m (US\$42.7 m). Their expenditure for that year was Bs.237.6 m (US\$42.8 m) which meant that they suffered a deficit in their working capital of Bs.307,215 (US\$55,354). Their major source of income were from the Popular Participation fund of Bs.105.4 m (US\$19 m) and Municipal revenue of Bs.69.8 m (US\$12.5 m), which accounted for 46% and 30% of the income. Their expenditure for the construction of facilities for public benefits (including markets) accounted for Bs.77 m (US\$13.8 m) or 32% of their total expenditure.

### 3 OUTLINE OF THE PROJECT

#### 3.1 Development Concept of the Project

The fruit and vegetable marketing system is a widespread network system stretching from production stage in the production area to consumption in the consumption area. The Project's objective is to improve this marketing network system in a comprehensive manner.

Implementing technology transfer to relevant personnel (government staff to promote the project, representatives of supporting agencies and users) through the implementation of the Project will help develop the production sites and rationalize the entire process of production, marketing, and consumption. The Project will enable a marketing system of fruits and vegetables to be created that will improve product quality as well as promote international competitiveness in conjunction with Bolivia's participation in MERCOSUR.

The existing Abasto Market is to detach its wholesale function as the New Wholesale Market (NWM) is established. Farmers in the Valley areas will use the Collection and Distribution Centers (C/D Centers) in order to carry out collective shipment to the NWM (through organizing farmers). Collection and distribution from the Valley areas will go through 7 C/D Centers and farmers' organizations using these facilities will be given preference in obtaining sales sections in the NWM (if qualify as wholesaler).

Production area and consumption area are connected through a widespread marketing network system including not only commodity flow function but also price information function.

Along with such improvement in the traditional marketing system, benefit to target groups who heretofore have not used Abasto Market is considered. Among these new target groups, lowland agricultural cooperatives (CAISY, CAICO) and Supermarkets' Association have addressed their intention of using the New Wholesale Market. The use of and technology transfer in the NWM and C/D system will promote production area development and contribute to the establishment of fruit and vegetable marketing system with international competitiveness including product quality improvement geared towards MERCOSUR participation.

For small-scale producers and traders (mostly women) who lack direct access to the NWM will benefit from the Project as below.

- Transfer of wholesalers from the existing Abasto Market to the NWM will realize a more efficient retail activities in the existing Abasto Market, expanding opportunities of small-scale trading and farmers' direct sales of the informal sector.
- Users of Farmers' Markets in the process of being developed by private sector, or foreign donors including NGOs can have choices over direct sales in this Farmers' Market (existing Abasto), wholesaling in the NWM, and sales to wholesalers in the NWM.
- Loss in time and cost (opportunity cost) needed for a series of marketing activities including harvesting in the field, transporting to the existing Abasto Market, and selling will be reduced.
- Mitigation of chaotic marketing activities and confusion in the existing Abasto Market will make female small-scale traders' activities more



efficient.

### **3.2 Outline of Project Plan**

The NWM will be established in the large consumption area of Santa Cruz city, and laws/regulations and organizations will be established for the NWM as well as Abasto Market. In the production area, the C/D Centers will be introduced through new construction or renovation of the existing facilities, along with development of laws/regulations and organizations to carry out production and collection/distribution activities to enable the production areas to meet the needs of the market. These two facilities will be used as a marketing point as well as technology transfer point for production and marketing. Training and technical assistance activities for the target groups utilizing these two facilities on product marketing system, law/regulation and institution will promote the production area, contribute to the efficiency of marketing activities, and strengthen international competitiveness in readiness for Bolivia's participation in MERCOSUR.

#### **3.2.1 Proposed Development Plan for Products Collection and Distribution Centers**

##### **(1) Proposed Products Collection and Distribution System**

As the cooperative marketing system of fruits and vegetables has never been successfully introduced in the major producing areas and experiences and capability of farmers and farmers' organization on the system are limited, the establishment of cooperative collection and distribution system in Collection and Distribution Centers (C/D centers) should be promoted in two stage:

##### Initial Stage for about the first 5 years after the start of operation

Introduction of cooperative collection and shipment operated and managed by existing farmers' organizations having experiences in product marketing

##### Advanced Stage from about 6th year after the start of operation

Establishment of cooperative collection, shipment and selling operated and managed by farmers' group organized for cooperative marketing and introduction of planned production in order to meet market demand for timing of shipment, volume, quality and forms of packing of commodities.

For the study of cooperative marketing system to be introduced in the C/D centers, the discussion on the same with municipal government and representatives of farmers and farmers groups and agriculture institutions in the major producing areas have been made. On the basis of the results of the discussion, the collection and distribution systems to be introduced in each stage are proposed as illustrated in Figure 3-2 and as follows;

	Initial Stage: 1st to 5th Year after Start of Operation	Advanced Stage: 6th Year and on after Construction/Start of Operation
Field selection	Preliminary selection at fields and removal of unmarketable products, packing in box, bamboo basket or plastic bag as practiced presently; gradual use of standard container & revolving containers	Preliminary selection at fields and removal of unmarketable products, packing in revolving container
Shipment to collection center	Shipment to collection center by farmers employing hired truck or own truck	- no change (as left) -
Selection/grading	Cooperative selection & grading at collection center, into 2 to 3 grades as presently practiced or into grades demanded by destination markets	Cooperative selection & grading at collection center, into grades demanded by destination markets
Packing	At initial operation stage: packing in box, bamboo basket or plastic bag as practiced presently. Gradual use of containers demanded by destination markets or mutually decided between a C/D center & markets	Packing in carton box or revolving container demanded by destination markets or mutually agreed between a C/D center and markets
Shipment to market	Cooperative shipment employing transporter	- no change (as left) -
Selling and delivery	Selling individual goods separately at market under the name of C/D center	Cooperative selling of all commodities at market under the name of users group (Collection Center Users Cooperative)
Terms of transaction	Cash selling or other methods mutually agreed	- no change (as left) -
Operation/Management Costs	To be financed with fees collected from users (users fees) in principle	To be financed with fees collected from users (users fees) in principle

## (2) Proposed Location of C/D Centers and Target Areas for Products Collection

### 1) Proposed Locations of C/D Centers

The seven proposed locations of C/D centers selected are: 1) on the present major marketing routes, 2) in major producing areas and 3) in the municipal or sub-municipal administrative centers

### 2) Target Areas for Products Collection

Zoning of target areas for products collection of each center shown in Figure 3-1 was made focusing on irrigation, rain-fed potato production, and present marketing routes.

## (3) Proposed Development Schedule

The development schedule of C/D centers has been formulated in accordance with the basic approaches as follows;

### Implementation of Pilot Project

The implementation of Pilot Project or the development of pilot C/D center in San Isidro by renovating PETHOSAM is planned to be synchronized with the development schedule of the NWM and the renovation of the facility is

scheduled to be in the later half in 2000 (refer to Table 9-2).

With the aim of starting the operation of the center in 2001, renovation of the existing facilities of PETHOSAM is planned to be synchronized with the development schedule of the NWM

The major project activities during the period before the start of operation (i.e. 1999/2000) include: 1) establishment of Management Committee (Steering Committee) for the development of the center, 2) trial operation of cooperative collection and shipment, 3) guidance to potential users, 4) organizing user groups, 5) arrangement for operation and management of the center.

#### Development of C/D Centers in Other Major Producing Areas

Taking into consideration the readiness for the project mentioned in Table 3-1, C/D centers development in the other target sites will be in two phases as shown below;

1st Phase Development: Samaipata, Vallegrande & Saipina C/D Center

2nd Phase Development: Mairana, Pampa Grande & Comarapa C/D Center

#### (4) Estimation of Target Collection and Distribution Volumes

The target collection and distribution volumes in the individual target areas for collection are estimated area-wise by applying the following assumptions (Table 3-2 to 3-6);

- Target collection rates are planned to reach full scale in the 5th year after the construction of centers, and
- Target collection volumes in each year after start of operation are estimated assuming improvement in commercialization rates (production volume - local consumption in the area) and collection rates (ratio of volume marketed via C/D centers).

The total target collection volumes at the full operation stage for San Isidro is  $11 \times 10^3$ t, Samaipata is  $6.4 \times 10^3$ t, Vallegrande is  $12.4 \times 10^3$ t, Saipina is  $13.7 \times 10^3$ t, Mairana is  $7.2 \times 10^3$ t, Pampa Grande is  $12.5 \times 10^3$ t, and Comarapa is  $7.7 \times 10^3$ t.

#### (5) Major Functions of Products Collection and Distribution Center

The major functions of the C/D centers in the Initial Stage for about 5 years from the start of operation are cooperative collection & shipment and individual selling, providing market information to users, providing production information to markets and technical and institutional guidance to producers/users as follows;

##### Cooperative Collection & Shipment and Individual Selling

The functions consist of: 1) products collection delivered by producers, 2) counting volumes or measuring weight of products delivered, 3) selection/grading by a C/D center (under the supervision of producers if demanded) and packing into containers currently used or ones demanded by markets. Gradual use of standard containers, improved wooden boxes or revolving containers will be promoted. All the products packed at the center are shipped to destination markets in cooperation by employing transporters. At markets, a representative of a C/D center stationed at the markets or coming to the markets delivers and sell products under the name of C/D center. Products of individual producers are sold separately to buyers (to wholesalers in

general).

#### Collection of Users Fee and Accounting

After collection of users fee and deducting transportation costs from sales amount, balances are paid to individual producers upon receipt of payment from buyers.

#### Providing Marketing Information to Users

Providing market information received from New Wholesale Market and other market information collected from other sources to users. In addition to such market information, more practical information obtained through marketing operation of a C/D center will be provided. Such information will include: market preference for quality & maturity, market preference or demand for grading/size, market demand for timing and volumes etc.

#### Providing Production Information to Markets

Aiming at the establishment of close business relation with markets, production information in the target areas for products collection is to be collected by a C/D center and shipped to destination markets. Production information will include monthly cropped area and estimated monthly production volumes.

#### Institutional Training and Technical Extension

In the proposed strengthening plan for institutional training and technical extension in Section 6, the institutional training by a C/D center after the start of the operation of the same and the operation of demonstration plots and field extension activities by extension personnel stationed in the center are programmed. In addition, day-to-day guidance on marketing aspects will be provided by the center. The center will be utilized as a nuclear place for institutional training and technical extension in the target areas of products collection.

#### Maintenance of Properties of C/D Center

Maintenance of C/D center, vehicles and equipment

In the Advanced Stage from about the 6th year after the start of operation, the following functions are envisaged to be introduced in addition to the above functions.

#### Cooperative Selling & Joint Accounting

Products collected and packed in the center are shipped to destination markets and are sold altogether to buyers under the name of users group (Collection Center Users Cooperative). Sales amount are shared by volume or weight of products of individual producers by employing joint accounting system.

#### Introduction of Planned Production

Gradual introduction of planned production.

### (6) Site Selection

The methodology (criteria ranking methods) which identifies the character of each project site by the several criteria is adopted here, but the purpose to utilize this method is deferent between the consumption area and the production area. In the consumption area, it is main purpose to select only one site for the New Wholesale Market. On the other hand, character identification and suitable plan-making for each target area is the purpose

of this study.

- 1) Conditions of site and their infrastructure in each target area

Sites locations is shown from Fig. A.1.4-1 to A.1.4-7 in ANNEX 1. City infrastructure condition of each target area are shown in Table. A.1.4-1 in ANNEX 1.

- 2) Feeder roads condition from farms in each target area

The condition of feeder roads in each target area are shown in Fig. A.1.4-1 to A.1.4-7 in ANNEX 1, jointly with the sites location map.

- 3) Existing facilities for agri-products by CORDECRUZ/ ASOHRUT

Samaipata has a agri-product facility built by ASOHRUT; and San Isidro has also a similar facility built by CORDECRUZ and ASOHRUT. It is supposedly possible to utilize for the Product Collection / Distribution Center.

- 4) Proposed project sites by Municipal Government

All of the City Mayors proposed the project site for the Products Collection/Distribution Center. Each proposal has the characteristics shown as follows.

- Land owners: Mairana, Pampa Grande and Saipina do not have a public land suitable for the Center, therefore City Mayor proposed a private lot that they can supposedly expropriate from private sector. The other mayors proposed public lands for the project sites.
- Alternatives in a City: City Mayor of Samaipata and Vallegrande proposed a few public lands, i.e. Samaipata - 3 sites, Vallegrande - 2 sites.

- 5) Criteria for Characteristic Evaluation

The concept of products collection and distribution system by 2 types of facilities (Main Center and Sub Center) was shown in M/P/1994. According to the result of research in Valley areas in 1998, the trunk roads conditions from each target area to consumption area are not a critical constrain towards the transport system. Therefore Study Team determined not to adopt the Main and Sub Center system but to make adequate C/D Center plans for all of the target areas considering the characteristic of each target area. For the characteristic evaluation of the proposed sites in each target area, 8 evaluation criteria items (including several sub-criteria items) shown as follows were selected.

- a) Production and supply potential:

"Production / target collection volume", "presence of its positioning as a target area for agriculture development", and "potential for production expansion (scale of existing irrigation development plan)" are evaluated in sub-criteria.

- b) Possibility for organizing farmers:

"Presence of current farmers cooperative activities", and "presence of current water management association" (for irrigation project) are evaluated in sub-criteria to estimate the possibility for organizing farmers.

- c) Possibility for adaptation of proposed shipping method (transshipment at C/D

Center):

It is necessary to estimate the possibility whether the transshipment method is adaptable for each target area or not. For this purpose, "presence of transshipment in current shipment", "employment of local transporters in current shipment", "presence of current transporters cooperatives" are selected for the sub-criteria.

d) Beneficiaries:

The actual dominant user of C/D Center will supposedly be the owner farmers and/or the farmer transporters. On the other hand, from the viewpoint of contribution to the weak, it is necessary to check whether C/D Center locates in the area where the small/weak farmers are dominant or not. Therefore "owner farmers ratio", "number of beneficiaries", "illiteracy ratio" and "presence of farmers intention to participate in cooperative collection and distribution", are selected for the sub-criteria.

e) Site condition:

"Accessibility to the project site from feeder road in farms", "possibility of actual practical use of existing facilities after rehabilitation", "reliability of land acquisition", "necessity of large scale land preparation work", and "infrastructure's conditions" of the project site in each target area are evaluated in sub-criteria.

f) Environmental impact Assessment:

- Social Impact

"Social impacts to the related persons" have to be evaluated in sub-criteria. Main related persons are anticipated as follows.

Small-scale farmers, women engaged in small scale transportation, large scale farmers, local transporters, local intermediates, dealers of consumption area, neighboring inhabitants

- Environmental impact

"Impacts of noise pollution", "air pollution", "water pollution", "soil pollution" and "garbage/dust problems" of each target area are evaluated in sub-criteria.

g) Project Evaluation:

As mentioned in the Consumption area, it is necessary to carry out the rough study of economic/financial viability and income re-distribution among beneficiaries who belong to management organization and users here also.

h) Effective Technology Transfer:

It is necessary to evaluate whether the technology transfer to the related persons shown in criteria-6 (without neighboring inhabitants) will be done effectively or not. If some difficulties are found out for technology transfer, it is necessary to prepare the adequate treatment. To take care of the influence of illiteracy ratio is necessary for the effective technology transfer.

6) Evaluation of proposed project sites (Refer to Table 3-7)

- The result of "Production / Supply Potential" shows that only Saipina got the highest score, and it reflects the fact that only this city has both large scale production and irrigation plan on going in addition to the position of target area. Totally, the scores of each target area vary from high to low.
- In the result of "Possibility for Organizing Farmers", only Vallegrande shows the highest score and the others show consistently medium scores, because both "presence of current farmers cooperative activities" and "presence of current irrigation cooperatives" are jointly observed only in Vallegrande.
- The result of "Possibility for Adaptation of Proposed Shipping Method" shows that only Comarapa got extremely high score, and 3 target areas (i.e. Mairana, Pampa Grande, San Isidro) show consistently low scores, because "Transshipping Method" and "Transporter cooperatives" are confirmed jointly only in Comarapa, but these 2 items are not found in these 3 areas. Totally, the scores of each target area vary from high to low.
- The result of "Beneficiaries" shows that the scores of Samaipata, Mairana, Pampa Grande and Comarapa are comparatively small than the others, because they reflect mainly the factor of "number of beneficiaries" and "Illiteracy ratio", i.e. the total beneficiaries' numbers of these 4 target areas are especially smaller than the others, and the illiteracy ration is very low only in Mairana. But totally, the scores of each target area do not vary so much.
- The scores of "Site Condition" vary from high to low. Mairana, Pampa Grande and Saipina show consistently low scores, because these 3 sites proposed by the Municipal Government are private land and their infrastructure conditions are comparatively no good.
- The score of "Environmental Impact Assessment" shows that there is no deference between each target area.
- The result of "Project Evaluation" reflects the following facts. Pampa Grande, Saipina and Vallegrande show consistently high score in the economic/financial viability because of their extreme high production/target collection volume, and high (comparative high) number of beneficiaries.
- The result of "Site Condition" shows consistent low score of Mairana, Pampa Grande and Saipina because of their low reliability of land acquisition, and undeveloped infrastructures.
- The result of "Effective Technology Transfer" reflects the illiteracy ratio's condition in the Valley areas. Only Mairana has comparatively low illiteracy ratio, therefore it shows the highest score, and the others show consistently almost medium scores. This type of bud influence from high illiteracy ratio can be reduced easily by means of introducing "on job training" or other practical training.

### 3.2.2 Development Plan of New Wholesale Market

#### (1) Site Selection

The methodology (criteria ranking methods) which identifies the character of each project site by the several criteria is adopted to select only one site for the New Wholesale Market.

##### 1) Possible project sites

###### a) Proposed project site by City Government in the M/P 1994

Regarding the proposed project site by the City Government for the New Wholesale Market (13km south-west of city center, along Route 4) in 1994, one private developer has started the land preparation works for their housing project including a farmers market for fruits/vegetables since July, 1998.

###### b) Proposed project site by City Planning Section of City Government in 1998

In mid-August 1998, City Planning Section (Consejo de Plan Regulador) of City Government proposed the City Block UV 189 (residential area: 8km south-west of city center) as the only one possible site for the project (refer to 4.1.6 for progress of the discussion on site selection in Phase 2).

###### c) Possible proposed site

As above, total 2 sites shown as follows were decided to be evaluate as the project site alternatives for the New Wholesale Market in the Phase 1 Study.

- Proposed Site No. 1: Santa Cruz City block UV 189 (residential area) that faces both Route 4 and the south-west city boundary (8km south-west of city center)
- Proposed Site No. 2: Site in La Guardia City (proposed site in the Master Plan 1995: 13km south-west of Santa Cruz city center, along Route 4)

Location of these 2 proposed sites are shown in Fig. 3-3.

##### 2) Site selection criteria and evaluation

12 criteria items (including several sub-criteria items) shown as follows were prepared for the site selection.

###### a) Position of the New Wholesale Market development

Position of each project alternative site will be identified in the framework of the regional development plans as follows.

- Santa Cruz City's PDM
- Santa Cruz Prefecture's PDM
- Santa Cruz Prefecture's Guideline of Metropolitan Development Plan

###### b) Accessibility for products suppliers: (Refer to the city map in 2.1 (2))

Accessibility from the main incoming routes, i.e. Route 4 west (Valley area), Route 7 & Route 9 north (San Juan / low land area), Route 4 west (Cochabamba), Route 4 east (Cotoca region) and Route 9 south & 6



(Argentine/Paraguay) are evaluated in sub-criteria from the products supplier's viewpoint, and accessibility to the rail road network for Brazil is also selected for sub-criteria.

- c) Accessibility for users of the wholesale market in consumption area (for city dwelling dealer and retailer in Santa Cruz)

Proximity to Santa Cruz, accessibility from the public traffic system for the city dwelling user has to be evaluated in sub-criteria.

- d) Management ability of facilities maintenance of City Government

Study Team determined to evaluate the management ability of a municipal government as a maintenance institution to which the project site belongs, because there is high possibility for the maintenance method by the Metropolitan Committee such as CRAMA not to function in the wholesale market.

Therefore financial ability, organization and its human resources stock, and experience of the similar projects of the municipal government are evaluated in sub-criteria.

- e) Management ability of users' organization

Ability of the operation organization will depend upon its dominant members. Accordingly its coordination/organization ability, financial and management ability have to be evaluated in sub-criteria by anticipating the dominant members (farmers association, private company, large scale dealers, super-market association, etc.).

It is necessary to consider the following item concretely.

- In case of UV189, large scale dealers and super-market association will supposedly join the operation as the dominant members in addition to the qualified wholesalers selected from those who are using the existing Abasto Market.
- In case of Site in La Guardia City, small scale farmers will be the dominant members, and organize the management.

- f) Sustainability

- Instability and/or difficulties in the coordination for the relationship between municipal government, users' organization and users are evaluated in sub-criteria.
- Sustainability that consists in the experiences of maintenance institution is evaluated.

- g) Site condition

Infrastructural conditions including public utilities in each project site are evaluated in sub-criteria.

- h) Land acquisition etc.

Difficulties of land acquisition, necessity of large scale land preparation and necessity of preparation works for infrastructure are evaluated in sub-criteria.

- i) Linkage with related projects
- It is necessary to evaluate the presence/influence of the linkage with other private projects concerned with agri-products marketing.

j) Environmental Impact Assessment

It is necessary to consider the future conditions of both the existing Abasto Market and the New Wholesale Market.

Social impact

Social impacts to the related persons have to be evaluated in sub-criteria. Main related persons are anticipated as follows.

- Persons in production area: small scale farmers, women engaged in small scale transportation, large scale farmers, Japanese-Bolivian farmers in San Juan, transporters, intermediates
- Persons in consumption area: dealers, import/export dealers, intermediates, retailers, consumers, neighboring inhabitants

Environmental impact

Impacts of noise pollution, air pollution, water pollution, soil pollution and garbage/dust problems are evaluated in sub-criteria.

k) Project evaluation

For the project evaluation, it is necessary to carry out the rough study of economic/financial viability and income re-distribution among beneficiaries who belong to management organization and users. "Management organization" means municipal government, and "users" means operation cooperatives, transporter syndicates.

l) Effective technology transfer

It is necessary to evaluate whether the technology transfer to the related persons shown in criteria-10 (without neighboring inhabitants) will be done effectively or not. It depends on the site location and the participants (users of facilities).

3) Priority of Proposed Project Site

The result of priority ranking for the each sites are shown in Table 3-20.

Table 3-20 shows the evaluation result of each site which is summarized in the following table. Taking the ranking of each site in the criteria into consideration, and paying attention especially to "Accessibility for users", "Management ability of city government and user's organization", and "Sustainability", Santa Cruz City Block UV189 was supposedly the site that can be recommended.

Evaluation of Project Site Alternatives for New Wholesale Market (Summarized Table)

Criteria	Ranking of each alternative site for the criteria		Remarks
	UV189 in St.Cruz	Site in La Guardia City	
1 Position of wholesale market development in the framework of regional development plan	-	+	Site in La Guardia City was found to be better, and it reflect the fact that there is no position of the New Wholesale Market in the PDM of Santa Cruz City and Prefecture, but only the Guideline of Metropolitan Development Plan emphasizes the necessity of strong relationship between Santa Cruz and La Guardia.
2 Accessibility for products suppliers	Equal	Equal	Regarding the accessibility for products suppliers, both sites got the same score.
3 Accessibility for users of the wholesale market in consumption area	+	-	The result of Accessibility for users of the wholesale market in consumption area shows that Site in La Guardia City has low accessibility because of its non proximity to users in Santa Cruz City.
4 Management ability of facilities maintenance of City Government	+	-	The result of Management ability of facilities maintenance of City Government shows the extreme score of La Guardia City where the project site locates in, and it reflects the deference of local government scale between Santa Cruz City and La Guar
5 Management ability of users' organization	+	-	The result of Management ability of users organization shows the large difference in the score. It reflects that in case of UV189 various members who has enough abilities for the operation work will be selected to the member of organization.
6 Sustainability	+	-	In the result of Sustainability, score of Site in La Guardia City is low. It reflects the operation body's instability in Site in La Guardia City.
7 Site condition	Equal	Equal	In the result of Site Condition, there is no difference in both 2 site because they are equipped with almost all of the infrastructure except the sewage system.
8 Land Acquisition etc.	-	+	Site in La Guardia City was found to be better. It reflects the easiness of land acquisition in the Site in La Guardia City, and difficulties of another's.
9 Linkage with other project	Equal	Equal	In the result of Linkage with related projects, both sites show the same score because careful coordination with the private sectors projects are required in both cases.
10 Environmental Impact Assessment to the future conditions of Abasto Market / New Wholesale Market	+	-	In the result of Environmental Impact Assessment, both 2 sites got almost same scores, but UV189 was found to be slightly better.
11 Project Evaluation	+	-	UV189 was found to be better than another because of its comparative high scores in both economic reliability and income redistribution.
12 Effective Technology Transfer to the related persons	+	-	Site in La Guardia City shows extremely low score because of its non proximity for the related persons who are mainly dwellers of Santa Cruz City, as was expected.

Remark :

The marks shown in this table (+, -, and Equal) have following meanings. If the score of one site is higher than the other's, this site gets "+". On the other hand, if the score of one site is lower than the other's, this site gets "-". And if the scores of 2 alternative sites are equal, 2 sites get "Equal".

(2) Outline of Development Plan of the New Wholesale Market

1) Basic Concept of Development

Objective

The existing Abasto Market is composed of farmers' market and municipal market (public retail market), each with different historical background and has both wholesale and retail functions. The management/operation of Abasto Market is extremely complicated as several management/operation organizations are involved.

The objectives of development of the New Wholesale Market are to separate wholesale and retail functions, to set up a regulated management/operation organization and to formulate an efficient wholesale function by issuing proper rules/regulations on the management/operation of the market.

Development Concept

The New Wholesale Market connecting production areas inside Santa Cruz Department and supply area outside the department to the consumption area inside the department with its center in Santa Cruz City is to be developed. This wholesale market should be efficient and fair for all users. The project based upon the following developing plan should be built up in order to realize this development target.

- Commercialization of fruits and vegetables to meet the needs of consumers (Handling fruits and vegetables with proper quality standard from wide areas).
- Enhancement of efficient wholesale function and benefit for many users in the market by separation of wholesale and retail functions.
- Grading up of wholesale function due to quality improvement of fruits and vegetables.
- Qualification of wholesalers and equalization of participation opportunity.
- Formalization of informal sector users in existing Abasto Market (issue of license).
- Development of law/regulation in the possible range.
- Consensus building between the Prefecture and Municipal Government.

2) Scale of Trade in the Market

a) Supply/Demand Balance of Fruits and Vegetables

Basis of estimation

Calculation of population is necessary in estimating demand volume. The rate of population increase in the Department of Santa Cruz is currently 3.15% per year. Estimated departmental population based upon the assumption that this rate will maintain is; 1,813,029 in the year 2000, 2,052,492 in 2005 and 2,396,778 in 2010. If annual per capita consumption of fruit and vegetables is maintained at 314kg as the last survey, then the demand of fruits and vegetables will be  $569 \times 10^3$ t in 2000,  $644 \times 10^3$ t in 2005 and  $752 \times 10^3$ t in 2010. The total departmental demand is estimated to increase by 150% from the current demand.

The rates of population increase in the Province of A. Ibanez and the City of Santa Cruz have been estimated higher than that of the Department, 4.36%

(1996) and 4.32% (1997) respectively. The rate of population increase is assumed at; 4.30% until 2000, 4.0% between 2001 and 2005 and 3.5% between 2006 and 2010. The estimation is summarized in Table II.1-1. The population of the City of Santa Cruz will be 1,438,979 in 2010 while the demand of fruits and vegetables will be  $451 \times 10^3$  t. This is 157% increase from the current demand volume.

The supply quantity of fruits and vegetables from the Valley areas will stay at the present level until 2000. However, it is assumed to increase gradually along with the construction of irrigation facilities, to  $127 \times 10^3$  t (1.53% annual increase) in 2005 and  $145 \times 10^3$  t (2.36% annual increase) in 2010. Fruits will be the major contribution to the increment.

The future tendency of supply volume from the lowland area is not easily foreseen because the major portion of cultivated land in the area is currently utilized for large-scale farming of cane, soybean, rice and corn. Besides industrial crops, a lot of cassava (yuca) and plantain are planted as crops of traditional food. Very little land is currently used for fruits and vegetables such as tomato and citrus production. From the past statistics, plantain production is not increasing but steady while yuca production is slightly growing. The Japanese colony in San Juan intends to increase citrus production as one of alternative cash crops. As the Colony does not have a plan to expand irrigation as is the case with the Valley areas, production increase is estimated lower. The estimated figures are;  $362 \times 10^3$  t for 2000 maintaining the current rate,  $380 \times 10^3$  t (5% increase) for 2005 and  $418 \times 10^3$  t (10% increase) for 2010.

Approximate volume of import is  $10 \times 10^3$  t per year and mostly comprised of potatoes from Argentina and some apples from Chile. The quantity is estimated to increase gradually from the year 2000.

#### Supply and Demand

The supply and demand trend of fruits and vegetables in the Department of Santa Cruz is summarized as Tables 3-9, 3-10 and 3-11. The inflow volume of fruits and vegetables to the City of Santa Cruz will increase gradually.

#### b) Origin/Destination of Fruits and Vegetables

Presumably, the increased production of fruits and vegetables is to be consumed mainly within the Department and the City of Santa Cruz. But a fairly large portion of the products produced in the lowland such as yuca and plantain may need to seek market outside the Department.

Nevertheless, the inflow volume from outside the Department to the City of Santa Cruz will increase rapidly. Total incoming volume to the Department is estimated to increase to  $666 \times 10^3$  t by 2000,  $703 \times 10^3$  t by 2005 and  $802 \times 10^3$  t by 2010 from the current  $617 \times 10^3$  t. This means that the City will occupy a very important position for the fruit and vegetable trade. The estimation is shown in Tables 3-12 ~ 3-14.

#### c) New Marketing System of the New Wholesale Market

New marketing system of fruits and vegetables is as shown in Figure 3-9.

The wholesale function will be separated from the existing Abasto Market in

Santa Cruz, and a New Wholesale Market is to be established. The existing Abasto Market will be renewed as a retail market. The producers in the Valley areas will be qualified to be wholesalers in the New Wholesale Market by forming cooperatives to collect and transport products through Collection and Distribution Centers to the New Wholesale Market. Collection and distribution of products from the Valley areas will be implemented through 7 collection/distribution centers, and farmers' organizations using these centers will be able to secure sales lots as wholesalers in the New Wholesale Market.

Along with such improvement of the traditional marketing system, new target groups that were formerly non-users of existing Abasto Market is taken into consideration as wholesalers. Amongst these new target groups, agricultural cooperatives in lowlands (CAISY and CAICO) and a supermarket association have expressed their willingness to participate as wholesaler in the New Wholesale Market. The use of New Wholesale Market and collection/distribution system, and technology transfer through market operation will support production area development. It contributes to establishing an internationally competitive fruit and vegetable marketing system including product quality improvement for MERCOSUR participation of Bolivia. Individuals or groups of small-scale producers will also gain an opportunity to sell their products to consumers.

d) Projection of Marketing Volume through the New Wholesale Market and Existing Abasto Market

Assumption

- Ten percent of total marketing volume remains to bypass the NWM and Abasto Market and directly distributed to other markets

Of the total volume of fruits and vegetables currently traded in Abasto Market, 61% is traded as wholesale products, out of which 52% is traded by wholesalers, 9% through farmers' direct sales as shown in Fig.3-5 to 3-7. Thus the remaining 39% retailed by wholesalers, retailers and farmers are planned to be traded as the retail portion in the existing Abasto Market after the establishment of the NWM. The volume transferred to the NWM and the retailed volume remained in the existing market will be maintained thereafter.

However, wholesalers in NWM will be composed of not only wholesalers transferred from the existing Abasto Market but also newly participating wholesalers such as small and large scale farmers organizations and supermarket association. Subsequently, handled volume of fruits and vegetables by wholesalers will increase from the existing 61% to 70% in future with the transfer of wholesale function from Abasto Market to NWM .

Marketing volumes through the NWM and Abasto retail market in 2000, 2005 and 2010 are shown in Figures 3-5 ~ 3-7 and Table 3-15. According to these figures and table, marketing volumes through the NWM are estimated to be  $205 \times 10^3$ ,  $239 \times 10^3$ , and  $284 \times 10^3$  t/year in 2000, 2005 and 2010 respectively. Marketing volumes of major products by origin through the NWM, Abasto Market and other markets in 2005 and 2010 were estimated. The results of estimation are as shown in Tables 3-16 ~ 3-19.

Destination and volume of the outgoing products from the NWM are as shown

in Figures 3-4 and 3-8. About 60% of the handling volume in the NWM will be transported to Abasto retail market and 35% to other markets. 3% out of the remaining will be sold to big consumers/supermarkets and 1% will be exported to outside the Department.

3) Marketing Information System

a) Objective

The objective of establishing the information system is to collect and provide marketing information in the NWM for producers through Collection and Distribution Centers or other channels.

b) Outline of Marketing Information System

Contents of marketing information: The following marketing information/data to be collected and processed.

- Minimum and maximum prices by product and by grade
- Quantity information (Origin and quantity marketed)
- Price and quantity marketed trend

c) Destination of Sending Information

- Collection/distribution centers in production areas within the Dept. of Santa Cruz
- Individual producers, producers associations inside/outside the Dept. of Santa Cruz
- Wholesalers inside the market

d) Transmission Mode

Internet, fax, telephone, publication via bulletin board and mass media (TV, radio, newspaper).

e) Data Compiling and Processing Method

Computer system will be introduced. Market information system is shown in Figure 3-10.

4) Willingness and Qualification of Participants in the NWM

a) Willingness

Among eight users' organizations in Abasto Market, Cooperativa 2 de Junio and Asociación 19 de Marzo are two big organizations. And most of wholesalers are members of these organizations. The Study Team conducted interviews with the presidents of Cooperativa 2 de Junio and Asociación 19 de Marzo in order to get information on the willingness of their members to move from Abasto Market to the proposed NWM. Also, the Study Team implemented a questionnaire survey with wholesalers on marketing of fruits and vegetables and willingness to participate in the NWM.

The results of the interviews are as follows.

- Interview with the Presidents of Users' Organizations

Vice president of Cooperativa 2 de Junio

Cooperativa 2 de Junio had a plan to establish a NWM at Km9 along the old road from Santa Cruz to Cochabamba. This plan has not been approved by the Municipal Government of La Guardia as it contests the existing farmers' market plan by a private developer. The members of Cooperativa are much interested in the NWM project and intend to participate under the condition that it is managed and controlled by systematic rules.

President of Asociación 19 de Marzo

The president showed much interest in the project of the NWM and mentioned likelihood of some members' participation as a group (association).

- Interview with Wholesalers

198 wholesalers out of the total 264 (75%) in Abasto and Mutualista Markets expressed their willingness to move to the NWM.

b) Estimation of Qualified Participants in the NWM

Qualified participants in the NWM were examined by using selection criteria and financial conditions of wholesalers including income statement and break-even point in wholesaling.

- Preliminary Estimation of Qualified Participants by Selection Criteria

Preparation of Criteria for Selection

Selection criteria include scale of trading, financial capacity, experience of wholesale activity, management capability, and intention to move. Preliminary estimation on the qualifying numbers for participation are as follows.

- Traded volume: more than 10t/week (average trading volume of wholesalers in Abasto Market)
- Sales amount: more than US\$10,000/month (potato price Bs.16/@ = 10kg)
- Scale of business: sales to general consumers below 40% of total trade
- Mode of payment: cash
- Willingness to move: yes

Result of Preliminary Estimation

67 wholesalers out of 264 (25%) were qualified by the above criteria. Their total trading volume will be 1,578t/week. This volume corresponds to half the total incoming volume (3,200t/week) in the existing Abasto Market (Table 3-21).

Promoting the understanding of the project concept for those who were initially not disposed to participate has resulted in increasing the number of qualified persons to 88 (33%), also expanding the trading volume to 2,058t/week (equals to 64% of the total incoming volume in the existing Abasto Market) as shown in Table 3-21.

In addition, the following wholesalers expressed their intention to participate during Phase II Study.

- Farmers' associations of Collection and Distribution Centers in the Valley areas and Lowland.
- Big-scale farmers' associations in the Lowland area such as CAISY and CAICO



- Supermarket Association
- Other new wholesalers

- Estimation of Qualified Participants by Financial Viability

Income statements regarding major products of existing wholesalers with over 10t/week of trading volume are estimated as in Table 3-22. The results of estimation were summarized as below.

Item	unit: Bs/year				
	Potato	Tomato	Onion	Banana	Citrus fruits
Gross income	46,800	63,960	67,600	23,400	13,680
Net income (w/o tax)	26,330	47,205	47,130	16,346	3,256

According to socio-economic survey, which was implemented during Phase I Study, average income of small- and medium-scale producers is Bs.24,251/year and Bs.39,454/year. Income of a wholesaler with trading volume over 10t/week (potato) is Bs.26,330/year and almost the same as that of a small-scale producer. As for tomato and onion wholesalers, income is Bs.47,205/year and Bs.47,130/year respectively and 18% more than that of medium-scale producers.

Regarding wholesalers of banana and citrus fruits, their annual income is less than that of small-scale producers; Bs.16,346 and Bs.3,256 respectively. Banana and citrus fruit wholesalers do not own shops in existing buildings. Their trading space is temporary sheds and they are not responsible for sales section rental fee or operation/maintenance cost of the buildings. To own a sales lot in a building costs Bs.4,154/year while banana and citrus fruit wholesalers are paying Bs.365/year (Bs.1/day). As the figures in the above table assumes that the full rental and maintenance fee is paid, with the difference considered, the banana and citrus fruit wholesaler's income turns out to be Bs.22,165/year and Bs.7,045/year.

However, when banana and citrus fruit wholesalers join the NWM, they will have to bear the rental fee and operation/maintenance cost as well as secure living expenses. As such, the selection criterion for the trading volume should be revised. For qualifying the wholesalers of bananas and citrus fruits, the minimum handling volume may be raised to 15t/week and 40t/week respectively. Currently, no individual citrus fruit wholesaler with more than 10t/week trading volume is identified, yet CAISY, whose production volume is over 3,000t/year, intends to launch citrus fruit wholesaling in the new market.

- Break-even Point of Wholesale

The break-even point of major product wholesaling are estimated as in Table 3-23. According to this table, the break-even point of potato wholesaling is 1.5t/week, tomato, onion and banana 1.0t/week, and citrus fruits 0.5t/week. Wholesalers often have other sources of income and thus these figures are sufficient for living.

5) Process of transfer from the existing Abasto Market and new participation in the NWM

The following explains the process in which wholesalers transfer to the NWM from the existing Abasto Market and new applicants' qualification and participation.

a) Stage 1

A body organized by the Prefecture and Municipal including representatives of users for implementing the Project is to be established. Qualified wholesalers will be selected from among wholesalers of the existing Abasto Market by fair screening.

- Establishing consensus on transfer: Through discussion with qualified wholesalers on the method of transfer, the location and number of wholesaling sections to be rented by each wholesaler will be decided.
- Promotion of transfer: It is most desirable to have all qualified wholesalers to transfer at the same time. Nonetheless, there will be different timeframes for each wholesaler's closing of wholesale business in Abasto Market and opening of the new section in NWM, along with which piecemeal transfer will be carried out. For pioneering traders who decided to move in earlier stages, favourable treatment will be granted in the NWM (waiving first 6 months' rental fee for the wholesalers' section, supporting access to financial schemes in funding the relocation) to help easy transfer.

b) Stage 2

Qualifying small-scale traders and producers using Abasto Market: Training will be given to traders and producers who may not qualify as individual entrepreneurs to enable them to group themselves for gaining qualification. Especially small-scale traders (mostly female) will be trained on organizing themselves (not simply organization establishment, but includes development of management body run by several co-managers all of whom are expected to improve their individual income from the present level). The organizations qualified after this training will be guided on transfer to the NWM wholesalers' section. The above favorable treatment (exemption of the first 6 months' rent, free training, etc.) will be applied.

c) Stage 3

Qualifying producers of the Valley areas: On the condition that producers use C/D centers being the core of the Project in the production site, or that they form their own organization for cooperative collection and distribution instead, training necessary for the qualification of wholesalers to the representative of such a group will be available. The favourable treatment will also be applicable in this case.

d) Stage 4

Lowland agricultural cooperatives and wholesale section of supermarkets, who did not find advantage in wholesaling in Abasto Market due to substantial impediments over market management and market use, will have access to wholesalers' section use for possible modernization of marketing and rationalization of management.

### **3.2.3 Outline of Development Plan of the Abasto Market**

Existing Abasto Market should be changed to a retail market gradually in stage-wise approach.

(1) Basic Plan for changing to a retail market

Rules/ regulations of the market should be instituted and management and operation system should be established with the consensus of retailers in the market and farmers/ intermediaries who will directly sell to consumers. After transfer of wholesalers from ex- Abasto Market to NWM, the areas and facilities occupied and used by these wholesalers should be utilized for small scale retailers and farmers.

(2) Handling volume in the Market

Handling volume in 2000, 2005 and 2010 for ex- Abasto Market (changed to Abasto Retail Market) are shown in Table 3-15. According to this Table 3-15, volume of product transported into the market by farmers and intermediaries will be  $88 \times 10^3$  t,  $103 \times 10^3$  t, and  $122 \times 10^3$  t in 2000, 2005 and 2010 respectively.

Sixty percent of handling volume in NWM will be transported to the Abasto Retail Market as shown in Fig. 3-8. Final traded volume in the Abasto Retail Market will then be  $242 \times 10^3$  t, and  $287 \times 10^3$  t in 2005 and 2010 respectively.

(3) Promotion of efficient utilization of the market

Vehicle circulating route and lay out of sales sections shall be changed and rearranged; sales on the road inside the market shall be prohibited and these sales shall be transferred to space inside the facilities of the market. This rearrangement of sales areas will include securing the space for farmers who will directly sell to consumers and for selling fruits and vegetables that are unable to be sold out in NWM (see Fig. 3-11).

(4) Access to marketing information from NWM

Retailers and farmers in the Abasto Retail Market will be able to properly obtain wholesale marketing information (price and volume) through the marketing information section of the Management Body of NWM. Other farmers will be able to get some informations through the Management Body of C/D centers.