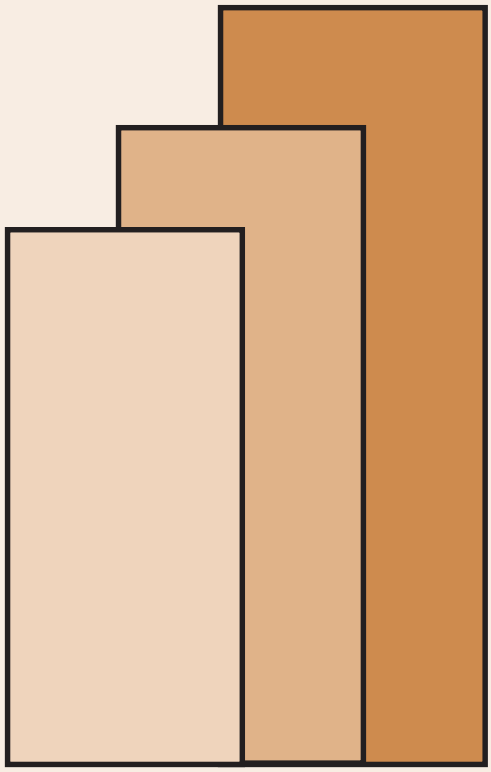
Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

Extension Delivery System in a Layer and Swine-Based Farming Community: The Case of San Jose, Batangas

Rowena T. Baconguis

DISCUSSION PAPER SERIES NO. 2007-11



July 2007

For comments, suggestions or further inquiries please contact:
The Research Information Staff, Philippine Institute for Development Studies
5th Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: (63-2) 8942584 and 8935705; Fax No: (63-2) 8939589; E-mail: publications@pids.gov.ph
Or visit our website at http://www.pids.gov.ph

Extension Delivery System in a Layer and Swine-Based Farming Community: The Case of San Jose, Batangas

DR. ROWENA T. BACONGUIS
College of Public Affairs
University of the Philippines, Los Banos

ABSTRACT

Public agricultural extension systems face increasing pressure resulting from diverse demands for services coupled with problems in declining funds. This study explores the role of a municipal agricultural extension system in the development of a robust agriculture-based municipality and their possible thrusts in helping achieve the country's bid for agricultural modernization. San Jose, Batangas is a layer and swine-led economy. Sandwiched between Batangas and Lipa City, San Jose is easily accessible to investors and traders. The phenomenal growth of the layer and swine industry is largely attributed to increased local demand and adoption of technological innovations in breeding and nutritional management practices encouraged by private suppliers of vaccines and feeds and feed millers who provide extension and credit terms.

With the active participation of private extension providers, government extension system needs to improve its partnership with private and non-government extension providers and re-evaluate its financing scheme to address negative externalities and equity concerns. The lack of a common vision among the key players in the government and the absence of knowledge management plan impair the impact of the government agricultural extension systems. Partnerships and good management practices remain as major areas for improvement.

Key words: decentralization, pluralistic extension, knowledge management, toll goods

Executive Summary

Background

San Jose is known mainly for its layer and swine industry. The proximity of San Jose to Batangas and Lipa cities and to the Metro Manila area ensures the municipality of commercial linkages. The municipality is dubbed as the Egg Basket of the Philippines, generating an estimated 2.2 M eggs daily or an equivalent of P6.93 million pesos per day. San Jose residents are likewise actively engaged in backyard and commercial swine raising activities.

The dominance of the livestock industry in San Jose is clearly reflected in the capital investments in the layer and swine industry. Capital investment in registered piggery and layer establishments for 2005 amounts to P245,578,970. This figure does not include investments in businesses associated with the industry like capital used in the six feed mills and eight retailers of feeds and vaccines nor investments from backyard raisers where all households are believed to engage in at some point in time.

The phenomenal growth of the swine and poultry industry can largely be attributed to increasing local demand and the adoption of technological innovations in breeding and nutritional management practices of small and large raisers alike. The adoption of innovations in turn can largely be attributed to the support of private suppliers of vaccines and feeds and feed millers in terms of providing extension and credit terms for inputs.

The industry's robustness, however, is threatened by high production cost resulting primarily from expensive feeds which renders the industry uncompetitive in the global market making it highly vulnerable to entry of imported goods. Another serious problem is the occurrence of pest and diseases which threaten to wipe out the whole population of livestock raised, including those raised by nearby growers. For the swine industry, FMD remains a threat while for the layer industry, the possible occurrence of avian flu appears a major threat.

One major externality is the environmental costs resulting from animal wastes which had seriously impacted on rivers and creeks affecting not only the environment but also human health. The challenges for the national government then is great in terms of research funding for feed inputs and trade policies and for the national and local government, regulation, monitoring and evaluation policy proposals.

Methodology

This study employed focus group discussions, key informant interviews and secondary data gathering. The following is a summary of the methods used in this study:

- Two focus group discussions with the OMAG staff,

- Iterative interviews with the MAO and the rest of OMAG staff, with the PAO and PROVET,

- Interviews with the Municipal Mayor, Municipal Planning Development Officer, with two outstanding farmers, with two successful black pepper growers, with four vegetables and fruit growers, with two cooperatives in the area , all of the 8 veterinary suppliers in the area, two veterinary sales persons in the area, with CASADI owner (poultry dressing plant, with owner of private slaughter house, with LIMCOMA's Best and LIMCOMA's Vice-President, with the President of the Feed millers Association, with meat shop owners, with two swine and three egg viajeros, with eight small, five medium, four commercial hog raisers, seven small, two medium and two large layer owners.

Secondary data were gathered from NSO, BAS, OPAG, PROVET, OMAG, Municipal Mayor's, Budget and Licensing Offices,

Findings

The livestock and layer industry is well supported by the private sector. For the swine sector, the local government units are cited for their vaccination efforts, coordinating training programs sponsored by private companies and of late, yearly monitoring of the farm in lieu of the need to renew business permits. For medium and large scale swine operators, ITCPH is considered a reliable source of information.

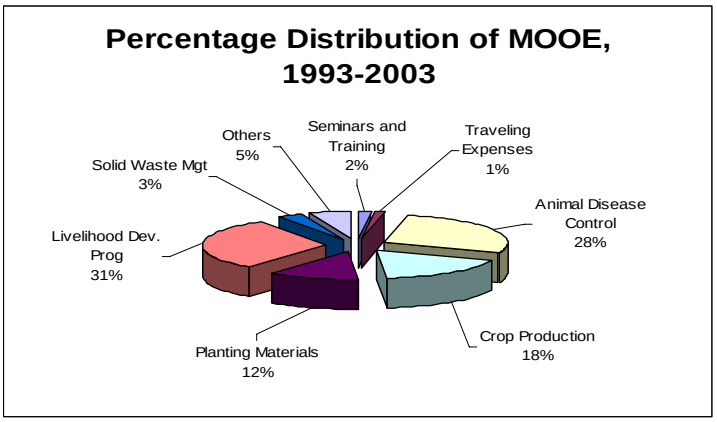
For the layer industry, the role of the local government is to coordinate training programs sponsored by private companies, monitor public weighing scales, slaughter houses and dressing plants.

Based on analysis of extension needs and providers, critical extension needs for swine and poultry raisers revolve around nutrition and feeding primarily because of the need to increase feed conversion ratio. Aside from the need to increase efficiency to realize profit, extension on disease prevention and control is necessary. This is true for the swine industry where major players include backyard raisers. This is likewise true for the poultry industry as poultry is facing new strains of viruses like the avian flu.

While medium and large scale growers have access to information supplied by the private sector, small growers are highly dependent on informal information gathered from neighbors and relatives. This is where the role of the OMAG and PROVET become necessary as obviously there is asymmetry in availability of information. While OMAG and PROVET conduct vaccination programs in an effort to prevent occurrence and control spread of diseases, it has not been active in addressing efficiency problems of small raisers. While the private companies will most likely provide such specialized information to the big producers, the information needs of the backyard raisers are responded to mostly by private suppliers of vaccines in partnership with OMAG and other feed millers.

The OMAG is composed of six personnel: the MAO, the veterinarian, the crop specialist and three meat inspectors. Based on focus group discussions with the OMAG, they spend most of their time in inspection of slaughter houses and dressing plant (50%), monitoring and evaluation of projects, inspection of farms (20%), dispersal/distribution of material inputs (9%), vaccination (8%), training (55), techno-demo (5%) and linkaging (3%). Farm and home visit remain a major extension method. Because of the limited number of personnel and limited MOOE, projects are directed mostly to a select few.

Based on budget allocation, livelihood development program, vaccination and material input distribution in terms of planting materials and other inputs for crop production represent most of the expenses of Jose from 1993 – 2003.



While the poultry raisers do not have much expectation from the OMAG, small raisers would want information regarding new technologies, seminars on herd management, improvement in the hog dispersal project, timely provision of prevailing market price of hogs and assistance in the access of credit.

Interestingly, feed millers believe that OMAG should be more active in the timely provision of prices of hogs and eggs, collaboration in coming up with strategies regarding shortage of corn, promote understanding and control of diseases, provision of new policies relevant to the industry and provision of strategies adopted by industry players from other countries that can help the industry grow.

Most of the support services needed by the swine and layer raisers are toll goods in the short term but are considered public goods in the long run. It is evident that while most of the extension needs are public goods, the private sector had been more than willing to supply their extension needs because of perceived return in investments.

Conclusions

The San Jose OMAG is largely focused on the regulatory aspect of extension with 50% of its time spent on monitoring slaughter houses and one dressing plant. In addition, a major activity is the vaccination of hogs to curtail the spread of diseases and dogs to fight rabies. Primarily because of these focus, the following observations of the OMAG are forwarded:

1. Lack of systematic data sets

The OMAG does not have a systematized agricultural data about San Jose, about its major accomplishments, its best practices, nor of the current projects and the monitoring of these projects. The OMAG does not have an institutional memory which makes it difficult to look into its accomplishments and successes.

2. Largely traditional and reactive planning and budgeting

Planning is based on the previous year's activities and budget appropriation, and based on problems that might have cropped up during the year. There is no formal planning session participated in by all of the OMAG staff.

3. Monitoring and Evaluation highly report oriented

Monitoring and evaluation activities are done primarily to satisfy provincial and regional requirements. There is no filing system of these activities nor a review or analysis of the outputs as an input to improve delivery of services.

4. Farm and home visits remain a major extension method

Farm and home visit remain dominant. Thus, with the limited number of technical persons, technical advises and government programs reach only a select few.

5. Distribution of material inputs politically influenced.

For the year 1996, anti-rabies vaccines were equitable distributed to 20 barangays with amounts ranging from P1,750 to 1,980. This pattern of fund allocation is noticeable in most of its projects and at times, OMAG appears to be spreading itself too thinly.

6. Lack of complementation between what private sector want from the OMAG and what the government offers

While all sectors agree on the important role of the OMAG in the monitoring and control of the spread of diseases, the private sector would like the OMAG to be more active in the activities such as provision of information on new policies and strategies here and abroad relevant to the industry, provision of timely advice in prices of produce and collaboration in solving problems such as shortage of inputs.

7. Lack of common understanding of AFMA goals

While the MAO was able to articulate the goals of the AFMA, the other staff members were not able to identify the goals though they were able to expound on the concepts once identified.

Recommendations

1. Optimize complementation of services provided by private sector
2. Explore various financing schemes
3. Focus on strategic planning
4. Focus on knowledge management
5. Value assessment procedures

Chapter 1: The Setting

San Jose is an agricultural area known mainly for its robust livestock, poultry and egg industry. The proximity of San Jose to Batangas and Lipa City and to the Metro Manila area ensures the municipality of commercial linkages. The municipality is dubbed as the Egg Basket of the Philippines, generating an estimated 2.2 M eggs daily. San Jose residents are likewise actively engaged in backyard swine raising activities. Batangas has a total of 32 municipalities and two key cities and is divided into four congressional districts. San Jose belongs to the fourth congressional district which is designated as the agribusiness area of the province.

The Batangas Province

Batangas province, organized in 1534, traces its long history of commercial trading with the Yuan and Ming Dynasty. Batangas was derived from "batang", a term used by the natives to refer to the numerous logs found in the Calumpang river. The province greatly profited from the coffee production in the 19th century when the Philippines became the fourth largest coffee producing nation. Lipa City and Taal were the centers of coffee production producing as much as 70,000 picals of coffee bean in 1887. With the onslaught of the coffee blight, the Batanguenos diversified farm production into various crops to include sugar, rice, black pepper, fruit production, livestock and poultry raising. At present, Batangas province remains a chief producer of swine, poultry and egg. For the year 2002, the Batangas province is the country's 11th producer of swine, 3rd major producer of chicken and a major producer of eggs.

Geographical Location and Accessibility

The province of Batangas is 113 kilometers away from the south metropolitan area and is bounded on the North by Cavite province, on the East by Laguna and Quezon Provinces, on the South by Verde Island passage and on the West by the China Sea. It is composed of thirty two municipalities and two cities and covers a total land area of 316,581 hectares.

Figure 1. Map of Batangas Province

Batangas province is highly accessible by land transportation as road networks are well developed. Its long history of trading, proximity to the metropolitan area, the existence of ports, military base and major industries helped ensure the development of road networks. There are currently 21 existing private and municipal ports in the province which includes the Batangas City Port. This port is being developed as an alternative to the Port of Manila and is

envisioned as a transshipment port in Asia. Batangas also has one military airport located in Lipa City, the Fernando Air Base.

As of 1993, the province has a recorded total length of 574 kms. national road, 637 kms. provincial roads, 203 kms. municipal roads and 1944 kms. barangay roads. The provincial road density of 1.06 km/sq. km exceeds the standard of 1 km/sq.km. (Comprehensive Provincial Land Use Plan/Physical Framework Plan of Province of Batangas 1995-2002)

The full operationalization of Batangas International Port and South Luzon Expressway Extension is expected to further improve the accessibility of the province and boost the development of the other infrastructural support systems like water, electricity and telecommunication services. The telecommunications network in the province consist of telephone, telegraph and telefax services operated by government and private enterprises.

Agro-Climactic Characteristics

The province has two distinct climates, wet from May to October and dry from November to April. Heavy rainfall occur during the months of July and August, of which maximum rainfall is measured at an average of 2,030 mm. annually. The terrain of the province is generally rolling with some 50% of the land area having a grade of 15%. The rest of the area is characterized as mountainous and hilly. Below are the different slope categories, land area covered, description and crop suitability.

Table 1. Slope Categories, Area, Description and Crop Suitability

Range	Area (Ha.)	Description	Crop Suitability
0-3%	25253	Level to nearly level	Irrigated/Paddy fishpond
3-8%	56624	Gently sloping to undulating	Annual cultivated crops
8-18%	118490	Moderately sloping to rolling	Perennial tree, vine crops
18-30%	12810	Strongly sloping to moderately steep	Plantation Forest
30-50%	17750	Steep hills and mountains	Production Forest
More than 50%	87654	Very steep hills	Forest Reserve Mountains

Source: Comprehensive Provincial Land Use Plan/Physical Framework Plan of Province of Batangas 1995-2002

Land Use

Batangas province represents approximately 36% of the total land area, the lowest proportion of forest area in Region IV. These forest areas are situated in the eastern and western part and are characterized with patches of second growth forest and thin soil. The irrigated areas are found in the western and eastern parts of the province with Nasugbu, Rosario and San Juan having the widest tracts of irrigated rice fields. Cultivated annual crops, which include sugarcane, corn, peanuts, vegetables, eggplant, squash, pechay, mustard and root crops are grown in all municipalities and cities of Batangas. Coconut, mango, coffee, lanzones, atis, tamarind, banana, mango, guyabano are usually intermingled with patches of pasture areas to support cattle raising. A greater part of the pasture area is found in Calatagan which totals to 575 hectares.

Batangas is rich in fresh water and marine resources. Fresh water species from Taal lake include tawilis, maliputo, tilapia, bangus, hito, dala, biya and ayungin. On the

other hand, marine species from Batangas, Balayan and Nasugbu Bay include frigate tuna, yellow fin tuna, skipjack, Spanish mackerel, moon fish, caralla, round scad, big eyed scad, grouper and anchovies.

Batangas boasts of an array of tourist destinations for recreation and leisure facilities, cultural centers and botanical gardens. The Matabungkay beach in Lian, Punta Baluarte in Calatagan, Vistama Beach in Mabini and the newly opened Evecrest Golf Club in Nasugbu are internationally known. The Taal Volcano National Park is a favorite of local tourists while the Basilica of St. Martin de Tours of Taal, the Marcella Agoncillo and Leon Apacible Museum are historical landmarks.

Heavy to light industries are concentrated outside of Batangas city and include oil refinery, chemicals, ship building yards, flour and sugar mills.

The province has a total of 2,244 industrial establishments primarily located in Lipa City (19.07%), Batangas City (10.74%) and Tanauan (8.38%). In similar manner, the services sector which include lending institutions, hotels, and restaurants are located in highly urbanized centers such as Batangas and Lipa City and municipalities such as Tanauan, San Pascual and Rosario.

Socio—Demographic Data

Batangas ranked third in terms of population size among the 11 provinces in Southern Tagalog, contributing 16.16 percent to the 11.8 million population of the region. At the national level, the province shared 2.49 percent to the total population of 76.5 million as recorded in the 2000 Census of Population and Housing.

The population of Batangas continue to increase, from 1,658,567 persons recorded in the 1995 to the current level of 1,905,348 or an annual growth rate of 3.02%. The male population is slightly higher compared with that of female population by an estimated 11,474. With population rising, population density is likewise up by 11.3 compared to the 1995 level.

For the year 2000, the number of households was 374,767 with an average household size of 5.08 persons, higher than the national average of five persons.

Table 2. Total Population, Number of Households and Population Density

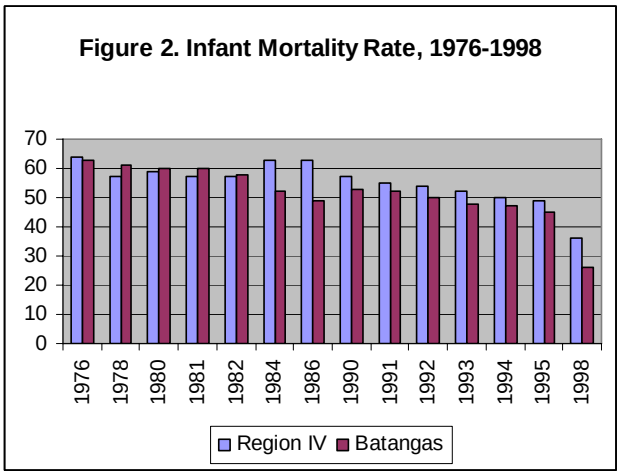
	1970	**1975**	**1980**	**1990**	**1995**	**2000**
Total	926308	1032009	1174201	1475223	1658567	1905348
Male	453956	519793	587647	742708	835090	958411
Female	472352	512216	586554	732515	823477	946937
Number of households		177439	207711	280277	318539	374767
Population Density (per sq.km)	292.6	325.99	370.90	466.50	523.9	601.85

Source: NSO

Batangas registers a literacy rate of 93.7%, higher than the regional rate of lower 92% but lower compared to its 1990 level of 9.65%. Literacy for males (94.47%) was almost equal with that of the females (94.29%).

The province has three government and fourteen private tertiary schools and a number of vocational schools offering mainly computer, automotive and electrical technology courses.

Infant mortality rate had been greatly reduced over the years, from a high of 52% in 1991 to 26% in 1998. The rate of improvement over the years is comparatively better than the regional level which has a 36% infant mortality rate. However, the provincial malnutrition prevalence increased from 26.3% in 1998 to 27.8% for 2001.



The province has a total of sixty (60) hospitals, forty five (45) of which are privately owned while the rest are government owned. Of these, three government and seven private tertiary hospitals are categorized as provincial hospitals and six government and five private hospitals are categorized as district hospitals.

Compared to the national and regional level, Batangas registers a better access to potable water, sanitary toilet facilities and electricity.

Table 3.Access to Potable Water, Sanitary Toilet Facilities and Electricity, 1997-2000

	ACCESS TO POTABLE WATER (%)		ACCESS TO SANITARY TOILET FACILITIES (%)		ACCESS TO ELECTRICITY (%)	
	1997	2000	1997	2000	1997	2000
National	76.9	78.5	77.2	82.5	70.4	75.35
Region IV	84.7	84.5	70.7	66.8	79.74	85.64
Batangas	93.31	93.9	80.5	89.9	91.4	96.8

Source: NSO

For the year 2000, an estimated 47.10% of the households have faucets connected to a community water system while 15.77% use shared faucet connected to a community water system fit for drinking and cooking(NSO, 2000) . The province enjoys several sources of water such as water basin, wells and springs that could provide domestic, agricultural and industrial requirements. Its two chartered cities and twenty-eight municipalities have existing waterworks system managed by either private, government and barangay associations. However, only Lipa City, the municipalities of Agoncillo, Malvar and Lobo have 100% Level III water systems. The municipalities of Calatagan, San Luis, Calaca and Lian do not have existing pipeline water works system and source out their water requirements from springs and wells.

Latest census data shows that 88.23% of the households used electricity for lighting purposes. The Batangas Coal Fired Thermal Power Plant located in the municipality of Calaca and the ENRON Power Plant in Batangas city provide the power

requirements for its two chartered cities and all its municipalities. Fourteen of its 32 municipalities, which includes San Jose, enjoys 100% electrification.

For the year 2000, 55.12% of the population had water-sealed sewer/septic tank, higher than the registered figure of 33.56% in the 1990 Census. Over-all, access to potable water, sanitary toilet and electricity reflect positive growth compared to the previous levels.

Majority (91.97%) of the occupied housing units in Batangas were single houses, with most units (49%) having walls made of concrete/brick/stone and roofs made of galvanized iron (86.23%). However, the number of those living in makeshift houses increased from 1.2% to 1.4% compared to the 1997 census survey. (NSO, 2000)

Economic Data

Average income, expenditure and savings for both Region IV and Batangas province reflect an upward trend. For the year 2000, Batangas province reflects a slightly higher (P139,072) income compared to the regional data of P132,363. However, the expenditure for Batangas province, (P114,894) is also higher compared to the regional level (P104,002), resulting to lower average savings rate for the province compared to the regional rate.

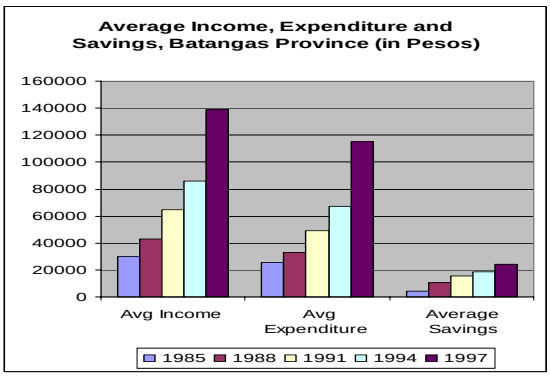


Figure 3. Average Annual Income, Expenditure and Savings, Batangas Province. NSO

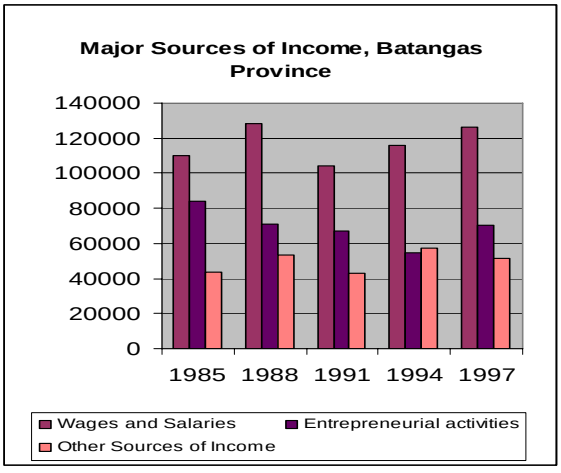


Figure 4. Major Sources of Income, NSO

Most of the residents derive income from wages and salaries, majority of whom derive wages from non-agricultural sector for all the years cited. For those engaged in entrepreneurial activities, majority are into crop farming and gardening, wholesale and retail business while a considerable percentage of those who derive income from other sources receive cash and gifts from family members working abroad.

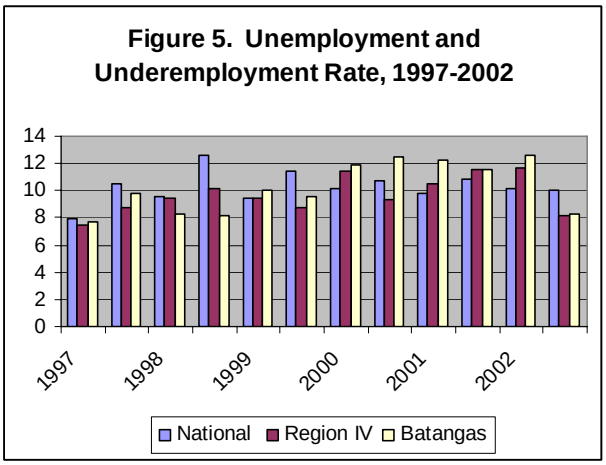
Agriculture remains a major economic activity as 50,291 families or 23.5% for the year 1991 rely on agricultural activities for income (wages and salaries and entrepreneurial activities). This data is, however, slightly lower that the 25.5% of families relying on agriculture in the year 1985 but higher than the 1988 level of 20.31%. The importance of agriculture has been declining over the years as less and less people are relying on this sector for sources of income as reflected in the 1994 data (19% or 44434 families) and in the 1997 data (17.66%).

Table 4. Number of Families by Main Source of Income, 1985, 1988, 1991, 1994, 1997

Sources of income	1985	1988	1991	1994	1997
Total Number of Families	237408	253014	213997	227991	248398
Wages and Salaries	110038	128434	103961	115750	126406
Agricultural	14987	20550	15305	15987	12278
Non-Agricultural	95051	107884	88656	99763	114127
Entrepreneurial activities	83796	71067	66760	54658	70298
Agricultural	45605	30826	34986	28447	31592
Non-Agricultural	38190	40241	31774	26211	38706
Other Sources of Income	43574	53513	43276	57583	51694

Source: Family Income and Expenditure Survey

Unemployment rate have been on the rise, and surpassed both the regional and national level since 1999 though there was a reflected decrease of underemployment rate for 2002. For the year 2002, unemployment rate stands at 12.6%, higher than the 11.7% of the region and the 10.2% national level. On the other hand, underemployment rate decreased from 11.6% in 2001 to 8.3% in 2002.



The 2000 FIES data shows incidence of families suffering from poverty stands at 20.9%, slightly higher than the regional level of 20.8% but lower than the recorded national level of 28%. Based on the 2002 APIS survey, Batangas ranked 55th in the ranking of the province according to selected poverty indicators.

Agricultural Profile

The number of farms is increasing over the years though there had been no significant changes in the land area devoted for farm production. The area of land devoted to farm use decreased by 5.62% between the year 1980-1991, with marked decreases in lands lying idle (84.29%) and lands covered with forest growth.

There is an increase in lands planted to permanent crops, which represents 52.29% of the total farm area for 1991. There are more farms planted to permanent crops, reflecting an increase of 35.35% between 1980-1991 .

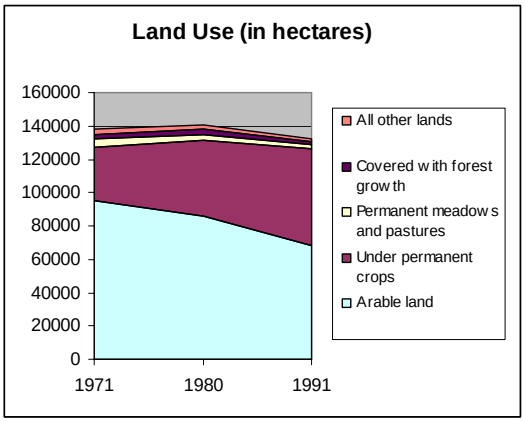


Figure 6. Land Use (in has), Batangas Province

Table 5. Number and Area of Farms (Hectares), by Land use: 1971, 1980, 1991

Land Use	Number of farms			Area of Farms		
	1971	1980	1991	1971	1980	1991
All classes	58140	85357	103338	137846	140369	132474
Arable land						
Temporary crops	50341	62226	54659	86634	80282	67762
Lying idle	6281	5842	916	8834	5487	862
Under permanent crops	27864	39446	53390	31409	45989	57619
Permanent meadows and pastures	4194	1972	449	5153	2862	2582
Covered with forest growth	3594	2965	193	2647	3188	1573
All other lands	15740	10197	30590	3169	2561	2077

Source: NSO

The tenurial status of farms in the Batangas region has been improving over the years as more and more farms are now classified as owned. In 1991, the number of farms owned almost doubled compared to the 1971 data. The number of partly owned farms, including the area of farm covered significantly increased during the said period while the number of farms and the corresponding area rented or leased declined.

Table 6. Number and Area of Farms (in hectares) by Type of Tenure

Land Use	Number of farms			Area of Farms		
	1971	1980	1991	1971	1980	1991
Owned	25858	42299	49628	54045	65518	57217
Partly owned	7441	8428	23610	18824	19549	38212
Rented/Leased	23750	32193	26104	52297	50829	34776
Other Forms	1091	1437	3967	12680	1437	2270

Source: NSO

For the year 1991, most farms are planted to palay. Palay remains the dominant crop of the region as it is planted to 29.25% of the total land area devoted to agriculture (NSO, based on tenurial classification)

Hog and chicken raising registered phenomenal growths in population. For 1991,the population of hogs increased by 200% over the 1980 figures while the population of chicken increased by 49% for the given period. Growth rates for the population of ducks and that of other poultry, which includes quail and geese, rose by 138% and 284%, respectively.

Table 7. Number of Farms and Population of Livestock and Poultry, 1991, 1980, 1971

Type of farm	1971		1980		1991	
	Number	Population	Number	Population	Number	Population
Carabao	18432	24731	22696	27528	19665	24129
Cattle	40745	81901	48014	82930	47370	92173
Horse	7545	9531	7882	9286	6894	8999
Hog	39324	87408	40098	111667	38297	335045
Goat	16501	42283	16856	42432	22825	61236
Other livestock			49	191	44	680
Chicken	46698	1694963	56015	6017095	73209	8981106
Duck	829	31475	970	22705	1769	54188
Other Poultry	47	1095	713	19621	2196	75480

Source: NSO

San Jose, Batangas

History

San Jose used to be one of the barrios under the jurisdiction of Bauan (a near by municipality), and was known as "Malaking Tubig", referring to the big river that cuts through the central portion of the early settlements.

The first inhabitants of what is now known as San Jose were the Aetas who settled near the riverbanks. With the onslaught of new settlers, the Aetas were driven to the hinterlands. The new settlers promptly referred to their place as "Malaking Tubig" which was placed under the jurisdiction of Bauan in 1596 by the Spaniards.

Separated from Bauan as a result of the Taal Volcano eruption in the 16th century, Malaking Tubig was eventually granted the status of a pueblo or town in April 26, 1765 and was renamed San Jose. In 1877, a major change occurred as six of the barrios originally under the jurisdiction of San Jose was united to form a new town now known as Cuenca. (San Jose CLUP, 2000).

Geographical Location and Accessibility

San Jose is located between Lipa and Batangas cities and is bounded on the east by the municipality of Ibaan, on the west by Cuenca and on the southwest by San Pascual. It has a total land area of 5,954.3 hectares, 9.94% of which is occupied by five (5) of its urban barangays while the rest of the land area is occupied by its twenty eight (28) rural barangays.

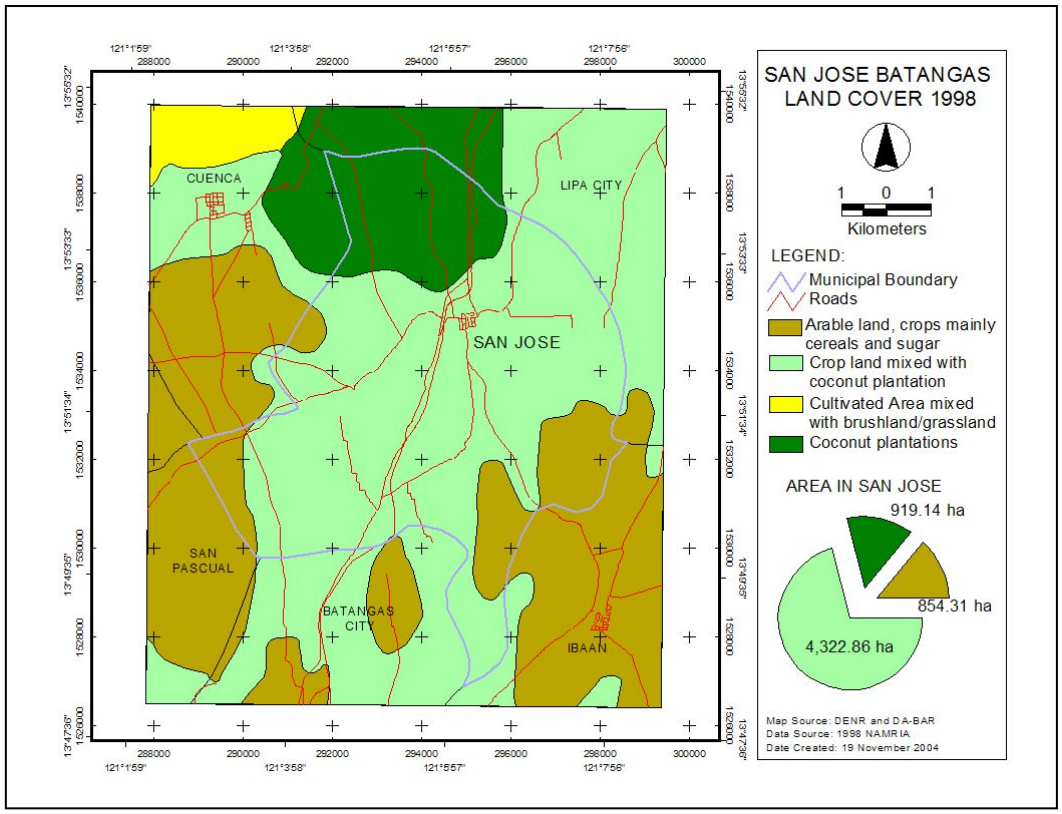


Figure 7. Land Cover of San Jose, Batangas, 1998

The municipality is highly accessible as it is traversed by a number of national and provincial roads (Figure 5). At present, the municipality of San Jose has a total road network of 137.34 km, 8.15% of which are national roads, 17.11% provincial roads, 4.73% municipal streets and 42.68% barangay roads. Most of the farm to market roads are paved. All barangays are interlinked by a network of provincial, municipal and barangay roads, providing increased mobility to residents as public utility vehicles pass through the place 24 hours a day (San Jose, CLUP, 2000)

San Jose, sandwiched between Batangas and Lipa City, have greatly benefited from infrastructure developments like the STAR Tollway as well as technological improvements like telephone, cellular and internet access.

Agro-climatic Characteristics

San Jose has remained predominantly agricultural with 73.96% of the total land area devoted to agricultural production. The municipality is characterized as slightly plain with only Bigain II identified as having slopes that that ranges from 8 – 15%. There are three soil types that characterize the area: the Ibaan Loam (90.75%), Ibaan Loam gravelly phase (7.76%) and Ibaan clay Loam (1.48%). Ibaan loam's subsoil is brown to dark brown tenacious clay loam and is generally planted to a variety of plantation crops and vegetables. The Ibaan loam gravelly phase, the sub soil of which is a combination of gravel and tuffaceous concretions, characterizes the mountain and predominantly small hilly areas utilized for upland rice and sugar cane production. The Ibaan clay Loam areas are planted to various crops. Lipa loam are those adjacent to Lipa City.

San Jose is characterized by two pronounced seasons, wet from May to October, and dry for the rest of the year. Mountain ranges surrounding the area shield these regions from northeast monsoon but the area is prone to southwest monsoon.

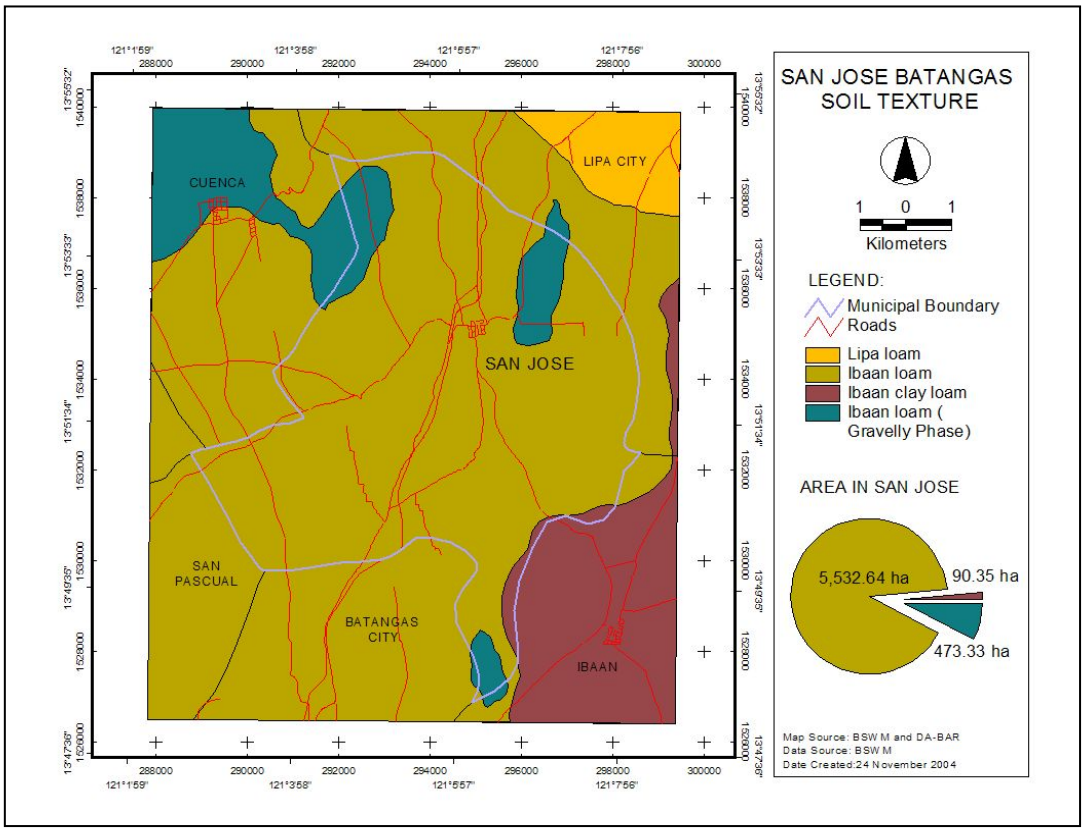


Figure 8. Soil Texture of San Jose, Batangas

The slightly plain topography of the area, its fertile and volcanic soil and first type climate had made it possible for its residents to cultivate a variety of commercial, and root crops.

Socio-Economic Characteristics

The population of San Jose reveals an increasing trend between the years 1903- 2000 with an average growth of 2.36% between 1975 – 2000.

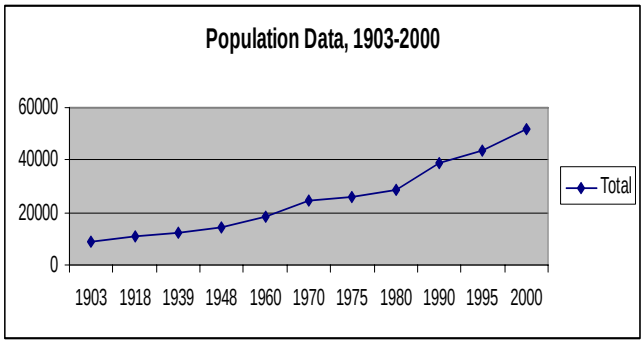


Figure 9: San Jose Population Data, 1903-2000

The last three censuses show higher population growth rates with 1990 posting the highest growth. Consequently, population per square kilometer reflects increased density from 58.10 in 1980 to 78.19 in 1990 and 110.73 in 2002, the fifth highest in the whole of Batangas province (NSO, 2002).

San Jose is the 12th most populated municipality in the province, having a total population of 51, 965 and a current growth rate of 2.99%, higher than the provincial growth rate of 2.2%. The trend shows a predominantly male population with the latest census registering a sex ratio of 1.05. The average family household size is 5.30.

Banay Banay 1, Galamay Amo and Pinagtungulan are the most populous barangays of San Jose with populations of 4064, 3777 and 3131 respectively, representing 13.2% of the total population. The least populated areas are the Poblacion areas.

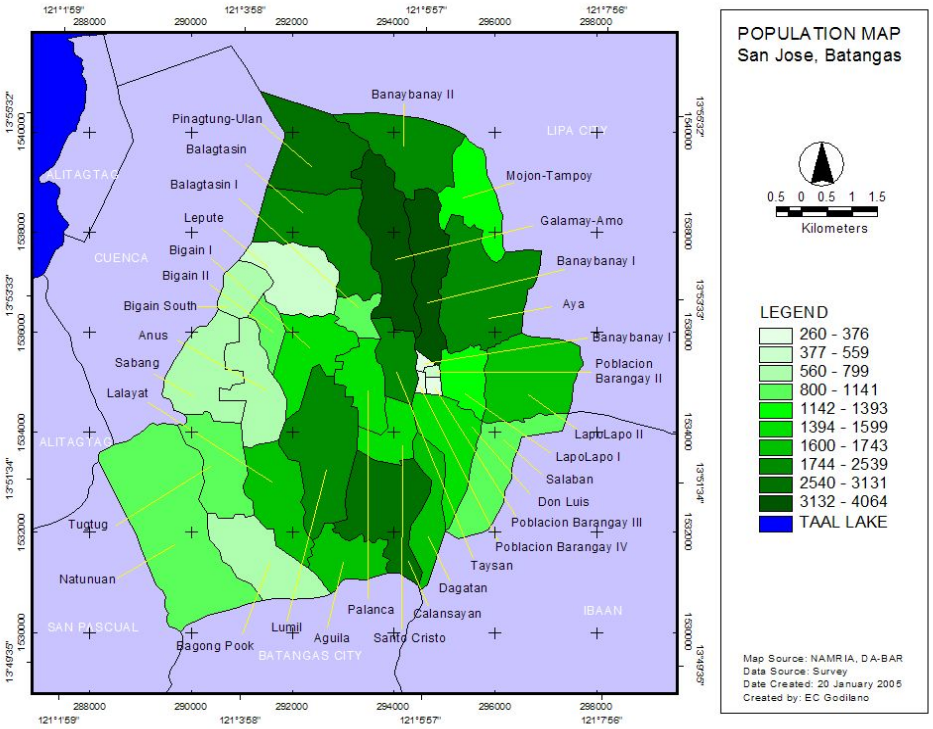


Figure 10. Population Map of San Jose, Batangas

San Jose has a 97.2% literacy rate recorded in 1999. For its educational needs, the municipality is serviced by fourteen (14) public elementary and two (2) primary schools distributed in different barangays and each barangay has a Community Development Information Office that provides reading materials like magazines and books. The daycare and pre-schooling needs of the residents are taken cared of by the Municipal Social Welfare and Development Offices which has day care centers in 18 barangays.

San Jose has one government district hospital located at Barangay Banay-Banay, and a Rural Health Unit (RHU) located at the Poblacion. The health requirements of the residents are presently sufficiently served based on the standard ration of 1 municipal health officer, 1 public health nurse and 1 midwife per 5,000 population. (CLUP, 2000)

Most of the housing materials used are made of strong materials, primarily of concrete (21.12%) wood (17.96%) or a combination of both (28.39%) and majority (92.81%) use galvanized iron or aluminum for their roofs (NSO, 1990).

Statistics on housing ownership revealed that most (87.99%) of the units are owned by their residents (87.99%) while a number are rented with consent (10.65%). While the figures present a positive picture, an increasing number of squatters were recorded in barangays Banay Banay I, Taysan, Sto. Cristo, Calansayan and Aguila (NSO, 1990). Housing data are comparable with the provincial data where 86.72% of the population own a house made of strong materials and 80.50% own their houses (NSO, 2000).

Majority (76.79%) of the households are serviced by two electric companies, the Batangas Electric Cooperative, Inc. and the Ibaan Electric Company. The rest use kerosene, LPG and charcoal for lighting purposes. Nine barangays, approximately composed of 1,000 households are served by existing water works while the rest of the populace source their water from open wells, water pumps, pumps, commercial water faucets and spring for their water needs. (NSO, 1990).Based on the 1999 NSO projections, 46% have sanitary toilet facilities. The Rural Health Unit reveals that the municipality is sufficiently serviced by the existing physicians, nurses and midwives but inadequately serviced by sanitary inspectors.

There are more providers than dependents as dependency ratio is 71.96% (NSO, 1990). The same survey results show that 97.29% of household population 10 years and over is literate.

Chapter Summary:

Batangas has a long history of international commercial trading dating back to Yuan and Ming Dynasties. In the 19th century, Lipa City and Tanauan became major supplier of coffee beans.

The presence of Batangas port and the proximity of the province to Metro Manila greatly facilitated the trading of major agricultural produce. It is for this matter that Batangas province is home to industrial companies like oil refineries, flour and sugar mills.

Compared with most provinces, Batangas fare better in terms of socio- economic indicators like literacy and infant mortality rates, access to potable water, sanitary toilet facilities and electricity.

While most of the residents derive income from wages and salaries, agriculture remains an important activity for 17.66% of the population who rely entirely on it for their major source of income (FIES, 1997). While palay remains as the dominant crop, the livestock industry registered phenomenal growths in population starting from the 1980's.

San Jose, sandwiched between Batangas and Lipa cities is traversed by national and local roads making traveling, and for that matter, trading easier. Socio-economic data in terms of literacy rate, ownership of houses and construction materials of houses are comparable to the provincial data though access to water, electricity and sanitary toilets are much lower than the provincial rates.

The development of the agricultural sector of San Jose reveals similarities with Batangas region. From a primarily palay dominated economy, San Jose is now a livestock dominated municipality with a total of 390 individuals registered as engaged in livestock raising with a total capital investment of P245,578,970 or an average of P631,308 per person (Budget Office, San Jose). The number of raisers excludes those involve in backyard raising where it is estimated that almost everybody engages in the activity at one point in time.

Chapter 2: Structure of Agriculture and Its Performance after the Devolution

San Jose is a third class agricultural municipality that has experienced major shifts in its agricultural production patterns over the years. From a basically upland rice-dominated economy, it became a fruit and plantation-based agricultural economy and is now known as major egg producing municipality. Crop production increased in diversification over the years as coffee, black pepper, lanzones gradually replaced the dominant upland rice that characterized the landscape up to the 1960s. The latest transformation started in the mid 1960's when prices of coffee and pepper drastically nosedived prompting most progressive farmers to include swine raising and layer production. What started as primarily backyard enterprises, the egg layer production now has evolved into commercial scale proportions. Producing an estimated minimum of 1.8 million – 2.2 M eggs per day, San Jose reigns as the egg basket of the country.

San Jose is basically an agricultural area with 74% or 4,387.95 has of the total land area devoted to agricultural production. Of these, 4,295 hectares are utilized for crop production while the rest are used for livestock and poultry production.

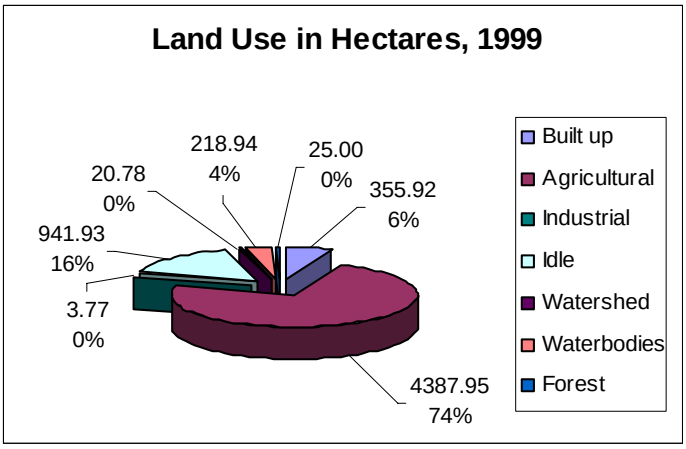


Figure 11. Land Use (in has), 1991

The industrial area, representing 3.77 hectares, is mainly composed of sites for feed mills that support the livestock and poultry industries. The industrial area represents the smallest area category at only 3.77 has. Currently, San Jose has 12 industrial establishments, six of which are feed mills.

Built-up areas are those that are utilized for residential commercial, institutional, functional open spaces, roads and railroads. Of the total built up areas, 11% are urban. The residential area occupies the majority of built up areas (53%) while 39% are used for roads and railroads.

Water bodies, which represent 3.68% of the total land area, traverse the whole municipality while the watershed areas are found in barangays Banay-banay II Galamay Amo. The forest area, estimated at 25 hectares is located in Bigain Hill, the only barangay that is slightly elevated. The figure for forested area has remained the same since the 1960 census. Idle land represents 16% of the total area (San Jose, CLUP, 2000).

The agricultural nature of San Jose is likewise reflected in the distribution of capital investments of business establishments. Feed mills account for 10% of total investments amounting to P132,310,757.45. The figure reflected in business establishment does not reflect capital investments in poultry and hog raising which amounts to P245,578,970 (Budget Office, 2005)

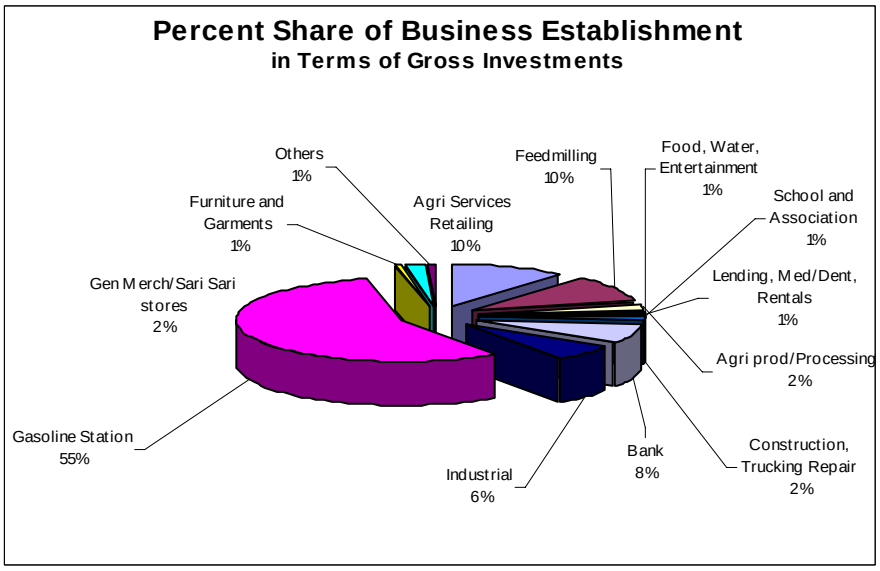
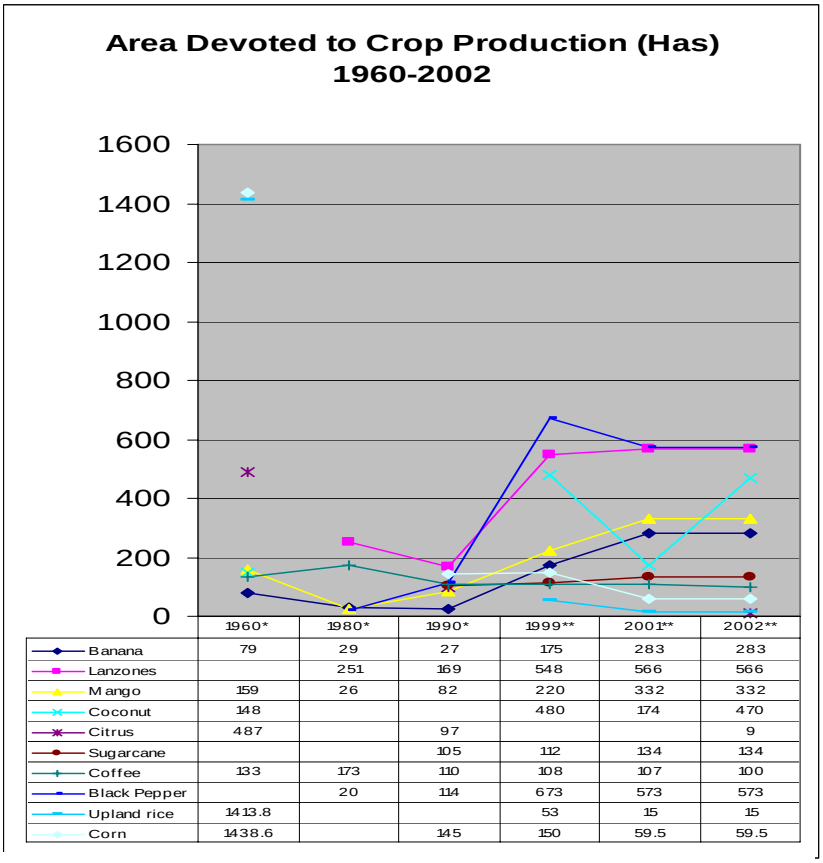


Figure 12: Percent Share of Business Establishment in Terms of Gross Investments

Fruit Tree and Plantation Crop Production

Upland rice used to dominate the agricultural landscape of San Jose. The 1938 census shows that out of 3,179 has cultivated area, 2,372 has or 75% is devoted to upland rice production.

Upland rice production prevailed up to 1960s as 1438.6 has or 44% of the total farm area is planted to it. In 1938, of the total 1,912 farms, 82% are classified as palay producing farms and only 9%



	1960*	1980*	1990*	1999**	2001**	2002**
Banana	79	29	27	175	283	283
Lanzones		251	169	548	566	566
Mango	159	26	82	220	332	332
Coconut	148			480	174	470
Citrus	487		97			9
Sugarcane			105	112	134	134
Coffee	133	173	110	108	107	100
Black Pepper		20	114	673	573	573
Upland rice	1413.8			53	15	15
Corn	1438.6		145	150	59.5	59.5

Figure 13: Area devoted to Crop Production (has) 1960-2002. 1960-1990 NSO data, 1991-2002 Provincial data

are classified as fruit farms. The dominance of palay eventually declined as more and more farmers shifted to orchard and plantation crop production.

Citrus, an early favorite, was almost wiped out as a result of the tristeza virus. The 1938 census showed a total of 25,971 existing fruit trees. Citrus reached its peak in 1960-1970 and eventually declined due to the tristeza virus.

Coffee was one of the major crops in the 19th century. At present, most of the farms are planted to varieties such as Robusta, followed by Excelsa and Arabica while the rest are planted to the Liberica variety. Coffee farming dates back to the early 19th century when the Philippines became the fourth largest producer of coffee and Lipa and Tanauan were the major producers. The euphoria over coffee production was cut short as a result of the onslaught of "coffee rust". As a result of the this infestation, Philippines was eventually eased out in the world market by the Latin Americans. During the 1980's, the Batanguenos were encourage to once again engaged in coffee production as a result in the increase of coffee price and the establishment of the Nestle coffee buying station in the nearby Lipa area. Lately, however, coffee beans are no longer harvested because of lack of profitability.

Black pepper, practically non-existent in the 1960 census, gradually became a second major crop competing with Lanzones. Black pepper, referred to as "black gold" because of the high command for its produce during the 1980's-1990's, fell out of favor as prices failed to compensate for the high labor cost associated with harvesting the produce.

Fruit tree production, particularly lanzones, still covers a large portion of the area though there had been no new plantings going on. Most of the lanzones were planted in the 1960's when people started shifting from palay and citrus.

Of late, the provincial government has been promoting production of tissue-cultured banana and solo papaya in partnership with private companies. The banana production, however, since its introduction in 2001, had not picked up. Papaya production, promoted last year by the municipal and the provincial government in cooperation with a private company, now has 270 fruit bearing trees in the municipality.

The Livestock and Poultry Industry

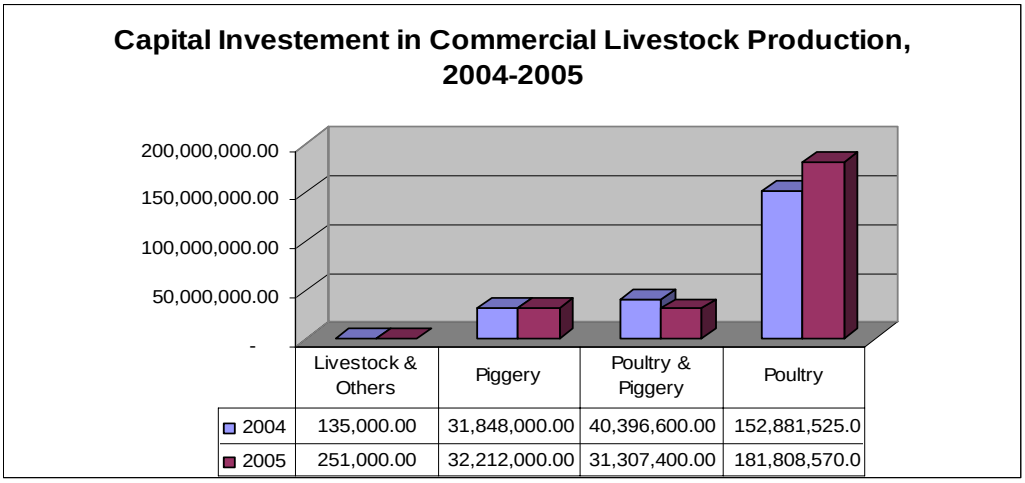
The livestock and poultry industry posted the highest growth rates of gross value added of agriculture by commodity between the years 1960-2000 (David, 2000). The growth rate for this sector started to accelerate in the 1980's and currently accounts for 14.24% of the total value of agriculture and fishery and 2.50% of the total gross domestic product for the year 1999 (NSCB, 2001).

Costales and Delgado (2002) contend that import restrictions in the past, coupled with increased domestic demands for meat fueled the growth of this industry. Consumption of pork meat increased at an average growth rate of 4.06% between the years 1990 to 2000 and posted an annual growth rate of 1.85. With commitments to WTO on the

provision of importation of pork and chicken meat, the livestock and poultry sector is pressed to improve global competitiveness.

The Swine and Poultry Industry in San Jose.

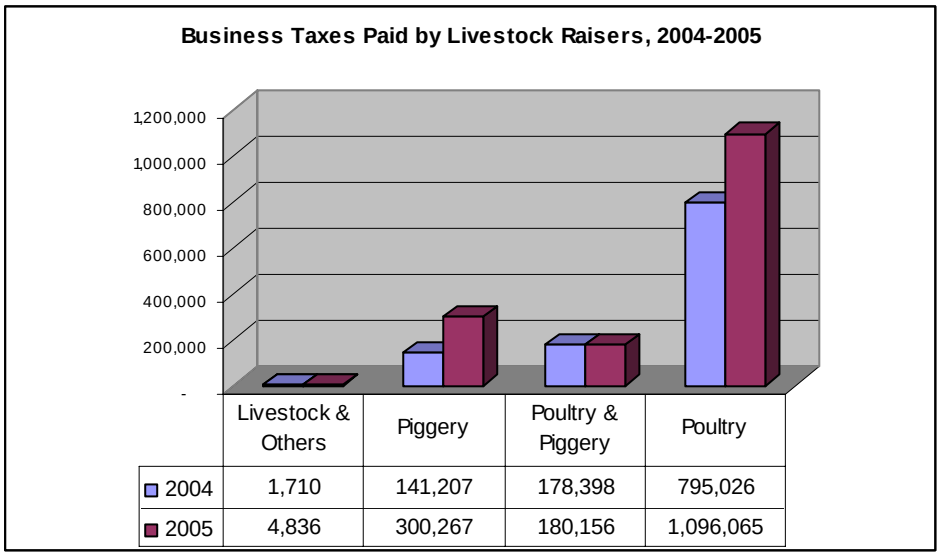
Livestock raising is a significant undertaking in San Jose. In 2004, total investment to this multi-million industry amounted to P225,396,125 and increased to P245,076,170 in 2005.



	Livestock & Others	Piggery	Poultry & Piggery	Poultry
2004	135,000.00	31,848,000.00	40,396,600.00	152,881,525.0
2005	251,000.00	32,212,000.00	31,307,400.00	181,808,570.0

Figure 14: Capital Investments in Commercial Livestock Production, 2004-2005

The dominance of the livestock and poultry industry is likewise translated in the taxes paid for the years 2004 and 2005 which amounts to more than a million per year.



	Livestock & Others	Piggery	Poultry & Piggery	Poultry
2004	1,710	141,207	178,398	795,026
2005	4,836	300,267	180,156	1,096,065

Figure 15. Business Taxes Paid by Livestock Raisers, 2004-2005

In addition, San Jose also derive taxes from the its two slaughter house and the CASADI poultry processing plant. For the month of June 2005, CASADI paid P297,379.50.

The Swine Industry

The swine industry continually posted growth in production between the years 1990 to 2003. Inventory increased from 10,311,200 in 1990 to 12,364,300 in the year 2003. The steady growth of the swine industry makes it the strongest growth area in the agricultural sector, posting an average of 5.72% per annum for the period 2001-2003 (BAS, 2003).

The industry is dominated by backyard farms accounting for 76.5% of total production (BAS, 2003). The dominance of swine backyard farming speaks of its importance as a supplementary source of income. Backyard farms are comprised of household-level operations of not more than 20 heads of adult animals, or 40 heads of young animals or a combination of 10 heads of adults and 20 young animals. All other operations are referred to as commercial. While the industry is dominated by independent household enterprises, contract growing arrangements are steadily on the rise. These backyard farms rely primarily on commercial mixed feeds, use of hybrid crosses for stocks and are integrated with the markety through village traders (Costales and Delgado, 2002)

For the year 2003, the top producing regions are Southern Tagalog (15.7%), Central Luzon (15.1%), Western Visayas(8.39%) and Southern Mindanao (7.18%). In the CALABARZON area, the Batangas province tops the list of swine raised in the area, producing a total of 832,170 heads or 43.45% of the total population.

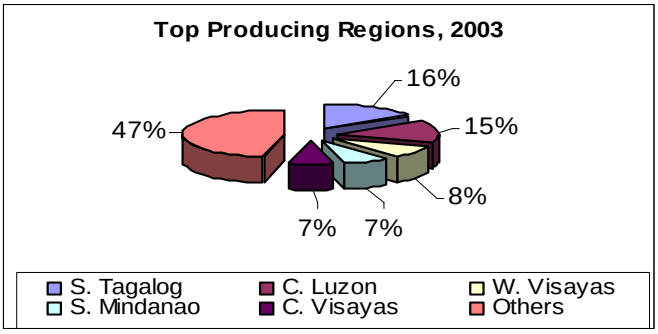


Figure 16. Top Livestock Producing Regions, 2003
Source: BAS

The, swine industry in Southern Tagalog is dominated by independent commercial raisers. Majority of the swine producers in the area are independent producers with medium to large scale commercial level operations. These medium and large scale swine raisers hire veterinarians to supervise their farms.

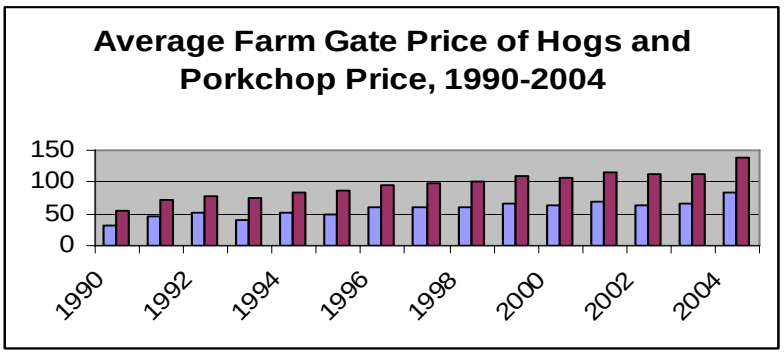


Figure 17. Average Farm Gage Price of Hogs and Porkschop Price, 1990-2004. Source:: BAS

The average farm gate price of hogs have been increasing over the years though the gap between average farm gate and pork chop price have been widening over the years as can be seen in Figure 17.

Between the years 1990 - 2002, pork importation have

tremendously increased and has continually registered an upward trend from 1,177,010 T to 25,636,910 T (BAS, 2003)

Swine Production in San Jose

The interest in swine raising involving large scale operations picked up in the 1980's when farmers engaged in coffee and black pepper production invested money in combined livestock and poultry production and at the same time, in family or corporation feed milling business. The increase in local demand for meat fueled the subsequent increases in both backyard and commercial operations which built up and led to increases in the swine population in San Jose.

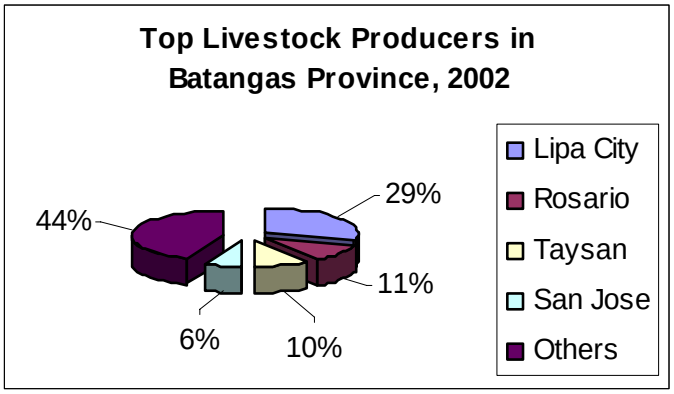


Figure18.Top Livestock Producers in Batangas, Province, 2002. Source: BAS

Of the twenty eight rural barangays in San Jose, twenty six are listed as sources of hogs. This facilitates knowledge flow among small backyard raisers as almost everybody is engaged in swine production at one point in time. In addition, the various drug distributors, commercial storeowners, commercial feedmills and LIMCOMA, a cooperative feed mill, engage in extension services aimed at increasing the knowledge and skills of small backyard raisers. Almost all backyard operators have a family member who attended a training program sponsored by either private companies or municipal and provincial government units. This supportive institutional environment has led to significant technological changes in the backyard production processes. Small scale operations, for example, use hybrid crosses for stock and completely rely on commercial mixed feeds. Most of these backyard producers are integrated with feed mills for the supply off stocks, commercial feeds, training and advisory services.

At present, farm gate price for hogs is between P70-74/kilo. Key informant interviews reveal that the cost of production amounts to P72/kilo to as high of P82/kilo primarily as a consequence of the high cost of feeds. Compared to China, Indonesia, Thailand and India, the cost of production for hogs is highest in the Philippines (PIDS, 2000).

Poultry Industry

Latest total chicken inventory shows that native and improved chicken variety raised in backyard farms account for 56.4% of the production while those in the commercial farms are broilers, 29.8% and layers, 13.8% (BAS, 2003). The significant growth of

the broiler and layer population compared to the decrease of native and improved chicken, may however, change this situation in the future.

Total chicken inventory shows that top producers are Central Luzon followed closely by Southern Tagalog. Latest figures show that chicken inventory posted an annual increase of 2.4% compared to the 2002 data. In terms of bird type, broiler production is concentrated in Central Luzon which accounts for 38.05% of the national production, layer production in Southern Tagalog (34.11%) and native chicken production in Western Visayas (14.35%).

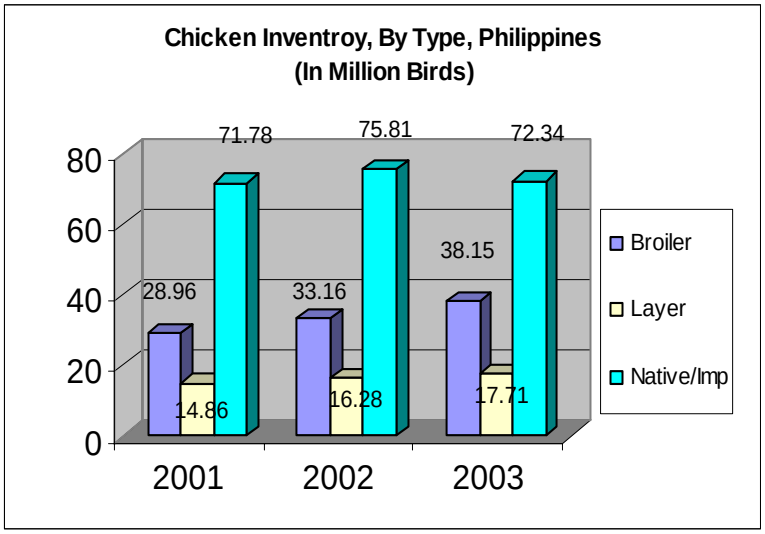


Figure 19. Chicken Inventory, By type (In Million Birds)
Source: BAS.

Chicken inventory have consistently posted annual increases between the years 1993 – 2003 except in the years 1998-1999 resulting mainly from the sharp decrease in broiler production.The decline could be attributed to the twin effects of reduction in broiler parent stock loading and the importation of chicken legs and wings. Broiler and layer stocks come from imported DOCs and hatching egg breeders.

Layer production have consistently posted annual growths, registering an average growth rate of 4% for the periods 1990-2000 and registered higher average growth rate there after. Chicken egg production reached 260.8 MT in 2002, posting a remarkable increase of 7.82 in the third and 6.65 in the fourth quarter of the year. Value of production reached16,630 M, an increase of 12.08% compared to the 2001 figure and an increase of 19.42% compared to the 2000 figure.

The chicken industry had witnessed major transformations in its operations during the past decades. From a primarily backyard operation, the industry had evolved into a multimillion peso commercial business significantly being dominated by key poultry integrators such as San Miguel, Purefoods, Republic Flour Mills, General Milling, Universal Robina and Vitarich Corporations. This so called “Big 6” have banded together to form the Philippine Association of Broiler Industries, Inc. (PABI) which accounts for about 75-85% of the total commercial broiler market meat outputs and sets daily benchmark prices for live broilers (Costales and Delgado, 2002). Independent raises have recently formed alliances such as the United Broiler Raisers Association (UBRA) which is currently exploring ways to increase efficiency of broiler production (Costales and Delgado, 2002)

The Philippine egg production has been increasing over the years at an annual rate of 3.58% per annum. From a level of199.91 MT for 1995, it increased to a total of 229.88 MT for 1999 and 260.82 MT for 2002. Value of production went up by 11.03% annually from P8,194.31 M in 1995 to P12,425.01 M in 1999.

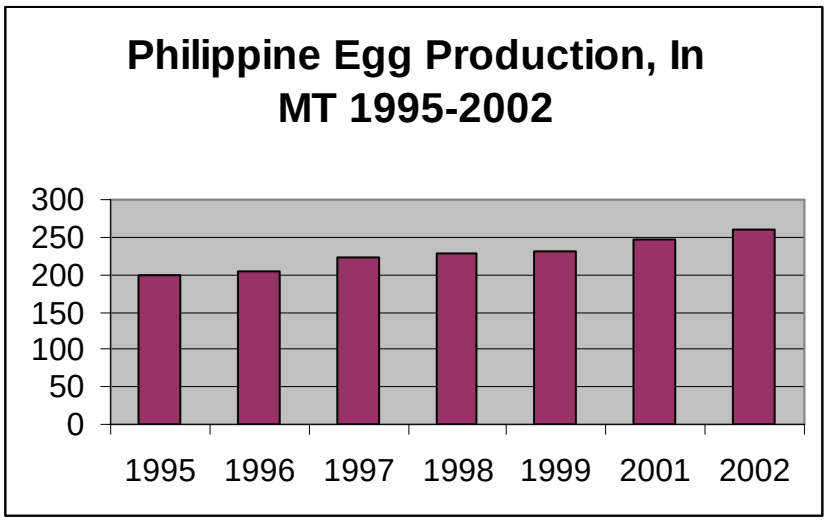


Figure 20: Philippine Egg Production (MT), 1995-2002)

Southern Tagalog is the major source of table eggs, producing a total of 30% of the total production. This is followed by Central Luzon (16%), Western Visayas (8%) and Central Visayas (9%).

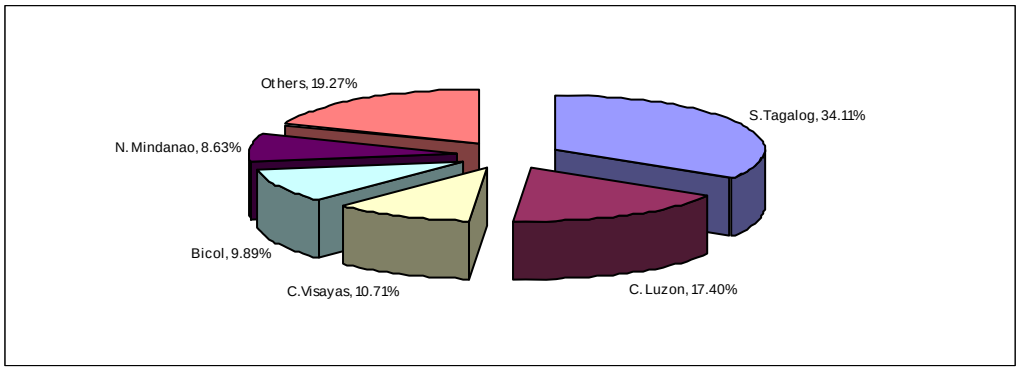


Figure 21. Distribution of Layer Inventory, By Region, 2002

In 1999, the country had a total supply of 229,891.11 MT of table eggs, where 4.83% (11.11 MT) was imported from Australia and India. The 92% of the total supply was consumed for human food, while the 1.99% was used for processing and the 5.99% was made to hatch for broiler or layer production. Per capita consumption was recorded at 2.83% kgs./yr. or 7.75 grams / day, quite lower from the 1997 and 1998 per capita consumption. Of 2.87 kg./ yr. or 7.86 gram/day and 2.86 kg./yr. or 7.84 gram/day, respectively (Department of Agriculture).

Below shows the average market price for medium sized egg between 1990-2004.

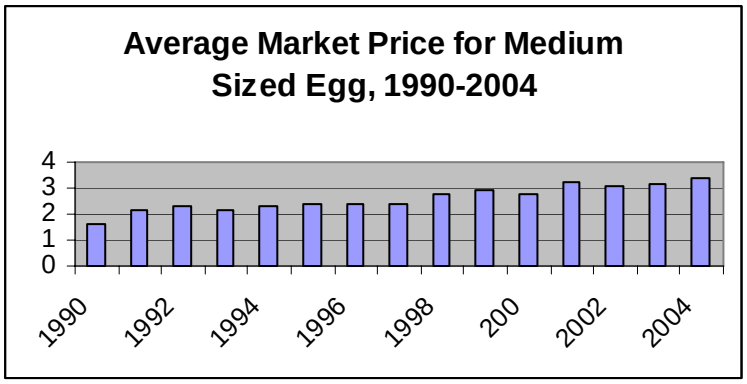


Figure 22. Average Market Price for Medium Sized Egg, 1990-2004
Source: BAS

Like the swine and broiler industry, the chicken egg industry is likewise experiencing competition from imported chicken egg and egg products.

Table 8. Import Trends of Chicken Eggs and Other Egg Products, 1998-2002

Year	With Shell/Fresh/ Preserved/Cooked		Egg Powder		Egg Yolk, Dried		Egg Yolk, Other than Dried	
	Volume/a	**Value**	**Volume/b**	**Value**	**Volume/b**	**Value**	**Volume/b**	**Value**
1998	-	-	87	386	78	245	297	733
1999	233	77	189	581	91	364	319	576
2000	330	95	246	506	364	609	279	419
2001	545	15	373	800	210	607	405	632
2002	155	18	311	584	555	1722	508	955

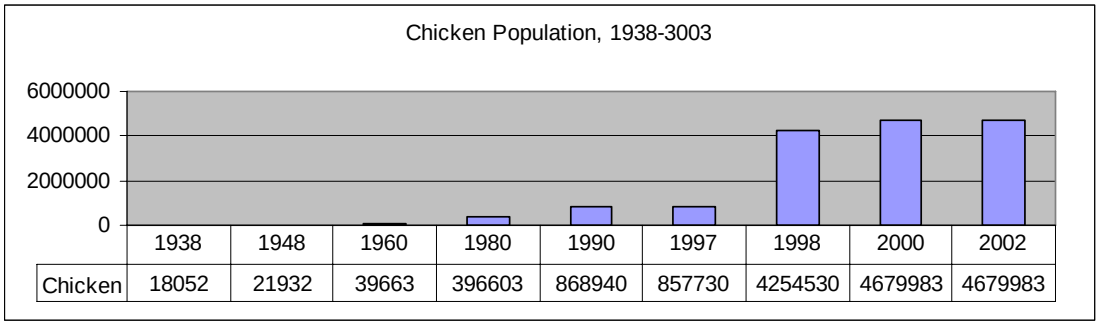
a/'000 pieces
b/MT
Value in $000 CIF
Source: NSO in UAP 2003

Egg importation is resorted to mainly because of increasing demands for egg powder and egg yolk powder. Eggs without the shell are prepared by food chains as this will eliminates problems of egg shell disposal. For 2004, egg yolk represented 42% of the total imports followed by whole egg pulp (12%), salted egg (11%), whole egg powder (10%), whole egg (9%) and egg yolk powder (9%). For 2004, the largest suppliers were Denmark, United States and India.

San Jose: Egg layer Industry

San Jose, dubbed the Egg Basket of the Philippines produces an average of 1.8 M – 2.2 M eggs per day. Egg production is the most significant economic contributor in the municipality supporting industries such as trucking, hard ware stores, commercial feed distributors and feedmills. Provincial data shows that there are 76 commercial layers in San Jose which supply eggs to wet markets in Metro Manila, Batangas province, Cavite and Laguna as well as companies such as California Manufacturing Company Incorporated and Goldilocks.

Chicken raising and egg production for that matter is not new to most residents. The 1938 census data reveals a total of 18,052 chicken population which doubled in 1948 and reached close to a million in 1990. Since then, the layer industry has grown by leaps and bounds as independent raisers continue to increase and/or expand production as a result of increasing demands from various consumer sectors.



	1938	1948	1960	1980	1990	1997	1998	2000	2002
Chicken	18052	21932	39663	396603	868940	857730	4254530	4679983	4679983

Figure 23: Chicken Population, 1983-2003
Source: NSO data 1938-1990, PAO data 1997-2002

The first reference to the layer industry was in 1948 when the census data noted a total of 7,038 layers. In 1980, the census data reached tremendous proportion as close to a million eggs per week was estimated to be produced in San Jose alone. While this figure is a far cry from the 1.8 M- 2.2 M eggs currently produced daily, it clearly shows that egg production have been a common agricultural activity of farmers. Key informant interviews reveal that more and more farmers went into the layer industry during the 1960's when income from fruit production went down. With farm gate prices of average size egg at P3.15, money involve in daily sales transaction alone amounts to 5.7 M to 6.93 M daily.

All twenty seven of the twenty eight rural barangays and one urban area in San Jose are involve in the layer industry. The commercial growers are found in Galamay-Amo, Tugtug, Lumil and Alagao (see Figure 19)The biggest commercial layer producers maintaining a minimum of at least 100,000 heads are found in Galamay Amo (PAO, Batangas).

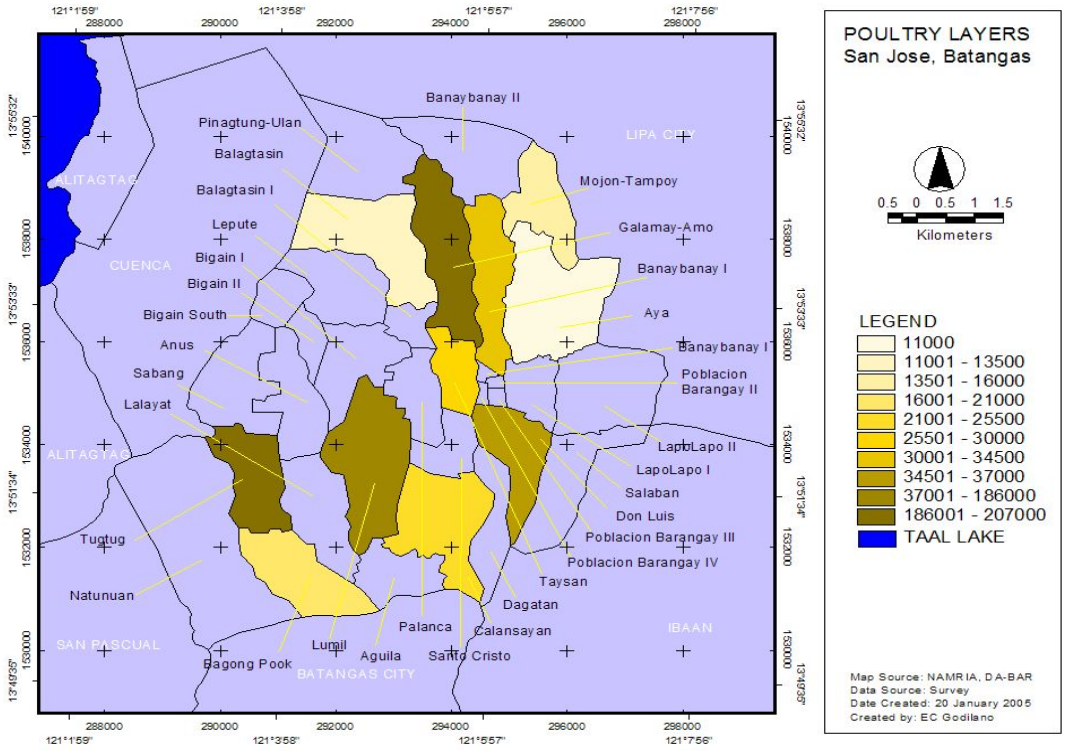


Figure 24. Estimated Population Density of Poultry Layers,
Source: MAO

Key informant interviews revealed that the pressure to increase efficiency resulted in the easing out of small producers. Local producers concur that to be able to survive, a layer operation should have at least 10,000 birds, edging out the backyard raisers.

Box 1:

Estimates from the Batangas Egg Producers Association (BEPA) revealed that a profit of PHP 0.38 per egg is realized only when 80% farm production percentage is achieved. Any production percentage less than this figure translates to a loss for the layer producer. The normal production percentage of 70%, therefore results in a net loss of PHP 0.01/egg.

Unlike the market for fresh meat which exhibited an increasing demand, and to a certain extent protected by the market's preference for fresh meat products, per capital consumption of egg products have increased due to increasing income but remains low compared to countries such as Thailand and China (PIDS, 2002). Perceptions abound that eggs are high in cholesterol and therefore, consumption of it have remained at minimal levels. The possible occurrence of bird flu is a major threat to the whole industry.

Prospects for the Agriculture Sector

Plantation and Fruit Crop Production

The gross valued added (GVA) for crops, including major export crops like coconut, sugar and bananas have been declining since 1980's (David, 2000). The decline in the interest in export crops is reflected in San Jose. Plantation and fruit crop production are currently maintained either for family consumption purposes or for commercial purposes in cases of good harvest. There are, however, no major capital investments to beef up the productivity of farm produce.

Coffee and black pepper vines, which were exported before, are abandoned due to high labor expenses, low commercial prices resulting to lack of interest among younger family members to take over the farms. As prices of plantation crops are dependent on international trade movement, increases in prices remain largely dependent on terms of trade.

Livestock and Poultry Raising

The livestock and poultry industry are major economic activities in San Jose. Small raisers concentrate primarily on swine raising while those who have bigger capital engage in both swine raising and layer production. The layer industry alone involves cash sales transaction estimated at 5.7 M to 6.93 M daily. Considering that there are six commercial and five family owned feed mills in San Jose, eight livestock and poultry suppliers, the layer industry's contribution to the economy amounts to more than an estimated 10 M daily.

The livestock and poultry industry in San Jose has experienced growth rates over the last decade. This has been made possible because of the following reasons:

a. adoption of technological advances in sourcing of breeds, breeding practices, nutritional management practices in small, medium and large scale operations;

San Jose enjoys extension services from the many feed millers and private drug companies. The active extension services of feed millers have greatly transformed the backyard operations who now use hybrids and rely on commercial feeds for nutritional management. Despite these advances, backyard operations have much room for improvement in terms of attaining better efficiency in feed conversion ratio and control of diseases.

b. Good infrastructure developments

Sandwiched between two key cities, San Jose enjoys major infrastructural developments like the construction of STAR Tollway and improvements in telecommunication business particular in the use of cellular phones and internet services. It is traversed by national and local road networks which makes traveling possible 24 hours a day going to Metro Manila and nearby provinces. Its proximity to

Batangas and Lipa cities and the provinces of Cavite and Metro Manila ensures a bigger market base for the raisers.

c. Increased consumption of the general populace brought about by population growth and increased income.

The engine of growth for both sectors have been the effective demand coming from the domestic sector. The high production rates for swine and layer production, however, renders the industry uncompetitive in the global market. The entry of cheaper imports adversely affects this effective market demand. Growth rates of the livestock and poultry industry have been declining. The major threats to the industry identified by raisers refer to the trade policies of the government, specifically importation of fresh meat and egg substitute. In addition, the protectionist policy on corn have negatively affected the competitiveness of the industry.

Major Threats to Productivity

1. Low Productivity and Protectionism in Corn Sector

A major reason for the increased production costs for livestock and poultry industry is the high cost of corn. Corn is the main ingredient for the commercial feed rations for both livestock and poultry. Based on BEPA computation, cost of feed represents 73-74% of the total cost of egg production, depending on percentage production. The nominal protection rate for corn is currently pegged at 87%, higher than the NPR for pork at 29% and chicken, at 45% (David, 2002). The corn industry remains highly protected owing to the fact that the population of corn farm households closely tail behind the number of rice farmers who represent the largest agricultural population.
The low productivity level of corn producers leaves much to be desired as our current productivity level, estimated at less than 2 MT/ha, is way below Thailand's more than 3.5 MT/has and Indonesia, Malaysia and Vietnam's almost 3 MT/has (PIDS, 2004). Coupled with this problem is the continual decline of maize production as recorded during the 1990-1999 period. However, primarily because a large number of farmers who belong to the poorest sector depend on corn production, protectionist policies were instituted to address equity considerations.

The low productivity of corn producers compounded by the government's protectionist policy on corn imports, heavily taxes the livestock and poultry industry rendering it uncompetitive and vulnerable to global market competition.

Based on interviews with growers, viajeros, suppliers and government officials, swine and poultry production have been declining starting from the year 2000 primarily because the farm gate price of hogs had not been increasing relative to the increase of the prices of feeds. The viajeros and feed suppliers, for instance, contend that the years 1994 to 2000 reflected increased sales. The years after that, however, reflect declining sales as more and more small growers opted not to engaged in swine or have greatly reduced their number of stocks.

Feed suppliers contend that small growers, who are major consumers of their feeds and vaccines, are the ones moving out of the business as they have been unable to

compete with bigger producers. The commercial growers, on the one hand, have their own feed mills or are stockholders of major feed mills and are regularly serviced by veterinary drug companies.

2. Imported breeding materials and vaccines and biologics.

Swine and poultry raisers contend that they are largely dependent on imported stocks, vaccines and biologics which they say are very expensive to maintain.

4. Importation and Smuggling

Primarily because of the high production cost owing to expensive feed inputs, livestock and poultry products remain uncompetitive in the world market. Because of this, trade liberalization is strongly opposed specifically by hog raisers association. A major factor identified by the raisers for their current dismal performance is the entry of cheap frozen meat and meat parts worsened by smuggling.

5. Diseases and Food Safety Issues

The dominance of the backyard raisers in the swine industry demand active governmental preventive veterinary activities as backyard producers are the most vulnerable to foot and mouth disease (FMD) outbreaks. FMD remains a challenge for backyard raisers and local government units as smallholders do not have practice systematic animal health programs. Based on key informant interviews, raisers contend that vaccination would only make them reliant on expensive vaccines which they can ill afford. Further, they said that once vaccination has been started, they become tied up with it and have to continually administer it even when there are no critical incidences. As such, instead of vaccination, they contend that it is more economical to just dispose of the hogs once FMD is suspected.

While commercial farms have better animal health and veterinary programs, small backyard producers rely heavily on informal extension services and local government units whose reach are seriously affected by priorities and funds.

The San Jose layer industry was hit by ILT in 2003. The disease, which was discovered as a result of collaboration between feed millers and the private sector, proves the vulnerability of the industry. The active extension work of the private companies coupled with the vigilance of commercial growers has served the sector well though many fear that the possible occurrence of bird flu would be devastating to the industry.

In terms of food safety, the involvement of the private companies in the processing of chickens and the food safety demands of hotels have led increased food safe level of dressed chickens. Unfortunately, the swine industry has failed to parallel the "food safe" level of poultry products (Costales, 2000). Unlike the poultry industry where 72% of the poultry dressing plants in the country pass the AA standards and where integrators pass the AAA standards, 86% of the abattoirs in the Philippines are not credited by NMIC.

6. Compounding Problem: Environmental Externalities

Waste management and disposal remain a major irritant in the livestock and poultry industry. Costales (2000) contend that small holder producers whose production match that of commercial operations on a per unit area generate larger collective pollution loads than commercial farms due to almost non-existent cost effective technologies for treatment of effluent materials.

In recognition of the environmental problems associated with increased livestock and poultry production in the area, San Jose local legislators came up with an ordinance to address environmental problems resulting to increased turbidity and bacterial content of the rivers. The local government embarked on a campaign to encourage the putting up of poultry housing that facilitated collection of manure. It also stopped issuance of new permits to new farms located in areas outside of the zoning for livestock and poultry.

Compared to the hog industry, management of poultry solid waste is easier due to the existing market. Disposal of pig effluent, however is more problematic and flushing of solid wastes to creeks and rivers is a common practice among small holders. During the period 1992-2001, a number of piggeries were closed as a result of the heightened campaign of the government to improve environmental compliance of swine producers. This was in response to the increased E.Coli bacteria found in the rivers flowing from Banay Banay 2.

Challenges and Strategic options

A. Trade Policy

The robustness of both the swine and poultry industry despite the high protection rate for its major input indicates the industry's resilience brought about by application of improved technology and management practices, increased domestic demand and vigilance of growers. With the country's commitment to trade liberalization, the swine and layer industry is pressed to improve its production efficiency in order to be competitive in the world market. Compared to China, Indonesia, Thailand and India, the cost of production for hogs is highest in the Philippines primarily because of the high cost of feed inputs. Egg production is likewise uncompetitive in the world market. The protectionist trade policy of the country towards corn negatively impacts on the international competitiveness of the industry.

The protectionist policy on corn coupled with the entry of imported swine and poultry products greatly penalizes the sector as up to 75% of the expenses go to feeds. For this matter, the National Federation of Hog Farmers and its allied regional organizations, and the counterpart organizations in the poultry industry have chosen to rally for higher protection of livestock and poultry outputs to offset the high production cost resulting from corn restrictions.

ASAP, in an effort to curtail importation and smuggling, have been actively participating in planning sessions with DA regarding livestock industry; attending to hearings regarding importation of feeds and frozen meat; public consciousness raising

through media appearances; submitting their own plans and critiques regarding issues to concerned sectors; and posting their own staff in Manila International Container Port to monitor the entry of frozen meat and control smuggling.

The layer industry has yet to feel the impact of importation of egg powder since 92% of the total supply of eggs were consumed for human food mostly as table egg while only 1.99% was used for processing and 5.99% for broiler or layer production.

B. Research and Extension

David (2000) contended that research expenditures is highly incongruent with the relative importance of commodities to the country's GVA. Research intensity ratio for carabao stands at 3.6% and for cotton, 25% while research expenditure for cattle, hogs and chicken is at a low 0.15%. Research intensity for corn is also at a low 0.05%. Improvements in the livestock and poultry industry could be further improved through research activities. Research on breeding stocks and corn production could greatly improve the competitiveness of the swine and poultry industry. PCARRD (2001) admits that while there had been many researches funded on finding substitutes for imported feed ingredients, these efforts were fragmented and not pursued vigorously.

While the commercial farms have access to veterinary services, small holders rely mainly on information from friends, relatives and the local government units whose reach depend primarily on funds available. Veterinary advices through phone calls to LIMCOMA and the LGU can also be accessed by small holders. With time as a crucial element in the prevention of the spread of diseases, improving access to veterinary services becomes important.

C. Marketing

In terms of product differentiation, the hog industry has not paralleled the sophistication of the broiler industry as live hogs remain the major market output sold primarily in the wet market. LIMCOMA, an agricultural cooperative, operates a meat processing plant located in San Jose. Organized in 1993, the meat processing plant aims at adding value to the produce of its members by processing them into a wide array of products such as tapa, longanisa and burger patties under the name "LIMCOMA's Best". Cognizant of the problems of the swine industry, LIMCOMA is eyeing the upgrading of its meat processing plant to widen its market reach and ensure a market for its members. Negotiations with foreign partners for the construction of its meat processing plant, and with local partners, for the marketing of its outputs are in place.

The poultry industry is likewise looking into the improvement of the marketing of its egg produce. San Jose is following up plans for the construction of an egg processing to ensure market demand for its eggs. The National Federation of Egg Producers of the Philippines campaigns for increased egg consumption by sponsoring egg shows in malls and has recently launched "The New Yolk Times", the official news letter of the egg board.

D. Environmental and Disease Policy, Monitoring and Evaluation

In response to the environmental problem, the local government of San Jose embarked on a yearly inspection of the farm set up to ensure proper waste disposal practices. This move led to the closure of several commercial swine and poultry farms who have been evaluated to be major pollutants. This move, however, did not prevent the spread of E.Coli bacteria in 1996 which affected a number of residents. Resulting mainly from the stricter enforcement of environmental policies, more and more raisers are encouraged to build lagoons to collect effluents.

In 1992, the Planning Division of San Jose also came up with a recommended housing design for poultry growers which facilitates easy collection of waste products. With the yearly monitoring of local government officials, more small swine growers are also putting up lagoons connected to pipes which serve as mechanism for collecting effluent materials. There are likewise small holders who have adopted biogas digesters as a response to the continued campaign of the engineering division of the Provincial Agricultural Office.

The problems though are far from being solved. In addition to water pollution, air pollution is likewise a major irritant. At present, the local government is finalizing the Environment Code which is being drafted by members coming from the raisers and feed millers. The local government is also looking at the donation of WINCOM for a 5 hectare lot as dumpsite for effluent wastes resulting from poultry and swine production.

For the swine industry, the national, provincial, local governments set aside money for the anti-FMD campaign. The poultry industry, largely serviced primarily by the private sector remains fearful of the possible devastating effect of deadly virus like the avian flu. Realizing the immensity of the task of crafting and funding preventive measures, livestock agencies of DA, Department of Health, Poultry Export Board, UBRA, Game Fowl Association of the Philippines and the Philippine College of Poultry Practitioners have joined hands in the mechanics of the avian flu preparedness. Of late, President Arroyo approved the release of P16M to combat avian flu and institute measures to prevent the occurrence of the said dreaded disease (LaMB, vol 1, 3).

Chapter Summary:

The evolution of the agricultural sector from a primarily upland rice dominated economy to orchard and plantation crops and to the current livestock dominated economy reflects the responsiveness of the farmers to local and international market opportunities and threats.

The coffee boom during the 19th century exposed the Batanguenos to the international market. With the onslaught of the coffee rust and the eventually easing out of the Philippines as a major player in coffee production, the Batanguenos shifted to other agricultural produce. San Jose shifted to citrus, lanzones and black pepper production coupled with livestock raising. As citrus production succumbed to tristeza virus and

demand for black pepper production fluctuated with international trade movements, livestock raising eventually became a major agricultural activity province wide and locally, in San Jose.

The dominance of the livestock industry in San Jose is clearly reflected in the area devoted to agriculture, capital investments in business and capital investments in poultry and swine raising. Capital investment in registered piggery and poultry establishments for 2005 amounts to P245,578,970. This figure does not include investments of backyard raisers where all households are believed to engage in at some point in time. More over, it is estimated that egg production amounts to 2.2 million a day or equivalent to P6.93 million pesos per day.

The phenomenal growth of the swine and poultry industry can largely be attributed to increasing local demand and the adoption of technological innovations in breeding and nutritional management practices of small and large raisers alike. The adoption of innovations in turn can largely be attributed to the support of private suppliers and feed millers in terms of providing extension and credit terms for inputs.

The industry's robustness, however, is threatened by high production cost resulting expensive inputs (feeds) which renders the industry uncompetitive in the global market and highly vulnerable to entry of imported goods. A serious problem is the occurrence of pest and diseases which threaten to wipe out the whole population of livestock raised, including those raised by nearby growers. To address problems like the avian flu, various government agencies and private organizations have joined hands in crafting preventive measures.

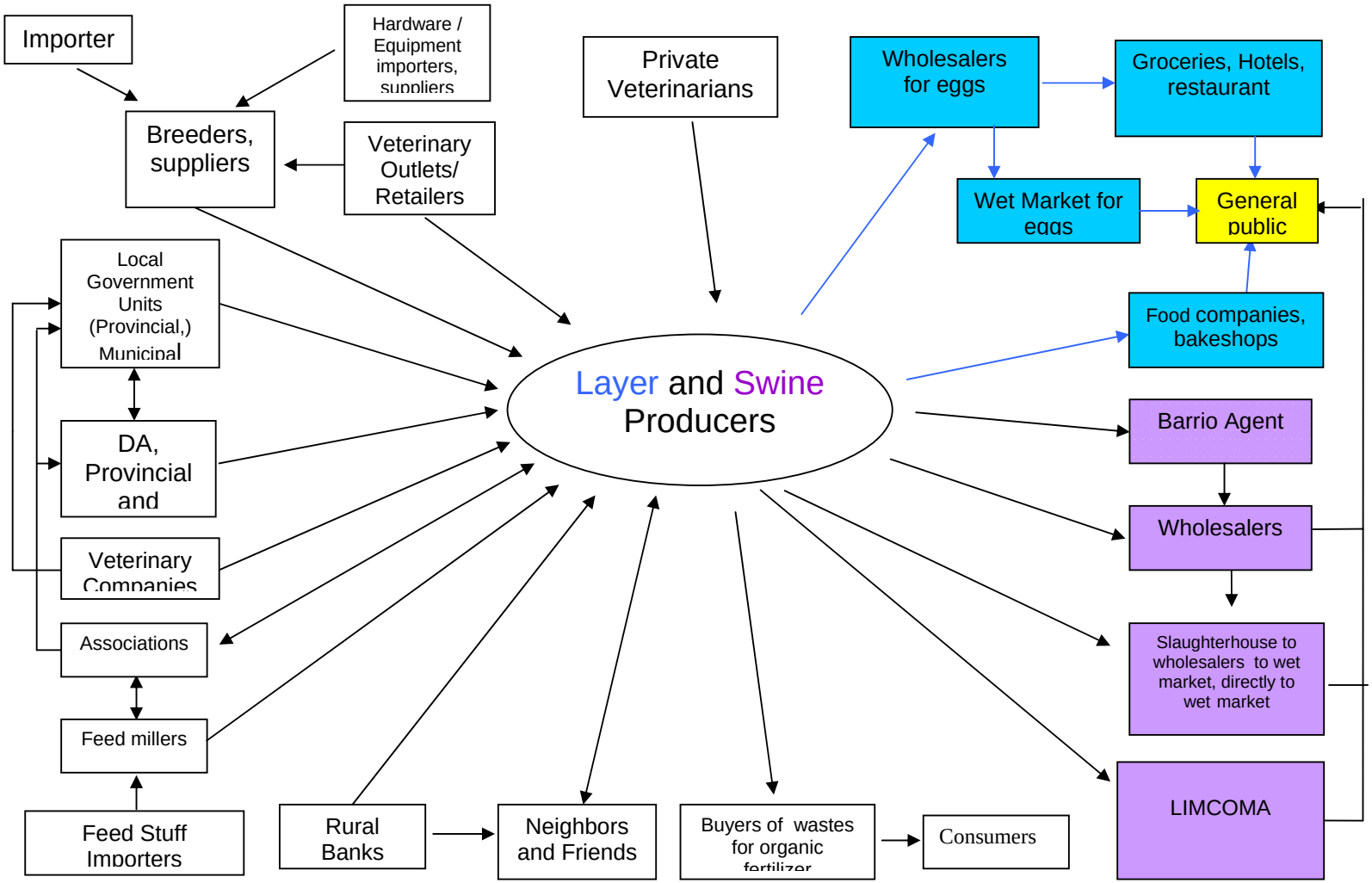
One major externality is the environmental costs resulting from animal wastes which had seriously impacted on rivers and creeks affecting not only the environment but also human health. As a response the local government of San Jose conducts yearly inspection of farms.

The challenges for the national government then are great in terms of research funding for inputs, breeding and education campaigns. The local government is likewise pressed to improve implementation of education campaigns, regulation, monitoring and evaluation of abattoirs.

While the private sector has been active in its extension campaigns in terms of extending new technologies to improve quality and safety of produce, prevention of diseases remain a big challenge and a task for both the private and different government units.

Chapter III: Existing Support Services for the Livestock and Layer Industry

Various institutions from the private sector support the swine and layer industry. Figure 25 below illustrates the linkages of the livestock and layer producers as explained by various key informants:



The illustration above shows the forward and backward linkages of the livestock industry. Both the layer and the swine industry rely on the private companies for the supply of breeds, biologics, feeds, equipment. Both industries are likewise supported by the extension activities of veterinary companies in partnership with the local government units (MAO and PAO) and LIMCOMA (cooperative feedmill) for small and medium raisers. Big raisers, on the other hand are directly serviced by veterinary companies and by private veterinarians.

The layer industry is connected to the wet market primarily by wholesalers who supply wet markets, supermarkets and hotels. For some enterprising raisers, they prefer to directly supply eggs to the wet market though they admit that the process is very tedious and for the most part, revert to selling to wholesalers every now and then. Big raisers on the other hand directly supply food companies and big bakeshops.

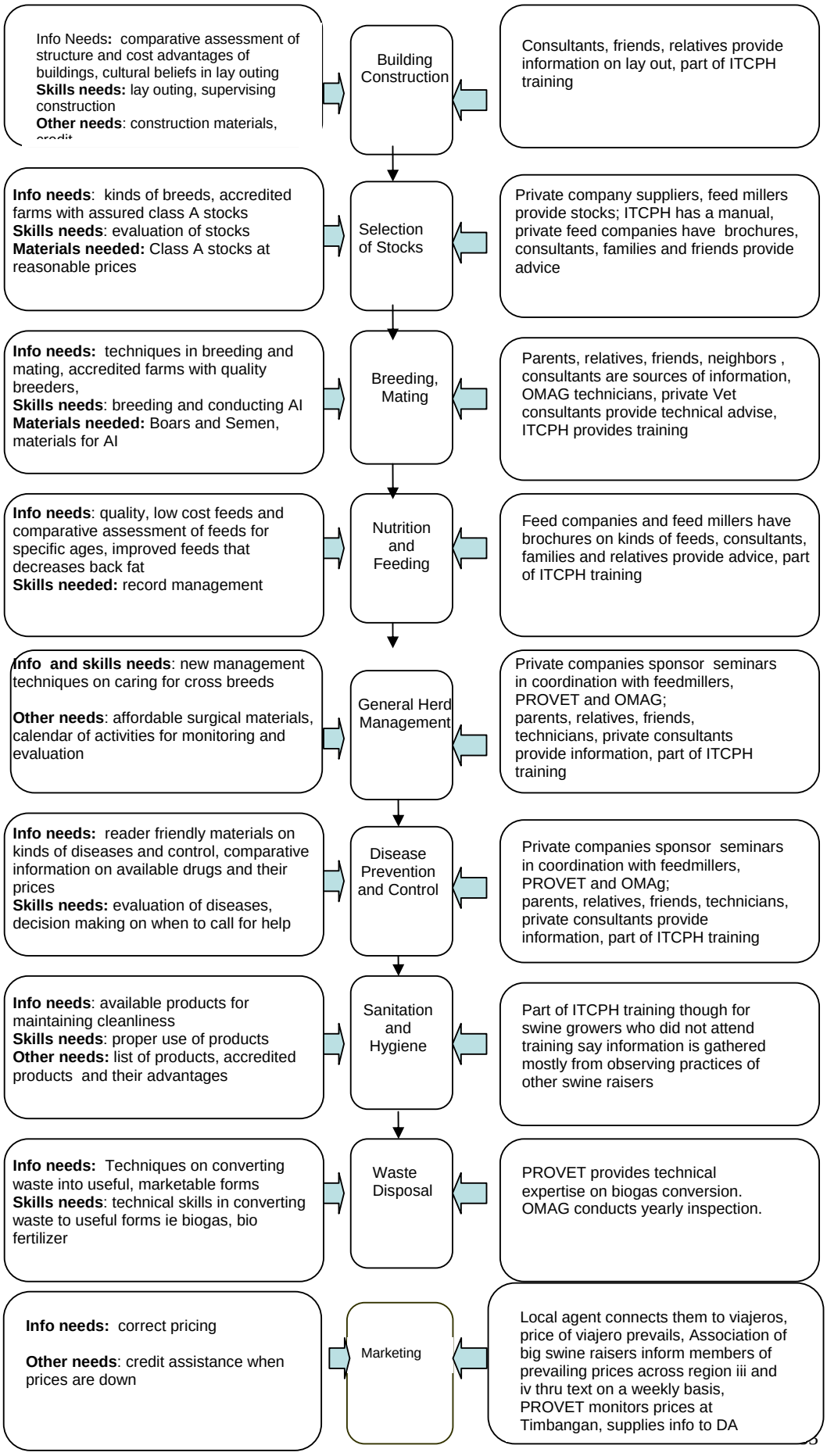
The swine industry is connected to the wet market by primarily through the viajeros or the barrio agent who are the direct contacts of the wholesalers of live pigs. These live pigs are transported to Metro Manila area and different parts of Luzon. A smaller percentage is slaughtered locally and are either bought by wholesalers to be retailed in neighboring municipalities or retailed directly to San Jose residents. The LIMCOMA processing plant, on the other hand, sources out its hog requirement mostly from its own operations and some from its raisers.

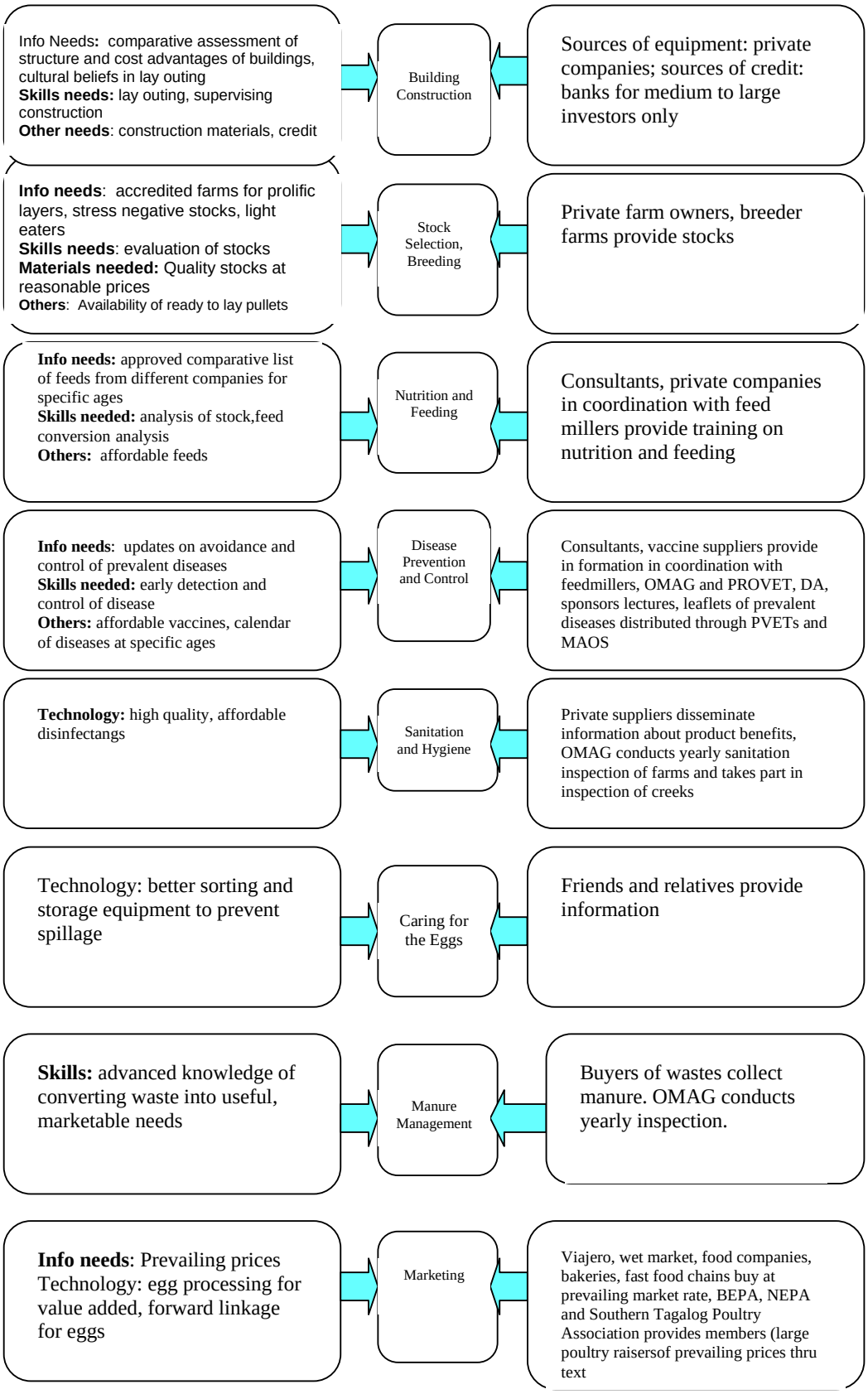
Figures 26 and 27 below show the informational, material, equipment and credit needs and supports received from various institutions of swine and poultry raisers starting from building construction to marketing of produce as explained by various key informants and validated by the OMAG office.

Needs

An important need of swine and poultry sectors includes quality stocks at reasonable prices and quality and affordable feed supply. Both needs are important as they spell the success of the whole operation. Poor breeding materials and poor quality of feeds or deficient feeds will naturally lead to poor performance of the livestock raised.

It is also clear from the figure that most of the needs are actually informational ranging from the need to know ***in order to cognitively compare and evaluate*** (eg. assess cost advantages, updates on prevalent diseases, where and to whom to sell) and the need to know ***in order to perform a specific task*** (breeding and conduct of AI, evaluation of diseases, conversion of wastes to marketable forms) which are extension concerns.


Info Needs: comparative assessment of structure and cost advantages of buildings, cultural beliefs in lay outing
Skills needs: lay outing, supervising construction
Other needs: construction materials,
Building Construction
Consultants, friends, relatives provide information on lay out, part of ITCPH training
Info needs: kinds of breeds, accredited farms with assured class A stocks
Skills needs: evaluation of stocks
Materials needed: Class A stocks at reasonable prices
Selection of Stocks
Private company suppliers, feed millers provide stocks; ITCPH has a manual, private feed companies have brochures, consultants, families and friends provide advice
Info needs: techniques in breeding and mating, accredited farms with quality breeders,
Skills needs: breeding and conducting AI
Materials needed: Boars and Semen, materials for AI
Breeding, Mating
Parents, relatives, friends, neighbors , consultants are sources of information, OMAG technicians, private Vet consultants provide technical advise, ITCPH provides training
Info needs: quality, low cost feeds and comparative assessment of feeds for specific ages, improved feeds that decreases back fat
Skills needed: record management
Nutrition and Feeding
Feed companies and feed millers have brochures on kinds of feeds, consultants, families and relatives provide advice, part of ITCPH training
Info and skills needs: new management techniques on caring for cross breeds
Other needs: affordable surgical materials, calendar of activities for monitoring and evaluation
General Herd Management
Private companies sponsor seminars in coordination with feedmillers, PROVET and OMAG;
parents, relatives, friends, technicians, private consultants provide information, part of ITCPH training
Info needs: reader friendly materials on kinds of diseases and control, comparative information on available drugs and their prices
Skills needs: evaluation of diseases, decision making on when to call for help
Disease Prevention and Control
Private companies sponsor seminars in coordination with feedmillers, PROVET and OMAg;
parents, relatives, friends, technicians, private consultants provide information, part of ITCPH training
Info needs: available products for maintaining cleanliness
Skills needs: proper use of products
Other needs: list of products, accredited products and their advantages
Sanitation and Hygiene
Part of ITCPH training though for swine growers who did not attend training say information is gathered mostly from observing practices of other swine raisers
Info needs: Techniques on converting waste into useful, marketable forms
Skills needs: technical skills in converting waste to useful forms ie biogas, bio fertilizer
Waste Disposal
PROVET provides technical expertise on biogas conversion.
OMAG conducts yearly inspection.
Info needs: correct pricing
Other needs: credit assistance when prices are down
Marketing
Local agent connects them to viajeros, price of viajero prevails, Association of big swine raisers inform members of prevailing prices across region iii and iv thru text on a weekly basis,
PROVET monitors prices at Timbangan, supplies info to DA


Info Needs: comparative assessment of structure and cost advantages of buildings, cultural beliefs in lay outing
Skills needs: lay outing, supervising construction
Other needs: construction materials, credit
Building Construction
Sources of equipment: private companies; sources of credit: banks for medium to large investors only
Info needs: accredited farms for prolific layers, stress negative stocks, light eaters
Skills needs: evaluation of stocks
Materials needed: Quality stocks at reasonable prices
Others: Availability of ready to lay pullets
Stock Selection, Breeding
Private farm owners, breeder farms provide stocks
Info needs: approved comparative list of feeds from different companies for specific ages
Skills needed: analysis of stock,feed conversion analysis
Others: affordable feeds
Nutrition and Feeding
Consultants, private companies in coordination with feed millers provide training on nutrition and feeding
Info needs: updates on avoidance and control of prevalent diseases
Skills needed: early detection and control of disease
Others: affordable vaccines, calendar of diseases at specific ages
Disease Prevention and Control
Consultants, vaccine suppliers provide in formation in coordination with feedmillers, OMAG and PROVET, DA, sponsors lectures, leaflets of prevalent diseases distributed through PVETs and MAOS
Technology: high quality, affordable disinfectangs
Sanitation and Hygiene
Private suppliers disseminate information about product benefits, OMAG conducts yearly sanitation inspection of farms and takes part in inspection of creeks
Technology: better sorting and storage equipment to prevent spillage
Caring for the Eggs
Friends and relatives provide information
Skills: advanced knowledge of converting waste into useful, marketable needs
Manure Management
Buyers of wastes collect manure. OMAG conducts yearly inspection.
Info needs: Prevailing prices
Technology: egg processing for value added, forward linkage for eggs
Marketing
Viajero, wet market, food companies, bakeries, fast food chains buy at prevailing market rate, BEPA, NEPA and Southern Tagalog Poultry Association provides members (large poultry raisersof prevailing prices thru text

Providers

Figures 26 shows that the private sector (private consultants, feed millers, suppliers), government sector (ITCPH, PROVET and MAO) and the general public (friends, relatives) who provide informational needs to swine raisers. In the value chain, the informational providers are not very active in the sanitation and hygiene part. While ITCPH provides training and brochures from building construction to sanitation and hygiene, the OMAG activities are concentrated in breeding and mating, general herd management, disease prevention and control though the reach might not be as extensive as the staff of the OMAG are concentrated mostly on the inspection of the waste management of farms.

The PROVET is active in the provision of technical expertise of biogas conversion of wastes though coverage by the technical experts may not be extensive as they cover the whole province.

In the provision of prevailing prices, most small swine raisers rely on viajeros while the larger raisers receive information from their association. The price information gathered by PROVET is a result of their monitoring and are thereby useful mostly to government agencies and researchers for establishing trends.

Figure 27 shows that most of the information needs on production of the poultry raisers are provided by the private sector. PROVET and OMAG come in mainly in the co-sponsoring of short trainings in disease prevention and control and in farm inspection.

To facilitate discussion on providers, they are divided into those providing regulatory services, financial services, input suppliers, market outlets, research support and extension services.

Regulatory Services

Regulatory services are primarily in the area of feed quality testing, control and necropsy which are provided by both the private sector and the national local government sector, particularly the regional office of the Department of Agriculture. Farm inspection is normally conducted once a year by the local government unit of San Jose while meat inspection is done daily. The table below lists the agencies involved in ensuring quality for the swine and layer industry.

Table 9. List of Government and Private Agencies involve in Regulatory Services

Government (National and Local)	**Private (Cooperatives, Business Sector, Association)**
Feed quality testing and control	
DEPARTMENT of Agriculture Region IV's Regional Animal Feed Laboratory (RAFL)	LIMCOMA through its feed milling Quality Control Laboratory which has state of the art equipment that analyzes the quality of feed ingredients within a span of two minutes
Provincial Government and Water Testing	OPTIMAL Diagnostic Laboratory operated by BEPA
	LIPA Quality Control Testing
Public Weighing Scale	
Inspection by the Municipal Agriculture Office	SOUTHERN Luzon Feed millers Association's public weighing scale in Lipa to ensure proper weight of truck deliveries
Diagnostic Laboratory	
DEPARTMENT of Agriculture Region IV's Animal Disease Diagnostic Laboratory (RADDL): parasitology, pathology, serology, bacteriology and drug sensitivity test	LIMCOMA Multi-purpose Laboratory
	LIPA Quality Control Center
	OPTIMAL Diagnostic Laboratory
Meat Inspection /Slaughter house regulation	
Municipal Agriculture Office: daily thru its three meat inspectors and one veterinarian	
Farm inspection, issuance of permits	
Yearly, all MAO personnel	

All feed establishment submit feed samples to RAFL to ensure quality of feeds sold in the market. The chemical analysis is a pre-requisite in the registration and accreditation of feed establishment as mandated under RA 1556. The feed testing laboratory operated by the private sector is used for the regular analysis of their own samples. Raisers contend that the diagnostic laboratory of the private sector is more advanced while that of the government is outdated and lacking in a number of antibiotic disks.

Financial Services

The seven RURAL BANKS based in San Jose attests to the dynamism of the business brought about primarily by the livestock and poultry industry:

1. LIMCOMA
2. Luzon Development Bank
3. San Jose Rural Bank
4. Bank of Kabayan
5. Mataas na Kahoy
6. Lipa City Development and
7. Calaca Rural Bank

The banks provide loans for the feed mills and for large swine and poultry growers.

LIMCOMA for its credit line of thirty days for feeds, 90 days for DOCs,

PRIVATE feed mills for their credit line to their incorporators;

VETERINARY suppliers (8) for thirty days credit line to selective clients;

Input Suppliers

Feed Suppliers

There are six privately owned feed mills based in San Jose. These feed mills supply most of the feeds needed by raisers and at the same time, those who are members of LIMCOMA avail of the cooperative's feed supplies. The six local feed mills are the following: White Gold Feed mill, New Golden Mix Feeds, Busilac Feed mill, Everlast Agcon Industries Corp, WINCOM Feed mill Corp and Grow Best Agro Feed mills.

Veterinary needs

There are eight veterinary outlets in San Jose which are mostly located in the poblacion and patronized by small raisers. Salesmen from the private sector service the medium and large raisers.

Stocks

For the large raisers, breeding stocks for swine are sourced from private farms while medium and small raisers source their stocks from LIMCOMA and from other individuals. The popular breeds such as Landrace, Yorkshire, Duroc, Pietrain, Hampshire and Berkshire are all of foreign origins. Semen can be availed from LIMCOMA, ITCPH and other individuals.

Poultry breeding farms in the Philippines are referred to as multiplier farms and can be likened to that of an "assembly plant" as most stocks are imported from abroad (IAS, 2004). Day old chicks (DOCS) are supplied by private farms and by individuals.

Equipment

Waterers, feeders, cartoon trays and graders are sourced primarily from the metropolis area.

Market Outlets

Small and medium swine raisers rely primarily on walk in viajeros for the marketing of their produce while large producers have institutional buyers. Small and medium layer producers either sell their products directly to the wet market or rely on viajeros. Large layer producers on the other hand, sell their products to food chains like Jollibee and Goldilocks or food companies such as CMC.

While integrators of feedmills have daily data on prices of swine and eggs in the province and nearby provinces, other medium and especially small raisers do not have this data and rely mostly on information given by viajeros.

The meat processing plant of LIMCOMA, which produces Batangas Prime envisions to expand its operations to in order to supply increasing demand for processed meat and provide swine raisers a market outlet for their products. At the moment, they source out their swine from their selected LIMCOMA members from all over Luzon and produces 3 tons of processed meat like tocino, longanisa, sisig, embutido, burger patties and hotdog.

CASADI, a private poultry processing plant processes poultry exclusively for San Miguel corporation. It has a capacity of 3,700 broilers per hour and employs 280 CASADI employees. Broilers come from contract growers located in different parts of Souther Luzon. CASADI has safety standards patterned after the Asia Pacific standards and they current are currently working for their ISO certification. CASADI is likewise monitored by employees of OMAG.

There are two slaughter houses in San Jose, one in Natunuan and one in the public market. Both are non NMIC accredited but are monitored by the people of OMAG.

Research Support

Based on the interviews gathered, there are no direct links between hog raisers nor poultry raisers with any research institution. The research identified by the municipal local government was conducted by a Netherlands based NGO who conducted basic research on animal poultry waste management and by the BAI livestock division council which made a situation analysis on the spread of Infectious Laringo Trachitis (ILT) last 2003. Raisers contend that it was mainly the suppliers for inputs who helped them bring the blood samples of affected hogs to US and Singapore for analysis. BAI came in to do a situation analysis when it was reported by the hog raises that ILT were affecting a number of hogs.

David (2000) contends that the research intensity for cattle, hogs and chicken is at a low 15% compared to cotton which stands at a high 25% of the research expenditure. The total R & D investment in swine for the years 1990- 2000 was 52.26 million while for that of poultry was 55.58 million.

Table 10 Research and Development Expenditure in livestock and poultry, 1999-2000

Period	R & D Expenditure (P M)			Total	Percent to total	
	Poultry	Swine	Ruminants		Poultry	Swine
1990-1994	13.76	18.96	105.23	137.95	9.97	13.74
1995-1999	20.62	28.77	119.85	169.24	12.18	17.00
1990-1999	34.38	47.73	225.08	307.19	11.19	15.54
2000	21.20	4.53	18.43	44.16	48.01	10.25

PCARRD 2000

Extension services

The robustness of the livestock and poultry industry can be attributed to the dynamism of the extension services provided primarily by the private sector. The livestock and poultry industry enjoy extensive extension services from various cooperatives, veterinary drug companies and feed corporations who regularly sponsor training programs on health and nutritional management on livestock and poultry. Because of the active involvement of LIMCOMA and SIDCI, the various private feed mills, and the support of the veterinary companies, dissemination of information to small, medium and large raisers is greatly facilitated.

The main advantage of medium and large raisers lies in their ability to hire veterinarians and, for the large raisers, to hire farm managers who are able to give timely, accurate advice on the management of their livestock and poultry. The local government unit provides extension services primarily to the small raisers. Since 2000, the local government of San Jose beefed up their extension personnel by hiring a full time veterinarian tasked primarily to address extension needs of backyard growers and help in the conduct of the meat inspection. Table 9 provides a list of major extension providers.

Table 11. List of Extension Providers

Government **(National and Local)**	**Private** **(Cooperatives, Business Sector, Association)**
MAO and the PAO thru the MAO, BHAW	Private Fed mills, LIMCOMA
ITCPH	Veterinary Companies
	Feed Companies
	Private Veterinarians
	Private Consultants

LIMCOMA Multi-purpose cooperative is the biggest feed mill cooperative in the Batangas province and rated as the number one agricultural cooperative in Region IV. Organized in March 25, 1970 with a 77 cooperators and 1 million capital, it has evolved in to a multi-million industry with 5,900 members. LIMCOMA is the nations first feed mill coop which has ISO 9001:2000 certification and the first and fully automated computerized feed mill in South East Asia. LIMCOMA provides a wide array of assistance to its members in the form of the following services:

1. Provision of quality broiler, layer, swine, hogs, aqua, quail feeds, beef cattle and fighting cock concentrate,
2. Credit assistance through its credit line system which offers interest free credit for six months and provision of feeds subsidy;
3. Financial services through its rural bank, one of which is located in San Jose;
4. Manufacturing and selling of Veterinary supplies through its Mayflower Agri-Ventures
5. Swine dispersal program;
6. Breeding and Experimental Farm to beef up quality stocks for swine and for testing poultry rations
7. Marketing through LIMCOMA food store for its fresh and processed meat products located in San Jose
8. Regulatory and quality control services through its feed milling quality control laboratory
9. Technical services through phone calls and farm visits through its four full time veterinarians and distribution of a newsletter to all its members
10. Regular benefits like scholarship, death benefits

VETERINARY drug companies, particularly Pfizer, Novartis and Premium Agro Vet in cooperation with LIMCOMA and the MAO, regularly sponsor training on livestock and poultry, particularly layer health management in addition to providing regular technical services to selected clients.

FEED companies, notably Vitarich, B-Meg, Sunjin and Purina, together with LIMCOMA and the MAO, provide training on nutrition and general health management on livestock and poultry and give technical services to big independent raisers.

FEED MILLERS: there are six privately owned feed mills in San Jose alone: White Gold Feed mill, New Golden Mix Feeds, Busilac Feed Mill, Everlast Agcon Industries Corp., WINCOM Feed Mill Corp, and Grow Best Agro Feed Mill who give technical advice to their consumers and stockholders.

PRIVATE veterinarians hired mostly by medium and large swine raisers and layer producers.

The ITCPH a government institution located in Lipa City, regularly conducts training on hog management for the general public. It also sells relevant brochures and booklets on swine raising.

The LOCAL government unit, through its veterinarian who provides technical services through phone calls or through farm visits and organizes training and consultative meetings,

The extension frequency diagram (Figure 28) below visualizes the current importance of the various organizations in terms of the frequency of providing information and advice to improve technological and management practices as explained by key

informants. The farther the organization from the center, the lesser is the frequency of contact with the raisers.

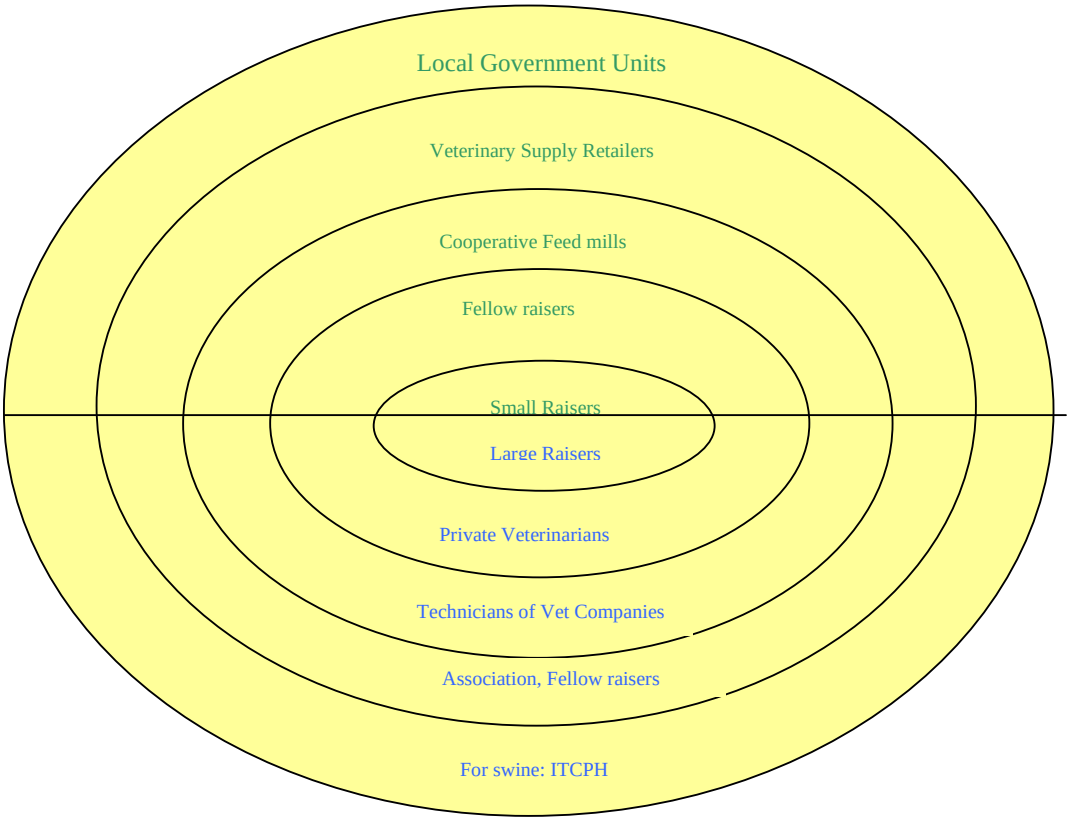


Figure 28. Frequency diagram of livestock and layer producers

Fellow raisers figure prominently as neighbors regularly discuss technical and management concerns especially when they encounter problems. Cooperative feed mills like LIMCOMA regularly sponsor technical training programs in coordination with private veterinary companies. In addition, LIMCOMA provides free technical consultation through phone and minimal fee for field visits of its veterinarians. Veterinary supply retailers provide advice on nutrition and disease management to over the counter clients. The local government units are cited for the supervisory function of inspecting the farm and for their sponsorship of training programs in coordination with private veterinary companies.

Large and medium size raisers have the ability to hire full time or part time - veterinarians who inspect and give them timely advice on technical and management aspect of poultry and livestock raising. This group of raisers actively exchanges notes and have of late, been actively involved in strengthening their associations, particularly ASAP. This association had been active in organizing protest actions, participating in planning sessions with the Bureau of Animal Industry, monitoring imports with the Bureau of Customs, lobbying in Senate and Congress and working

out plans with the local government in encouraging planting or corn for feed inputs. ASAP, spearheaded by LIMCOMA, is likewise providing daily farm gate price for its members through text. While ASAP gets information trends from AMAS, they do their own market canvassing because of the delay in the release of data from AMAS.

Primarily because of the volume of sales involve, salesmen or their company's veterinarians also make them selves available for consultation and provide technical training upon request of the raisers.

ITCPH was cited as a source for training on technical and management practices by medium and large swine raisers.

Raisers were asked to identify the important institutions that have helped the industry grow. The intensity of this support is reflected in the prime mover septagram represented in figure 29. The prime mover septagram below shows the organizations/institutions/people who have greatly helped the livestock and layer industry. The farther from the center, the less is its positive influence to the development of the industry.

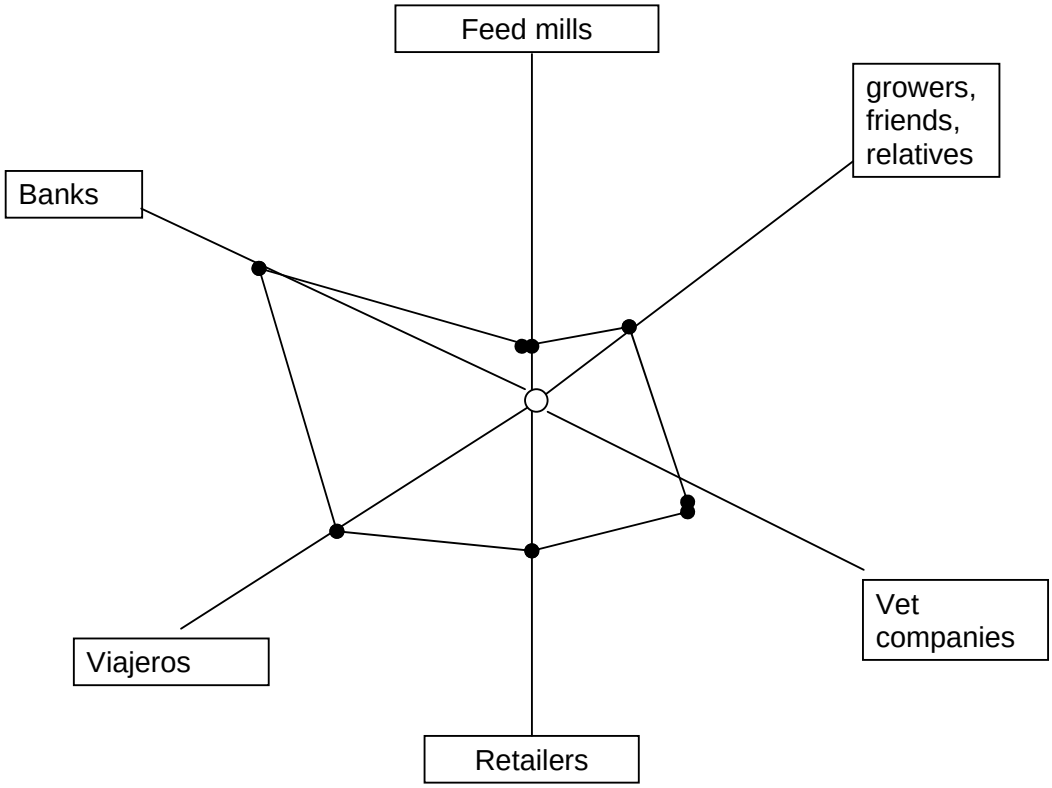


Figure 29. Prime mover septagram of the livestock and layer industry

The feed mills, particularly, LIMCOMA were positively identified as largely contributing to the growth of the livestock and poultry industry through the provision of extension services. Co-farmers, veterinary companies and retailers were listed as sources of information while the viajeros are considered vital in the disposal of their

produce. Banks, on the other had greatly helped the large raisers and the feed mills in the expansion of their businesses.

Private or Public?

A crucial question lies in determining who could best provide what kind of information. An answer to this could help in determining the extension focus of the local government units who has to grapple with funding prioritization. While the process of determining whether an informational need should be the main domain of the private or the public sector remain tricky, Umali and Schwartz (1994) proposes a heuristic framework borrowed from welfare economics which requires the need to understand a public and a private good.

Box 2: Understanding a Public or a Private good (Umali and Schwartz, 1994)

A private good has high excludability and subtractability or rivalrousness. A good has high excludability when access is denied to those who have not paid for the product and a high subtractability when consumption of a good or service reduces its availability to others. It is a public good when a good or service has low excludability and subtractability. In between these polarities are toll goods (high excludability but low subtractability) and common pool goods (low excludability but high subtractability)

It should be noted that most of the needs of both the swine and the layer raisers can be classified as toll goods in the short term, to wit: specialized agricultural information in production and farm management (Umali and Schwartz, 1994). The diffusive nature of the information and the negative externalities associated with not using vaccines for example transforms these toll goods into public good in the long term.

While the private sector will normally provide extension services on private goods to maximize returns, toll good types of information will likewise be provided in cases where the returns on such activities surpasses that of their investments. This is certainly the case of the swine and layer industry where the private sector, the cooperative feed mill, feeds, vaccines and vitamin suppliers distribute leaflets and brochures and conduct training programs for the raisers as they foresee return on investments.

Based on economic theory, there should no longer be government intervention in the provision of toll goods where the private sector is more than willing to provide. It, however, becomes an important task when there are negative externalities and equity concerns. Negative externalities include moral hazards like asymmetry in information relating to product quality and use and when information leads to positive externalities. The private sector will only provide extension services in areas where they are able to recoup their expenses. As such, they may naturally provide the services only to big farms. Ensuring the provision of the information to smaller farms then becomes an important consideration of the local government.

Chapter Summary

Very clearly, the livestock and layer industry is well supported by the private sector. For the swine sector, the local government units are cited for their vaccination efforts, coordinating trainings sponsored by private companies and of late, yearly monitoring of the farm in lieu of the need to renew business permits. For medium and large scale swine operators, ITCPH is considered a reliable source of information.

It is clear that the needs enumerated by key informants refer primarily to informational gaps to include: the need to know in order to cognitively compare and evaluate and the need to know in order to perform a specific task. These needs are clearly extension concerns.

For the layer industry, the role of the local government is to coordinate training programs sponsored by private companies. Its regulatory function, in terms of inspecting slaughter houses, dressing plants and weighing scale are acknowledged as important roles of the local government. The rest of the support institutions such as laboratories are available from the private sector. Raisers contend that the diagnostic laboratory of the private sector is more advanced while that of the government is outdated and lacking in a number of antibiotic disks.

The robustness of the swine and layer industry can be attributed mainly to the dynamism of the various players from the private sector. Based on analysis of extension needs and providers, critical extension need for swine and poultry raisers revolve around nutrition and feeding primarily because of the need to increase feed conversion ratio. Aside from the need to increase efficiency to realize profit, extension on disease prevention and control is necessary. This is true for the swine industry where major players include backyard raisers. This is likewise true for the poultry industry as poultry is facing new strains of viruses like the bird flu.

Most of the support services needed by the swine and layer raisers are toll goods in the short term but are considered public goods in the long run. It is also evident that while most of the extension needs are public goods, the private sector had been more than willing to supply the extension needs. From the economic point of view, this can be explained by the expected positive net returns in providing such specialized information. Based on welfare economics, local government units come in only when there is asymmetry in information.

While medium and large scale growers have access to information supplied by the private sector, small growers are highly dependent of informal information gathered from neighbors and relatives. This is where the role of the OMAG and PROVET become necessary as obviously there is asymmetry in availability of information though the reach of these local government units may not be as extensive as desired.

OMAG and PROVET conduct activities to prevent occurrence and control spread of diseases but it has not been active in addressing efficiency problems of small raisers. While the private companies will most likely provide such specialized information to the big producers, the information needs of the backyard raisers are responded to

mostly by cooperative feedmills (LIMCOMA) in coordination with the various private companies.

As government streamlines its services, the identification of public and private goods and the appropriate role of the local government units become necessary. With increasing demands for efficiency and effectiveness, extension should identify areas where it is needed most, when and how it can encourage private sector participation in critical areas in the value chain.

Chapter IV: Municipal Extension Services and Knowledge Management

The devolution of the extension personnel in 1992 placed the local government unit in the frontline of agricultural development. The Local Government Code (LGC) of 1991 or RA 7160 devolved to local government units the authority and responsibility for governance and delivery of basic services. Under the code, LGUs take on the central role of formulating plans and managing the delivery of services that aim to improve the lives of their constituencies. With the passage of RA 8435 or the Agriculture and Fisheries Modernization Act (AFMA), the extension system takes on the critical role of transforming the agricultural sector from a resourced-based to a technology –based industry.

While the appointment of an Agriculturist is mandatory in the provincial level, it is optional in cities and municipalities. The existence, size and organizational structure, therefore of the municipal extension service vary from municipality to municipality.

The Local Government Code of 1991 lists the duties and responsibilities of the Office of the Municipal Agriculturists as encompassing research, extension and regulation. Aside from technology transfer and education, the OMAG is tasked to ensure provision of maximum assistance and access to resources in the production, processing and marketing of agricultural, aquacultural and marine products to farmers, fishermen and local entrepreneurs. With such varied tasks subject to priorities of the local chief executive, the task of fueling agricultural growth and achieving national goals remains a challenge.

This section discusses the structure and staffing pattern of the Office of the Municipal Agriculture, their staff, projects and sources of funding since 1993 and understanding of what extension should accomplish and how they can contribute to the attainment of the AFMA goals as compared with that of the raisers and the feed millers.

Structure, Staffing Pattern and Facilities

The Office of the Municipal Agriculturist (OMAG) reflects a flat and commodity based structure. The OMAG is composed of 6 people: the Municipal Agricultural Officer (MAO) and agricultural technicians: one veterinarian, one agribusiness graduate in charge of animal production crop production and three meat inspectors. Their ages range from 27 years old to 52 years old at an average of 42 years old. Of the six OMAG personnel, only one does not have a degree in agriculture.

There are approximately 937 farmers per technician and 878 hectares of agricultural lands per technician. However, based on the functions there is only one technician in charge of the livestock sector and only one crop production technologist in charge of the whole municipality as the rest of the technicians do function as meat inspectors.

Because of unfilled positions in the proposed structure, the MAO, aside from supervising the 7 extension staff, also spearheads the institutional development, the cooperative development and agribusiness development divisions. The number of extension workers represents 6.7% of the total municipal employees.

The number of extension personnel in San Jose is more than what most third class municipalities can afford. San Jose boasts of a veterinarian to address technical needs of backyard and medium sized swine growers, to beef up its campaign against prevalence of diseases and provide support for the monitoring of slaughterhouses and poultry dressing plants. Compared with other OMAGs, it is immediately noticeable in the organizational structure that San Jose prioritizes its regulatory functions as this division has three staff members compared to the other divisions. The MAO is quick to point out that collection from monitoring of slaughter houses and dressing plant is a source of income for the municipality. He therefore counters that regulatory services of the local government be enhanced by providing qualified and sufficient number of personnel who can ensure quality service.

The structure of the Office of the Municipal Agriculturist (OMAG) is presented below:

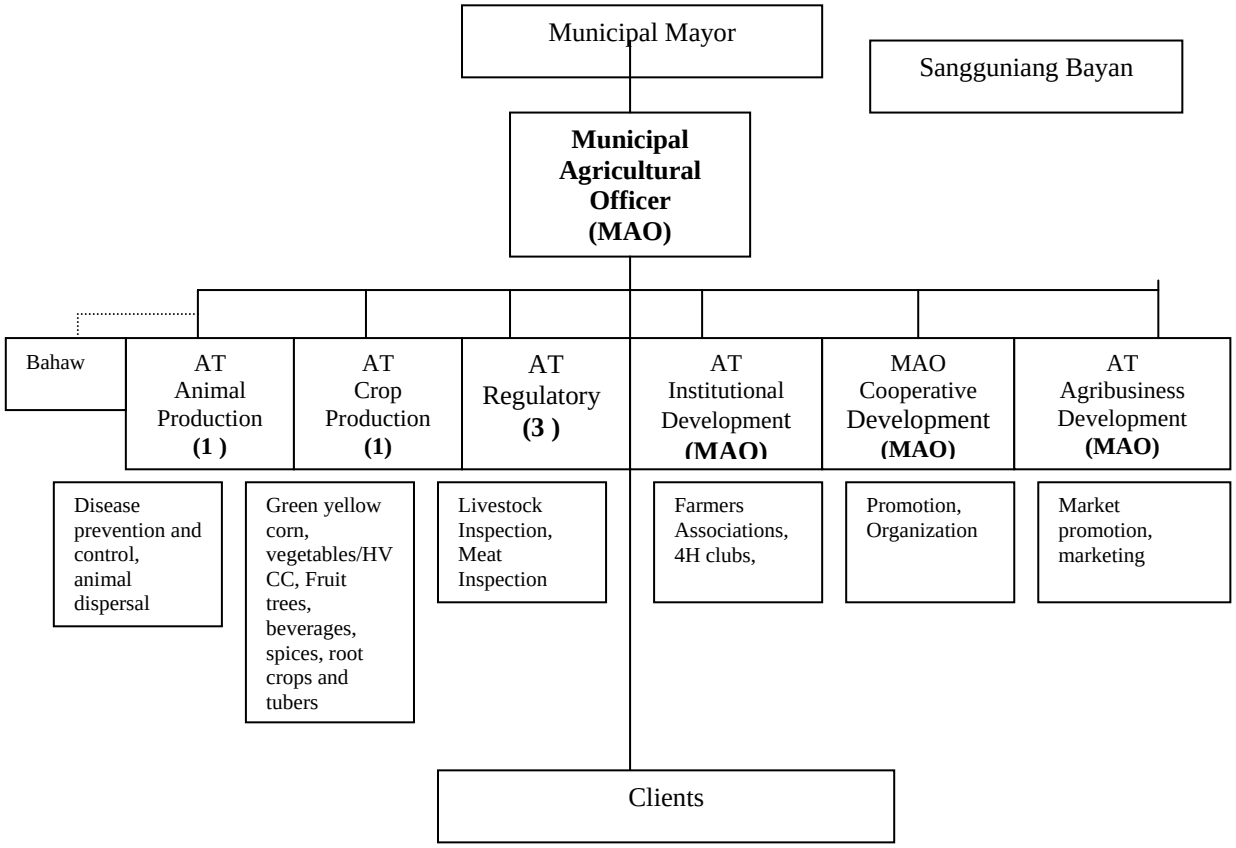


Figure 30. Structure of the Office of the Municipal Agriculturist

In the past, livelihood promotion was part of the tasks of the OMAG. This function was eventually transferred to another unit and was replaced by environmental protection in response to the pollution emitting from livestock raising. The environmental pollution control has been granted a budget of P150,000 for the year 2003 to conduct inspection of swine and poultry farms.

The Municipal Agricultural Officer (MAO)

The Municipal Agricultural Officer supervises the staff and is the concurrent in-charge of environmental waste management, cooperative development and tourism. As in-charge of environmental waste management, the MAO supervises the inspection of farms to ensure compliance of recommended waste management practices. The MAO prepares the annual investment plan of the OMAG, advises the mayor regarding agricultural matters and coordinates with the OPAG.

The MAO also actively supports the Office of the Mayor in organizing the yearly Sinuam, San Jose's egg festival. There are three farmers association and six cooperatives, one of which has received technical assistance from OMAG. The list of active cooperatives is listed in Table 24 (Interview with the MAO).

The MAO receives P2,500 .00 cash incentive from the national government.

Table 12. List of Cooperatives in San Jose

Name	Address	Year Established	Nature of Operation	No. of Members	Assistance Received
Pinagtungulan MPC	Pinagtungulan	1989	Production. Marketing	800	Financial Assist from LBP
Lapo-lapo MPC	Lapo Lapo I	1990	Production, Marketing	200	Financial Assist from LGU
Dagatan	Dagatan	1990	Credit	50	Financial Assist from Coop Bank
Bigain MPC	Bigain II	1996	Production. Marketing	300	Financial Assist from Pres. Mgt. Staff
First Lipute MPC	Bigain I	2000	Prod, Mktg, Credit, Consumer service	1000	Training from LGU
Biliran Aya MPC	Aya	2000	Prod, Mktg, Credit, Consumer service	200	Recipient heavy duty Farm Tractor from CDF

Source: Municipal Agricultural Officer

Major Tasks and Qualifications of the OMAG Staff

One of the major tasks of the OMAG is the inspection of slaughter houses in Natunuan and the Public Market and the inspection of the CASADI poultry dressing plant.

Cognizant of the challenges facing the livestock industry, the OMAG hired a veterinarian and meat inspectors in 2000. Inspection and monitoring of the slaughterhouse and the Cariño & San Agri Dev. Inc. (CASADI) poultry dressing plant is

Natunuan Slaughter House

a major activity of the meat inspectors done on a shifting basis.

Regulatory Division

There are three ATs assigned to do regulatory inspection. One of the CASADI inspectors holds a Bachelor's degree in Accounting who used to be an inspector of CASADI and has a 1 month training from NMIS. The other inspector holds a BS Associate in Agriculture. The meat shop inspector holds a BS Associate in Agriculture and used to be working with the Statistics office in Batangas City.

One of the meat inspectors conduct inspection to two of San Jose's major slaughter houses. Inspection is done every day, between 11:00 pm to 1:00 pm for the Natunuan slaughter house. Visits at around 4:00 pm are done randomly to check on the appearance of pigs to be slaughtered. On the other hand, the public market slaughter house is monitored everyday together with the Municipal veterinarian.

The CASADI poultry plant inspector's main task is to inspect and monitor the CASADI poultry plant. Inspection is done between 7:00 pm to 1:00 pm. The main output of the technicians is the daily report which contains the number of slaughtered hogs and dressed chickens. The reports are submitted to the Permit and License section of the Municipal Office. The economic importance of the slaughter houses and the dressing plant can be gleaned from Box 3.

Box 3: Economic contribution of slaughterhouses and dressed chickens

During the first half of 2004, the five (5) hog meat shops in Natunuan slaughtered a total of 2,462 hogs and for the lone chicken dealer, a total of 1450 chickens. For the first half of 2005, the 20 hog meat shops in the public market slaughtered a total of 2, 453 hogs and the seven chicken meat dealers slaughtered a total of 7,510 chickens. Based on taxes paid for 2004, 5 meat shop owners from Natunuan paid P23, 322.50 and the chicken dealer paid P 400.00.

CASADI pays the local government a total of between P100,000 to P300,000 per month depending on the number of chickens slaughtered. For 2004, CASADI dressed a total of 8,884,349 chickens and employed a total of 280 personnel all from San Jose.

These meat inspectors also assist the veterinarian in the vaccination of dogs and swine in the same manner as the veterinarian help out in the monitoring of slaughter houses as needed.

In addition to the veterinarian, there are 23 Barangay Animal Health Workers (BHAWS) who are trained to help out in the information dissemination campaigns, disease monitoring and surveillance, assist in the conduct of vaccination of dogs and other related technical veterinary services like performing AI. The BHAWs undergo training on livestock management under the PROVET and are provided with kit, an ID and authorization to monitor and treat animal diseases. They are supervised by the MAO, receive P150 monthly incentive and given priority in government projects.

Crops Division

The Crops Division are involved in information dissemination, vegetable seed distribution and monitoring of cooperators. At present, majority of the projects are in coordination with the OPAG. The Crops Division is manned by one Agribusiness major. The youngest of all the staff members, he is also in charge of the data encoding storing of electronic data.

Animal Production Division

The Animal Production Division spearheads the animal disease prevention and control campaign. The division is manned by a veterinarian. The veterinarian is in charge of coordinating with the PROVET. She conduct on farm, livestock inspection, meat inspection for hygiene and sanitation and relieve meat inspectors at CASADI dressing plant at times when they are not available.

Time allocation of the OMAG

Based on a focus group discussion, a major activity of the OMAG is spent on inspection (Figure 31). This is understandable as there are three full time staff tasked to inspect the slaughter house and dressing plant who are likewise assisted by the veterinarian.

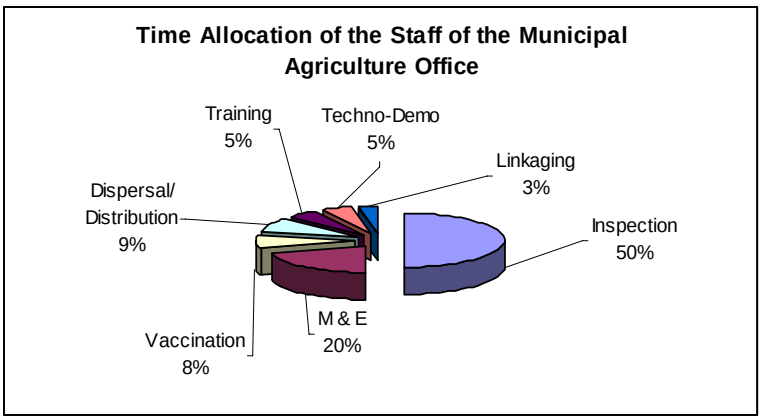


Figure 31. Time Allocation of OMAG, San Jose

Activities such as monitoring of seeds and hogs distributed and responding to technical assistance are considered part of monitoring and evaluation. For 2003, compliance to environmental agreements in terms of housing structures had been added as part of the activities of the OMAG. M & E activities represent 20% of the total time of the staff.

Dispersal and distribution activities are largely dependent on funding availability while the conduct of techno demo is dependent on funding from DA-RFU and from private seed companies willing.

For the year 2004, OMAG was able to distribute 14 piglets from the PROVET, 58 calves from DA and several kabir from PROVET. Further, the MAO claims that his office had distributed P80000 worth of planting materials, 30 vials for FMD, and P200,00 worth of anti-rabies with all funds coming from the local government which was able to vaccinate a total of 2,379 dogs. A total of 199 cattle were injected with hemosepth vaccines and 2,359 hogs were vaccinated with FMD vaccines.

Based on interview with the MAO and one of his staff, both admitted that the result of the hog dispersal project was not satisfactory as most were not able to give back the agreed amount of money nor no the agreed number of piglets. The same is true for the banana sucker dispersals.

Vaccination represents 8% of the allocation for the OMAG as it is highly dependent on availability funds. Farm visits and advice to swine raisers are done only upon request as visiting one farm to the other is not a recommended practice especially during outbreak of diseases.

For its technology transfer function, training programs (short technical meetings ranging from half to one day), conduct of techno-demo and farm and home visits remain major extension methods.

Technical meetings are normally sponsored by private companies. The number of training programs conducted on an annual basis averages between 20-28. The role of the OMAG here is to coordinate, invite attendees to attend the technical meetings. The conduct of techno-demonstration are highly dependent on funding availability coming from the provincial government or from DA-RFU. Farm visits are restricted mainly to a select few, most often the contact farmers who had been working closely and had been beneficiaries of programs of DA/OMAG in the past.

Linkaging and networking are seen as part of the tasks of the MAO and represents 3% of their combined total time. From time to time, the OMAG receives brochures on swine and poultry production practices from PROVET which they distribute to those who ask information. Because of the nature of the livestock industry, it is also regularly in contact with private veterinary companies who sponsor an average of 20-28 short technical updates each year (see Table 13).

Facilities

The five staff of the MAO share four office tables, a filing cabinet, an electric fan and of late, one computer and one printer. The MAO and his staff are provided an owner type jeep for use during their trips within the municipality. The vaccines are stored in the refrigerator of another division as the MAO does not have a refrigerator of its own.

Currently, only one the staff of the MAO uses the computer for submission of reports. This could greatly improve the filing system as previous hard copy of reports cannot be located. The MAO currently has no soft copies of the reports and no website. Data that are readily available are brochures and leaflets coming from the national and provincial government.

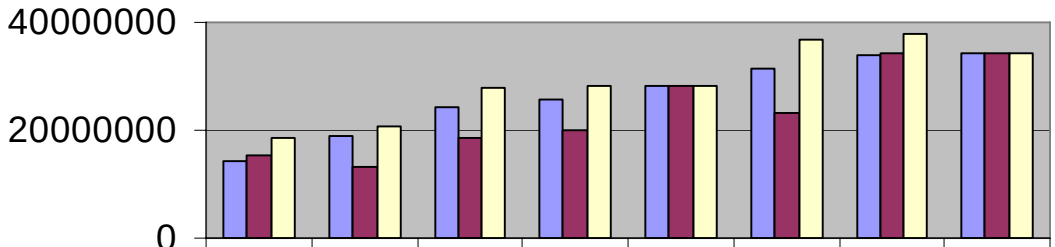
Table 13. Extension Linkages

PAO/PROVET	DA-RFU	DA Attached Agencies	Other Government Agencies	Colleges and Universities	Private	CSO
Funding for vaccines, swine dispersals, techno- demo on corn, banana, bitter gourd Resource persons during seminars Assistance during Vaccination Biogas promotion Source of updates and leaflets	Techno-Demo on vegetables and tissue cultured banana Use of Trichogamma on corn production Techno demo on vegetable soybeans production Source of updates and leaflets	**STIARC**-Techno demo on Cavendish banana intercropped with pineapple, ginger, yam **NMIC**-meat inspection **BAI**-conducts their own dispersals in the municipality, conducted situation analysis on the spread of Infectious Laringo Trachitis (ILT), 2003, monitoring of FMD	**DAR** – awarding of tractor to a cooperative with funding from the Congressional Priority Dev't Assistance Fund **MSWD**-assistance on identification of beneficiaries of swine dispersals	**CAVSU**- Techno-Demo on bitter gourd co-sponsored by East-West Seed Company; students conducted a study on caffeine content of barako coffee **UPLB**-students conducted a survey on status of riverbanks and watershed areas and on animal waste management system **BSU**-Techno demo on Trellis Farming, ube production **Tuy Family Farm School** – Techno demo on yam production	**East-West Seed** Company-Techno-demo on bitter gourd **Harbest Seed Co.**-Techno Demo on Sweet Bell Pepper **Private companies**-sponsor of training programs	**Feed millers** – collaboration on promotion of corn farming

Financing the OMAG

Below shows the summary of revenue, expenditure and budget of San Jose for the years 1995-2002. It can be noted that except for the year 1995, 2001 and 2002, revenue is greater that expenditure and budget always higher than both revenue and expenditure in all the years under consideration. Mayor Guce, the current mayor of San Jose, revealed that 98% of the tax payers of San Jose are involve in the layer industry.

Figure 32. Revenue, Expenditure and Budget of San Jose, 1995-2003

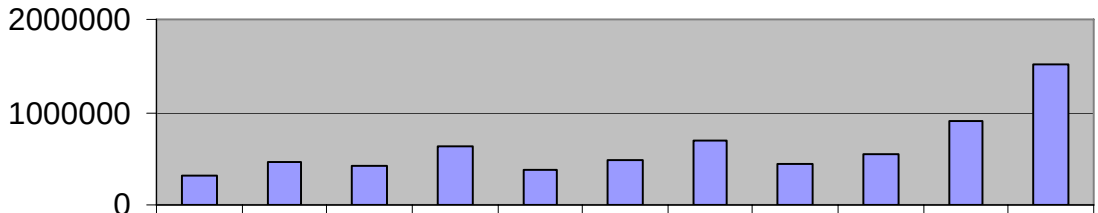


	1995	1996	1997	1998	1999	2000	2001	2002
Revenue	14186424	19004808	24335646	25861263	28043661	31354586	33779500	34130500
Expenditures	15300566	13083828	18584099	20052155	28038912	23144521	34306842	34306842
Budget	18706371	20748598	27841195	28345977	28038912	36868546	37817420	34370500

Source: Budget Office

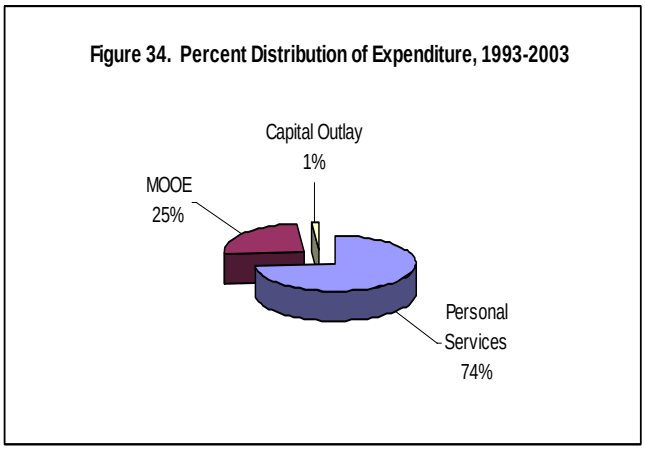
Below shows the expenditure of the OMAG from 1993-2004 which reflects steady increases starting with the year 2000. On the average, the MAO budget represents 3.15% of the total expenditures of the local government unit for the years 1995-2003.

Figure 33. Expenditure of Municipal Agriculture Office, 1993-2003



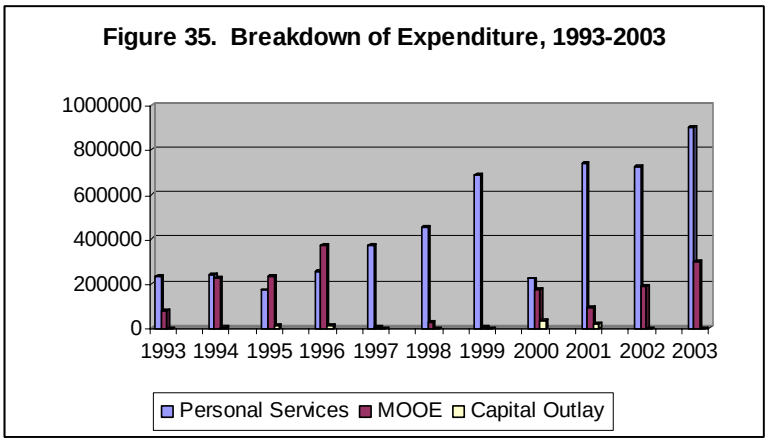
1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
313270	470793	413303	635918	372881	479277	689571	435858	549143	908091	1515607

Source: Budget Office



For the years 1993-2003, majority of the expenses went to personnel services (74%), MOOE represents 25% while capital outlay represents 1%. For these years, capital expenditure went to purchase of furniture and fixtures (1993 to 1996), purchase of chainsaw for the year 2000 and purchase of typewriter for the year 2001

For the years 1997 to 1999, almost all of the expense s went to personnel services. For the said years, MOOE represented only 1%, 6% and 1% of the total expenditure.



For the years 1995-1996, MOOE surpassed expenses for personnel expenditure because of large amounts of money spent on livelihood development program. For these years, 64% and 54% for the total MOOE funds went to livelihood development. The livelih transferred to another unit starting 1997. the total expenditure for the years 1997-1999.

Figure 35. Breakdown of Expenditure, 1993-2004
Source: Budget Office

Projects and Sources of Funding

Figure 32 presents the breakdown of MOOE for 1993-2003. The largest portion on expenditure was spent on livelihood development program which was under the MAO until 1996.

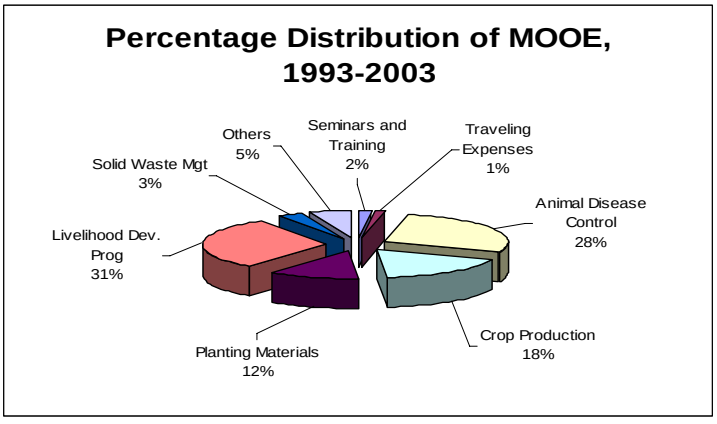


Figure 36. Percentage Distribution of MOOE, 1993-2003

Expenditure for livelihood averaged 59.60% of the total MOOE budget. Animal disease control represents 28% of the total MOOE budget, with marked increases during the years 2001-2003. For the year 2000, 50% of the total MOOE was spent on planting materials while 44.75% was spent on crop production For the year 2003, 58.7% of the MOOE budget was spent on animal disease control. Expenditures for crop production and planting materials represent 18% and 12% of the MOOE. .

Minimal expenses went to traveling expenses, which include gasoline expenses, seminars and training for the years 2000-2002 and other expenses which include communication expenses.

Other programs with external funding and additional funding from the Mayor's office are listed in Table 13 of this chapter. Major funding is given for livestock, followed by crops and vegetables and agricultural related infrastructure development.

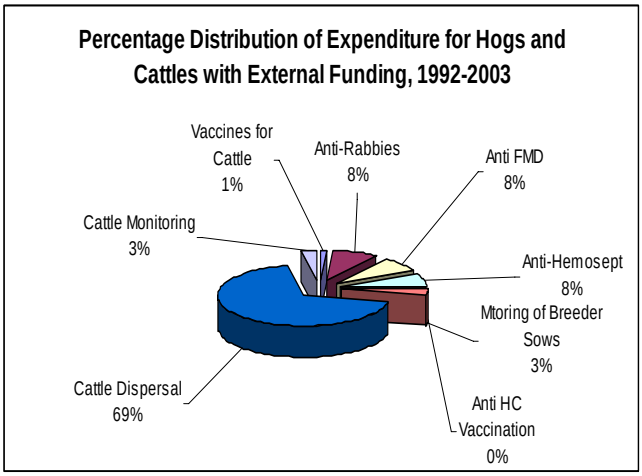


Figure 37. Percent Distribution of Expenditure for Hogs and Cattle, From External Funding, 1992-2003

Expenditure for Hogs and Cattle

For livestock, majority of the funding went to cattle dispersal (69%). The bulk of the funds came from the GMA special project for livestock given in 2002 (P1M). Per discussion with the MAO, the herd is being managed by a cooperative. From the 1 M fund, a total of 64 calves were distributed in 2004 to 9 municipalities and is currently being monitored by the livestock inspector. Initially, one recipient was able to return the capital in cash and has realized a profit of P5400.00 in a span of 8 months.

Aside from the cost of the cattle dispersal, a greater portion of the money is spent on vaccines coming from the Bureau of Animal Industry and the Provincial Government of Batangas.

Expenditure for Crops and Vegetable Production

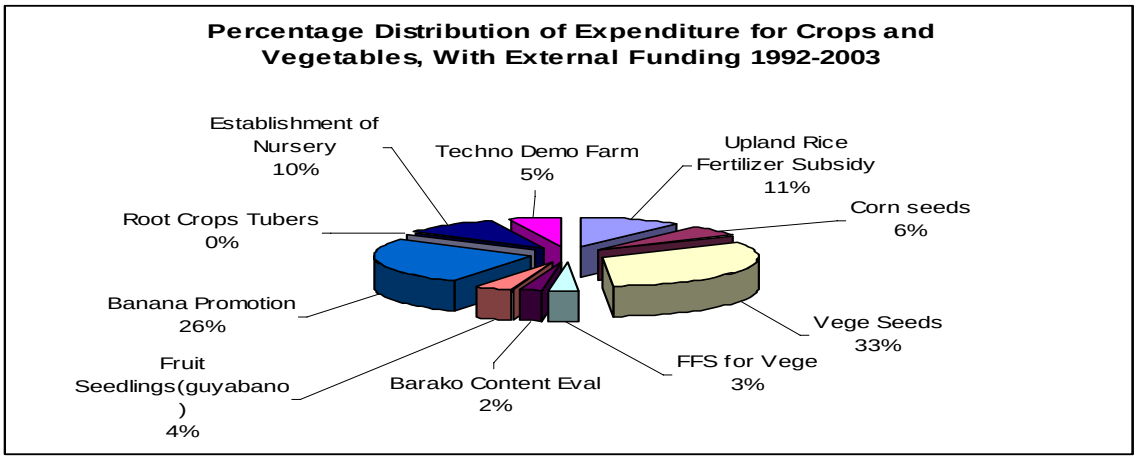


Figure 38. Percentage Distribution of Expenditure for Crops and Vegetables, with External Funding, 1992-2003

For crops and vegetable production, most of the external funding went to distribution of vegetable seeds funded jointly by provincial government of Batangas, San Jose Mayor's office and the DA-RFU. The two techno demo farms, one for vegetables and one for intercropping of vegetables and root crops, including the distribution of banana suckers were all funded by DA-RFU. While significant amounts were given by DA to fertilizer subsidy for upland rice, this was stopped in 1993 as there were less and less farmers planting upland rice. In an effort to promote fruit trees, distribution of guyabano seedlings was funded by the provincial government of Batangas.

For the year 1999, the OMAG staff was busy with the distribution of ornamental plants to various schools in support of the beautification drive of the provincial government. Funding for this activity came from the provincial government of Batangas.

Expenditure for Agri-Related Infrastructure Activities

For agri-related infrastructure activities, most were spent for drying equipment and for water pumps. For institutional development, fund support came in for the year 1997 only from the provincial government to support a cooperative training.

Major Observations on Distribution of Funds

It is interesting how funds are distributed among the different barangays. For the year 1995, funds for corn seeds ranging from P180.00 to P1,800 were distributed to 15 barangays while cattle vaccines were distributed to 24 barangays with amounts ranging from P120.00 to P6,200. For 1996, anti- rabies vaccines were equitable distributed to 20 barangays with amounts ranging from P1,750.00 to P1,980.00. This pattern is noticeable for bigger fund allocation coming from DA and the provincial government as repeatedly evidenced in vegetable seed, fruit tree seedlings and ornamental plant distribution.

While the local government allots funds for its operations to include: disease monitoring and control, crop production, distribution of planting material and of late, solid waste management, the amount allocated indicates that the MAO is constrained to work with other agencies to ensure project funding. Activities are therefore largely influenced by DA and the provincial government due primarily to fund availability. Moreover, activities and funding allocation are noticeably politically oriented as funds are distributed among different barangays, at times spreading itself too thinly. Considering the costly amount of vaccines for example, the OMAG is only able to provide for a few clients. For the year 2003, it was able to get 50 doses for anti-FMD vaccines and 10 doses for anti-rabies vaccines from the PRO-VET.

Based on the activities and expenses, it is also clear that the layer industry, the biggest contributor to the tax coffers of San Jose, has not been a major part of the programs of the OMAG except perhaps for the distribution of corn seeds particularly for the years 1995-1996 in support for the efforts to increase production of corn and the facilitation of the acquisition of tractor for use of corn producers which was awarded to a cooperative by a congressman. Another contribution of the OMAG is in the organization of the Sinuam, San Jose's egg festival.

Planning Monitoring and Evaluation

Planning of activities is done every end of the year as a requirement for the annual budget planning. The planning is normally done by the MAO, in consultation with the Mayor. It is normally based on the budget released and accomplishments during the year. There are no planning sessions within the OMAG and no long term extension plans.

While monitoring and evaluation is identified as an important activity by the OMAG (second to inspection), there are no soft nor hard copies of the activities conducted and the effect or outcome of their interventions. Ironically, there is no prioritization of documenting progress of projects and activities nor filing of reports submitted. The only source of data for past activities was the accomplishment report of the outgoing mayor which lists all activities of the local government unit from 1992 – 2001. However, within the OMAG itself, they do not have copies of these accomplishments nor of their approved budgets in the past. Clearly, there is no system of monitoring and evaluation which makes it difficult to account for the accomplishment and problems of the office.

OMAG and Agricultural Extension

Conceptual Understanding of Extension

Roling (1988) avers that extension is "unhandy and imprecise". This is supported by Oakley and Garforth (1985) who contend that there is no universally accepted definition of extension. A review of the varied definitions emphasizes two important concepts, one of which is the *communication dimension* (Anderson and Feder, 2004, Van de Van and Hawkins, 1998, Blackburn and Flaherty, 1994, Umali and Schwartz, 1994, Roling, 1986, Oakley and Garforth, 1985, Swanson and Claar, 1984). Byerlee (in Anderson and Feder, 2004) broadly defines extension as the provision of different types of information, from estimates of future prices for farm products, new research products and its use. The other important dimension of extension is the *educational dimension* (Leagans, 1961, Maunders, 1972, Swanson and Claar, 1984, Baker, 2002). Byerlee (in Anderson and Feeder, 2004). It is seen as a necessary institution to create informed, knowledgeable community members that would have better income, improved quality of life and generally developed communities.

The notion of extension as a conduit between information generators and the wider community continues to dominate the practice of extension and strongly influences the manner by which extension is practiced worldwide. In relation to this, the informative, persuasive and formative dimensions of extension guide the practice, while the emancipatory dimension has yet to feel its impact in the Philippine extension service.

The Local Government Code of 1991 decentralized the extension system of the country with the hope of making it more responsive to the needs and opportunities of the local people. The move is seen as a positive process to create spaces for people to participate in planning and implementing projects at the local level. On the other hand, the move is perceived as further fragmenting the extension system as local government units struggle to prioritize human, financial and logistical resources in relation to their expanded responsibilities.

The weakness of the decentralization of extension can be attributed to the lack of resources with which to prioritize and implement projects within their areas of responsibilities. Another source of problem could be a lack of common understanding of the major stakeholders of extension.

Under the Local Government Code of 1991 the LGUs have the mandate to provide agricultural services in the areas of research, extension and regulation. Example of services includes dispersals, research dissemination, conduct of on-site demonstration farms, inspection, monitoring of slaughter houses.

The concept of the Batangas provincial government (OPAG and PROVET) and the OMAG on what extension is center on the informative and persuasive dimensions of extension prioritized as follows:

- Information dissemination of existing technology through distribution of leaflets and brochure
- Conduct of techno-demo
- Farm advisory services
- Conduct of meetings
- Provision of specific services such as dispersals of hogs/ distribution of seeds or vaccines or water pumps and other agricultural implements
- Monitoring of activities related to the provision of services
- Conduct of training when funds are available

In addition to these, all consider inspection, linkaging and networking as major component of their extension function.

For the RFU, extension is extending technical and material assistance in technology transfer and development, human resource development, market development, quarantine policy, guidelines and standards assistance and quality planting materials to LGUs and other private individuals.

While the poultry raisers do not have much expectation from the government, the small swine growers have the following expectations from the OMAG:

- Information dissemination of new technologies, techniques
- Seminars, consultation on general herd management to minimize trial and error learning
- Improvement of the dispersal project to reach more farmers
- Timely provision of information on market prevailing price
- Assistance in the access of credit

On the other hand, the feed millers would like to see the OMAG more active in the following areas:

- Spearhead control of diseases in terms of outbreak
- Provision of information in prices of hogs and eggs
- Collaboration in coming up with strategies in problem areas such as shortage of corn which is a major input of feeds,
- Promote understanding and control of diseases that plaque the industry,
- Provision of information on new policies relevant to the industry,
- Provision of information on strategies adopted by industry players from other countries that can help the local industry grow

While OMAG/OPAG is concentrated on the provision of support services in terms of production processes and inspection, the private sector would like to see a more active role in accessing credit, collaboration in terms of strategy identification to ensure global competitiveness, assistance in the market aspect particularly provision of prices of their produce and updates on policies relevant to the industry (Table 15).

Table 15. Extension Activities

RFU	***OPAG/PROVET***	***OMAG***	***Feed millers, Raisers***
Production of leaflets for distribution to OPAG/PROVET and other stakeholders	Production of leaflets for distribution to OMAG and other stakeholders	Distribution of leaflets (sourced from the PAO, PROVET, RFU) to farmers and other individuals	Information dissemination on updates on livestock raising
Techno demo on corn, rice, vegetables	Conduct of Techno-Demo	Conduct of Techno Demo	
Conduct of training with the LGU on hybrid rice and corn programs	Conduct of training in coordination with different stakeholders	Conduct of training in coordination with PAO, PROVET, RFU, private companies	Training, on updates on livestock raising
Provision of material grants	Provision of funds and material inputs for dispersal of hogs/, seeds distribution of seeds or water pump, vaccines	Dispersal of inputs such as seeds, other goods such as piglets, water pumps	Improvement of swine dispersal project to reach more small raisers, use of the best breeds for dispersal
	Conduct of meetings with farmers regarding technical issues in coordination with OMAG	Conduct of meetings with farmers regarding technical issues in coordination with OPAG	
Monitoring of effect, impact of projects	Monitoring activities related to the provision of services	Monitoring activities related to the provision of services	
Provision of policies, technical advice on matters relating to quarantine and standards assistance	Monitoring of slaughter houses, dressing plants, public weighing scales	Monitoring of slaughter houses, dressing plants and farms	Ensure food safety
		Conducts vaccination for swine	

RFU	***OPAG/PROVET***	***OMAG***	***Feed millers, Raisers***
Conduct of regular meetings on Foot and Mouth Disease Eradication in collaboration with BAI		Conduct of regular meetings on Foot and Mouth Disease Eradication in collaboration with BAI	Control of diseases
	Promotion of use of biogas	Collaboration on the use of biogas	Provision menu of information on waste recycling, list of contacts
Collaborate with ATI on conduct of training of Agricultural Extension workers			
Participation to various trade fairs to show case regional produce for possible market		Sponsor of Sinuam Festival to promote layer industry	Timely, accessible provision of market prices
			Assistance in access of credit
			Collaboration in coming up with strategies in problem areas
			Provision of information regarding accredited suppliers of breeding stocks and other inputs
			Provision of information on new policies relevant to the industry
			Provision of information on strategies adopted by industry players from other countries that can help the local industry grow
Participation to broadcast media			

Understanding of AFMA goals and Objectives of OMAG

Only the MAO was able to articulate four of the goals listed in AFMA: food security, sustainable development, global competitiveness, poverty alleviation while the rest of the OMAG were able to expound about the meaning of the concepts. In the pursuit of these goals, they see the role of the national government as setting policy directions, provision of funds and ensuring low lending interest rates. On the other hand, they see the role of the local government as implementing projects to fit national and local priorities, distribution of goods and providing tax incentives.

In particular, they see their roles in fulfilling these objectives in the following manner:

- Contribute to food security thru:
    - enhancement of the egg and swine industry thru provision of support services in terms of dispersals of leaflets, vaccination, conduct of farm inspection every year, identification of priorities for farm to market road
    - increase in production of selected crops like black pepper, coffee (CAVSU), fruit trees such as citrus, rambutan and papaya, root crops such as ube and cassava (DA-IV) and vegetables such as okra, beans (Tech-Gen) by conducting techno-demos
    - increase yellow corn production through identification of cooperators
    - distribution of irrigated pumps (DA funded)

- Contribute to sustainable development through farm inspection
- Contribute to global competitiveness through inspection of slaughter houses
- Contribute to poverty alleviation through dispersal activities

Only the MAO was able to articulate the national goals as listed in AFMA. One reason could be that the MAO normally attends a monthly meeting with the PAO and is able to attend seminars based on available funding from the Office of the Mayor. While unable to identify any of the goals, they were able to explain what these goals were. However, it becomes questionable how the local governments can translate the national goals at the local level if members of the OMAG fail to articulate the goals.

Knowledge Management: How responsive is the OMAG?

Knowledge management in the extension context involves the *identification and collection of knowledge needs*, the *sharing, storing, use and institutionalization of knowledge.*

The OMAG has largely been reactive *in its identification and collection of knowledge needs* as it responds primarily to requests made by raisers or to requests for coordination mainly by the private sector. There appears to be no clear system for agricultural data identification, collection and storage. For its inspection activities, there is no clear form or listing being checked and filed that would ensure improvement in food safety levels nor on how such activities contribute to global competitiveness.

In similar manner, OMAG is likewise dependent on the funding availability of PAO, other private companies (East West Seeds), schools (Tech Gen, CAVSU) and vaccine suppliers (Bayer, etc.). The OMAG is likewise dependent on national and provincial offices for brochures and other technical information to be distributed.

Sharing (which involves transforming technical knowledge into practical knowledge and identification of the best strategy to disseminate knowledge) in terms of short meetings, is mainly a coordinative task dependent on the private sector initiative and funding. It is dependent on request of farmers and on visits of farmers for consultation in the OMAG. In short, there is no systematic manner by which the OMAG plans and supervises the sharing of information.

Storing of knowledge in terms of keeping information handy, needs much improvement. Currently, there is no filing system nor a filing cabinet which can be used for storing information or brochures given by PROVET and the Department of Agriculture. Given that storing information itself is already a problem, creating a knowledge base among raisers become even more problematic.

For this matter, *facilitation of use and institutionalization of knowledge*, i.e sound production practices especially among small raisers remains a Herculean task. As small raisers contend, most of them get information from informal sources, some of which are not appropriate.

The current staff complementation could help explain the seemingly low knowledge management focus of the OMAG. With three of the five technical staff involve in inspection, only two staff are functionally available to respond to technical concerns. With only one veterinarian in charge for the whole livestock industry and only one new crop production technologist who dabbles as data encoder, responding alone to requests by farmers, researchers and other stakeholders could consume much of their time.

The poor knowledge management could partly be a result as well of the lack of planning among the OMAG staff as only the MAO comes up with a list of activities and budget each year. While the OMAG is saddled with a lot of tasks, how these day to day activities contribute to the improvement of human resources and facilitation of knowledge among stakeholders efficiently and effectively remains a challenge.

Based on the aforementioned discussion, three important questions arise:

What should local government extension prioritize? On what kinds of services should local government extension concentrate?

How can local government best contribute to human resource development?

Choosing the goals of Extension: A Crucial Task

A critical task of an extension organization is the prioritization of the goals of extension. Choosing extension goals requires an analysis of the problems and trajectories of agricultural development, and judgment on the kinds of developments that should be promoted.

Agriculture is in the process of rapid change as a result of a mix of factors, to wit:

- **Globalization**: With globalization, international competition has been on the rise. Thus, producers compete in the market based on *quality of products* and *affordability.*

    - In terms of food produce, quality may refer to various criteria such as farming practices (modern or alternative), choice of technology (i.e breeds, feeds used), packaging and branding (e.g Purefoods).

    - Affordability on the one hand, refers to the value of money vis a vis perceived benefits derived from the produce. In the case of the swine and poultry raisers, lowering the cost of production is possible mainly with *reduced cost in corn* (a major ingredient of feeds) and *improved conversion ratio.* At present, the price of production of hogs is higher compared to China, Indonesia, Thailand and India. The first criteria would depend upon changes in our trade policies, improvement in research and extension in corn and improvement in research and extension of corn substitutes. The second criteria would depend on improvement in over-all herd management which would boil down to the technical knowledge and skills of the raiser.

- **Need for highly specialized information**: Umali and Schwartz (1994) discusses that there are two agricultural information via extension: pure agricultural extension and information embodied in agricultural technologies. The latter is a combination of private and toll goods. As new technological innovation come from the private sector, the best source of information regarding these would naturally come from the private sector. However, asymmetry in information would result to the inability of small raisers to compete with large raisers as the latter would have better access to information, better feed conversion ratio; and decreased possibility of disease outbreaks. For this matter, extension has to explore the best way on how to reach out to small and even medium raisers. In addition, while large raisers receive price advisory from their association through text messages, small raisers are largely dependent on prices of viajeros. Here again, government extension can help.

- **Environmental degradation resulting from production and processing.** Food safety remains a primordial concern. Thus monitoring of slaughter houses and dressing plants remain a major task. There is however, a need to know better food safety issue concerns and how best to enforce these.

One of the negative externalities of the livestock sector is the lack of proper management of effluent waste especially that of swine. San Jose has experienced a rise in diseases resulting from E. Coli bacteria. This has been blamed primarily to the common practice of making a canal from the pig pens leading to the creeks. In the case of eggs, disposal of egg shells by bakeshops and restaurants is a problem and has encouraged big users of egg products to explore imported egg powder.

- **Rural poverty.** With most rural people relying on agriculture as main source of livelihood, it is imperative to increase income from agriculture. In San Jose, the private sector has brought about opportunities to small and big raisers alike by bringing technology closer to the farmers through joint sponsorship of training programs with feed millers and local government units. For its part, one of the strategies of the OMAG to alleviate poverty is through its dispersal programs. The hog dispersal program is a traditional activity which encourages farmers to engage in an activity and provide opportunity for increase income. In an interview with the MAO and his staff, they admit that capital retrieval for hog dispersals had not been satisfactory though the statement could not be fully elaborated on for lack of data.

Most of the issues raised above are informational concerns which extension should address. However, with the lack of focus on knowledge management, OMAG misses the opportunity to clearly determine what to prioritize and how. At the moment, the MAO is busy planning for the establishment of a nursery which is currently the pet project of the mayor. In addition to the establishment of a nursery, the Mayor would also like to focus on dispersals, provision of agricultural support equipment and promotion corn planting.

Activities: Who should take care of what?

In the case of veterinary services, FAO (1997 as cited in Smith, 2001) conducted a technical consultation and came up with the following public, public-private and private responsibilities in the veterinary services.

Public administration though not necessarily public provision:

1. Formulation of national livestock policies
2. Ensuring health of national herds (surveillance, quarantine, quality control of vaccines, feeds, emergency planning)
3. Import and export certification
4. Accreditation and monitoring of private suppliers of animal services
5. Inspection and control of livestock for food safety purposes

Based on what feed millers expectation, the first four were cited as most important tasks of the government which is being taken cared of by the national government offices.

The fifth task is being taken cared of by the municipal office. Prior to being slaughtered, the swine herds are being inspected randomly by a meat inspector. The

report generated, however, reflects number of slaughtered pigs submitted to permit and license section of the municipal office. There are no reports on number of hogs condemned, policies to be followed on when and how condemnation of hogs will be done or even monitoring forms that would help inspectors ensure fitness of herds for human consumption.

Public and Private shared responsibility:

1. Disease diagnosis and reporting
2. Disease control and emergency response
3. Food hygiene and control
4. Continuous education and training
5. Animal management advice and extension

In here, the feed millers and raisers lament the weakness of the government sector in the disease control and emergency response as illustrated by the ILT occurrence in 2003 and the failure to combat the occurrence of FMD.

The OMAG might like to examine its inspection activities especially with that of the poultry dressing plant. In an interview with CASADI, they say that the monitoring from the local government in collaboration with NMIC is necessary for travel purposes of the dressed chickens. In terms of setting standards, CASADI follows the Asia- Pacific standards and is aiming for an ISO certification. It is also regularly monitored by clients of the dressed chickens like McDonalds, Max Fried Chicken and Makro Batangas. As far as the inspection is concerned, the private sector seem to have its safeguards enforced and the kind of monitoring currently being done by the local government unit does not appear to contribute to food safety concerns. Rather, the strategy works best for the monitoring purposes of taxes for collection as payment would depend on the number of dressed chicken for the day. In which case, the local government could examine the chief purpose of inspecting CASADI and explore the best strategy for its monitoring in order to get its cost of money and contribute better to spurring agricultural growth.

In the case of the slaughter houses, the meat dealers in Natunuan fully support the inspection done by the local government especially because the slaughter houses in San Jose are not yet NMIC accredited. They contend that such an inspection provides informal certification on the quality of their produce though based on observation, there are no clear cut rules on what is being inspected, what kind of equipment should be used (i.e. some are using old pails or recycled tin cans for storing blood of pig) or on what kind of water should be used (while washing the pig and collecting the blood) or whether the floor where the pigs will be cut up has been properly sanitized.

In terms of provision of technical updates, the private sector has been closely working with the local government units. This practice has contributed a lot to the adoption of the modern practices in the livestock industry.

Responsibility of the private sector

- Clinical diagnosis and treatment

- Production distribution of drugs and vaccines
- Artificial insemination
- Management of herd health and production programs
- Marketing of livestock products

At present, the PROVET, BAI through the OMAG distribute vaccines which are private goods. The main rationale is the prevention of the outbreak of diseases especially FMD. However, government agencies need to look into the impact of such an activity considering the limited funds availability, and consequently, limited reach of such an undertaking. Coupled with this problem is the lack of refrigerator of the LGU to store the vaccines given to them for distribution.

Advocacy of AI has been a concern of various governmental units and is a practice known to even small raisers though not practiced by many small raisers. Marketing of produce is actively pursued by wholesalers though the raisers would like the local government to be a source of reliable and up to date market prices. At best, the prices available from the government offices are good mainly for researchers as they are published weeks after.

One of the current functions of the local government units not mentioned above is the distribution piglets. Hog dispersal is a project of the local government units though the MAO admits that the project is not sustainable as not all recipients are able to return the agreed amount or number of piglets agreed upon. In addition to the OMAG, the BAI also conducts its own hog dispersal project. The MAO also distributes FMD vaccines in an effort to control the disease the effect of such activities has not been fully documented by the local government.

Funding Extension: Exploring Options

The case of San Jose shows that the private sector had been actively providing extension services that are classified as public goods in the long run. The local government unit clearly recognizes the efficiency of the private sector in this aspect and has maintained primarily a coordinative role in the provision of information and training. However, the government is still actively engaged in the provision of private goods (ie free anti-rabies, distribution of vaccines, dispersal of hogs and cattle) at a time when it can barely afford to sufficiently cover the whole municipality. Distribution of seeds and vaccines, which are private goods remain a part of the activities of the OMAG. While these are important tasks especially in times of disease outbreaks, spreading too thinly does not address the safety concern of the industry.

With the current fiscal crisis faced by our government, exploring public/private extension delivery mechanisms could become a better alternative Given the many players involve in the livestock industry, it is helpful to explore other funding mix as explored by other countries. These funding mixes include the following (Rivera 2004, Rivera and Qamar 2003, Smith 2001):

I. Private Delivery and Public Funding

- Contracting out to public and private providers. Here, the agent (private or public) is required to perform a specific public function (conduct training ie the case of Bangladesh where a private grower trained 485 farmers and let to 100% increase in production) or to supply a set of specified goods and services (ie Trinidad and Tobago who contracted commercial mass media agencies to disseminate extension messages), in exchange for an agreed sum of money.

- Subsidies to hire private providers: the case of Norway where there is cost sharing between associations and the government in the extension of technology based information (cost sharing range from 50% - 80%)

- Community development: extension responsibilities given to the community. The case of the campesino to campesino program of Mexico would fall under this scheme.

II. Public Funding and Public Delivery

- Full Cost Recovery (Fee based): this strategy requires an accounting of the cost of delivery of extension and an evaluation of the ability of the farmers to pay for the needed services

III. Private Funding and Private Delivery

- Privatization (withdrawal of government support): refers to experiences where countries have totally commercialized or privatized their public sector extension services (i.e Germany).

IV. Diverisified strategies: refer to a mix of the different funding mechanisms

1. Mexico provides direct exposure of researchers to higher income farmers for a fee and provide free of charge service to resource poor farmers

Chapter Summary

The Office of the Municipal Agriculturist (OMAG) is manned by a Municipal Agriculturist and five agricultural technicians, three of whom are meat inspectors. Based on functions, there is only one agricultural technician for the whole livestock sector and one crop production specialist for the whole municipality. Age of the OMAG personnel ranges from 27 years to 52 years.

A major activity of OMAG revolves around inspection. Three of the five staff members are assigned to this task. One meat inspector inspects the slaughter houses in San Jose while two are assigned in the CASADI dressing plant. While this is a regulatory function of the local government, there is a need to detail the output of this activity to better contribute to food safety regulations. At the moment, the output is a head count only of the number of hogs and chickens slaughtered in the slaughter houses and for the CASADI inspectors, a copy of the number of dressed chickens and the check payment to the local government unit.

Other activities of the OMAG include vaccination, conduct of techno-demo, material input distribution (seeds, seedlings, piglets), information dissemination through trainings (short technical meetings), use of telephones and cellular phones, farm advisory services linkaging, networking, monitoring and evaluation. Livelihood development used to be part of the activities of OMAG till 1996. In 2003, solid waste management became part of the task of the OMAG. The major output of this activity is the inspection of the waste management disposal practices of farms and the recommendation of such in the absence of any proper waste disposal.

For the years 1993-2003, personnel services took up 74% of total expenditure of the OMAG with MOOE representing only 25% and capital outlay, 1%. For the year 2003, P300,532.62 went to MOOE, 58.7% of which was spent on animal disease control and 12.7% went to crop production. Additional funding for its projects come from the provincial government, DA-RFU and BAI.

The municipal government, expected spur agricultural development, is saddled with activities yet is constrained with a lack of general guideline on how to go about its tasks and lack of appropriate resources. Listing of activities by the MAO remains the major identification process of activities to be conducted. Activities are likewise influenced by the availability of funds coming from provincial government, DA and DA attached agencies and private companies. With such practice and influences, there appears a gap between the kinds of services being delivered by the OMAG and that of which is expected by the agricultural raisers.

Extension, as Rivera (1991) puts it, have been accused of “not doing enough, not doing well and for not being relevant.” It is therefore crucial for any extension organization to examine the goals, strategies and funding mechanisms adopted in order to be effective and efficient.

Projects	Source of Fund	Year										TOTAL
		1992	1993	1995	1996	1997	1998*	1999*	2000*	2002	2003	
HOGS, CATTLE		**0**	**0**	**108545**	**341185**	**162000**	**0**	**0**	**0**	**1166000**	**158800**	**1936530**
Vaccines for Cattle	BAI			17250	6000	500						**23750**
Anti-Rabbies	BAI			52235	45340	40500					8250	**146325**
	LGU					16250						**16250**
Anti FMD	BAI			30590	3750	35000				50000	350	**119690**
	LGU			8470	18095	3750						**30315**
Anti-Hemosept	LGU										150000	**150000**
Anti HC Vaccination	LGU										200	**200**
Mtoring of Breeder Sows	PROVET									58000		**58000**
Cattle Dispersal	Solcentaff				268000	66000						**334000**
	DA									1000000		**1000000**
Cattle Monitoring	PROVET									58000		**58000**
CROPS, VEGE		**73000**	**73000**	**10980**	**27250**	**61495**	**18600**	**50400**	**75175**	**280000**	**320000**	**989900**
Upland Rice Fertilizer Subsidy	DA	52000	52000									**104000**
Corn seeds	DA	21000	21000	10980	6580	1400						**60960**
Vege Seeds	LGU				20670	5385	18600	50400	75175			**170230**
	Mayors									75000		**75000**
	DA RFU									75000		**75000**
FFS for Vege	DA-RFU									30000		**30000**
Barako Content Eval	CAVSU										20000	**20000**
Fruit Seedlings(guyabano)	LGU					40750						**40750**
Banana Promotion	DA-RFU									60000	200000	**260000**

Projects	Source of Fund	Year										TOTAL
		1992	1993	1995	1996	1997	1998*	1999*	2000*	2002	2003	
Root Crops Tubers	Socentaff					960						**960**
Establishment of Nursery	LGU										100000	**100000**
Techno Demo Farm	DA, STIARC					13000				40000		**53000**
BEAUTIFCATION		**0**	**0**	**0**	**0**	**0**	**3000**	**119930**	**0**	**0**	**0**	**122930**
Ornamental Plants	LGU						3000	119930				**122930**
INFRA		**0**	**77000**	**0**	**200000**	**200000**	**0**	**114000**	**300000**	**0**	**0**	**891000**
Mechanical Grain Dryer	BPRE					200000						**200000**
Multipurpose Drying pavement	DA		65000					85000				**150000**
Impounding Cages								29000				**29000**
Irrigation Pump									300000			**300000**
Submersible Pump	CDF				200000							**200000**
Water Pump	LGU		12000									**12000**
INSTITUTIONAL		0	**0**	**0**	**0**	**7500**	**0**	**0**	**0**	**0**	**0**	**7500**
Coop Training	LGU					7500						**7500**
TOTAL		**63000**	**140000**	**119525**	**568435**	**430995**	**21600**	**284330**	**375175**	**1303500**	**47880**	**3354440**

*no other expenses outlined

Source: 1992-1993 and 2002-2003: AIP, 1995-2001: San Jose Accomplishment Report, Office of the Municipal Agriculturist

Conclusions and Recommendations

Batangas province has a long history of swine and poultry production. San Jose, which was initially an upland rice and plantation crop dominated economy, diversified to swine and poultry layer starting in th e 1960's. The shift was primarily a response of farmers to market developments and pestilence as upland rice proved to be economically unproductive, prices of coffee and black pepper were primarily dictated by international market beyond local control and citrus plantations were devastated by the tristeza virus.

As the swine and layer industry grow, the raisers had to faced the prohibitive increase of feeds in the late 1960's. Responding to this challenge were the original incorporators of what is now LIMCOMA Multi-purpose Cooperative which initially engaged in feed production to provide lower priced feeds to the Batangas growers. The years that followed shows the phenomenal growth of the swine and poultry industry despite the high cost of feeds. Coupled with these production problems were the technical problems associated with the industry. To address this, LIMCOMA, the other feed mills and the private veterinary companies regularly sponsor training programs and distribute technical bulletins for the use of the growers. To date, LIMCOMA, feed millers and vaccines suppliers are active players in the provision of extension services.

San Jose is an example of a robust agricultural community resulting from the dynamic research and extension convergence spearheaded by the private sector.

Conclusions

The San Jose OMAG is largely focused on the regulatory aspect of extension with 50% of its time spent on monitoring slaughter houses and one dressing plant. In addition, a major activity is the vaccination of hogs to curtail the spread of diseases and dogs to fight rabies. Primarily because of these focus, the following observations of the OMAG are forwarded:

1. Lack of systematic data sets

The OMAG does not have a systematized agricultural data about San Jose, about its major accomplishments, its best practices, nor of the current projects and the monitoring of these projects. The OMAG does not have an institutional memory which makes it difficult to look into its accomplishments and successes.

2. Largely traditional and reactive planning and budgeting

Planning is based on the previous year's activities and budget appropriation, and based on problems that might have cropped up during the year. There is no formal planning session participated in by all of the OMAG staff. Thus, activities carried out are results of these listings and activities funded by other government agencies like PAO, PROVET, BAI, DA-RFU.

3. Monitoring and Evaluation highly report oriented

Monitoring and evaluation activities are done primarily to satisfy provincial and regional requirements. There is no filing system of these activities nor a review or analysis of the outputs as an input to improve delivery of services.

4. Farm and home visits remain a major extension method

Farm and home visit remain dominant. Thus, with the limited number of technical persons, technical advises and government programs reach only a select few.

5. Distribution of material inputs politically influenced.

For the year 1996, anti-rabies vaccines were equitable distributed to 20 barangays with amounts ranging from P1,750 to 1,980. This pattern of fund allocation is noticeable in most of its projects and at times, OMAG appears to be spreading itself too thinly.

6. Lack of complementation between what private sector want from the OMAG and what the government offers

While all sectors agree on the important role of the OMAG in the monitoring and control of the spread of diseases, the private sector would like the OMAG to be more active in the activities such as provision of information on new policies and strategies here and abroad relevant to the industry, provision of timely advice in prices of produce and collaboration in solving problems such as shortage of inputs.

7. Lack of common understanding of AFMA goals

While the MAO was able to articulate the goals of the AFMA, the other staff members were not able to identify the goals though they were able to expound on the concepts once identified.

Recommendations

1. Optimize complementation of services provided by private sector

The case of San Jose exemplifies the active role of the private sector in the development of the swine and layer industry. The growth of the livestock and layer industry can primarily be attributed to the active research-extension linkage taken cared of by the private sector.

LIMCOMA is a key player in the development of the swine and layer industry whose services range from manufacturing of feeds and veterinary needs, provision of technical services through phone calls, farm visits and through mass production of its newsletter – “Balita”, provision of marketing services through it quality processed meat products – “Batangas Prime” and financial services through its rural bank. The dynamic services of LIMCOMA, which set a trend among feed millers, has greatly contributed to the growth of the livestock and layer industry which have resulted to what is now a leading industry in Batangas and in particular, San Jose.

Maximizing the dynamism of the veterinary suppliers to reach more farmers would further improve the livestock industry.

2. Explore various financing schemes

Fiscal crisis faced has led state extension organizations to undergo major transformations. In some cases, extension organizations were privatized, some decentralized and some contracted out most services to the private sector while some charged user fees. The local government units still have to explore such options tested by extension organizations in other countries.

Welfare economics provides a framework for helping both the private and government sector to respond to challenges of efficiency and effectiveness. A major challenge is to determine what are private and public goods and to what extent is the willingness of the private sector to provide goods and services that are classified even as public sector. In response, the government should focus primarily on activities where the private sector is not willing to provide by providing the services, providing incentives for the private sector to undertake the task or forging partnerships among various players to ensure provision of the services.

With the shrinking budget allocation, San Jose should explore funding mix already implemented in other countries such as: private delivery and public funding, public funding and public deliver (fee-based), private funding and private delivery, diversified strategies

3. Focus on strategic planning

OMAG should work on common understanding of the goals of AFMA and how OMAG San Jose can contribute to the attainment of these goals. It should likewise work on the inclusion of stakeholders in the planning process. In order to address expectations of the farmers, proper consultation and conduct of SWOT would provide a better understanding of the situation and future directions of the industry and the services that it would need. Proper analysis of the situation would also enable the OMAG to distinguish what goods and services can best be supplied by the government and the private sector or shares by both parties.

Redistributive function

At present, accomplishments focus on the number of materials distributed to constituents. While these data have remained indicators of performance, sustaining such practice and ensuring impact with limited funding becomes a problem.

PROVET and OMAG continue to distribute piglets in its drive to further encourage income generation of its populace, vaccines in an effort to control the possible onslaught of dreaded diseases. The effectiveness of such an undertaking which is primarily distributing private goods to highly selective and minimal number of

people, however, is questionable considering the inadequate funding of the government and the market orientation of the populace.

Even with out the dispersal program, the swine industry would continue to grow as long as it is profitable to engage in it. While such an undertaking can help the small raisers improve income sources, one raiser laments that the funding is limited and reaches only a few. In addition, the lack of monitoring and evaluation of the undertaking renders the activity questionable in terms of impacting on poverty alleviation. Likewise, the inadequacy of the funding for vaccines puts in to question the validity of such an undertaking as it does not at all protect the industry from disease outbreaks.

Regulatory function

PROVET and OMAG regulatory conduct services by monitoring farms and slaughterhouses. With the onslaught of diseases, the local government's thrust and investment in regulatory services soundly complements the human resource development needs of the industry

The thrust to improve on the regulatory function can be seen in the funding of three staff members whose main tasked is inspection. The reports generated in these inspections, however, are primarily number of slaughtered hogs or dressed chickens. While the staff members know what to look at and inspect, there are no reports regarding their findings on compliance to policies, incentives to improve cleanliness, violations, nor actions taken to improve situations. There are also no clear guidelines on how to impose policies or sanctions.

Of all the extension activities of OMAG, the inspection of slaughter houses is seen as a necessary activity by the meat shop owners themselves. However, there is a need to specify what should be inspected, what standards should be followed and what results and actions are expected from such actions and how such standards should be enforced.

Technology transfer function

Extension methods currently adopted include farm and home visits, technical meetings and conduct of techno-demo. With only one technical person (veterinarian) in charge of the whole livestock industry tasked to do regulatory functions as well, and one new technical person for the crops sector tasked to do secretarial functions, these technical staff can only do farm visits to selected contact farmers. Attendees to technical meetings and partners in techno-demos are normally those known to the technical staff or had been contact farmers in the past. Exploring other means and strategically tapping the private sector (rather inviting participants for the private sectors for their technical meetings) would further improve the technology transfer to reach a greater number of people.

4. Focus on knowledge management

Knowledge management involves the identification and collection of knowledge needs, sharing, storing, use and institutionalization of knowledge. OMAG has to come up with a systematic way of collecting, organizing and storing agricultural data, the status, budget and the performance of its projects, best practices monitored and major problems encountered. There should be identification of data that has to be collected and the schedules by which these have to be collected.

Monitoring and evaluation should be seen as managerial tasks anchored on improving project planning and implementation, not as obligatory functions. Organizing and storing of these data for retrieval and use of stakeholders should likewise be prioritized.

Without these, the use and institutionalization of knowledge could not be achieved.

5. Value assessment procedures

   At present there is no systematized data available from the OMAG that would show their major accomplishments, the problems that they have encountered in the implementation of their projects, the effects/impact of their activities. These are critical inputs in improving the services rendered.

In the history of agricultural development, extension have been credited for playing a significant role in increasing the availability of foodstuff and in increasing income of farmers through introduction of new technologies and provision of technical advice. However, in the case of the swine and layer industry, the technologies and information are becoming more specialized. This has of course, significantly challenged government workers who suffer from poor funding and inadequate regular technical training. It has to be recognized, however, that the private sector have been more than willing to take over this government function as a result of positive market growth. As the private sector is pushed to achieve higher production efficiency and effectiveness, the kind of support it needs from the government sector changes.
In the advent of globalization, the demand for efficiency and effectiveness remains the biggest challenge for both the private sector and the government. While the private sector has to contend with local market inefficiencies, competition from abroad, threat of diseases, government grapples with financial inadequacy and changing expectations and roles.

With the many changes affecting agriculture coupled with the fiscal crisis, extension has to seriously consider its goals and objectives, strategies and funding mechanisms to become effective and efficient. Hopefully extension will be branded as “doing enough, doing well and doing the right thing”.

References:

Anderson, Jock R. and Gershon Feder. 2004. **Agricultural Extension: Good Intentions and Hard Realities.** The World Bank Research Observer 19 (1)

Blackburn, Donald J. (ed) . 1994. **Extension Handbook: Processes and Practices**

Contado, T. 2002. **Agricultural Extension Services of DA Attached Agencies and DA Bureaus**. PIDS-BAR

Costales, Achilles C. 2000. "**Sustainable Animal Production and World Food Supply to 2020: Implication to Southeast Asia**." The Case of the Philippines. Paper presented at the International Workshop on Sustainable Animal Production and Food Supply to 2020". School of Veterinary Medicine Hannover, Expo 2000, Hannover, Federal Republic of Germany.

Costales, Achilles and Christopher Delgado. 2002. **A Synthesis of Changes Impacting on Participation of Smallholders in the Meat Market in the Philippines**. International Food Policy Research Institute. Washington. http://www.ifpri.org

David, C. Agriculture. 2002. In **The Philippine Economy: Development, Policies and Challenges. AM Balisacan and Hal Hill.:** Oxford ; New York : Oxford University Press, 2003.

Diaz Fermin. **"Chicken Meat Goes Overseas".** LaMB Philippines. Livestock and Meat Business Magazine 1:3

Kroma, Margaret M. 2004. **Farmers' Knowledge Networks: Facilitating Learning and Innovation for a Multi-Functional Agricultur**e". Proceedings of the 20th Annual Conference. Association for International Agricultural and Extension Education (AIAEE). Dublin, Ireland. http://www.aiaee.org/2004/Accepted/113.pdf

Obanil, Rovick. 2003 "**Livestock and Poultry Industry: Industries Under Siege"** in Farmnews and Views. Philippine Peasant Institute. Quezon City

PCARRD-DOST. 1989. **The Philippines Recommends for Table-Egg Production.** Los Banos Laguna

PCARRD-DOST. 1997. **The Philippines Recommends for Broiler Production.** Los Banos Laguna

PCARRD-DOST. 1999. **The Philippines Recommends for Pork Production**. Los Banos Laguna

PCARRD-DOST. 2002. **R & D Status and Directions for Poultry (2000 and Beyond**). Los Banos, Laguna

PCARRD-DOST. 2003. **Evaluation of the Swine Production Performance Monitoring Project**. Los Banos, Laguna

Ponce, Eliseo R. 2004. **"Philippine Agriculture 2004: An Unfulfilled Promise"** Presented at the Agriculture Sector Planning Workshop. Olongobapo City, Zambales. May 4, 2004. Philippine Institute of Development Studies

Purcell, D.L. and J.R. Anderson. 1997. **Agricultural Extension and Research. Achievements and Problems in National System**. A World Bank Evaluation Study.

Rivera, William. 2002. **Contracting for Agricultural Extension**. International Case Studies and Emerging Practices. Publishing, N.Y.

Rivera, William M. and M. Kalim Qamar. 2003. **Agricultural Extension, Rural Development and the Food Security Challenge.** Food and Agriculture Organization of the United Nations. Rome.

Roling, N. 1988**. Extension Science.** New York: Cambridge University Press. Pp 1-91

Sarris, Alexander.2001. **The Role of Agriculture in Economic Development and Poverty Reduction: An Empirical and Conceptual Foundation".** Rural Development Strategy Background Paper No. 2. Rural Development Department, The World Bank. Washington D.C.

Smith, L. 2001. **Reform and Decentralization of Agricultural Services: A Policy Framework.** FAO Agricultrual Policy and Economic Development Series

Swanson, B.E.(ed) 1984. **Agricultural Extension. A Reference Manual**. Rome: FAO.

Umali-Deininger Dina and L. Schwartz. 1994. **Public and Private Agricultural Extension: Beyond Traditional Frontiers**. World Bank Discussion Paper 236. Washington, D.C.

Van den Berg, Margareet H. 2001. **The Agricultural Knowledge Infrastructure: Public or Private.** FAO Research Extension and Training Division

Van den Ban, A.W. and HS. Hawkins. 1998. **Agricultural Extension**. London: The Longman Scientific and Technical. John Wiley and Sons.

Local Government Documents:

Accomplishment Development Report. 1998- 2002. Municipality of San Jose

Makataong Kaunlaran: Bagon Sigla, Sa Bagong Siglo; Bagong San Jose sa Bagong Milenyo. Accomplishment Report 1992-2001. Municipality of San Jose

Annual Investment Program. 1992-2003. Municipality of San Jose

Certified Statement of Expenditures. 1993-2003. Budget Office. Municipality of San Jose

Comprehensive Zoning Ordinance. 2000. Municipality of San Jose

List of Poultry and Piggery Establishments. 2004. Permits and Licensing Section. Municipality of San Jose

List of Business Establishment. 2004. Permits and Licensing Section. Municipality of San Jose

Accomplishment Report 2003. Provincial Veterinary Office, Batangas City