

# **Chapter 10**

## **Institutional Issues**

## Chapter 10 Institutional Issues

### 10.1 Livestock and Fisheries Department<sup>1</sup>

#### 10.1.1 Provincial Offices

The current organizational structure of the Livestock and Fisheries Department in Sindh is shown in Figure 10-1-1. In the department, there are 5 directorates under the Director General (DG)'s office<sup>2</sup>, and each directorate has a director. The directorates have been established indendently; some of them were created when development projects were implemented by donors, and later tranferred to non-development, i.e. regular entities, as they are at present.

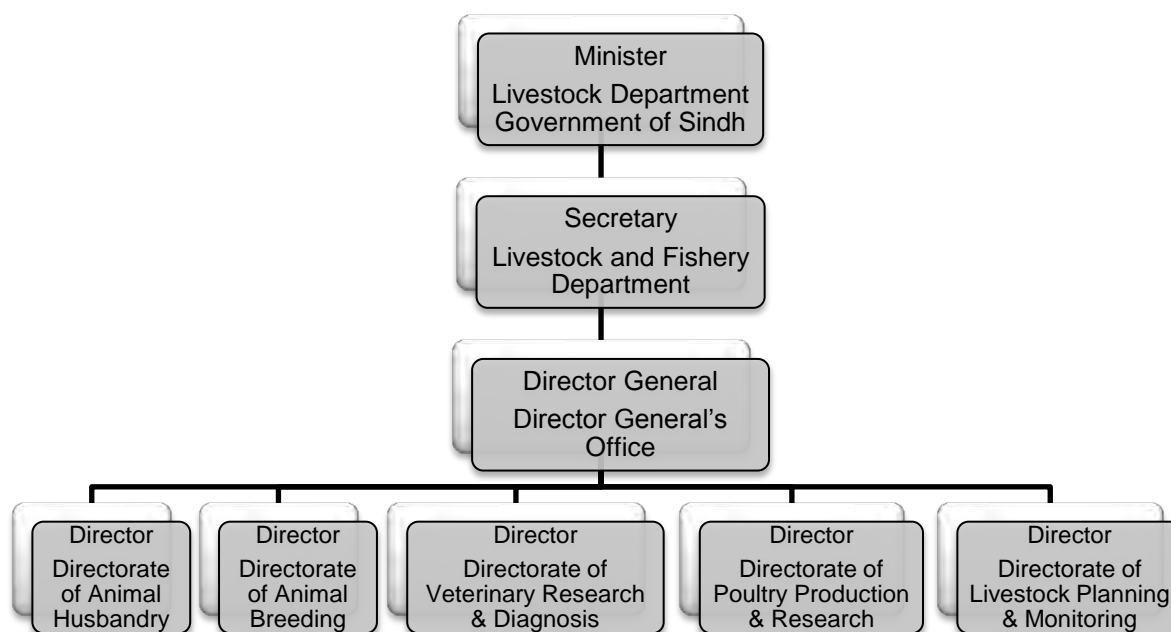


Figure 10-1-1 Organizational Chart of Livestock and Fisheries Department

At the provincial level, the staff are allocated to the DG's office and the 5 directorates, the numbers of which are indicated in the relevant sections below. In addition, the department has currently 1,751 working staff at the district level, including 265 technical (veterinary officers: VOs), 685 para-technical (para-veterinarians: para-vet.), and 801 other staff.<sup>3</sup> They are assigned to the district offices, hospitals, laboratories, and others. A VO holds the degree of Doctor of Veterinary and Medicine (DVM), and a para-vet has usually taken 2 year diploma course offered by the Agricultural Training Institutes (ATI) in Sakrand or Jacobabad to become the Stock Assistant (SA)<sup>4</sup>. Those allocated to the district level

<sup>1</sup> The data and information described in this section were obtained in May 2011, if not otherwise specified, from the Livestock and Fisheries Department.

<sup>2</sup> Another DG post was created in the past for taking care of the upper Sindh. However, no office was arranged, no staff was allocated, and no job description was made for the new DG although once the DG was appointed, and therefore as of July 2011 there is only one DG for the livestock part of the department. At the time when the above DG post was created, one directorate for the upper Sindh was also created underneath. However, no director was appointed.

<sup>3</sup> See appendix G for the details.

<sup>4</sup> A para-vet is therefore called as the Stock Assistant in the department; however, as the designations there are livestock inspectors, feed composers, dressers, etc. at the field level those who are not officially qualified as the para-vet since they have not completed the required course, but in some cases are practically recognized as the para-vet though each of them has different responsibilities

administratively belong to the district governments; however, at the same time they are under the command of the DG's office for the activities.

The staff recruitment has been frozen for permanent positions since 1997, and therefore many positions are vacant. The department has been engaging the staff on the contract basis when needed for the implementation of the development schemes. The department is however planning to recruit 80 permanent staff in 2011.

Under the department, there are various institutions as shown in Table 10-1-1.<sup>5</sup> Among them, veterinary hospitals, dispensaries, veterinary centers, and 2 mobile units belong to the district officers where they are allocated, and the rest of them are the properties of the provincial office.

Table 10-1-1 Institutions under the Department

Institutions	No.
Livestock Experiment Stations / Farms	6
Livestock Research & Training Center (RTI)	1
Gov't Veterinary Hospitals and Dispensaries	179
Union Council Veterinary Centers	607
Gov't Veterinary Mobile Units	23
Semen Production Units	2
Artificial Insemination Centers	13
Artificial Insemination Sub-centers	63

In the DG's office, there are currently 30 working staff as show in Table 10-1-2. The budgets disbursed for the last 3 years are shown in Table 10-1-3.

Table 10-1-2 Staff Allocation for the Director General's Office

Staff	Description	No.
Director General		1
Other officers	Deputy director, assistant director, technical officers, superintendents	6
Other staff	Senior scale stenographer, assistants, data processing assistants, senior clerks, typists, drivers, chowkidar, mali, naib quasid	23

Table 10-1-3 Budgets Disbursed for the Director General's Office

(unit: Rs)

Year	Salary	Non-salary	Total
2007/2008	4,294,800	1,739,600	6,034,400
2008/2009	4,480,400	935,700	5,416,100
2009/2010	7,832,000	2,231,000	10,063,000

The following describes major characteristics and functions of each directorate:

### (1) Animal Husbandry

The major responsibilities of the directorate are i) prevention of transboundary and

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from the SA.

<sup>5</sup> See appendix G for the details including the position of staff sanctioned and working.

non-transboundary animal diseases, ii) prophylactic vaccination campaigns, iii) training and extension programme, and iv) breed conservation and improvement.

In the directorate, there are mainly three wings, technical, development, and administration. Under the director, the Disease Investigation Officer, the Livestock Development Officer, and the Assistant Director are responsible for each wing, respectively. The number of the staff for the directorate is shown in Table 10-1-4.

Table 10-1-4 Staff Allocation for the Directorate of Animal Husbandry

Staff	Description	No.
Director		1
Other officers	Assistant director, disease investigation officer, livestock development officer, veterinary officers, sheep development officer, dairy development officer, poultry development officer, etc.	17
Other ministerial staff	Office attendant, stenographer, office assistant, senior clerks, stock assistant, artificial inseminator, poultry assistant, milk tester, laboratory assistant, driver, cooli, naib quasid, etc.	93

The Department of Livestock and Fisheries sets up various objectives and institutions for its activities under the Directorate of Animal Husbandry as shown in Table 10-1-5, and the directorate mainly coordinates technical issues within the department:

Table 10-1-5 Objectives of the Department and Institutions under the Directorate of Animal Husbandry

Objectives	Institutions
Production	- RTI - Semen Production Unit
Conservation of livestock breeds	- Livestock farms - Bulls for natural breeding
Control of transboundary animal disease	- Veterinary hospitals - Research institute/centers
In service training & training of farmers	- RTI
Animal protection services left bank Nara canal	- 5 units in Khairpur, Sanghar, and Tharparkar
Animal health & extension services	- Veterinary hospitals - Dispensaries - Centers - Mobile units

In addition, the following organizational set-up has been made at the district and lower levels under the directorate:

Table 10-1-6 Administrative Levels and Staff Allocations

Level	Staff Allocations
District	District Livestock Officer
Taluka	Senior Veterinary Officer, Veterinary Officer
Union council/village	Stock Assistant

Regarding the non-development (regular) activities, the directorate focuses on disease prevention and control such as preventive vaccination against seasonal contagious diseases, and eradication of parasitic infestations. The annual targets and achievements of the province as a whole for the last 3 years are as follows:

Table 10-1-7 Annual Targets and Achievements of Non-development Activities

Year	Vaccination		Drenching	
	Target	Achievement	Target	Achievement
2007/2008	8,000,000	6,719,574	923,000	1,652,310
2008/2009	8,000,000	6,821,931	923,000	1,290,079
2009/2010	8,500,000	6,975,785	1,015,000	1,460,324

The budgets disbursed for the non-development activities for the last 3 years are as shown below:

Table 10-1-8 Budgets Disbursed for Non-development Activities

(unit: million Rs)

Year	Salary	Non-salary	Total
2007/2008	72.4126	71.9933	144.4059
2008/2009	42.8123	60.2309	103.0432
2009/2010	94.4188	182.5150	276.9338

Table 10-1-9 shows the development schemes proposed and approved for this directorate in the last 3 years. The list of those development schemes is attached to Appendix G, and the budgets disbursed for those schemes are shown in Table 10-1-10. As it is indicated in the tables, the number of the schemes and budgets disbursed in 2009/2010 were much smaller than those in the previous years because of the serious flood occurred in August 2010.

Table 10-1-9 Number of the Development Schemes in the Last 3 Years

Year	On-going	New	Total Proposed	Approved
2007/2008	13	11	24	17
2008/2009	11	6	17	14
2009/2010	2	0	2	2

Table 10-1-10 Budgets Disbursed for Development Schemes

(unit: million Rs)

Year	Revenue	Capital	Total
2007/2008	173.9180	425.9644	599.8824
2008/2009	128.1550	289.1320	417.2870
2009/2010	6.0960	179.2240	185.3200

## (2) Animal Breeding

The prime objective of this directorate is to maintain pure herd with high capabilities for transmitting valuable characters to the progeny. That includes i) selective breeding, ii) production and supply of semen, and iii) cross breeding of non-descriptive cattle, for increasing the production of milk and

meat to meet rapidly increasing human population, and export. The number of the staff for the directorate is 16 as shown in Table 10-1-11.

Table 10-1-11 Staff Allocation for the Directorate of Animal Breeding

Staff	Description	No.
Director		1
Other officers	Technical and publicity officers	2
Other staff	Office superintendent, stenographer, assistant, clerks, drivers, etc.	13

Under the directorate, there are the breed improvement center in Rohri (buffalo semen), the semen production unit in Karachi (cattle semen), and the field AI center in each district. In addition, 114 AI sub-centers are located in various parts of the province, out of which 51 are newly created with building and 63 are without building. At the district level, 13 districts have 10 staff each, comprised of 1 Livestock Production Officer, 1 Senior Clerk, a few Livestock Inspectors (technicians, 63 in total of the province), and the supporting staff. In addition, 5 Livestock Production Officers and 51 Livestock Inspectors were newly recruited on contract basis in April 2011 for the implementation of a development scheme as mentioned below. The numbers of artificial insemination provided and the budgets disbursed for the non-development activities in the last 3 years are shown in Tables 10-1-12 and 10-1-13 respectively.

Table 10-1-12 Artificial Insemination Provided in the last 3 Years

Year	Enzootic Breed		Exotic Breed			Total
	Cow	Buffalo	Frisian	New Jersey	Others	
2008/09	4,935	5,795	19,421	6,654	1,847	38,652
2009/10	5,112	6,285	20,723	7,230	2,245	41,595
2010/11 (by April 2011)	5,077	6,763	20,889	7,632	2,149	42,510
Total	15,124	18,843	61,033	21,516	6,241	122,757

Table 10-1-13 Budgets Disbursed for Non-development Activities

(unit: million Rs)

Year	Salary	Non-salary	Total
2007/2008	3.310	57.744	61.054
2008/2009	3.388	55.882	59.270
2009/2010	4.380	56.794	61.174

In the last 3 years, there are 3 on-going development schemes; i) Development of Milk and Meat Production in Sindh, ii) Strengthening of Directorate of Animal Breeding Sindh @ Hyderabad, and iii) Genetic Improvement through Embryo Transfer Technology Implementation through Joint Venture. Through the scheme of the Development of Milk and Meat Production in Sindh, the above-mentioned 51 field AI centers have been built in 10 districts, and the staff have been recruited. The budgets disbursed for this development scheme are as shown in Table 10-1-14.

Table 10-1-14 Budgets Disbursed for Development Scheme

(unit: million Rs)

Year	Revenue	Capital	Total
2007/2008	18.540	54.800	73.340
2008/2009	17.707	63.000	80.707
2009/2010	76.117	43.720	119.837

**(3) Veterinary Research and Diagnosis**

The directorate is divided into two organizations; one is the central veterinary diagnostic laboratory (CVDL) in Tando Jam, and under which 6 sub-centers in Krachi, Dadu, Naushahero Feroze, Sukkur, Larkana, and Mithi, and 1 animal husbandry laboratory in Karachi are located. Another one is the vaccine production unit.

The CVDL was established in 1985 with the assistance of UNDP/FAO, and transferred to a non-development entity in 1996. The main responsibilities are to diagnose and control animal diseases, conduct epidemiological studies and surveys, and train field veterinarians and other stakeholders. Under the CVDL, there are 4 sections; microbiology, epidemiology, pathology, and parasitology. High-level analyses, e.g. identification of viral pathogen, are conducted at the national veterinary laboratory in Islamabad through the CVDL. The number of the staff in the CVDL is 169 with the following allocation:

Table 10-1-15 Staff Allocation for the CVDL including Sub-centers

Staff	CVDL	Sub-centers	Total
Technical (Director, Deputy Director, Senior Research Officer, Research Officer, Project Director)	15	6	21
Para-technical	24	12	36
Administrative	13	12	25
Skilled	11	6	17
Unskilled	46	24	70

The main activities of the CVDL in 2009/2010 are summarized in Table 10-1-16, and the budgets for non-development activities during the last 3 years are as shown in Table 10-1-17.

Table 10-1-16 Main Activities of the CVDL in 2009/2010

Activities	No.	Remarks
Diagnosis of diseases	44,701 sample collected & examined	14,372 samples were positive for various bacterial, viral, endo-parasitic & protozoan diseases
RP sero surveillance (cattle and buffaloes)	3,000 sample collected & examined	Sent to NVL Islamabad for analysis
FMD surveillance (cattle, buffaloes, sheep & goats)	6,740 sample collected & examined	To be analyzed on receipt of ELISA reagent kits
PPR sero surveillance (sheep & goats)	4,370 sample collected & examined	
Training of house job officers	62 officers	Training on collection, preservation & dispatch of samples to laboratory, methodology of disease diagnosis
Production of HS vaccine	8.383 million doses	
Production of ET vaccine	3.305 million doses	

Table 10-1-17 Budgets Disbursed for Non-development Activities

(unit: million Rs)

Year	Salary	Non-salary	Total
2007/2008	15.2076	8.3324	22.5400
2008/2009	14.6147	8.1236	22.7383
2009/2010	22.3317	11.9363	34.2680

There are 2 development schemes in the last 3 years. One is “Pilot Project on Surveillance of Bovine Tuberculosis, Brucellosis and Other Zoonotic Diseases in Sindh (eight districts), with the total estimated cost of Rs.59.926 million<sup>6</sup> (only revenue), for 3 years from 2010/2011. The scheme includes training of veterinary officers and stock assistants, seminars, survey on animal health and breeding, sample collection on diseases, laboratory diagnosis of zoonotic diseases, purchase of equipment, etc. Another scheme is “Strengthening of Viral and Protozoan Diseases Diagnostic Facilities at CVDL”. The total estimated cost is Rs.205.163 million<sup>7</sup> (revenue of Rs.190.706 million and capital of Rs.14.457 million), and the implementation period is 4 years since 2010/2011. The main components are training and educational tour, sample collection, procurement of diagnostic kits, machinery & equipment, furniture, recruitment of officers and other staff, contract with 2 local consultants, etc. Under these development schemes, sampling and training to field officers are conducted almost every month. The budgets allocated for these development schemes as of May 1st are shown in Table 10-1-18.

Table 10-1-18 Budgets Disbursed for Development Scheme

(unit: million Rs)

Scheme	Amount
Pilot Project on Surveillance of Bovine Tuberculosis, Brucellosis and Other Zoonotic Diseases in Sindh	22.410
Strengthening of Viral and Protozoan Diseases Diagnostic Facilities at CVDL	20.000
Strengthening of Existing Facilities at Vaccine Production Unit for Preparation of Hemorrhagic Septicemia (HS) & Enterotoxemia (ET) Vaccine	18.806

Besides the CVDL, the Vaccine Production Unit is also located in Tando Jam, established in 1998 and began vaccine production in 2003<sup>8</sup>. The unit is located in and managed by the directorate of Veterinary Research and Diagnosis. Vaccines for ruminant animal are mainly produced by the unit according to the request by the directorate of Animal Husbandry. The unit sells vaccines to the directorate of animal husbandry and NGOs, but not allowed to sell them to private companies, and not allowed to fix vaccine prices. The project director is basically assigned to be responsible for the operation of the vaccine

<sup>6</sup> Development schemes below Rs.60 million should be approved by DDWP (department development working party) composed by the concerned secretary, deputy secretary, the chief of P&D department.

<sup>7</sup> The scheme more than RS.60 million should be approved by PDWP (provincial development working party) chaired by the Additional Chief Secretary. If a fund comes from the federal government or a donor, CDWP (central development working party), chaired by the Deputy Chairman of the Planning Commission, is responsible for approval on such schemes.

<sup>8</sup> In the other 3 provinces, the functions of diagnostic laboratory and vaccine production have been combined into one institute, located in Lahore and Peshawar, and in Quetta vaccine production is under Bolan University. However, in Sindh they function separately at present, and near future it is said to be upgraded to VRI.



production unit, but currently the director of the CVDL works for the project director of the unit whose post is vacant. Under the unit, there is 1 development scheme, “Strengthening of Existing Facilities at Vaccine Production Unit for Preparation of Hemorrhagic Septicemia (HS) & Entero Toxemia (ET) Vaccine”. The scheme was started in 2009/2010 with the estimated total cost of Rs.59.961 million.

#### **(4) Poultry Production and Research**

The main office of the directorate of Poultry Production and Research (PRI) is located in Karachi where the Livestock Experiment Station is also located. The directorate was established in 1970/71 with the help of UNDP/FAO when Sindh Poultry Development Project was implemented. Through the phases I and II of this project, the activities are concentrated on 13 districts of the province at present. Seven districts included in the phase I are currently under the project director stationed in Hyderabad, and the other six districts in the Phase II are under the deputy director in Sukkur.

Under the director of the directorate there are 5 divisions such as i) pathology, ii) nutrition, iii) housing & management, iv) breeding & incubation, and v) economics & marketing. The main functions of the directorate are research, training and extension pertaining to poultry production and disease prevention for rural and commercial birds as well as poultry industry. The number of the staff is 377 with the allocation as shown in Table 10-1-19.

Table 10-1-19 Staff Allocation for the Directorate of Poultry Production and Research

Staff	Description	No.
Directors	Director, deputy, project directors	3
Other officers and managers	Poultry development officers, research officers, veterinary officers, farm manager, etc.	50
Stock assistants		85
Laboratory technician		19
Other staff	Clerks, drivers, etc.	220

Besides the above, in the directorate there is the poultry vaccine production center (PVPC) which is a self-financing institution, and their daily activities are supervised by the executive committee, headed by the director of the directorate.

Main non-development activities of the directorate are to i) organize poultry training for farmers, ii) advise on treatment of poultry diseases, poultry management and establishment of new poultry farms, iii) collect poultry market rates, iv) vaccinate against viral diseases, v) arrange poultry exhibitions and shows all over the province, etc. to be responsible by the project director or the deputy project director of the PRI, and i) analyze poultry feed samples, ii) produce vaccines, etc. by the PVPC.

Main achievements through the non-development are show in Table 10-1-20, and the budget distributions for those activities in the last 3 years, excluding the PVPC, are shown in Table 10-1-21. There is no budget for non-development (regular) activities allocated for the PVPC.

Table 10-1-20 Main Achievements of the Non-development Activities

Description	2007/2008	2008/2009	2009/2010
No of birds treated against Newcastle diseases	2,000	2,240	12,480
No of birds treated against Leucosis diseases	200	280	300
No of birds treated against Gambaro diseases	5,000	4,600	6,060
No of birds treated against Hydro pericardium diseases	2,400	2,800	2,900
No of birds treated against Protozol diseases	11,000	10,300	15,180
No of birds treated against Parasitic diseases	180	200	370
No of birds treated against Re-productive diseases	750	950	1,000
No of birds treated against Nutrition diseases	2,150	3,200	2,500
No of birds treated against miscellaneous diseases	3,060	3,500	4,120
Sample received	700	7,060	790
Crude fat test conducted	300	400	480
AI test conducted	610	650	720
Feed formula provided	4,200	4,000	4,430
No of inseminated eggs handed over	13,433	13,433	13,433
Day old chicks provided	12,000	12,000	12,000
Farms visited	500	500	650

Table 10-1-21 Budgets Disbursed to the PRI for Non-development Activities (excluding the PVPC)

(unit: million Rs)

Year	Salary	Non-salary	Total
2007/2008	16.439	16.535	32.974
2008/2009	15.977	16.571	32.548
2009/2010	22.010	19.270	41.280

In the last 3 years there are 3 on-going development schemes. The one scheme is “Strengthening of Poultry Research Institute Karachi & Expansion of Poultry Hatcheries” which has been implemented for 5 years with the budget of Rs.85.95 mil, and will be completed by June 2011. The second scheme is “Expansion of Poultry Hatcheries and Backyard Farming in Sindh Including Controlled Atmosphere Shed at PRI Karachi”. This has been implemented in 5 districts since 2009/10. The duration of the scheme is 3 years by June 2012. The total budget is Rs.247.376 million, composed of the revenue (salary, machinery, training, etc.) of Rs.121.785 million and capital (building) of Rs.125.591million. These two schemes have been executed under the director of the directorate. The other scheme is “Strengthening of Poultry Vaccine Center Korangi Karachi” implemented for 4 years from 2009/10 to 2013/14. This scheme is to build laboratories for facilitating vaccine production, by basically self-financing although the government financed some portion for the activities. It has been undertaken by the Poultry Vaccine Production Center. The total budget is Rs.202.523 million; Rs.132.432 million (revenue) and Rs.70.091 million (capital). The budgets actually distributed for those schemes since 2008/2009 are as follows:

Table 10-1-22 Budgets Disbursed for Development Scheme

(unit: million Rs)

Year	Strengthening PRI Karachi & Hatcheries in Sindh		Expansion of Poultry Hatcheries & Backyard Farming Sindh		Strengthening of Sindh Poultry Vaccine Center	
	revenue	capital	revenue	capital	Revenue	capital
2007/2008	8.442	2.253	-	-	-	
2008/2009	14.610	2.652	-	-	-	
2009/2010	21.615	17.489	29.615	16.432	24.068	26.625

**(5) Livestock Planning and Monitoring**

It was established in Karachi in 1991 when ADB implemented Sindh Livestock Development Project, and shifted to Hyderabad in 1995. The major responsibilities are i) to introduce and launch projects and schemes for the development of livestock sector, and ii) to monitor and evaluate the effects of such projects on livestock development and beneficiaries. The number of the staff is 23 with the following allocation:

Table 10-1-23 Staff Allocation for the Directorate of Planning and Monitoring

Staff	Description	No.
Directors	Director, deputy director	2
Other officers	Programmer, Epidemiologist, statistical officer, research officer, superintendent, computer operator	7
Other staff	Assistants, key punch operator, data processing assistant, clerks, drivers, naib quasids, chowkidar, sweeper	14

The main activities of the directorate are to i) scrutinize, monitor, and evaluate development schemes implemented by the other directorates of the department, ii) monitor the departmental activities and resources, iii) to conduct post evaluation survey after completion of the projects, and iv) collect, compile, and process the data. Table 10-1-24 shows the budgets disbursed for these non-development activities for the last 3 years.

Table 10-1-24 Budgets Disbursed for Non-development Activities

(unit: million Rs)

Year	Salary	Non-salary	Total
2007/2008	2.1065	3.4181	5.5246
2008/2009	3.5877	2.4380	6.0257
2009/2010	5.5325	2.6436	8.1761

**10.1.2 District Offices**

The following describes the plans and operations of the district offices in Hyderabad and Karachi:

**(1) Hyderabad District Office**

For the Hyderabad district office, 4 district officers are assigned related to livestock and fisheries sector as shown in Figure 10-1-2.

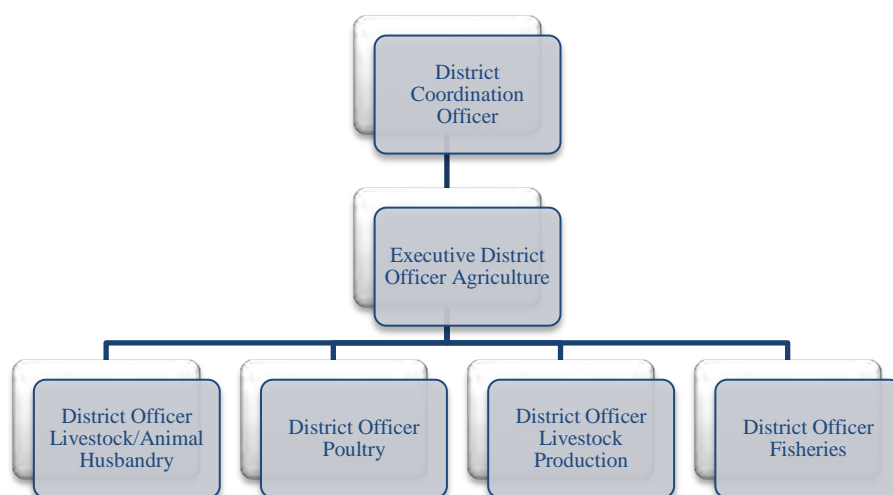


Figure 10-1-2 Organizational Chart of Hyderabad District Office (related livestock)

Under the District Officer (DO) Livestock/Animal Husbandry, the staff are allocated in various offices of Hyderabad district as shown in Table 10-1-25. In May 2011, the new DO Livestock/Animal Husbandry was assigned. Major job description of the DO Livestock/Animal Husbandry is shown in Table 10-1-26. As it is shown, he is on the two lines of commands from the province and the district administrations. As for the livestock related facilities, the district office has 3 veterinary hospitals, 1 veterinary dispensary, 1 mobile unit, and 13 veterinary centers.

Table 10-1-25 Number of Staff under the DO Livestock/Animal Husbandry

Veterinary Officer	28
Stock Assistant*	20
Stock Man	3
Dresser*	1
Driver	1
Naib Qasid	5
Chowkider	7
Animal Attendant*	3
Livestock Attendant*	6
Attendant	1
Syce	1
Sweeper	4

Note\*: Para-vet

Table 10-1-26 Major Job Description of the DO Livestock/Animal Husbandry Hyderabad

1. To assist the Director Animal Husbandry of the Province and the Executive District Officer (EDO) Agriculture.
2. To inspect veterinary hospitals and dispensaries.
3. To supervise the field staff.
4. To advise and guide the technical and para-technical staff.
5. To advise and guide the breeders.
6. To prevent and control contagious and parasitic diseases.
7. To place indent for medicines and vaccines.
8. To attend inter departmental meeting at the district level.
9. To conduct work of administration and finance in relation to the field staff and ministerial staff.

There are now 2 on-going development activities in the district, construction of the veterinary dispensaries at cattle colony Latifabad and at old cattle colony, both of which have been implemented under the provincial government. In the last three years the district has proposed only one development project for the construction of a veterinary hospital, which is yet to be approved.

As to the accounting, the district office has 7 head accounts such as (i) superintendence, (ii) sub-ordinate, (iii) development project, (iv) provincial veterinary hospitals and dispensaries, (v) other

veterinary hospitals and dispensaries, (vi) field control of diseases, and (vii) other breeding operations. The total budgets for the regular (non-development) activities allocated to the DO Livestock/Animal Husbandry in the last 3 years are as shown in Table 10-1-27.

Table 10-1-27 Regular Budget for the DO Livestock/Animal Husbandry Hyderabad

Year	Non-salary	Salary	Total
2007/2008	2,642,000	12,760,710	15,402,710
2008/2009	2,608,180	13,216,875	15,825,055
2009/2010	2,825,480	14,011,230	16,836,710

The activities of the district under the regular budget (non-development activities) are mainly (i) vaccination and drenching, and (ii) treatment either at the veterinary institutions or by visiting the villages. Regarding the vaccination and drenching, each district has been given the targets every year although they are neither compulsory nor ceiling. As a reference, the annual targets for the 3 districts (Hyderabad, Karachi, Tarparkar) and the whole province are shown in Table 10-1-28.

Table 10-1-28 Annual Vaccination and Drenching Target

District	PPR	Anthrax	HS	BQ	ET	CCPP	Sheep Pox	Drenching
2008/2009								
Hyderabad	-	15,000	100,000	20,000	50,000	30,000	15,000	25,000
Karachi	-	45,000	250,000	45,000	75,000	100,000	25,000	48,000
Tarparkar	-	190,000	75,000	125,000	250,000	140,000	52,000	72,000
Provincial Total	-	881,000	2,620,000	1,010,000	1,760,000	1,300,000	429,000	923,000
2009/2010								
(same as 2010/2011)								
2010/2011								
Hyderabad	15,000	15,000	100,000	20,000	50,000	30,000	15,000	30,000
Karachi	10,000	45,000	250,000	45,000	75,000	100,000	25,000	52,000
Tarparkar	60,000	190,000	75,000	125,000	250,000	140,000	52,000	80,000
Provincial Total	500,000	881,000	2,620,000	1,010,000	1,760,000	1,300,000	429,000	1,015,000

Regarding the monitoring and evaluation of the activities, the DO Livestock/Animal Husbandry as well as the EDO Agriculture visit the field offices regularly. Besides, the records of vaccination, drenching, and treatments are summarized and reported to the district as well as the provincial offices every month.

## (2) Karachi District Office

Under the executive district officer (EDO) agriculture, there are 8 DOs such as i) Agriculture extension, ii) on-farm water management, iii) Horticulture training, iv) livestock/animal husbandry, v) veterinary services, vi) poultry, vii) fisheries, and viii) forest.

Major job description of the DO Livestock/Animal Husbandry is shown in Table 10-1-29<sup>9</sup>. The uniqueness in this job description is that the DO should help and provide protocol to national and international consultants since the office is located in Karachi. The number of staff under the DO Livestock/Animal Husbandry is 107 as shown in Table 10-1-30.

As for the livestock related facilities, the district office has 5 veterinary hospitals, 1 veterinary dispensary, 1 mobile unit, and 8 veterinary centers.

Table 10-1-30 Number of Staff under the DO Livestock/Animal Husbandry

Veterinary Officer	33
Senior Clerk	1
Junior Clerk	1
Stock Assistant*	17
Veterinary Field Composer*	1
Inoculator*	2
Dresser*	2
Driver	3
Ward Attendant*	3
Livestock Attendant*	2
Attendant*	1
Naib Qasid	6
Chowkider	10
Bihistey (water man)	4
Beldar	2
Sanitary Worker	16
Total	107

Note\*: The DO regards them as para-vet

Table 10-1-29 Major Job Description of the DO Livestock/Animal Husbandry Karachi

1. To help and provide protocol to national and international consultants who supervise and monitor dairy farming and research schemes
2. To assist EDO (agriculture) Karachi
3. To inspect veterinary hospitals, dispensaries, and centers
4. To supervise field visits and works
5. To deliver advice and guidance to technical and para-technical staff
6. To prevent and control contagious and parasitic diseases
7. To place indents for medicines and vaccines
8. To attend meeting inter departmental or district levels
9. To check and supervise field works of veterinary officers and para-staff
10. To keep close contact with maldars and farmers, breeders
11. To submit monthly periodical reports required by head offices
12. To control endo & ecto parasites
13. To supply medicines to all veterinary hospitals, dispensaries, and centers
14. To maintain records of medicines, vaccines, instruments, master roll and all other registers of veterinary hospitals, dispensaries, and centers

In the last 3 years, the DO Livestock/Animal Husbandry has 2 on-going development schemes and 1 completed one. One on-going scheme is “Construction and establishment for veterinary hospital/dispensaries” with the total amount of Rs.50 million being implemented by the provincial government. Another one is “Improvement of veterinary services in Karachi through providing mobility diagnostic facilities, prevention, vaccination and treatment” with the total of Rs.20 million by the district government<sup>10</sup>. The one completed was “Assessment of ecto and endo parasites in livestock of Karachi and device methods of control to improve the health of animals and increase the productivity of livestock”. This scheme was planned for 3 years but completed in 1 year with the disbursement of Rs.8 million due to budget constraint. The DO mentioned that the project proposals (PC-1) are basically prepared by him without being required to consult with other officers or farmers.

The district office has 5 head accounts such as (i) superintendence, (ii) sub-ordinate, (iii)

<sup>9</sup> Regarding the DO veterinary services, major jobs are to inspect slaughterhouses, assure meat qualities, issue certification to them, etc.

<sup>10</sup> When the amount of a project is below Rs.20 million, its implementation should be approved by the city district government, and the provincial government should approve it if the amount exceeds it.

provincial veterinary hospitals and dispensaries, (vi) field control of diseases, and (v) Mufassil veterinary hospital and dispensaries Karachi. The total budgets for the regular (non-development) activities allocated to the DO Livestock/Animal Husbandry in the last 3 years are as shown in Table 10-1-31. The major activities with the regular budget are the same as the DO Livestock/Animal Husbandry in Hyderabad, i.e., vaccination, drenching and treatment. The DO mentioned that they sometimes provide trainings for awareness building to farmers on vaccine, disease diagnose, feeding management, nutrition, etc. under the regular budget.

Table 10-1-31 Regular Budget for the DO Livestock/Animal Husbandry Karachi

Year	Non-salary	Salary	Total
2007/2008	1,511,000	20,068,000	21,579,000
2008/2009	1,696,000	26,909,000	28,605,000
2009/2010	1,865,600	27,194,410	29,060,010

Regarding the monitoring and evaluation of the activities under the regular budget, the DO Livestock/Animal Husbandry as well as the EDO Agriculture visit the field offices regularly. The records and reports of vaccination, drenching, and treatment are made by the field offices to the district as well as the provincial offices. As to the development activities, the EDO Agriculture constitutes 4 committees such as tendering, purchasing, distribution, and inspection if a project is implemented by the district government. There is however no regular monitoring and evaluation system for inspecting, reporting, and summarizing the progress and results of the works as well as evaluating the projects.

### 10.1.3 Livestock Development and Research Farm for Kundhi Buffalo

Among the 6 experimental stations/farms of the department, this section describes the Livestock Development and Research Farm for Kundhi Buffalo in Rohri.<sup>11</sup>

This farm has been operating since 1975 and is the only institution in Sindh for conservations and genetic improvements of Kundhi buffalo. It is located at Rohri Taluka of Sukkur District and the land area is 820 acres. It is staffed by 60 personnel in total including 1 agricultural technician, 1 veterinarian, and 4 assistant technicians who report to the director.

In October 2010, there exist 272 livestock animals which include 5 bulls for natural mating and 75 adult female buffalos. Among them, 35 are milking ones, and the total milk production a day was 135kg where milking is carried out in the morning and the evening. The average milk production was 3.9kg per head. The amount of the milk production is quite low for the milking buffalos as a breeding institute, even with an assumption that a relatively large amount of milk is used for calves to suck since rearing calves is highly emphasized.

They feed their livestock with a mixture of cotton seed cake, wheat bran, rice bran and mustard oil cake of 10kg (5kg /time) for milking buffalo, and 4kg (2kg/time) for dry buffalo. Period of parturition starts in June and reaches a peak in July and August, and then ends in December. The average weight of

<sup>11</sup> In Punjab there is the Buffalo Research Institute in Pattoki. The details of this Institute as well as the Livestock Development and Research Farm for Kundhi Buffalo in Rohri are described in Appendix G.

calves at the birth is 21.7kg, where the maximum is 24kg and the minimum is 19.8kg. Though it is not yet confirmed whether the liner classification for Holstein can be applied to buffalo, when a trial measurement was made to 5 buffalos selected randomly, the results show as follows: 1) the back line is falling down front to back with body height (at shoulder) of 130.4cm and body height (at hip) of 129.6cm, and 2) the strongly built body with chest girth of 195.2cm, chest depth of 72.5cm and hip width of 59.6cm. The deep and wide chest proves their good appetites. Udders are observed to be generally poor and vary in form.

This institute has distributed male calves of buffalos with free of charge at the level of union council, and the total number of calves which have been distributed for 4 years between 2005 and 2008 is 48. In the production section of frozen semen, there are 24 buffalos in total with 23 bulls for collection of semen and 1 dummy. They collect semen once a week, which is followed by evaluations of a motility, and distributions into straws using citric acid and yolk (extender) for dilution and a constant low temperature box to gradually cool down semen. Semen became frozen in a hand-made box with liquid nitrogen. The semen straws are put into nitrogen container for freezing. The target number of sperms distributed into a straw is 50 million per straw.



Central office



Measurement of body height

Main problems are frequent blackouts, constraints of budget and shortage of water at the dry season. There are also some other problems as follows:

- (a) Lack of data on milk production and body weight, which should be collected for each buffalo to control their production capabilities.
- (b) Lack of a motility evaluation which should be executed strictly before distribution of semen. During the evaluation of frozen semen, which are tested within 24 hours of production, if even one straw with a motility of less than 30% is found out of three straws from each lot, then all of three straws must be disposed.
- (c) Lack of a machine to calculate the number of sperms. Because of this, at the moment, the staff is totally dependent on their experience producing 22 straws from 2 cc fresh semen.
- (d) They do not print on straws the important information such as name of bull, name of breed, lot number, and production date.





Collection of semen



Laboratory of production frozen Semen

To utilize this farm effectively for the benefit of livestock development, the following countermeasures should be considered:

- (a) Capacity improvement of Kundhi: Data registrations on milk production, body weight and reproduction for each buffalo, on which the selection and elimination should be based, should be encouraged.
- (b) Production of frozen semen: To count the number of sperm after collection, and distribute the appropriately numbered sperm into straws should be carried out. At least minimum records should be kept on straws even in handwriting. Frozen semen must be evaluated strictly in terms of motility of sperms.

#### **10.1.4 Main Strengths and Weaknesses of the Department**

It has been observed by the Project Team that the department has institutional strengths and weaknesses including the followings:

##### Strengths

- (a) In the department, there are a number of the staff such as veterinarians, para-vets, and other specialists allocated to all over the province. The staff allocated to the district offices are considered as the frontlines who contact the farmers at regular basis.
- (b) The department has a number of animal health facilities such as veterinary hospitals, dispensaries, centers, mobile units, etc. also in all the districts of the province. The facilities are accessible for the rural farmers.
- (c) There is a system of monthly reporting on the activities from the field officers to the district officers, the directors at the provincial level, and the DG's office. Regarding the budgets, when development schemes are implemented at the provincial level, the DG or the concerned directors of the directorates basically release budgets to the related district offices. For the salaries and the regular activities at the district level, the district officers are responsible for drawing and disbursing the amounts of salaries and the purchase of necessities, etc. of the districts. For monitoring the activities, the directors of the directorates and other responsible officers at the provincial and district levels visit the fields regarding the work done, such as regular collection of samples, survey of farms, vaccination work, etc. The reports on budgets and work progress are sent monthly from the districts to the DG's office through the

responsible directors for both the regular and the non-regular (development) activities.

- (d) An immediate and united action can be taken, for the outbreak of an epidemic disease or other emergency cases, under the strong direction from the DG's office.

### Weaknesses

- (a) Each of the directorates has been established in the different times. Some of them were formed when foreign projects were implemented. The offices of the directorates are scattered in the province; two directorates are located at the animal complex in Hyderabad where the DG office is located. The directorate of Animal Husbandry is in the other part of Hyderabad, the directorate of Veterinary Research and Diagnosis is in Tando Jam, and the directorate of Poultry is in Karachi. Some of the weaknesses mentioned below may have attributed to such situations.
- (b) Each directorate individually prepares annual activity plans including project proposals. They are not consolidated and integrated into "one action plan" as a department. One of the reasons is that the department has no development goal, strategy and plan under which all the directorates are guided to act. The department has the five-year development and the mid-term development plan (MTDP) as one of the policy guidelines. In reality, however, they are not referred or based when each directorate prepares the annual plans, or even when the Secretary plans a project to implementation.
- (c) The department does not evaluate development activities in systematic ways. There is no evaluation report as such. The lessons in previous development schemes are not effectively reflected to new schemes. This allows the shortcoming of the planning and implementation to repeat in other schemes.
- (d) The activities of the directorates largely depend on whether their proposed schemes are budgeted or not. If not, the staff are engaged only in regular activities which are routine and hardly adjusted to suit for emerging needs for the department. Based on a consolidated plan of the department as proposed above, the contents and the ways to prepare the activity plans of each directorate should be reconsidered so that all the directorates may maintain necessary daily activities with regular budgets, regardless of approvals of the development schemes. Activities should be planned logically how the planned goals can be achieved.
- (e) As it is indicated in the regular activities of the directorates, the activities of the department are largely concentrated on animal health prevention. Nevertheless, the system and skills even for maintaining animal health are outdated. In addition, as a service provider, other functions related to livestock management, feeding, etc. are left behind. In particular, extension activities are rather neglected. Therefore, the department cannot catch up with the current increase of animals and various needs of the livestock farmers.
- (f) Although the department has a number of the professional staff who cover the whole province, they are not sufficiently utilized for meeting the needs mentioned above. They could act as change agents, or at least as the collaborators with such agents, who transfer necessary technologies to the livestock farmers and eventually shift them from subsistent to self-sustaining farmers. At present, many farmers are not much aware of the value of the department for improving their livestock and consequently their living. The reasons could be that the farmers do not recognize the importance of technology transfer, or that the

technical knowledge and attitudes of the department staff is not adequate. Necessary skills and mindsets need to be equipped to the department staff.

- (g) The recruitment of the permanent staff has been suspended for a long time. Accordingly, the average age of the staff is quite high, and soon many of the experienced staff will be leaving the department. This is one of the major reasons that the department cannot catch up the changing needs and the department are not systematically and proactively operated.

## **10.2 Extension and Education<sup>12</sup>**

### **10.2.1 Existing Resources Useful for Extension Services**

#### **(1) Livestock and Fisheries Department**

The clinical network of the department will be a candidate of a central organization for extension service provision, and the VOs and the para-vets will be the candidates of the extension workers. In the current job description, the VOs and para-vets working in the clinical services are obligated to spend minimum 10 days for field visits per month, and then to report the results of the visits at the monthly/weekly basis to the district offices. This can be an effective monitoring and reporting system for the extension services.

Some DOs have already been trained as “the master trainer” of the extension workers by previous programs/projects. In particular, 25 staffs (DOs), who have participated in the master trainers’ training done by the Strengthening Participatory Organization (SPO)<sup>13</sup> under the Strengthening of Livestock Services Project (SLSP), are still active as the master trainers and conduct various trainings in response to requests. They can be expected to play a leading role in the capacity building of the extension workers.

The department has the Research and Training Institute (RTI) in Tando Muhammad Khan. It has classrooms, a library, a laboratory, a computer room, experimental farms, and dormitory for trainees. The RTI has conducted trainings for male and female Community Livestock Extension Workers (CLEWs)<sup>14</sup>. The lecturers are the professional staff of the department.

The Directorate of Animal Husbandry has developed some booklets for extension workers as their technical guidance. They are used for the training for the CLEW. In addition, many educational and extension materials have been made in Pakistan by the technical supports of the donors and NGOs. Those materials should be reviewed again and be reused as much as possible.

#### **(2) Dairy and Pharmaceutical Companies**

In Sindh, some extension service providers have been already working other than the public sector. The main service providers are dairy companies, pharmaceutical companies, and NGOs.

The dairy companies organize their own extension teams. Each team has veterinarian, agronomist,

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<sup>12</sup> The more details regarding the present situations, finding, recommendations for Upper Sindh, including the private sector as well as the RTI’s training courses, can be found in Appendix K.

<sup>13</sup> A non-profit company registered on Jan. 15, 1994. Its national center is in Islamabad, and it has 8 regional offices including one in Hyderabad. The core program is capacity building, action research, awareness raising, advocacy, policy dialogue, dissemination of information/literature, mobilization of communities, developing partnership with local organizations, and encouraging and supporting peace movement.

<sup>14</sup> See Table 10-2-1 for the details.

and social mobilizer because the increase in animal productivity requires not only an improvement of animal health but also an improvement of farmers' feeding management skills and enhancement of people's motivation toward their well-being. Box 10.1 explains a case of the Engro Foods Agri Service.

#### **BOX 10.1 Agri-Service of Engro Foods**

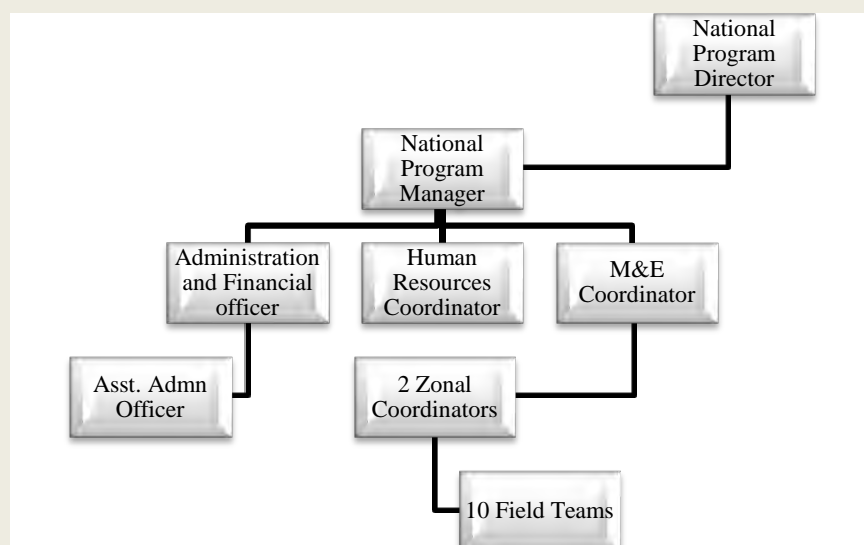
Engro Foods organizes its extension service teams called "Agri-Service". It is a team of professionals providing integrated extension services. They are veterinary doctor, social organizer and agronomist living in various districts of Sindh. At present Engro covers 11 districts.

A comprehensive program has been implemented for potentially 800 villages for dairy development in the province. Their field extension activities under the regular program include: training sessions, regular seminars, discussion forums, and demonstrations relevant to dairy development at the field level. There is a regular communication channel among livestock workers, field staff, villagers/farmers, middlemen, and the management. As a complete package, a chiller plant and milk collection centers have been established at appropriate sites. In this way, regular contact and development activities are continued since regular visits by the field staff is considered the key to success. Under working contract with villages, farmers bring milk directly to the chiller plant twice a day. In some cases, middlemen collect milk from different farmers and bring to the chiller plant. A milk price in each case is different.

Engro Foods has an innovative program to help establish one window operation for livestock and dairy development for farmers where Engro Foods collects milk on daily basis in their project areas. There is a store run by trained paraprofessionals in the area called Khushhali Ghar. This store deals medicine, feed, seed for fodder, and fertilizer. The milk collection center is attached/nearby to this store. The key point is that quality products are kept at this store, and member farmers are encouraged to use this facility for livestock and dairy improvement. Moreover, these items can be sold to the member farmers on credit basis. The field stock assistant (SA) refers livestock farmers to this store where they can buy products and get services. This store is not directly under the Engro Foods but initially supported by it and completely run by a private paraprofessional. However, quality control and price checking are performed by Engro Foods staff on regular basis. Engro has also a model village concept where 20-25 or more farmers are ready to sell milk on regular basis and also willing to take part in training and other extension services provided by Engro as a joint activity for dairy development. This is their regular extension program in the province. Under the regular extension services, the estimated budget for human resources is about Rs. 10 million a year.

There was a feedback system about effectiveness of training and refresher courses which were held where necessary in order to improve the skills. Demonstration of urea treatment of straw, vaccination, and de-worming skills were provided to farmers and village paraprofessionals. Ultimately the project aims to achieve income increase, generation of employment opportunities through livestock skills development, improved livelihoods and food security at the household and community levels. At the discussion with Engro management, it was pointed out that the newly trained livestock workers continually need backstopping at least during the initial years. Presently Engro Foods has started establishment of its own dairy farm with more than 300 cows in Nara canal area in Khairpur district. This dairy farm will also serve as a research and training site for professionals and farmers of Sindh in future under its human resources development program.

### Human Resources in Engro Foods



### Extension service providers in Engro Foods for the livestock sector in Sindh

Designation	Number	Qualification	Gender
Field Supervisor	10	Intermediate	male
Area Manger	5	MBA/MA Com/ MA Economics	male
Area Officer	18	Vet graduate, MA Economics	male
Agricultural Services Officer	10	Vet Graduates/ MSc in vet sciences	male
Stock Assistant	12	Diploma course in relevant field	male
Zonal Agri. Services Manager	1	DVM and MA Rural sociology	male

Pharmaceutical companies disseminate the information on animal diseases and prevention/control measures. They sometimes hold deworming and/or vaccination campaigns at the villages or the market places. These kinds of activities are conducted based on their own marketing strategies, and the updated information on diseases and medicines brought by the pharmaceutical companies is useful for the people in the remote areas. They have developed a series of educational/training materials for disease prevention, and the sales managers of the companies are usually trained how to use them by their companies. Since the sales managers are provided vehicles, they can visit very remote areas. It means they can conduct a sort of extension works in the rural areas.

All the pharmaceutical companies, which the Project Team interviewed, showed a lot of interests to render their services for a number of the clients in the remote areas. They insist that it is necessary to raise farmers' awareness on proper livestock management and facilitate their behavioral changes. They expect the department to provide better livestock management methods for the rural people through extension workers.

### **(3) Non-Profit Companies and NGOs**

PDDC, a registered non-profit company, has established its own technical package. Its professional staff called “Farm Production Advisors” visit fields and disseminate the technical package to farmers directly. Before PDDC starts working in a village/community, they allocate certain time for raising people’s awareness since they believe that there is no success unless people have strong motivation for their development and willingness to work with PDDC. Since PDDC is scheduled to terminate its operations in June 2011 due to the government’s budget cut, the experiences of PDDC will provide lessons learned, both success and failure, for the public sector intending to establish extension system.

Sindh Agricultural and Forestry Workers Coordinating Organization (SAFWCO) has been working in Sindh since 1982. SAFWCO aims to improve the living standards of the poor through supporting people’s entrepreneurship. They provide various skill trainings for their member farmers, and also conduct microfinance activities. SAFWCO’s intervention into the livestock sector was initiated from 2006. To date, its 4 professional staff (DVM) provide technical advisory services for their community organizations. They receive technical assistance from PDDC, and adopt PDDC methods into their livestock development activities at the fields. They also have trained 96 farmers as the Community Livestock Extension Workers (CLEWs), but they said that more than 50% of the trained CLEWs have already stopped working.

In Sindh, there are 3 NGOs in the Rural Support Program Network; “National Rural Support Program (NRSP)”, “Sindh Rural Support Organization (SRSO)”, and “Thardeep Rural Development Program (TRDP)”. They implemented the “Prime Minister’s Special Initiative for Livestock (PMSIL) in 2006-2010. The NGOs basically provide their supports for their Community Organizations (COs). For establishing the CO, they have the following steps: i) people’s mobilization by field workers, ii) explanation of the credit scheme by credit managers, iii) problem analysis facilitated by social organizers, and then if the people agree with NRSP, iv) establishment of the CO. The skills to mobilize and facilitate people to identify their problems/development needs are important for the extension services. The COs, if they have already been mobilized and motivated, can be good partners (recipients) for the livestock extension services.

### **(4) Project-Based Extension Activities**

The Government of Sindh has received many livestock related international and national programs/projects. The Project Team has studied the activities related to trainings (extension work) for the staff and farmers of the programs/projects conducted in Sindh after 2006.

Considering the financial limitation of the public sector and the necessity of sustainable extension services, these programs/projects focused on farmers’ capacity building as extension workers. The programs/projects assumed that the trained farmers would continue providing the services if they became able to earn some money by charging their services such as vaccination, taking animal’s temperature, treatment for injuries, castration, advices, etc. to the farmers; however, the rate that the trained farmers remain functioning is not as high as expected.

Many of the technical trainings of livestock management and master trainers’ trainings were conducted at the RTI by the professional staff of the department. The RTI has provided various farmers’

training, including the training to females as extension workers. In the rural areas, women's activities are strongly affected by social and cultural norms which often hamper them to take any training opportunities. Under these circumstances, CELDAC (Community Empowerment through Livestock Development and Credit)<sup>15</sup> has empowered women and brought them to the forefront.

Table 10-2-1 Trainings for Farmers by the Livestock related Programs/Projects in Sindh after 2006

Program/Project	Trainings for	Implementation (trainers)
Strengthening Livestock Sector Program (SLSP) [completed]	<ul style="list-style-type: none"> <li>● Master Trainers (for VOs)</li> <li>● Livestock Assistants (Male)</li> <li>● Core group of 50 lady vets</li> <li>● Female Livestock Supervisors</li> <li>● Female Inspectors</li> </ul>	Livestock and Fisheries Department
Prime Minister's Special Initiative for Livestock (PMSIL) [completed]	<ul style="list-style-type: none"> <li>● Community Livestock Extension Workers (315 people)</li> <li>● Female Community Livestock Extension Workers (20 people)</li> </ul>	NRSP SRSO TRDP RTI as a training provider
Community Empowerment through Livestock and Credit (CELDAC) [completed]	<ul style="list-style-type: none"> <li>● Master Trainers for LLWs</li> <li>● Lady Livestock Workers (1143 people)</li> <li>● Village Milk Collectors</li> </ul>	Engro Foods Livestock and Fisheries Department
Benazir Bhutto Shaheed Youth Development Program [on going]	<ul style="list-style-type: none"> <li>● Farm Managers</li> <li>● Short-term courses for VOs, SAs and farmers</li> <li>● Female Community Livestock Extension Workers</li> </ul>	Livestock and Fisheries Department
Sindh Coastal Community Development Program [on going]	<ul style="list-style-type: none"> <li>● Community Livestock Extension Workers</li> </ul>	NRSP RTI as a training provider

### (5) University and Research Institute

Sindh Agricultural University (SAU) is the only university to offer the course of extension as a major in Sindh. The Faculty of Agricultural Social Science, Department of Agricultural Education, Extension, and Short Courses is responsible for the fields of agricultural education and extension up to the level of Ph.D. The curriculum of agricultural education and extension covers the sub-disciplines of agricultural technology transfer, communication, extension programs for rural development, agricultural education research, agricultural extension teaching methods, education guidance and counseling, adult education, measurement and evaluation in education, extension for rural youth and women, etc.

The Department of Agricultural Education, Extension, and Short Courses has an extension cell that can act as a project management and coordination unit bringing in the special skills from other departments. The department also provides extension services to farmers within a 50km radius of the university.

<sup>15</sup> The details of the CELDAC project are described in Appendix L.

## **10.2.2 Limiting Factors or Weaknesses**

### **(1) Livestock and Fisheries Department**

#### **(i) Multi-disciplinary Extension Services**

The extension services for increasing animal productivity need to address various issues such as nutrition, fertility, health, education including awareness and knowledge, etc. The health issue is one of the important contributors for the improvement of animal productivity, but the department's extension has been heavily concentrating on the veterinary services. It is found in some projects in Punjab, if considered as successfully implemented, the extension teams always consist of veterinarian, agronomist, social mobilizer, etc. In Sindh, the Agri-Service Team of the dairy company and the extension service teams of PDDC are also formed by multi-disciplinary members.

It is difficult for the department to form such extension team only by its staff, coordination with other stakeholders is therefore needed. The candidates of the partners are the Department of Agriculture (agronomist), NGOs (social organizers and female field workers), etc. However, there is no coordination mechanism between the department and those candidates.

#### **(ii) Knowledge management**

The department has studied little on the previous programs and/or projects and other stakeholders' activities on extension service provision. This leads to the problem that the knowledge on the lessons learned on the success and failure of the past programs and projects have not been accumulated by the department.

#### **(iii) Effective use of existing resources**

The above issue affected the effective utilization of existing resources. For example, the department has neither the list of trained people like LLWs, CLEWs, female CLEWs, etc. nor the tracing on whether they are functioning or not. Although the department can utilize them as extension workers at the grassroots level, it does not make the best use of them.

Even though many staff of the department are the graduates from SAU and/or ATI (Sakrand/Jacobabad), ATI has seldom cooperated and/or interacted with SAU. The private sector and NGOs have been working with SAU and ATI well and exchanging useful information each other.

#### **(iv) Budgetary constraints**

In order to provide adequate services for all farmers, ideally one VO shall be allocated to each Taluka, and one SA to each U/C. According to the department, they have a plan to increase 100 VOs and 300 SAs in a few years and train 200 VOs (150 male and 50 female) and 1,000 SAs (500 male and 500 female) as extension workers. Nevertheless, the number is still far from ideal.

### **(2) Other Stakeholders**

PDDC transferred developed or improved technologies in 19 districts in Sindh. As the staff use vehicle, their mobility is high. However, since the number of PDDC staff is small and their ways of technical transfer require huge efforts and finance, PDDC cannot dramatically increase the number of the beneficiaries.

NGOs like NRSP, SRSO, TRDP, SAFWCO, etc. have a lot of experiences in social mobilization at the field, but the professional skills on livestock management are lacking. The PMSIL trained totally 335



CLEWs including 20 female in Sindh, but just for 6 months after the termination of the initiative, the active number of CLEWs decreased almost by half. CELDAC trained totally 1,143 LLWs in Sindh, and Engro Foods staff said that the rate of the active LLWs was around 30%. The CLEWs and LLWs are self-employed. It is most likely that those still active have been managing other duties, and therefore they are the potential extension workers for the Livestock and Fisheries Department.

SAU has the extension cell, and it is possible to receive the students from different domains. Moreover, ARI can offer the comprehensive extension training for the students in the agricultural extension course and the stock assistant course together. However, the linkage between them has not been very much close in terms of livestock extension. ARI is an institution under the Ministry of Agriculture, and therefore the collaboration between the department and ARI has not been very active.

**10.2.3 Countermeasures**

**(1) Governance Structure of Extension Services**

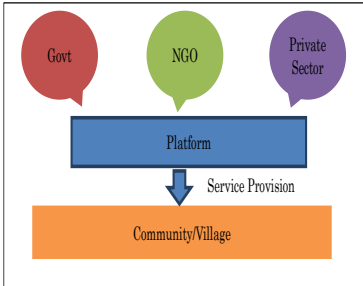
The extension services of the department should be able to provide proper disease control and measures for increasing animal productivity. It is therefore necessary that the department strengthens its extension capacity. A section to be responsible for extension should be established at the directorate level, and then such section should collect information on various extension activities conducted by different stakeholders.

There are programs and projects adopted various extension methods with trained extension workers at model sites. Given the limitation of financial, physical, and human resources (both quantity and quality), it is not appropriate that the department provides all needed extension services to the province. Therefore, the department should have good partners and share the responsibility of extension services among them. There are two options for a new extension system to be established.

Option 1 is that the department is the highest authority on extension activities as shown in the right and above figure. NGOs and the private sector provide extension services along with the government strategies and guidelines. It is however difficult and not possible since the department has no expertise.



Option 2 is an application of “platform approach” as shown in the right and below figure. The platform is responsible for the implementation based on the extension strategies prepared by the department, and the operational budgets for extension services and human resources can be pooled at the platform. The operational committee (or board) of the platform will be consisted of the government, NGOs, and private sector.



It is ideal if an operational committee is established at each administrative level; provincial, district, Taluka, and U/C. The operational committee at the provincial level will take responsibility of making strategies by referring to the reports and demands from the lower levels. The operational committees at the district and Taluka levels are the core actors in this system since for both public and

private organizations the staff at these levels work closely with the farmers at the field, and therefore they know the reality of the farmers and the necessary contents of extension services (information, skills, and knowledge). On the other hand, strong coordination and commitment among the members are needed to make this platform function as expected.

## **(2) Expected Roles of the Department**

The followings are the required roles for the Livestock and Fisheries Department for the betterment of extension service provision:

### a) Institutional building

- Institutional set up for establishing an extension sector within the department at the provincial as well as the district levels
- Establishment of a certificated extension worker system
- Allocation of budget on extension activities
- Establishment of a platform for extension of livestock technologies

### b) Organizational capacity building

- Strengthening of the capacity of RTI
- Strengthening of the coordination among the directorates of the department
- Strengthening of the coordination with stakeholders: formulation of the platform

### c) Individual capacity building

- Fostering of specialists in the fields necessary for livestock sector development
- Development of the skills of trainers
- Recruitment of female trainers
- Fostering of extension workers
- Demand-oriented human resource development
- Increase (enhance) in farmers' education

## **(3) Expected Characteristics of the Extension Services**

Through the analysis of previous and present extension practices in Sindh, the essence of the future extension services should be as follows:

- Appropriate skills: it should cover the fields of a) farming management, b) feeding management, c) facility management, d) fodder and pasture, e) reproduction, f) animal health, and g) improvement of genetics. The skills and methods to be transferred to farmers should be low cost, effective, easy (to adopt) and valid (well proven). They have to be developed together with the farmers at the field.
- Contents for extension: PDDC developed its own technical packages, and provided the training to their beneficiaries based on the packages. The packages cover various fields such as profitable ratio, financial planning, nutrition, fodder plans, crops, soil analysis, fertilizer, reproduction, young stock, genetics, and animal health. The contents are well developed and can be applied using inexpensive local materials.
- Facilitation of people's behavioral change: extension workers should build awareness on people for the betterment of their life through livestock development, and therefore help them succeed in their

livestock-related activities. The success will consequently lead them to change their behaviors.

- Practical advices: advices, which extension workers give to farmers, should be well verified their validity before dissemination. Extension workers have to apply their knowledge and skills according to the farmer's real situations/conditions. Also in transferring the technical knowledge and skills, the extension workers should demonstrate them at the field.
- Multi-disciplinary approach at the field: the livestock extension services should be provided through coordination among the professionals in the different fields such as animal husbandry experts, veterinarians, agronomists, social mobilizers, etc. The department does not need to employ all the professionals but needs to coordinate them.
- Improvement of the accessibility of the farmers to the resources: extension workers should bridge the gap between farmers and their needed resources including finance, human, infrastructures, information (including market), etc.
- Increase of female extension workers: it is necessary to increase the number of female extension workers. Considering the social barriers for women, any authorized organization(s) or person(s) have to raise awareness of the community leaders and develop supportive social environment for female extension workers to function as expected.
- Improvement of monitoring and evaluation (M&E): it is important that through the M&E activities every extension worker daily records his/her activities and use such information for the improvement (KAIZEN) of the work of themselves as well as the department.

## **Chapter 11**

# **Summary of the Major Issues for Livestock Development**

## **Chapter 11 Summary of the Major Issues for Livestock Development**

In the previous chapters, various potentials and limiting factors are pointed out related to livestock development, according to the results of the field survey by the Project Team. Table 11-1 summarizes those potentials and limiting factors by subject, which are considered as the major issues that should receive attention when the development plans are made.

Table 11-1 Potentials and Limiting Factors for Livestock Development by Subject

(1) Livestock Technology Development		Potentials	Limiting Factors
Subject	Description		
Farm Management	General	<ul style="list-style-type: none"> <li>• Long history of livestock production</li> <li>• Large consumption of milk in daily life</li> <li>• Significant roles of women for animal husbandry, particularly small size farmers</li> </ul>	<ul style="list-style-type: none"> <li>• Low production and low productivity</li> <li>• Lack of commercialization activity of farmers</li> <li>• Limited women's opportunity for training and earning</li> </ul>
	Milk Production	<ul style="list-style-type: none"> <li>• Larger milk production of adult female buffaloes than the one of cattle</li> <li>• Various dairy products including home made</li> </ul>	<ul style="list-style-type: none"> <li>• A significant difference in the per head milk production among colonies, irrigated area, and non-irrigated area</li> <li>• Few sales of milk processed products</li> <li>• Few production of home-made processed products</li> </ul>
	Meat Production	<ul style="list-style-type: none"> <li>• Large potential for halal meat export</li> <li>• Higher profitability of goat farming</li> <li>• Nearly doubled price of livestock during the period prior to Eid-ul-Azha</li> </ul>	<ul style="list-style-type: none"> <li>• Limited fattening business carried by only large scale farmers who can afford the capital investment</li> <li>• The period of sales is limited for Eid-ul-Azha</li> <li>• Low demand of processed meat products</li> <li>• Slaughter of young calves</li> <li>• Lower beef prices than mutton</li> <li>• High investment cost for purchasing camel</li> </ul>
Feeding Management	General	<ul style="list-style-type: none"> <li>• Mix faming system of agriculture and livestock</li> </ul>	<ul style="list-style-type: none"> <li>• Nutritional deficiency of the feed</li> </ul>
	Milk Production	<ul style="list-style-type: none"> <li>• Enormous and commonly shared traditional knowledge about animal husbandry among people with long history</li> </ul>	<ul style="list-style-type: none"> <li>• Large individual difference in milk production capacity</li> </ul>
	Meat Production		<ul style="list-style-type: none"> <li>• Large feed requirements for cattle and compared to goats</li> </ul>
Feedstuff	General		<ul style="list-style-type: none"> <li>• Low priority of planting of fodder crop</li> <li>• High dependency (60%) of nutrients requirements on grazing wild grass</li> <li>• Lack of fodder especially in November and December</li> </ul>
	(In irrigated area)	<ul style="list-style-type: none"> <li>• Large amount of crop residues and potential to increase the crude protein (CP) with ammonia or urea treatment.</li> <li>• Milling by-products with a relatively high CP</li> <li>• Oil seed by-products with high protein content</li> <li>• Large potential of agro-industrial by-products</li> <li>• Simultaneous production system</li> <li>• Camel and sheep which can be grazed on the unsuited land to agriculture</li> </ul>	<ul style="list-style-type: none"> <li>• Limited access to quality feed especially for landless or tenants with small farming</li> <li>• Limited sharing technical information</li> <li>• Absence of nutritious management</li> </ul>

Subject	Description	Potentials	Limiting Factors
		<ul style="list-style-type: none"> <li>• Widely grown weeds under fruits trees</li> <li>• Potential by planting fodder tree</li> <li>• Potential of Babal for fodder</li> <li>• Potential of stubble and fallow</li> <li>• Custom of cut and carry system</li> <li>• Potential of edible salt tolerant plants such as Kallar Mar grass, etc.</li> </ul>	
Reproduction	(In non-irrigated area)	<ul style="list-style-type: none"> <li>• Knowledge of indigenous feed resources</li> <li>• Open access to vast grazing land</li> <li>• Self-sufficient subsistence</li> <li>• Availability of drinking water for animal at each village</li> <li>• Edible draught and saline tolerant plants</li> </ul>	<ul style="list-style-type: none"> <li>• Fluctuation of rainfall</li> <li>• Low water holding capacity in Tarparkar</li> <li>• Unstable crop yields caused by rain-fed cultivation</li> <li>• Weak sharing of technical information</li> <li>• Shortage of drinking water from May to June in some wells</li> <li>• Absence of drinking points in the vast grazing land</li> <li>• Low conception rates</li> <li>• Late maturation of both buffalo and Red Sindhi cattle</li> </ul>
Animal Health	General	<ul style="list-style-type: none"> <li>• Vaccination service by the department</li> <li>• The Central Veterinary Diagnostic Laboratory (CVDL), and animal disease prevention network, and the reporting system of epidemic disease</li> <li>• Vaccine production unit by the department</li> <li>• 2000 unemployed veterinarians</li> <li>• 25 pharmaceutical companies supplying veterinary medicines to famers</li> </ul>	<ul style="list-style-type: none"> <li>• 34% specimens infected by parasitic disease and 8% specimens infected other diseases among 8620 received specimens</li> <li>• Occurrences of brucellosis and bovine tuberculosis</li> <li>• Transmission of bovine tuberculosis to human being</li> <li>• Lower sales price of vaccine produced by the government than the cost of production</li> <li>• Less supply of vaccines compared to demand</li> <li>• Lower vaccination ratio of FMD at rural farmers especially in non-irrigated area</li> <li>• Lack of farmers' awareness for disease prevention</li> <li>• Lack of high-level analyzing equipment for animal disease prevention such</li> <li>• High subclinical mastitis</li> </ul>
Milk production	Milk production		
Meat production	Meat production		<ul style="list-style-type: none"> <li>• High mobility and morality rate of goats compared to cattle</li> <li>• More profound effects of diseases on goats than sheep</li> <li>• Prevalent pneumonia of camel</li> </ul>
Breeding	Milk production	<ul style="list-style-type: none"> <li>• The original famous tropical dairy livestock breeds of cattle and buffalo such as Kundhi, Nili-Ravi, Red Sindhi, Tharparkar, Kankrej</li> </ul>	

Subject	Description	Potentials	Limiting Factors
Genetic Improvement	Meat production	<ul style="list-style-type: none"> <li>Indigenous sheep and goats of Sindh that can endure in arid and environmentally harsh districts</li> </ul>	
	Breeding improvement	<ul style="list-style-type: none"> <li>Various native breeds adapted to harsh environmental conditions</li> <li>Sindh Livestock Breeders Association Pakistan, would lead livestock breeding in Sindh</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate breeding improvement institution</li> <li>Limited scale breeders</li> <li>Yet-to-be-used identification card to carry out the correct selection and culling</li> <li>Unclear capability of livestock types and unclear direction of their improvement</li> </ul>
	Artificial insemination (AI)	<ul style="list-style-type: none"> <li>A high potential to improve the capability of native breeds through AI</li> <li>An AI center in Kot Ali Haider Shah village, Matiari District</li> </ul>	<ul style="list-style-type: none"> <li>Little artificial insemination of cattle being carried out properly</li> <li>Low conception rate for buffalo</li> <li>Low AI technology with strict selection for capability</li> <li>Poor frozen semen production without proper recording</li> <li>Few trained AI technicians and absent of proper institute for AI training</li> </ul>
	Kundhi Buffalo	<ul style="list-style-type: none"> <li>Large number of Kundhi buffalo in Sindh</li> <li>Sturdy and well-formed legs using the Holstein liner classification procedure</li> <li>Large rumen which enable buffalo to eat hard grasses</li> </ul>	<ul style="list-style-type: none"> <li>Improvable udders and body size</li> <li>Small scale of Kundhi breeding</li> <li>Unclear suitable feed standard and feed conversion</li> <li>Undefined selection and culling of animal criteria and direction of improvement</li> </ul>
	Red Sindh	<ul style="list-style-type: none"> <li>The original breed in Sindh</li> <li>Heat enduring breed and strong resistance to disease and endo- and ecto-parasites</li> </ul>	<ul style="list-style-type: none"> <li>Small scale of Red Sindh breeder</li> <li>Unclear selection and culling animal criteria and direction of improvement</li> </ul>



## (2) Marketing Improvement

### (a) Value Chain

Subject	Perspective	Potentials	Limiting Factors
Milk	Distribution channel	<ul style="list-style-type: none"> <li>High demand of milk especially in cities</li> <li>Milk processing companies started milk collection at rural Sindh with cold chain system</li> </ul>	<ul style="list-style-type: none"> <li>Big gap in farm gate price between urban and rural</li> <li>Lack of cold chain system</li> <li>Shortage of quality milk</li> <li>Migration of people and animals</li> <li>Poor road condition at rural area</li> <li>Scattered villages at the rural areas for milk collection</li> </ul>
	Quality control		<ul style="list-style-type: none"> <li>Shortage of quality milk</li> <li>Lack of cold chain system</li> <li>Lack of quality check system</li> </ul>
Meat (beef and mutton)	Distribution channel	<ul style="list-style-type: none"> <li>Establishment of livestock market at district level</li> <li>No necessity of cold chain for transportation of livestock</li> </ul>	<ul style="list-style-type: none"> <li>Poor facility and management of livestock markets</li> <li>Unclean and nonfunctional slaughterhouses</li> </ul>
	Quality control		<ul style="list-style-type: none"> <li>No linkage between quality and price</li> </ul>

### (b) Export

Subject	Perspective	Potentials	Limiting Factors
Milk and Meat	Distribution channel	<ul style="list-style-type: none"> <li>Large milk and meat consuming Islamic countries are close</li> </ul>	<ul style="list-style-type: none"> <li>Smuggling</li> <li>Insufficient production of livestock for meat</li> <li>Increase in production cost of meat</li> </ul>
	Quality control	<ul style="list-style-type: none"> <li>Large potential of halal products to Islamic countries</li> </ul>	<ul style="list-style-type: none"> <li>No existence of Islamic authority to ensure halal products in Sindh</li> <li>Contamination by diseases such as FMD, tuberculosis, and brucellosis</li> </ul>

### (3) Nutritious Improvement

Potentials		Limiting Factors
<ul style="list-style-type: none"> <li>Sindh province has enough livestock to meet minimum requirement of animal-based calories for the population.</li> </ul>		<ul style="list-style-type: none"> <li>The limiting factors of food access and intake are income (affordability), market access, and knowledge about the importance of nutrition</li> </ul>

**(4) Entrepreneurship Development**

Potentials	Limiting Factors
<ul style="list-style-type: none"> <li>Strong social tie between people in the same Biradari group</li> <li>Commonly practiced collective work by close relatives</li> <li>Participation of community in the decision making process</li> <li>Custom of livestock sharing</li> <li>Culture to share milk among relatives and neighbors for free</li> </ul>	<ul style="list-style-type: none"> <li>Weak social tie between people in different endogamous groups</li> <li>Strong influence of landlords on decision making including development issues</li> <li>Social disparity between landlords and non-landholders, particularly in upper Sindh</li> <li>Inactive participation to community organizations</li> <li>Limited access to formal credit schemes for small and landless farmers</li> </ul>

**(5) Extension System Development**

Potentials	Limiting Factors														
<ul style="list-style-type: none"> <li>Candidates of extension workers <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>LFD</td> <td>DVM, SA, (Para-vet)</td> </tr> <tr> <td>Private Sector</td> <td>Dairy Producing company, Pharmaceutical company</td> </tr> <tr> <td>NGO</td> <td>DVM, SO</td> </tr> <tr> <td>Projects</td> <td>LLW, CLEW</td> </tr> </table> </li> <li>The existing animal diagnosis network of the LDF</li> <li>Training institutions for extension <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>LFD</td> <td>RTI, ATI (Agri Dep.)</td> </tr> <tr> <td>Univ.</td> <td>Sindh Agricultural Univ., Sindh Univ.</td> </tr> <tr> <td>NGO</td> <td>SPO, IRM</td> </tr> </table> </li> <li>Opportunity for lessons learnt from past and on-going projects, NGOs and private sectors regarding extension service provision</li> </ul>	LFD	DVM, SA, (Para-vet)	Private Sector	Dairy Producing company, Pharmaceutical company	NGO	DVM, SO	Projects	LLW, CLEW	LFD	RTI, ATI (Agri Dep.)	Univ.	Sindh Agricultural Univ., Sindh Univ.	NGO	SPO, IRM	<p>[LFD]</p> <ul style="list-style-type: none"> <li>No particular organization in charge of livestock technical extension both in province level and district level</li> <li>Few practices of multi- disciplinary extension service by LFD</li> <li>No knowledge management mechanism within LFD [Other stakeholders]</li> <li>Ineffective use of existing resources (duplication, unfair distribution, etc.)</li> <li>Unsustainable intervention</li> <li>Expensive</li> <li>No coordination</li> </ul>
LFD	DVM, SA, (Para-vet)														
Private Sector	Dairy Producing company, Pharmaceutical company														
NGO	DVM, SO														
Projects	LLW, CLEW														
LFD	RTI, ATI (Agri Dep.)														
Univ.	Sindh Agricultural Univ., Sindh Univ.														
NGO	SPO, IRM														

**(6) Strengthening of the Department**

Potentials	Limiting Factors
<ul style="list-style-type: none"> <li>A number of the technical staff allocated to all over the province.</li> <li>A number of animal health facilities in all the districts of the province.</li> <li>A system of monthly reporting on the activities, budgets and work progress from field up to DG's office.</li> <li>Responsible officers at the provincial and district levels visit the fields and monitor the work done.</li> <li>An immediate and united action can be taken, for the outbreak of an epidemic disease or other emergency cases, under the strong direction from the DG's office.</li> </ul>	<ul style="list-style-type: none"> <li>The offices of the directorates are scattered in the province.</li> <li>No consolidated and integrated action plan as a department.</li> <li>No development policy, strategy and plan under which all the directorates are guided to act.</li> <li>No evaluation system of development activities, so the lessons in previous schemes are not effectively reflected to new schemes.</li> <li>The activities of the directorates which largely depend on whether their proposed schemes are budgeted or not.</li> <li>Inadequate institutional capacity to respond to various needs of the livestock farmers.</li> <li>Many department staff who are not equipped with necessary skills.</li> <li>Suspended recruitment of the permanent staff for long time.</li> </ul>