

Assessment of Livestock Service Delivery System in Cold Desert Region of Jammu and Kashmir

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ABSTRACT

Ladakh comprising two districts Kargil and Leh called as cold desert region of Jammu and Kashmir wherein the role of livestock is tremendous in providing a substantial share in farmer's economy. The role of extension personnel in such difficult areas is more crucial as it remains isolated from rest of the country for nearly half of a year and becomes challenging to provide livestock services to the farmers round the year. It was therefore felt imperative to know the perception of extension personnel about the service delivery of SDAH. The results revealed that 53.84 per cent veterinarians were in younger age having less than 5 years of experience. Self-confidence was higher among veterinarians (69.23%) than para-veterinarians (35.29 per cent). Although majority of veterinarians and para-veterinarians showed higher perception towards service delivery by state department, a significant difference was observed among veterinarians and para-veterinarians towards the same. Several problems were pointed out by both veterinarians and para-veterinarians that caused hindrance in delivering the service to the farmers. Majority of farmers opined that they had medium accessibility of livestock services with medium satisfaction level. Involvement of private and community para-veterinarians can be of help in enhancing the livestock services required by farmers, as they perceived.

Key words: Perception; Extension delivery system; Problems in extension; Para veterinarians;

The State of Jammu and Kashmir comprises of three regions namely Jammu, Kashmir and Ladakh having distinct geographical outlook and agro climatic zones that largely determines the different cropping pattern and productivity of crops and livestock. Of these, the Ladakh region is one of the most remote and sparsely populated regions covering an area of 80,000 sq. km and ranging in elevation from 2600m to 7670m with extreme weather, the temperature varying between 35 to -40°C and enjoy a stable economy based on self-reliance, mainly through its subsistence agriculture including livestock.

Traditionally, livestock in cold desert region of Jammu and Kashmir plays a greater role and contributes about 60 per cent to their economy which is a major source of livelihood for them (Annual Report, 2006). Livestock fulfills the nutritional requirement for the majority of Ladakh population (LAHDC, 2004) and it

is rightly quoted that the importance of livestock in fragile ecosystems goes beyond its food production function (Birthal et al., 2002). Besides providing quality protein in the form of meat, milk and eggs, they provide much needed draft power, pack animal services and nutrient rich organic manure. The region shares 5.44, 16.04, 2.6 and 3.5 per cent of sheep, goat, cross breed and local cattle of the state, respectively. But the population diversely varied in respect of area e.g. cattle population concentrated in Leh, Chochut, Dzoo/ Dzomo in Khalsti, Yak in Nyoma and small ruminants concentrated in Dukbuk and Nyoma etc. and therefore the livestock services required by them varies greatly and critical, as higher level of perception of farmers towards the role of extension, better would be maintenance management of animal (Guntoro, et al., 2014). Providing service to the farmers is further complicated by harsh climatic conditions and scattered

villages that are located between small areas of land in the river valleys of the Indus and its tributaries Shayok and Zanskar. Under these circumstances, role of extension personnel is of paramount importance to fulfill the farmer expectations for better animal survival and keep maintaining the enterprise feasible for common livestock farmers. Keeping this in view, the present study was undertaken in order to know the perception of extension personnel about the livestock service delivery system in cold desert region of Jammu and Kashmir.

METHODOLOGY

The study was carried out in both the districts of Ladakh that comes under the purview of Kashmir division. Unlike other parts of the country, there are two different establishments viz. Animal and Sheep Husbandry in Jammu and Kashmir. Chief Animal Husbandry Officer (CAHO) under Animal Husbandry Directorates and District Sheep Husbandry Officer (DSHO) under Sheep Husbandry Directorates function at district level under which different VAS works with the help of para-veterinarians. Considering the limited number of VAS, a total of 30 personnel comprising both Veterinarian and para-veterinarian from the entire region were selected for the present investigation. Further, two blocks (Nyoma and Chuchot from Leh and Kargil and TSG from Kargil district) from each district were selected, from where 3 villages were chosen for farmers selection. Further, 10 farmers each from three selected villages within one selected block were selected randomly as farmer's sample (total 120). Selected farmers were interviewed personally whereas the employees were given questionnaire. Different parameters set for the study were personal characteristics of the employee, level of confidence, perception about SDAH (state department of animal husbandry, commonly used for both animal and sheep husbandry) extension delivery system, problems perceived etc. Similarly, farmers were assessed in terms of accessibility of different extension service along with their level of satisfaction in availing such service by the SDAH. Different statistical tools used for interpreting the data were simple descriptive statistics. To categorize the respondents according to different parameters, viz. self-confidence, perception etc, maximum and minimum obtainable score in different point continuum scales were used. Problems in service delivery were estimated based

on weighted mean score of each identified problems. Other statistical tests used were Spearman's rank correlation and Chi-square test.

RESULTS AND DISCUSSION

Profile of the SDAH personnel :It is evident from the Table 1 that para-veterinarians were older than veterinarians which reflects their job experience. The average job experience for veterinarians and para-veterinarians were about 6 and 29 years respectively that sufficiently justified the age group difference between these two. Results were in line with that of *Keshari (1999)* and *Sikhakolanu (2007)* who indicated the lowest per centage of higher level SDAH personnel in young age category. *Sikhakolanu (2007)* further mentioned that VAS belonged to younger age group and had least experience.

Out of average 29 years of service, about 1/3rd of the para-veterinarians were found to attend training programme either once or twice. Similarly, more than 60 per cent veterinarians did not attend any training at all. A contrasting result reported by *Sasidhar (2002)* who found that majority of the veterinarians belonged to medium category for trainings undergone. The difference in the results with previous researcher may be due to less service period, lack of available personnel in the department etc. in the present area of investigation. Training amongst the para-veterinarian was also not found to be a regular practice in the entire region, which may be due to several factors viz. administrative, financial or lack of need assessment by higher authority. Small ruminant was the animal most frequently handled by both types of employee, certainly because of dominant species in the region as the case of Ghana where most common species handled by veterinarians was small ruminant, *Turkson (2003)*. Although different livestock service delivery institutes were established by both sheep and animal husbandry department strategically, existence of mixed livestock population was the reality for which the available employees irrespective of profession and department had to attend all the species in that locality were the reason in conformity with the present findings as depicted in Table 1.

Higher level of self-confidence was observed among majority of veterinarians engaged in both animal and sheep husbandry department. But, self confidence

Table 1. Personal characteristics of SDAH personnel

Characteristics	A H Dept		S H Dept		Pooled (N=30)	
	VET (n=8)	PVET (n=8)	VET (n=5)	PVET (n=9)	VET (n=13)	PVET (n=17)
<i>Age</i>						
Young	4 (50.00)	0 (0.00)	3 (60.00)	0 (0.00)	7 (53.84)	0 (0.00)
Adult	4 (50.00)	6 (75.00)	1 (20.00)	0 (0.00)	5 (38.46)	6 (35.29)
Older	0 (0.00)	2 (25.00)	1 (20.00)	9 (100.00)	1 (7.69)	11 (64.70)
Mean \pm SD	34 \pm 5.95	44.50 \pm 2.33	34.20 \pm 8.38	56.67 \pm 1.58	34.07 \pm 6.64	50.94 \pm 6.54
<i>Job Experience</i>						
< 5 Years	3 (37.50)	0 (0.00)	3 (60.00)	0 (0.00)	6 (46.15)	0 (0.00)
5-10 years	1 (12.50)	0 (0.00)	1 (20.00)	0 (0.00)	2 (15.38)	0 (0.00)
> 10 years	4 (50.00)	8 (100.00)	1 (20.00)	9 (100.00)	5 (38.46)	17 (100.00)
Mean \pm SD	8 \pm 5.29	22.75 \pm 5.67	4.20 \pm 4.60	34.67 \pm 2.59	6.53 \pm 5.21	29.06 \pm 7.42
<i>Training undergone</i>						
None	7 (87.50)	2 (25.00)	1 (20.00)	4 (44.44)	8 (61.53)	6 (35.29)
1 no	1 (12.50)	6 (75.00)	1 (20.00)	0 (0.00)	2 (15.38)	6 (35.29)
2 nos	0 (0.00)	0 (0.00)	3 (60.00)	5 (55.55)	3 (23.07)	5 (29.41)
<i>Species handle</i>						
Bovine	8 (100.00)	8 (100.00)	1 (20.00)	5 (55.50)	9 (69.23)	13 (76.47)
Small ruminant	8 (100.00)	8 (100.00)	5 (100.00)	9 (99.90)	13 (100.00)	17 (100.00)
Equine	7 (87.50)	8 (100.00)	1 (20.00)	5 (55.50)	8 (61.53)	13 (76.47)
Poultry	7 (87.50)	8 (100.00)	1 (20.00)	4 (44.40)	8 (61.53)	12 (70.58)
<i>Self confidence</i>						
Low	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Medium	3 (37.50)	8 (100.00)	1 (20.00)	3 (33.33)	4 (30.77)	11 (64.71)
High	5 (62.50)	0 (0.00)	4 (80.00)	6 (66.67)	9 (69.23)	6 (35.29)

Figures in parenthesis indicate per cent, VET- Veterinarian, PVET- Para veterinarian, AH -Animal Husbandry, SH- Sheep Husbandry

Table 2. Perception of SDAH personnel towards livestock service delivery

Category	AH Department		SH Department		Pooled	
	VET (n=8)	PVET (n=8)	VET (n=5)	PVET (n=9)	VET (n=13)	PVET (n=17)
Low	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)
Medium	4 (50.00)	0 (0.00)	1 (20.00)	0 (0.00)	5 (38.46)	0 (0.00)
High	4 (50.00)	8 (100.00)	4 (80.00)	9 (100.00)	8 (61.54)	17 (100.00)
Chi-square	5.33*		1.93 (NS)		7.86*	

Figures in parenthesis indicate per cent, * Significant at 5 % level, AH -Animal Husbandry, SH- Sheep Husbandry

among all the para-veterinarians were found at medium level who were working under animal husbandry whereas majority (66.67%) of same category respondents engaged in sheep husbandry, had higher level of self-confidence. Higher confidence among the veterinary student as reported by Jagadeeswary (2003) might be the reason for such result as they undergo vigorous professional training before their engagement in their respective department. However, higher level of confidence among the para-veterinarian might be due

to their long association with the department and exposure to varied situations.

Perception of SDAH personnel towards livestock service delivery: The results in the Table 2 reveals that half of the veterinarian from animal husbandry and 80 per cent veterinarian from sheep husbandry had higher level of perception towards their livestock service delivered. Unlike the veterinarians, all the para-veterinarians' perception towards SDAH service delivery was high and there was significant difference

Table 3. Problems perceived by SDAH personnel in livestock service delivery (N=30)

Statement	VET (n=13)	Rank	PVET (n=17)	Rank
Absence of efficient diagnostic laboratories with sufficient infrastructures	2.250	VI	1.824	XII
Lack of sufficient supply of drugs and vaccines	2.636	II	2.461	II
Lack of insufficient infrastructure facilities for providing clinical services	1.636	XXII	2.143	V
Inadequate veterinary staff and larger area of coverage	2.500	IV	2.467	I
Inadequate budget allotment for provision of veterinary services	2.000	XI	1.816	XIII
Lack of adequate training facilities	1.963	XII	1.765	XIV
Inadequate coordination with other agencies	2.364	V	1.923	X
Unrealistic physical target in livestock service delivery	1.877	XVII	1.511	XIV
Lack of sufficient infrastructure for extension services	1.923	XIII	1.294	XXI
Low mobility in rural areas due to lack of vehicle and recurring expenditure	1.917	XIV	1.538	XVIII
Lack of coordination with superior	2.200	VII	1.706	XVI
Lack of sufficient time in extending extension services	1.889	XVI	1.733	XV
Overburdening with administrative tasks	1.857	XVIII	2.150	IV
Additional charges for various other veterinary institution	1.667	XXI	2.077	VI
Poor pay and incentives from government	2.167	VIII	1.909	XI
Lack of adequate equipments	1.769	XIX	1.276	XXII
Lack of lodging facilities – quarter	1.625	XXIII	1.612	XVII
Harsh climate causes restricted movement	2.154	IX	2.059	VII
Language barrier	1.500	XXIV	1.000	XXIV
Far from home place	2.600	III	1.250	XXIII
Limited accessibility of villages	1.900	XV	1.988	IX
Villages are too dispersedly located	2.736	I	2.000	VIII
Farmers are not willing to take services	1.714	XX	1.500	XX
Area of operation is too large	2.083	X	2.276	III

Figures are mean score, VET- Veterinarian, PVET- Para veterinarian, Spearman's rho Correlation Coefficient= 0.328 (NS)

in opinion of these two groups. The results of the study were partly in line with that of *Ravikumar (2005)* who reported that majority of the Veterinarians under SDAH in Tamil Nadu had neutral attitude towards the livestock extension service delivery. *Rajput (2006)* also observed similar findings that the veterinary officers perceived no changes in many aspects. But a considerable size of the veterinarians (about 40%) had medium level of perception towards state's livestock service delivery. Several factors like position they hold, place of posting, types of programme they were handling and the department under which they work etc were might be few reasons for the differences in opinion.

Problems perceived by SDAH personnel in livestock service delivery: A sufficient difference was observed about the problems perceived by the veterinarians and para-veterinarians (Table-3). These differences, in ranking the problems might be due to the several factors, e.g. dispersedly located villages was

listed on top by veterinarian whereas the same was placed at 8th position by para-veterinarians. This might be due to the fact that most of the para-veterinarian were local of that place as it can be seen from the problems regarding location of office which ranked by the veterinarian as 3rd whereas the para-veterinarian placed the same at second to last. Similarly, inadequacy of staff in the department was felt more intense by the para-veterinarian than the veterinarian possibly because of their sole responsibility in all the main and most numbered extension delivery unit i.e. sheep extension centre (manned by one flock supervisor and 2 ASM) under sheep husbandry or livestock development centre (manned by one senior veterinary pharmacist with 2 attendant) under animal husbandry department. Similar findings also reported by *Sikhakolanu (2007)*, *Sasidhar et al. (2001)* who reported non-availability of drug and medicine as major setback in discharging their duties.

Table 4. Opinions of SDAH personnel about private participation in livestock services delivery

Statements	A H Dept		S H Dept		Pooled	
	VET (n=8)	PVET (n=8)	VET (n=5)	PVET (n=9)	VET (n=13)	PVET (n=17)
Reduces the financial burden on government	6(75.00)	8(100.00)	4(80.00)	9(100.00)	10(76.92)	17(100.0)
Ensures timeliness in delivery of goods and services	4(50.00)	8(100.00)	4(80.00)	8(88.00)	8(61.54)	16(94.11)
Assures the availability of veterinary services round the clock	6(75.00)	8(100.00)	3(60.00)	7(77.77)	9(69.23)	15(88.23)
Assures continuous supply of drugs and other inputs	6(75.00)	8(100.00)	3(60.00)	7(77.77)	9(69.23)	15(88.23)
Assures availability of services to all the areas	5(62.50)	4(50.00)	0(0.00)	4(44.44)	5(38.46)	8(47.05)
Offers satisfaction for farmers in receiving livestock services	5(62.50)	4(50.00)	1(20.00)	5(55.55)	6(46.15)	9(52.94)
Ensures quick delivery of information on new techniques	7(87.50)	8(100.00)	4(50.00)	8(88.88)	11(84.61)	16(94.11)
Assures provision of problem solving on –farm consultancy service	7(87.50)	8(100.00)	4(50.00)	8(88.88)	11(84.61)	16(94.11)
Ensures service in all weather	6(75.00)	8(100.00)	4(80.00)	8(88.88)	10(76.92)	16(94.11)
More acceptability by the farmers	4(50.00)	4(50.00)	3(60.00)	6(66.66)	7(53.84)	10(58.82)

Figures in parenthesis indicate per centage, VET- Veterinarian, PVET- Para veterinarian, AH -Animal Husbandry, SH- Sheep Husbandry

Table 5. Opinions of SDAH personnel about community para-veterinarian in livestock services delivery

Statements	A H Dept		S H Dept		Pooled	
	VET(n=8)	PVET(n=8)	VET(n=5)	PVET(n=9)	VET(n=13)	PVET(N=17)
<i>Desired Education level</i>						
HSLC	7(87.50)	5(62.50)	3(60.00)	4(44.44)	10(76.92)	9(52.94)
HS	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)	0(0.00)
UG	1(12.50)	3(37.50)	2(40.00)	5(55.55)	3(23.07)	8(47.05)
<i>Which group they should belong to</i>						
Govt	5(62.50)	5(62.50)	4(80.00)	4(44.44)	9(69.23)	9(52.94)
Community	3(37.50)	3(37.50)	1(20.00)	5(55.55)	4(30.76)	8(47.06)
<i>Whether they should be supervised</i>						
Yes	8(100.00)	8(100.00)	3(60.00)	7(77.77)	11(84.61)	15(88.23)
No	0(0.00)	0(0.00)	2(40.00)	2(22.22)	2(15.38)	2(11.76)

Figures in parenthesis indicate per cent, VET- Veterinarian, PVET- Para veterinarian, AH -Animal Husbandry, SH- Sheep Husbandry

Opinions of SDAH personnel on private participation in livestock services delivery: Since the entire region experiences extreme weather for about half of the year and villages are in far flung remote dispersedly located area, farmers remain deprived or in difficult situation to avail the different service provided by the SDAH. The situation can be eased to some extent by private participation in many ways particularly nearer to township as felt by most of the SDAH personnel (Table 4). But, assuring availability of services to all the areas was not felt much important advantage by majority of the respondents, which are not feasible particularly in remote areas of such cold desert. Similar finding also found in Andhra Pradesh by *Sikhakolanu (2007)*, who

reported 63.04, 55.6, & 31.1 per cent SASs, veterinarians and PVPs respectively were in opinion that private participation reduces the financial burden on government followed by 68.3, 58.9 & 35.6 per cent respondents of same order in assuring veterinary service round the clock.

Opinions of SDAH personnel about community para-veterinarian in livestock services delivery: About 75 and 50 per cent veterinarians and para-veterinarians respectively felt HSLC (high school leaving certificate) as the basic required degree for a community para-veterinarian. Majority of the respondents either veterinarian or para-veterinarian opined that community para-veterinarian should belong to government and their

Table 6. Opinion of farmers about accessibility of livestock service delivery of SDAH

Category	Kargil		Leh		Kargil (n=60)	Leh (n=60)	Pooled (N=120)
	Kargil (n=30)	TSG(n=30)	Chochut (n=30)	Nyoma (n=30)			
Low	3(10.00)	3(10.00)	4(13.33)	24(80.00)	6(10.00)	28(46.67)	34(28.33)
Medium	22(73.33)	18(60.00)	16(53.33)	6(20.00)	40(66.67)	22(36.67)	62(51.67)
High	5(16.67)	9(30.00)	10(30.00)	0(0.00)	14(23.33)	10(16.67)	24(20.00)
Chi-square	57.06 **					20.18**	

Figures in parenthesis indicate per cent, ** Significant at 1 % level

Table 7. Level of satisfaction as perceived by the famers' about livestock service delivery

Category	Kargil		Leh		Kargil (n=60)	Leh (n=60)	Pooled (N=120)
	Kargil (n=30)	TSG(n=30)	Chochut (n=30)	Nyoma (n=30)			
Low	5(16.67)	6(20.00)	9(30.00)	10(33.33)	11(18.33)	19(31.67)	30(25.00)
Medium	22(73.33)	18(60.00)	15(50.00)	16(53.33)	40(66.67)	31(51.67)	71(59.17)
High	3(10.00)	6(20.00)	6(20.00)	4(13.33)	9(15.00)	10(16.67)	10(15.83)
Chi-square	5.30 ^{NS}					3.32 ^{NS}	

Figures in parenthesis indicate per cent, ** Significant at 1 % level

work needs to be supervised. Community para-veterinarians with higher degree might have more chances to leave the profession, which may be the possible reason for choosing lower qualification. Since the earning / livelihood option of people in the region remain limited to nearly half of the year, providing a secure source of income to the community para-veterinarians might be another reason for which most of the respondents wanted them to be a part of government.

Opinion of farmers about accessibility of livestock service delivery of SDAH: The pooled sample indicate farmers' opinion varied from middle to lower side because of extremely less accessibility by the Nyoma farmers. Accessibility of SDAH service by the farmers excluding Nyoma block would be medium and higher, that seemed a quite higher as compared to earlier researcher like *Sikhakolanu (2007)* according to whom the corresponding figures were about 42 and 36 per cent, respectively. Medium level of accessibility to avail the SDAH service in this region may be due to the number of institute established by both the department separately to meet the need of different types of farmers. Further, the accessibility across the block varied significantly, which might be due to the common parameters used for all the areas which otherwise does not exist across the region. e.g. the farmers from Nyoma did not access AI / pregnancy diagnosis / clinical (particularly surgical intervention) facility whereas mass dipping of small ruminant and deworming were not a

common practice in the other blocks but were altogether used for the assessing the accessibility of livestock service delivery.

Level of satisfaction as perceived by the famers' about the livestock service delivery: Similar to accessibility, majority of 60 per cent farmers were satisfied to some extent with the existing SDAH service at medium level followed by 1/4th farmers who were not satisfied for the same. Livestock farmers were frequently dispersed and were usually non-uniform in their needs. Despite of several attempts like vaccination, deworming programme, fodder and mineral mixture distribution etc by both the departments, the farmers might not be able to compensate the loss incurred during winter and thereby showed such lower level of satisfaction. *Sikhakolanu (2007)* while studying the state animal husbandry service delivery in Andhra Pradesh also reported that 30, 42.5 and 27.5 per cent farmers showed low, medium and higher satisfaction level, respectively.

CONCLUSION

Younger aged with least experience and training were the prominent characteristics of veterinarians but they had a higher level of confidence that can be harnessed if properly planned. A sizeable portion of veterinarian had shown the medium level of perception towards livestock service delivery, indicating the need for further improvement in the service delivery to serve

the farmers better. Therefore, there is more scope for intensification of service delivery that will enhance the level of farmers satisfaction which otherwise is found to be at medium to low level. But there are several problems as perceived by the employees that hinder the discharge of livestock service which need to be addressed properly to meet the expectation of farmers who had low accessibility to the service. Involvement

of private and community para-veterinarians can prove to off shoot many of the problems like reducing the burden of government, providing service to the farmer round the clock, ensuring all weather service, timely and quick supply of medicine etc. Similarly involvement of community para-veterinarians may be promoted for providing efficient and effective livestock services to the farmers at dispersedly located villages.

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