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### RESEARCH ARTICLE

## Empowerment of Smallholder Communities through Livestock in Periphery Areas of Cholistan Desert, Bahawalpur, Pakistan

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### ABSTRACT

Livestock is the prominent feature of rural life and its undocumented economy. The present study speaks about rearing livestock and its impact on social and economic life of locals residing in the periphery of Cholistan desert. Purposive sampling technique was employed to collect required data from smallholders. For this purpose, 103 population units were selected as sample for study from four different union councils of Tehsil Yazman. However, prior to data collection consent was taken from respondents to be interviewed. The study comes up with the findings that major component of livestock in Cholistan entails 70 percent cows, 68 percent goats and 47 percent sheep and 78 percent Cholistan people rear 5-12 cattle as valuable assets. Ownership of the livestock goes up to 62 percent whereas, 30 percent people keep animal on sharing basis. The practice of rearing livestock is 69 percent motivated for being prompt income source, 67 percent for being occupation of ancestors, 65 percent for domestic use, 53 percent for its being additional source of income and 35 percent for personal interest. According to 36 percent and 20 percent respondents resale value and production of livestock is reasonable and very reasonable respectively in contrast with 33 percent low and 8 percent very low resale value. It was further revealed that 64 percent respondents use income, earned from livestock, on fulfilling household needs, 46 percent spend it for social betterment, 45 percent make addition in existing livestock assets, 39 percent consume income for maintaining status quo, 36 percent invest on education of children, 31 percent for getting health services and 27 percent use it on social events. The results of the study revealed general betterment and elevating trend in socio-economic conditions of smallholders through raising livestock.

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### INTRODUCTION

More than 60 percent people reside in rural areas in Pakistan (Anonymous, 2013b; Raza et al., 2012). In global scenario, majority people reside in rural areas irrespective of any census about poverty. Until 2035, half of dollar-poor people will be residing in rural communities (Otte et al., 2012). Worldwide, livestock is taken as important element of agriculture capital (Braun, 2010). Pakistan as an agricultural country possesses lot of space and possibilities for crops and livestock (Rehman et al., 2013). Livestock has vital role in agriculture and overall economy of Pakistan

(Hasnain and Usmani, 2006). Being important sub-sector of agriculture, it includes all kind of domestic animals i.e., buffalo, cow, goats, poultry, horses and donkeys etc. (Raza et al., 2012). Agriculture sector gets 50 percent income from livestock contributions (Khan and Khan, 2015). Rural communities in Punjab Province get 30-40 percent of their income from livestock (Anonymous, 2013b). Anonymous (2013a, b) claim 55.4 percent contribution of livestock in agriculture during 2012-13 while Ali and Khan (2013) reports 54.6 percent share in agriculture value. Contribution of livestock towards Pakistan's total GDP is 11 percent and this sector engages nearly 30 million

people (Ali & Khan, 2013; Ali et al., 2008, Anonymous, 2013a, b; Shabbir, 2011). In Pakistan, livestock is ownership of millions of smallholders out of which one million are landless (Hasnain and Usmani, 2006). This fact indicates relationship of poverty and livestock in rural communities. It seems true that many of these poor people keep livestock not for business purpose but for survival.

Pakistan does not have only single or limited types of livestock. There is diversity with regards to livestock resources in the country (Afzal and Naqvi, 2004). This diversity might be due to varied nature of geographical areas, different environments and cultural values. In 1998, total livestock population in Pakistan was estimated 115.4 million heads out of which 42 percent was maintained in Punjab Province (Hasnain and Usmani, 2006). There were 550 cattle, 609 buffaloes, 160 sheep and 1045 goats in thousand heads according to Punjab Development Statistics 2008 (Anonymous, 2009).

Livestock holding is considered as big success of rural people which gave them comfort, security and production (Hasnain and Usmani, 2006). Humans use livestock for various products and services (Hoffmann and Baumung, 2013). As far as products of livestock are concerned, we are dependent in rural and urban areas. We get milk, yogurt, butter, oil and meat in our meals on regular basis. Other products include wool, wool products and leather products (Chaudhry et al., 1999). Rapid increase in population, food tastes and preferences have increased demand of livestock productions in Pakistan (Luqman et al., 2013).

It seems a true assumption that livestock holding benefits smallholders because millions of people are involved in this sector (Shabbir, 2011). Poverty is mostly linked with rural communities in present era and rural poverty could be reduced through livestock (Ali et al., 2008). Ali and Khan (2013) shares his research findings that livestock holding households are less poor as compared to those holding no livestock. They note difference of 16 percent between both livestock holding and not holding groups. The food security level of livestock holding people is higher than those with no livestock. Smallholders use local livestock breeds to overcome their poor economic conditions (Kakar et al., 2011). In addition to that, livestock contributions towards sustainable rural development are also worthwhile (Otte et al., 2012). Livestock reproduction is rapid resource generation in terms of food production, leather production, local employment and overall social and community development. Importance of livestock could not be ignored in case of small poor rural communities. Although, there is growing trend of livestock farmhouses with huge investments by wealthy people but still major livestock producer is

smallholder in rural communities. Men, women and children are involved livestock production in almost every rural household (Ali and Khan, 2013).

Livestock plays multiple roles (Moyo and Swanepoel, 2010; Shahid et al., 2013; Stienfeld et al., 2006). Mostly, social and cultural functions of livestock are discounted regarding welfare of rural communities due to unseen monetary form (Bettencourt et al., 2013). According to them, livestock contributes for family earnings, food provision, asset making, productivity of soil, transportation, livelihoods, agriculture and agricultural productions, employment and social position. Besides contribution in form of production, employment provision to millions of rural people is very important function of livestock. Livestock is sign of social and economic prosperity in many rural communities where financial markets are absent (Bettencourt et al., 2013). Smallholders use their livestock for children school fee, bride wealth and expenditure on medical treatment and death. It works as bank account or saving for help in any unplanned and uncertain occasions.

Besides all benefits, smallholders have to face many challenges. The poor livestock holders are deprived because of no or low voice, action and influence (Hasnain and Usmani, 2006). Poor rural livestock holders face problems in selling livestock productions due to market inaccessibility and poor infrastructure. Many issues also affect livestock and production i.e., low production, diseases or high mortality rate, minimum access to markets, lack of proper policy, system and formal setup etc (Anonymous, 2013b).

Punjab has more efficient agriculture sector in Pakistan but with high poverty rates in south and west areas of the Province (Anonymous, 2013b). Economy of Bahawalpur district in South Punjab relies on agriculture where majority of rural communities fulfil their needs from livestock (Khan and Khan, 2015; Waqas et al., 2015). Livestock is major source of income for both communities living in desert and irrigated areas of Bahawalpur (Soharwardi et al., 2011). Bahawalpur Cholistan desert holds greater Cholistan with low and no vegetation and lesser Cholistan with better vegetation near green rural communities (Khan and Khan, 2015). Cholistan periphery area is in biggest geographical coverage Tehsil Yazman. In this area, majority of small farmers and even landless communities holds livestock. Different research studies focus on livestock with reference to their categories, health, production and fodder etc. Similarly, some researches also discussed importance of livestock in different communities worldwide especially in foreign countries. This research was conducted with aim to know the contribution of livestock for empowerment of rural communities living in periphery area with special reference to socio-economic conditions. The results

would be helpful to explore the facts and update about any input of livestock for these communities on border of desert.

**MATERIALS AND METHODS**

The explorative and descriptive research covered peripheral areas of Cholistan Desert in Tehsil Yazman, District Bahawalpur. That geographical universe consisted of four Union Councils. Human universe included communities keeping livestock as major income resource. Majority of them were smallholders. Smallholders were selected as respondents through purposive sampling technique (non-probability). Interview schedule was used as most suitable data collection tool. All respondents participated with their consent after having brief introduction of research. Total 103 livestock holders responded about livestock role in their lives. Data was processed through Statistical Package for Social Sciences (SPSS). Data was analyzed by applying univariate descriptive statistics frequency distribution and bivariate analysis Spearman’s rho coefficient correlation to find out the strength and direction of variables.

**RESULTS**

Data analysis through SPSS produced very important results. Participants gave multiple responses in response to some queries. Multiple responses have been presented in multiple response tables showing number of responses and percentage of respondents. Response rate remained very satisfactory. The results include respondents’ views about types and number of their livestock, livestock ownership type, motivation for holding livestock, price of livestock and its production, utilization of income from livestock and improvement level in socio-economic status through livestock economic status through livestock.

The results in Table No. 1 show 212 multiple responses given by 101 respondents about types of cattle they hold. Majority of respondents’ or their families owned more than one type of cattle. The results reveal the fact that majority of the rural communities in periphery area hold cow and goat as livestock. More than two third respondents owned cow (70% respondents) and goat (68% respondents) as their major livestock assets. Nearly half respondents or their families had sheep (47%). Thirteen (13) participants reported ownership of camels as their livestock. Only eleven (11) percent respondents mentioned ownership of buffalo. Cow, goat and sheep as major livestock asset could be due to suitable environment or weather of the periphery area.

Table No. 2 presents very important facts about holding capacity or ownership of smallholders. The results show that majority of smallholder respondents own 5-8

cattle (41%). More than one third respondents (37%) were holding 9-12 cattle as their livestock asset. There were many respondents having only 1-4 cattle (17%). Only six (6%) participants did have more than 12 cattle in their holding. The results clearly mention that holding of more than half respondents was 1-8 cattle which put them in smallholder category.

Table No. 3 gives more facts about cattle holding of rural communities living in periphery area of Cholistan Desert Bahawalpur. More than half respondents claimed that they had personal holding of cattle without

**Table 1: Types of Livestock**

	Number of responses	Percent of respondents (n=101)
Cow	71	70
Buffalo	11	11
Camel	13	13
Sheep	48	47
Goat	69	68
	212	

**Table 2: Number of Livestock**

	Frequency	Percent
1-4	17	17
5-8	42	41
9-12	38	37
More than 12	6	6
Total	103	

**Table 3: Ownership**

	Number of responses	Percent
Personal ownership	64	62
Sharing	31	30
Missing	8	8
Total	103	

**Table 4: Motivation for Livestock Holding**

	Number of responses	Respondents (%) (n=99)
Occupation of forefathers	67	67
For additional financial income	53	53
For fast financial income	69	69
Personal interest	35	35
Milk, food production for self use	65	65
No other choice	28	28
	317	

**Table 5: Views about Selling Price for Livestock or its Production**

	Frequency	Percent
Very reasonable price	21	20
Reasonable price	33	36
Low price	34	33
Very low price	8	8
Do not know	3	3
Total	103	

any shares from other people (62%). On the other hand, nearly one third respondents reported that they had not full ownership of livestock and had share of other people in their holding (30%). This is worth noting finding about the socio-economic conditions of these smallholders who did not have total ownership of livestock.

Smallholders of livestock (99) gave 317 multiple responses about motivation behind their livestock holding. The results in Table No. 4 clearly show that rural communities owned livestock for fast financial income (71% respondents). This indicates poverty or economic problems of the rural communities in periphery area. About two third respondents pointed out livestock holding as inheritance from their forefathers (67% respondents). Nearly same number of participants (65% respondents) mentioned that they owned livestock to obtain milk and food production for household use. More than half respondents owned livestock for additional financial resources or income. It means that many people hold livestock in addition to their other occupations (53% respondents). Almost one third respondents (35%) had interest to own livestock. More than one fourth smallholders (28%) disclosed that they had no other option except holding livestock as an occupation. The multiple responses indicate that one respondent could have more than one or two motivations for holding livestock.

Smallholders own livestock for their financial earning as mentioned in Table No. 5. More than one third respondent smallholders (36%) considered that they received reasonable prices against selling of their livestock or livestock production. One fifth of them (20%) used to get very reasonable price when sold livestock or livestock production. One third respondents (33%) described that they sold their livestock at low prices. In addition, 8% respondents found the price of livestock very low. Selling of livestock at Low or very low prices directly or indirectly affect economy of the smallholders.

Table No. 6 shows 402 multiple responses given by 100 smallholder respondents about utilization of income generated from livestock. Smallholders use livestock income for multiple purposes. Almost two third respondents mentioned that they run their household matters (expenditure) from the income obtained after selling livestock or livestock production. Nearly half (48%) found that income helpful for their financial prosperity. Smallholders participated in social activities after getting finances from selling of livestock (46% respondents). Many respondents (45%) pointed out that they got increase in their livestock assets using the income generated from livestock selling. More than one than third (39% respondents) considered that livestock income raised their social status in the society. In addition, income from livestock is also used for education

**Table 6: Utilization of Income Generated from Livestock**

	Number of responses	Percent of respondents (n=100)
For household needs	64	64
Economic prosperity	48	48
Better education for children	36	36
Better health	31	31
For increase in livestock assets	45	45
For house construction	24	24
For social activities	46	46
For marriage and death expenditures	27	27
Helpful in mutual development/welfare activities	23	23
Better social status	39	39
Saving	19	19
	402	

**Table 7: Socio-economic Improvement through Livestock**

	Frequency	Percent
Very much improvement	16	15
Improvement	41	40
Little improvement	25	24
No improvement	11	11
Do not know	7	7
Missing	3	3
Total	103	

of smallholder communities' children (36% respondents). That income was used for health services as reported by 31% respondents. Smallholder rural people used the finances obtained from livestock on both happy (marriage) and sad (death) occasions (27% respondents). Many smallholders utilized that income for house construction (24% respondents) and community development or welfare activities (23% respondents). Some respondents also disclosed that they save that income (19% respondents).

Table No. 7 presents results about socio-economic empowerment of smallholders through livestock. More than half respondents seemed convinced that livestock plays important role in socio-economic improvement. Majority of participants found improvement in their social and economic conditions through livestock (40%). In addition to that 15% witnessed very much improvement in their lives. Nearly one fourth respondents found little improvement in their socio-economic conditions (24%). While eleven (11) respondents found no role of livestock in improvement of their social and economic conditions. Seven respondents did not know about any improvement through livestock and three respondents remained silent on the query.

#### **Bivariate Analysis through Spearman's Correlation**

This Table No. 8 shows the spearman's correlation value (0.915) between the respondent socioeconomic improvement and selling price for livestock or its production. It means that there is positive strong

**Table 8: Spearman's Correlation between Socio-economic Improvement and Selling Price for Livestock or its Production**

			Socio-economic Improvement through Livestock	Views about selling price for livestock or its production
Spearman's rho	Socio-economic Improvement through Livestock	Correlation coefficient	1.000	.915**
		Sig. (2-tailed)	.	.000
		N	103	103
	Views about selling price for livestock or its production	Correlation coefficient	.915**	1.000
Sig. (2-tailed)		.000	.	
N		103	109	

**Table 9: Association between Socio-economic Improvement and Nature of Ownership of Holding of Cattle**

			Socio-economic Improvement through Livestock	Ownership
Spearman's rho	Socio-economic Improvement through Livestock	Correlation coefficient	1.000	.852**
		Sig. (2-tailed)	.	.000
		N	103	103
	Ownership	Correlation coefficient	.852**	1.000
		Sig. (2-tailed)	.000	.
		N	103	103

**Table 10: Spearman's Correlation between Socio-economic Improvement and number of Livestock Holding**

			Socio-economic Improvement through Livestock	Number of Livestock
Spearman's rho	Socio-economic Improvement through Livestock	Correlation Coefficient	1.000	.958**
		Sig. (2-tailed)	.	.000
		N	103	103
	Number of Livestock	Correlation Coefficient	.958**	1.000
Sig. (2-tailed)		.000	.	
N		103	103	

association between the variables. The socioeconomic improvement of the respondents increases with the increase in selling price for livestock or its production.

Table No. 9 describes the strength and direction of relationship between the socioeconomic improvement of respondents and their ownership of holding of cattle. The value of spearman's correlation is 0.852. It implies that there is strong and positive relationship between these two variables. As the ownership of holding of cattle increases the socioeconomic improvement of the respondents also got better.

Table No. 10 clarifies that the value of correlation coefficient is 0.958 between the variables socioeconomic improvement of respondents and no of livestock. There is very strong and positive relationship which means that socioeconomic improvement of the respondents increases with the increase in no of livestock in the possession of respondents.

## DISCUSSION

Overall results give very clear understanding about the vital role of livestock for empowerment of rural communities in the periphery area. Smallholders in the periphery area own different types of livestock depending on their capacity and needs. It becomes obvious from the results that cow, goat and sheep are

the major types of livestock in these communities. More than two third smallholder respondents keep cows and goats and almost half own sheep in the periphery area of Cholistan. These results verify data about types of livestock in Cholistan mentioned by Khan and Khan (2015). Other types of livestock include camel and buffalo. Multiple responses in the results develop understanding some or many respondents keep more than one or two species as livestock. Majority people in rural communities keep a limited number of livestock depending on their economic conditions. In other words, they keep livestock to make their economic conditions better. It is clearly found that the number of livestock was ranging from 5-12 per smallholder. Many smallholders had only 1-4 livestock, which shows their weak economic condition. The livestock holding capacity of the majority of participants were seen 5-8. While, second major livestock holding range was found 9-12. Few respondent smallholders kept more than 12 livestock. This finding seems an agreement with Gura (2008) that smallholder is playing an important role in production and employment which is due to the majority of smallholders in all rural communities. It is fact that large farms exist, but smallholder contributes more than them. Ownership of livestock has also impacted smallholders in different ways. Personal ownership is more contributing for empowerment of

smallholders as compared to sharing of livestock keeping. The results point out personal ownership of the majority of respondents which seems more beneficial for them. Even then, nearly one third smallholders keep livestock on sharing basis. This sharing will make them share income or production with shareholders. Sharing of livestock ownership also indicates poor or weak economic conditions of the smallholders, which indirectly affect their social lives.

Smallholders in the periphery area of Cholistan Desert have adopted livestock occupation due to various reasons. The majority of them hope fast earning through this profession and many get additional income from livestock holding. Kakar et al. (2011) have mentioned that poor rural people keep livestock to overcome poverty. Another major motivation behind livestock keeping is family profession of many of the respondents. It is obvious in rural communities that people keep livestock for socio-economic and cultural reasons which become family profession with the passage of time. This could also create personal interest to adopt livestock profession which is mentioned by more than one third respondents. Livestock is also a good source of production for rural people (Hasnain and Usmani, 2006) as nearly two third respondents disclose that they keep livestock to get milk and food productions. The results also describe that many smallholders have no other job to do and they keep livestock. Rural areas have limited income sources, except agriculture and livestock and most people have to adopt among these few occupations. The majority of respondents seem satisfied on the selling price of their livestock and its production. This is encouraging sign towards economic empowerment of smallholders through livestock, which is indirectly connected to social prosperity also. On the other hand, many smallholders consider that they are paid low or very low prices for their livestock. Hasnain and Usmani (2006) also point out problems faced by the smallholders in selling their livestock. These issues affect prices of livestock and production.

The results depict various kinds of utilizations of income generated from livestock. The majority of the smallholders meets household needs from livestock income. Many smallholders are not possibly in the position to make their livestock as a big business due to their weak economic conditions and increased household needs. Waqas et al. (2015) and Khan and Khan (2015) also talked about the importance of livestock for meeting needs in rural areas of Bahawalpur. The results also agree with Bettencourt et al. (2013) about economic prosperity through income generation from livestock which leads the smallholders towards empowerment. Economic prosperity means reduction of poverty which has been discussed by Ali et

al. (2008) with reference to livestock. They also use that income for arrangements of or participation in social activities. These social activities could be marriages, festivals, child birth celebrations and community gatherings. Many rural people consider livestock as a symbol of social status and they also use livestock income to uplift their social status in the community. The results also witnessed these responses from the respondent smallholders, which has been pointed by Bettencourt et al. (2013). Many rural people utilize their livestock income to buy more livestock as their assets. The income is also utilized for child education and health which are most important basic and universal needs in every society especially in rural areas. Utilization of livestock income for other needs makes livestock more important in rural communities. According to the results, these activities include house building and community welfare/development activities. The findings are very encouraging regarding socio-economic improvement through livestock. Responses on improvement and very much improvement show vital role of livestock in rural communities. Socio-economic improvement leads them towards overall empowerment. Some participants deny any social and economic betterment in their lives. Some responses about no improvement are expected trends which could guide towards necessary measures for sustainable and better livestock keeping in rural communities of periphery areas of Cholistan Desert.

### **Conclusion**

The results are helpful to reach on very clear conclusions that livestock is playing multiple roles in rural communities especially for smallholders. These rural people mainly depend on livestock keeping motivated by family traditions, economic and social uplift, getting benefits of productions and personal interest. It is evident from the results that smallholders keep limited number of livestock and most of them with personal ownership and some have sharing. It is positive sign that majority of smallholders show satisfaction on selling prices of their livestock and production. Disappointment also has been witnessed regarding prices which demand government attention towards betterment of livestock. Livestock role become more prominent after its admitted contribution for household needs, socio-economic and livestock asset making, education and health. In addition, smallholders find improvement in their social and economic empowerment through livestock. The increasing trend of livestock in areas like periphery in Cholistan Desert Bahawalpur could be prosperity sign for sustainable rural development.

### **Authors' contribution**

All authors contributed equally in research design, data collection, analysis and manuscript writing.

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