

Marketing of Livestock and Livestock Products in Sundarban Islands of India: a Participatory Rural Appraisal

S. K. Das^{1*} and H. Tripathi²

¹Department of Veterinary and Animal Husbandry Extension, College of Veterinary Sciences and Animal Husbandry, Central Agricultural University, Selesih, Aizawl, Mizoram (796 014), India

²Krishi Vigyan Kendra (Farm Science Center), Indian Veterinary Research Institute, Izatnagar, Bareilly, Uttar Pradesh (243 122), India

Article History

Manuscript No. 408c

Received in 24th June, 2013

Received in revised form 4th August, 2013

Accepted in final form 11th August, 2013

Correspondence to

*E-mail: samcau.d1@gmail.com

Keywords

Sundarban, livestock production, marketing, case study, PRA

Abstract

Famous for the abode of man-eating Royal Bengal tiger Sundarban is a UNESCO world heritage site, biosphere reserve, largest delta and largest mangrove eco-system in the world. Agriculture and animal husbandry is the primary livelihood of people living in this region. Marketing is an important aspect of livestock production which has complementary and supplementary relationship with agriculture. Therefore, livestock and livestock products marketing in rural Sundarban is a virgin field of research. Since, interview and questionnaire-based research largely fail to capture the diversity and complexity of rural social reality case study method of PRA (Participatory Rural Appraisal) was used to understand livestock marketing system in four selected villages of Sundarban delta in India. Villages were selected based on backwardness, remoteness, and livelihood. Listing, topical interview, oral trend and ranking methods of PRA were employed to collect data. Data was verified through personal observation and key-informant discussion. Study reveals that a localized informal marketing system existed in the study area with a linkage to larger market of outside via the middleman (vendor). Further, it seems that marketing of livestock and its products was secondary to livestock production. Rules and regulations of marketing as well as the price of livestock and its products were standardized and determined informally based on local criteria and external market forces. Thus, the study provides useful insights into the marketing system of livestock and underlying social realities governing its functioning in Sundarban islands. It is concluded that similar kind of research conducted on a large scale will help development professionals and policy makers to plan and implement development programs in Sundarban where backwardness and rich natural resources paradoxically co-exist.

1. Introduction

Spreading over India and Bangladesh Sundarban is a UNESCO World Heritage Site comprising a number of islands where the river Ganga meets the Bay of Bengal to form largest delta (Gangetic delta) and largest mangrove forest area on earth. Unfortunately, this extremely vulnerable Sundarban Biosphere Reserve is presently under threat from socio-economic, ecological and environmental point of view due to global warming, climate change and undesirable human activities (Bandyopadhyay, 2000; Bose, 2000; Sekhsaria, 2004; Roy, 2007; Sinha, 2007; Ganguly and Mukhopadhyay, 2010). Socio-economic life of the people in Sundarban is traditional with agriculture and animal husbandry as the primary source of livelihood.

Living in extreme difficulty people here work hard from dawn to dusk to earn a living.

Unlike developed nations livestock production in India is traditional based on socio-economic consideration having complementary and supplementary relationship with agriculture (Bhat and Taneja, 1998). Livestock production in Sundarban region is no exception to this. Besides, immense importance of livestock rearing in rural India can not be measured and understood in mere economic terms (Acharya, 1990). Therefore, study of animal husbandry in rural India should focus on qualitative rather than quantitative aspects. On the other hand, it is increasingly being recognized by the academicians, researchers and development professionals



worldwide that conventional method of data collection using interview schedule or questionnaire has limitation to reveal the complexity and diversity of social reality. Consequently, Participatory Rural Appraisal (PRA) has made it possible to overcome the limitations of conventional questionnaire based research to a great extent focusing on the qualitative rather than quantitative issues (Mukherjee, 1993, 1997, 2002).

Marketing of livestock and livestock products is an important aspect of livestock production and management. Unless there is a remunerative market for livestock and its products it is not possible to make livestock production a profitable commercial venture. Since livestock production is traditionally a way of living for rural people, marketing system of livestock and livestock products in rural India will be different than developed countries. Further, there is a dearth of literature focusing exclusively on livestock marketing system of rural India (Jha, 1988). Therefore, livestock marketing in rural India is a virgin field of research especially in the rural areas of Sundarban islands—a unique region in the world. Therefore, a study was undertaken in Sundarban delta of India to gain an insight into the livestock marketing system and related social realities which will help in undertaking similar kind of research on a large scale to aid in the rural development program planning.

2. Materials and Methods

2.1. Locale of the research

Sundarban forms the southern part of the Gangetic delta between the Hooghly River in the west in India and the Meghna River in the east in Bangladesh. It is a system of islands formed by deposition of silt and sand where the River Ganga meets the Bay of Bengal. It spreads over an area of 20,400 km² of which two-third belongs to Bangladesh, and one-third belongs to India spreading over North and South 24 Parganas District of West Bengal State. There are 102 islands in Indian part of Sundarban which are crisscrossed by innumerable canals, creeks and tributaries of which 54 islands have human habitation encompassing 19 Development Blocks (13 under South 24 Parganas and 6 under North 24 Parganas District). Sundarban constitutes a special forest eco-system known as mangrove eco-system found at the coastal areas of the tropical and sub-tropical regions of the world. Extremely poor communication, transportation and conveyance facilities make the region almost inaccessible during the rainy season. Maintenance and strengthening of embankments are the basic requirements for supporting the lives of this deltaic region.

Field research was carried out in four villages selected on the basis of location, livelihood and backwardness. Selected villages were Samser Nagar, Jemspur, Bagulakhali and Moukhali. Samser Nagar (Kalitala Gram Panchayat, Hingalganj Block, North 24 Parganas District) is situated at Indo-Bangladesh

border beside the Kalindi River on the fringe of Sundarban Reserve Forest. Jemspur (Laheripur Gram Panchayat, Gosaba Block, South 24 Parganas District) too is a forest-fringe village. Inhabitants of these two villages depended heavily on forest and river for their livelihood. On the other hand, Bagulakhali (Chunakhali Gram Panchayat, Basanti Block, South 24 Parganas District) and Moukhali (Tambuldaha-1 Gram Panchayat, Canning-2 Block, South 24 Parganas District) are non-forest fringe villages, hence no direct dependence on forest for their livelihood. Among the study villages, Bagulakhali was most well connected with urban area especially Kolkata, and Samser Nagar was most interior village with least connectivity with urban area (Das, 2005).

Villagers in the study villages were engaged in the production of cattle (*desi*), buffalo (swamp), sheep (*Garole*), goat (Black Bengal), pig (*desi*), duck (*desi*, Muscovy), chicken (Rhode Island Red, *Ranchi, desi*) and goose (white and grey). Livestock was asset for the villagers. Cattle and buffalo were reared mainly to perform various agricultural operations. Sheep, goat, pig, duck, chicken and goose rearing mainly served the purpose of savings, small cash needs and family food requirements. A combination of cattle, goat, duck and chicken was a common herd composition across the class, caste and religion (Das, 2005). Cattle were hardy, but yielded poor as they were raised mainly on grazing in the harvested field and paddy straw in stall with little or no external input (Das, 2005; Das and Tripathi, 2008).

2.2. Field study

Case study method of PRA (Participatory Rural Appraisal) was used for field research following an anthropological approach. Four case studies were conducted in four villages (Samser Nagar, Jemspur, Bagulakhali and Moukhali). Data were collected from villagers through listing, topical interview, oral trend and ranking methods of PRA. In order to get reliable and valid data, personal observation and key-informant discussion were made as and when required after obtaining a piece of information from a villager or group of villagers.

2.2.1. Case study method of PRA

Case study is a method of in-depth inquiry of a social unit, i.e. an individual, family, organization, institution, social group or entire community (Young, 2000). It allows to retain the meaningful characteristic of real life events (Yin, 1993) with an emphasis on qualitative than quantitative aspects. PRA comprises various approaches, methods and behaviors that enable people to express and analyze the realities of their lives and conditions (Chambers and Blackburn, 1996). It provides an alternative method of data collection and analysis (Mukherjee, 1997) with an emphasis on qualitative than quantitative information (Reddy, 1999). When a case study method is essentially based

on a participatory mode along with the principles of PRA it is called the case study method of PRA (Mukherjee, 1993).

2.2.2. Listing

Listing is a PRA method which facilitates an individual or group to recall and highlight a list of items, criteria, activities, or issues for further discussion (Kumar, 2002; Mukherjee, 2002).

2.2.3. Topical interview

Its objective is to generate focused information on a specific topic. It is in-depth in its approach and can help in analyzing a particular topic at a greater length (Kumar, 2002; Mukherjee, 2002).

2.2.4. Oral trend

It explores trend of an issue over a period of time. The elderly villagers compare the present local conditions with that of the past (Kumar, 2002; Mukherjee, 2002).

2.2.5. Ranking

It helps local people to rank some items, issues or uses based on their preferences along with the explanations for such ranking (Kumar, 2002; Mukherjee, 1993).

3. Results and Discussion

3.1. Mode of marketing

A cross-case analysis reveals that livestock marketing in the study villages was confined mainly among the villagers, apart from *byapari* (vendor) and *haat* (village weekly market) in the main (Table 1). *Byapari* came to the villages for purchasing live animals, birds and eggs for selling in the cities and local big markets.

3.2. Marketing of live animals and birds

Live animals sold to the *byapari* were meant for meat purpose, whereas that sold among the villagers or in *haat* were generally meant for rearing purpose. *Byapari* offered price based on the health and weight of the animal as it was sold for meat purpose. Moukhali was a Muslim dominated village; hence beef was also being retailed in *haat* nearest to the village. After purchasing *byapari* used to mark the animals cutting or coloring wool/hair in a specific pattern in particular part(s) of the animals' body. Similar marks were given for all the animals in a flock or herd. This is a method of identification to get rid of problems which may arise as a result of mixing of animals of the individual *byapari* gather together in the big city market. Besides live, pigs were also retailed as pork in *haat* as well as at owner's home. Goats were also purchased and sold among the villagers for consumption as chevon (goat meat) in marriage ceremony, feast or any other social occasion. *Byapari* used to determine the quality/value of sheep

and goat palpating the lumbo-sacral region (locally *kangra*). Accordingly, they offered price for the animal. If a sheep seems healthy due to its thick woolen coat, actual weight/value can only be assumed through the palpation of *kangra*. If *kangra* is palpated thin or if bone edges are felt rough, the animal will yield less meat, hence fetches low price irrespective of age, weight or size. Ducks and chickens were mostly purchased and sold among the villagers for rearing or consumption purpose. Purchasing and selling of duck and chicken occasionally also took place in *haat* as per the need and convenience. They were also purchased by *byapari* along with goose. Interestingly, a freely foraging non-domesticated bird locally called as *dauk* (*Amaurornis phoenicurus*) was sometimes caught and sold at ₹ 10-15 bird⁻¹. In Canning market (the gateway of Sundarban) cost of a *dauk* (white-breasted water hen) was ₹ 20-25 at the time of study (2004).

3.3. Marketing of livestock products and by-products

Duck or chicken's eggs were sold through *byapari*, or in local grocery shop, or in *haat*. Eggs were mainly purchased either for hatching or for consumption purpose. However, goose eggs were not sold. They were used for incubation and hatching, and hatchlings were purchased and sold among the villagers for rearing purpose. Dung cake was mainly sold in neighborhoods among the villagers as one gunny bag full. In Jemspur, unlike other villages, dung cake was purchased and sold as thousand basis. In Bagulakhali, dung cake was sold to tea stall and sweet shop in Chunakhali *haat* (adjacent to the village) besides selling among the villagers. Cow milk was rarely sold by the villagers due to low milk yield. Cow milk was mainly utilized for home consumption.

3.4. Seasonality of marketing

There was a rush for purchasing and selling of cow after sowing of *aman* paddy (monsoon paddy). Hence, the cost of cow increased during that time. Whereas purchasing and selling of bullock and buffalo started in *haat* just before sowing of monsoon paddy; hence, bullock cost was more during that period. It clearly reveals that plowing by cattle and buffalo is still needed and practiced by the villagers even after introduction of power tiller since last few years. Sheep and goat were

Table 1: Mode of livestock and livestock products marketing

Livestock/products	Mode of marketing
Cattle, buffalo, sheep, goat, pig, duck, chicken, goose	Among the villagers, vendor, <i>haat</i> (village weekly market)
Egg	Among the villagers, vendor, <i>haat</i> , village grocery shop
Dung cake	Among the villagers, sweet shop, tea stall
Cow milk	Among the villagers



purchased and sold in *haat* mainly during monsoon season when cow marketing got momentum. During other time their marketing rarely took place in *haat*, whereas purchasing and selling of duck and chicken took place in *haat* round the year. Price of duck and hen's egg also varied with the season. Generally, price was more in winter and less in summer. Price of dung cake was more during monsoon season when other sources of fuel were almost inaccessible or unavailable.

3.5. Price of livestock and livestock products

To get an idea of the trend in price of livestock and livestock products a woman of village Bagulakhali was encountered. She tried to compare the current situation with the situation 25-30 years ago when she came her father-in-law's village (Bagulakhali) just married. Table 2 exemplifies the changes that had taken place in other three villages too. It also gives an idea about the trend in livestock number, and livestock death due to diseases for the village Bagulakhali. Price of some of the livestock and birds and their products as prevalent across the villages at the time of study (2004) is also given in Table 3.

3.6. Social realities related to livestock marketing

Villagers also revealed some of the social realities related to livestock marketing. Female cow calf was not generally sold. Rather, they were given for share-rearing or kept in own herd as replacement stock. She-buffalo calf was also rarely sold. It was reared as replacement stock. Cost of castrated goat and pig was more than un-castrated one. Tribal people worshipped goddess Manasa (snake goddess) in the month of *Bhadra* (mid-August to mid-September) wherein ducks were sacrificed. So, price of duck increased as much as ₹ 70 duck⁻¹

Table 2: Trend on price of livestock/products in Bagulakhali

25-30 years ago	At present*
Cattle, goat, duck, chicken were less in number	Comparatively more due to increase in human population
Cattle, goat, duck, chicken died less due to disease	Die more due to disease
Price of one full gunny bag of dung cake was ₹ 8	One full gunny bag of dung cake costs ₹ 20-30
Price of one adult male duck was ₹ 7.5-8	One adult male duck costs ₹ 50-70
Price of one piglet was ₹ 25	One piglet costs ₹ 200-250
Price of one kg pork was ₹ 8-10	One kg pork costs ₹ 40-45
Price of one duck/chicken egg was 15-20 paisa	One duck/chicken egg costs ₹ 1-2
Price of cow milk was ₹ 5-6 kg ⁻¹	Cow milk costs ₹ 12 kg ⁻¹
*At the time of study (2004)	

at that time. Price remained lower during other time. Though price of duck and chicken was more or less same, price was more for fighter cock. Price of a fighter cock was as much as ₹ 200-300 in the locality. Two types of dung cake were prepared by the villagers-circular and elongated. Circular one was sold at more price than the elongated one. Elongated type was mostly utilized at home. Apart from this, children occasionally used to stock white wing feathers of duck and chicken for selling to the *byapari* at 10-20 paisa feather⁻¹. Money thus obtained was utilized solely by the children for purchasing of their favorite foods, or ice cream during the summer. Interestingly, during March-April when bee keepers from neighboring districts came to the forest-fringe villages for honey bee production the price of duck and hen egg in village grocery shops increased to ₹ 2 hen⁻¹ egg and ₹ 2.5 duck⁻¹ egg.

3.7. Cattle leather

After the death of cattle and buffalo it was generally thrown away in the harvested agricultural field or on the bank of the river away from the locality. Cobblers de-skinned the carcass and took the cattle skin along with them. After washing the skin in plain water it was kept for one-two days dipped in common salt solution. It was then sold to the wholesalers in local cattle skin market. In market cattle skin was colloquially termed by different names indicating its quality which determined its price (Table 4). Among the recognized skin categories, *ek nombor* (No. 1) was the best, hence fetched maximum and *kit* was the lowest in quality, hence its price was lowest. According to the cobblers, a cattle skin could cost on an average ₹ 60-70 in local market. They expressed that torn and thin skin was generally considered inferior in

Table 3: Price of livestock/products

Livestock/products	Price (₹)
Cattle	A pair of bullock 10,000-15,000
Buffalo	A pair 15,000-20,000
Sheep and goat	A ram 1,000-1,200
Duck and hen	A duck 50-70, a fighter cock 250-300
Egg	Hen 1-1.5, duck 1.5-2 egg ⁻¹

Table 4: Cattle leather and its preference

Category	Preference ranking
<i>Ek nombor</i> (No. 1)	1
<i>Dui nombor</i> (No. 2)	2
<i>Derh nombor</i> (No. 1½)	3
<i>Farta</i>	4
<i>Dabal</i>	5
<i>Kit</i>	6

quality.

4. Conclusion

Livestock marketing in the study villages was mainly confined among the villagers, vendors and local market being informal and localized in nature. The code of conduct of marketing as well as the price of animals and their products was determined and regulated by the villagers and vendors depending on the local socio-economic, agro-ecological and socio-cultural context and external market forces. In a nutshell, marketing was secondary to livestock production. Similar kind of study carried out on a large scale will help development professionals and policy makers to plan suitable program for improving livestock production and marketing system.

5. References

- Acharya, R.M., 1990. Promise of white revolution. Keynote address to 15th Dairy Husbandry Officers Workshop, National Dairy Research Institute, Karnal, Haryana.
- Bandyopadhyay, D., 2000. Can Sundarbans be saved? Economic and Political Weekly 35(45), 3925-3928.
- Bhat, P.N., Taneja, V.K., 1998. Sustainable animal production systems in India: issues and approaches. Indian Journal of Animal Science 68(8), 701-712.
- Bose, D.K., 2000. Nuclear power for eastern India: no basis for choice. Economic and Political Weekly 35(39), 3480-3484.
- Chambers, R., Blackburn, J., 1996. The power of participation: PRA and policy, Issue 7. IDS Policy Briefing, University of Sussex, Brighton, UK.
- Das, S.K., 2005. Livestock and livelihood of rural inhabitants in Sundarbans region of West Bengal. PhD Thesis, Division of Extension Education, Indian Veterinary Research Institute, Izatnagar.
- Das, S.K., Tripathi, H., 2008. Livestock feeds and feeding practices in rural Sundarbans delta of India. Animal Nutrition and Feed Technology 8(1), 137-142.
- Ganguly, S., Mukhopadhyay, S.K., 2010. Effect of fluctuating environmental factors and climatic alteration on livestock and wildlife behavior. In: Souvenir of Eastern Regional Conference on Global Warming & Future of Domestic Animal Health of Sunderban Islands at Gosaba Island Sunderban, West Bengal. Organized by Indian Association for Animal Production in association with West Bengal University of Animal and Fishery Sciences, Belgachhia, Tagore Society for Rural Development, Gosaba Island and Champa Mahila Samity, Basanti Island, December 19-21, 31-35.
- Jha, M., 1988. Rural marketing: some conceptual issues. Economic and Political Weekly, February 27, M8-M16.
- Kumar, S., 2002. Methods for Community Participation: a Complete Guide for Practitioners. Vistaar Publications, New Delhi, 333.
- Mukherjee, N., 1993. Participatory Rural Appraisal: Methodology and Applications. Concept Publishing Co., New Delhi, 160.
- Mukherjee, N., 1997. Participatory Appraisal of Natural Resources. Concept Publishing Co., New Delhi, 186.
- Mukherjee, N., 2002. Participatory Learning and Action with 100 Field Methods. Concept Publishing Co. New Delhi, 335.
- Reddy, V.R., 1999. 'Wealth Ranking' in socio-economic research: substitute or complement? Indian Journal of Agricultural Economics 54(1), 93-103.
- Roy, J., 2007. Sundarbans: can they be saved? The Hindu Survey of the Environment, 25-29.
- Sekhsaria, P., 2004. The Sundarbans: biosphere in peril. The Hindu, June 13.
- Sinha, S., 2007. Going under: sinking islands of the Sundarbans. Frontline 24(1), 66-74.
- Yin, R.K., 1993. Applications of case study research. Applied Social Research Methods Series, Vol. 34. Sage Publications, Newbury Park, California, 32.
- Young, P.V., 2000. Scientific Social Surveys and Research (4th Edn.). Prentice-Hall of India Pvt. Ltd., New Delhi, 576.

