

An Impact Assessment of Nomadic Gujjars on Environment in Block Marh and Block Satwari of Jammu

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ABSTRACT: *Migration of nomadic gujjars is a traditional, seasonal activity associated with economic interest. Since the Neolithic revolution pastoral nomads have roamed along the fringes of settled society. Their economy mainly depends on the products of their flocks and the use of natural pastures. The reliance of nomads on their animals brings them closer to the lands where agricultural based societies are present. They are poor, illiterate and without sufficient food and other basic facilities of life and hence are dependent on natural pastures. The harmonious interaction of nomads and their environment enables them to live a sustainable existence with some detrimental impacts on local ecosystem like overgrazing, soil erosion, cutting of trees, and pollution of water bodies, air pollution etc. While no system pastoralists or nomads is in perfect symbiosis with their environment. The associated ecological problems of their lifestyle or subsistence strategies are thereby effecting the environment. There is a dire need to manage the environmental problems associated with the cattle rearing of nomads. The present study is based on primary and secondary data. With the help of questionnaire, a stratified random sample survey was undertaken, 200 local residents were interviewed, 100 in each block i.e. Marh and Satwari of Jammu District. The response to each question was calculated on five point Likert scale ranging from 1 to 5. Taking into consideration the importance of pastoral mobility, necessity to equally exploit the rangelands of summer and winter pasture, their rights for grazing, and ecological imperatives for co-existence that points to a promising new direction for long-term sustainability, we only need to educate the pastoralists and local people regarding proper lifestyle that should not harm the environment.*

Key words: *Nomadic gujjars, cattle rearing, environmental impact, local residents.*

I. Introduction

It has been very difficult to survey entire Jammu district for studying migration of nomadic gujjars. It has been possible to pinpoint study at various focal points of nomadic pastoral attractions for a closer look. Two areas i.e. block Marh and blocks Satwari of Jammu district have been surveyed. The numbers of nomadic gujjars migrating to these areas are increasing day by day as they are rich in agricultural resources and water availability, hence creating social, economical and environmental impacts on the region. These impacts are the tools for measuring benefits and harms of such migratory movements. Poverty can be considered as one of the major reason for enforcing people to cross the limits of natural resource exploitation. Gujjars being poor, illiterate and innocent are totally depend on natural pastures to feed their livestock which in turn help them to meet their both ends need. Due to lack of environmental awareness and poverty as major reason they are causing harm to the environment which can be proved detrimental if continued with such speed. Migration of nomads is a traditional, seasonal activity associated with economic commercial interest. However it affects the local people both positively and negatively. The harmonious interaction of nomads and their environment is what enables them to live a sustainable existence with some detrimental impacts on local ecosystem like overgrazing, soil erosion, cutting of trees, pollution of water bodies, air pollution etc. While no system pastoralists or nomads is in perfect symbiosis with their environment. The associated ecological problems of their lifestyle or subsistence strategies are thereby effecting the environment. Animal dung is a natural and excellent source of fertilizer but releases methane gas and waste piles can cause major pollution problems. The decomposition of animal wastes in the dairy can cause methane and ammonia gases to be released into the atmosphere. Methane causes global warming while ammonia leads to respiratory problems and is toxic to aquatic life, convert to nitrate which is an aquatic plant nutrient. Due to frequent entry of animals into water bodies for drinking, bathing and runoff from dung waste lagoons into streams and rivers, unethical disposal of dung at the banks of water bodies (because of its being least usable site due to lack of space) can cause intense water pollution and render it unfit for native aquatic organisms leading to eutrophication and shrinking of water bodies. Excessive application of manure in the fields can seep and pollute ground water. Nitrate level in ground water can increase and can cause Blue Baby Syndrome, a potentially fatal blood disorder. In addition drinking water supplies are compromised by high levels of NO₃⁻ or nitrates. There are increasing concerns about the costs of intensive livestock production, which generates higher levels of green house gases compared to extensive pastoralism (FAO 2006; Herrero et al. 2011)[4], as well as pollution, greater worries about human and animal health (Gerber et al. 2010)[3];

Steinfeld et al. 2010[7]) Preventing pollution from dairy waste can be a challenge, which requires extensive background and knowledge in animal nutrition, nutrient source, soil type and precipitation among other factors.

II. STUDY AREA:

Marh and Satwari block of Jammu district are selected as study areas as are agricultural areas rich in fertile soil, have plenty of fodder, fuel wood, water and other resources as well as conditions like proper road facility, nearness of city market for selling their dairy products act as easy attractants for nomadic gujjars as their winter pastures. Various water streams in Marh Block originate from springs, which are continued throughout the year. In addition these streams are also supplemented by Ranbhir canal during summer season to meet the demands of irrigation. Whereas River Tawi serves entire Satwari Block for the whole year. Nomadic gujjar population is rapidly increasing especially in these two areas year by year and creating various impacts. Moreover many of the gujjar families have permanently settled here are no more migrating thereby changing the demography of the area.

OBJECTIVES OF THE STUDY:

- 1) To examine the social and economic impact of nomadic gujjar migration on local people.
- 2) To estimate environmental impact due to their lifestyle.
- 3) To educate gujjars and local people regarding environmental conservation and protection.

III Database And Methodology

The attitudinal survey has been the common method of addressing a range of environmental issue. In this approach respondents are asked to indicate their attitude and feeling towards the impact of nomadic gujjar migration, with a set of closed questions or statements. Such survey can be useful information about the types of impacts but it must be remembered that what is being recorded is only the respondent's perception of those impact (Perce D.1989, pp 223).[6] The impact of the study is an attempt to examine empirically the impact of nomadic gujjars on local population. It is not easy to analyze the attitude of respondents. Therefore, to assess the environmental impact of gujjars in the study region, survey was conducted. The questionnaire consisted of 15 questions. A total of 200 questionnaires were filled up, 100 at each site block. The response to each question was noted on five point Likert scale ranging from 1 to 5 i.e. strongly disagree, moderately disagree, neutral/ no answer, moderately agree and strongly agree. The random sampling method has been used for the selection of the respondent i.e. local people at different locations. The mean and standard deviation of local residents of Marh and Satwari block responses to an environmental impact of nomadic gujjars were calculated (Table i & ii)

A Likert scale is a psychometric scale commonly used in questionnaires. It is the most widely used scale in survey research, such that the term is often used interchangeably with rating scale even though the two are not synonymous. When responding to a Likert questionnaire item, respondents specify their level of agreement to a statement. The scale is named after its inventor, psychologist Rensis Likert. Often five ordered response levels are used, although many psychometricians advocate using seven or nine levels. A recent empirical study found that a 5 or 7 point scale may produce slightly higher mean scores relative to the highest possible attainable score, compared to those produced from a 10 point scale, and this difference was statically significant the format of five level Likert item is 1 = Strongly Disagree, 2 = moderately disagree, 3=undecided/ neutral, 4 = moderately agree, 5 = strongly agreed.

IV Observation And Discussion (Table I - Iii)

Lifestyle of nomadic gujjars associated with cattle rearing near water bodied has a major impact on the environment. An assessment of the environmental impact of such migration is particularly important, for the various facts of the environment constitute the prevention of pollution problems. The pastoralists settle, they can transform formerly open landscapes with soft boundaries into fragmented landscapes with harder boundaries like fences, farmland and denser settlements (Galvin et al. 2007)[2]. As the natural controls on livestock populations are tempered by human interventions, intensification can lead to loss of plant diversity (Alkemaded et al. 2012).[1] These questions will help us to understand the environmental impacts of nomadic gujjars in the region. The mean and standard deviation of residents of Marh and Satwari block responses to environmental impact are calculated in table I & II. In case of Marh block the mean and standard deviation for water pollution are 100 and 0 resp. where as they are 50 and 69.296 for Satwari. For air pollution 25 and 9.30 are mean and standard deviation for Marh and for Satwari they are 20 and 9.617. For noise pollution the mean and standard deviation are 25 and 42.68 for Marh and 33.34 and 46.69 respectively for Satwari block etc. The higher the number of nomadic gujjar population larger the effect on host population. The frequency distribution of environmental impact means for Marh is 20 and standard deviation is 14.67 and for Satwari block is 20 and 13.77 respectively. So it can be concluded that in Marh and Satwari there is an overall positive effect of

Nomadic gujjars. The correlation between responses of local residents of both the study areas is calculated. The calculated t value is 0.365 i.e. there is significant difference between two sites at 0 .05 level of significance. Hence it is clear that areas under study there is significant effect of nomadic gujjars migrating to these areas. The investigations of this study are in accordance with Nagarale and Harpale (2012).[5] During their study at Bhimashankar and Lonavala, concluded that higher the number of tourists or outsiders, larger is the impact on local environment and calculated significant t value that indicated great environmental impact due to tourism. There are cultural values of pastoral mobility and that pastoralists see mobility as a practice necessary to efficiently exploit the rangelands, and a right that needs to be preserved. USA ranchers share many attributes of pastoralists elsewhere, including: strong identification with livestock husbandry as a way of life, distinct sub-cultures, and reciprocal social relations including sharing pastures at times of crisis. Combining this tremendous socio-cultural force with the economic and ecological imperatives for co-existence, points to a promising new direction for long-term sustainability.

V Recommendations

1. Apply water tight plastic or day waste liners that can prevent contaminants from seeping into the sides of lagoons.
2. Buffer strips made permanent strips of vegetation between fields and water ways can also to absorb nutrients that would otherwise enter waterways as pollutant runoffs.
3. Methane can be captured and used as an energy source through methane digesters, that can reduce the odor and the systems are expensive.
4. Dust suppressants can be used to reduce air borne dust.
5. Animals should not be allowed to enter into the water bodies for bathing or drinking. They should be provided with water away from water body for such activities. They should avoid overgrazing, deforestation, soil erosion.
6. Local residents and nomadic gujjars must have knowledge of environment conservation and should not exploit it at the cost of their poverty.
7. Nomads must be aware of all relief schemes provided by govt. to reduce poverty among gujjars so that they are not enforced to deplete environment for their livelihood.

RESPONDENT’S RESPONSE TO ENVIRONMENTAL IMPACT OF NOMADIC GUJJARS IN BLOCK MARH OF JAMMU DISTRICT. (Table I)

S.No.	Environmental Impact	1	2	3	4	5	Σ	Mean	S.D
1	Source of cash money	-	7	6	19	68	100	25	29.26887
2	Provide us milk, meat, eggs, fur etc	-	-	-	12	88	100	50	53.74012
3	Easy customers for agricultural products	-	-	-	6	94	100	50	62.2254
4	Competition for local milk men	6	29	2	55	8	100	20	22.19234
5	Crop damage as their animals entry in fields	6	34	-	14	46	100	25	18.2939
6	Violence in the area	37	48	-	15	-	100	33.34	16.80278
7	Threats to native organisms	38	32	-	12	18	100	25	12.05543
8	Sources of exotic diseases	-	6	10	72	12	100	25	31.43247
9	water pollution	-	-	-	-	100	100	100	0
10	Eutrophication	12	15	10	8	55	100	20	19.73575
11	Air pollution	16	38	-	22	24	100	25	9.309493
12	Noise pollution	89	5	2	4	-	100	25	42.68489
13	Deforestation	18	45	-	21	16	100	25	13.49074
14	Overgrazing	-	6	2	14	78	100	25	35.6838
15	Soil erosion	10	29	6	15	40	100	20	14.1598
Total		232	294	38	289	647	1500	493.34	381.075

S.No.	Environmental Impact	1	2	3	4	5	Σ	Mean	S.D
1	Source of cash money	2	4	3	20	71	100	20	29.45335
2	Provide us milk, meat, eggs, fur etc	-	-	-	10	90	100	50	56.56854
3	Easy customers for agricultural products	-	5	-	8	87	100	33.34	46.5009
4	Competition for local milk men	-	32	-	61	7	100	33.34	27.02468
5	Crop damage as their animals entry in fields	6	22	4	18	50	100	20	18.43909
6	Violence in the area	30	45	11	14	-	100	25	15.72683
7	Threats to native organisms	22	35	8	19	16	100	20	9.874209
8	Sources of exotic diseases	3	10	4	68	15	100	20	27.2672
9	water pollution	-	-	-	1	99	100	50	69.29646
10	Eutrophication	2	10	18	22	48	100	20	17.4356
11	Air pollution	14	28	6	27	25	100	20	9.617692
12	Noise pollution	87	2	11	-	-	100	33.34	46.69404
13	Deforestation	15	34	8	31	12	100	20	11.72604
14	Overgrazing	-	2	2	28	68	100	25	31.17691
15	Soil erosion	4	32	8	17	39	100	20	15.11622
Total		185	261	83	344	627	1500	410.02	431.91

RESPONDENT'S RESPONSE TO ENVIRONMENTAL IMPACT OF NOMADIC GUJJARS IN BLOCK SATWARI OF JAMMU DISTRICT. (Table II)

FREQUENCY DISTRIBUTION OF ENVIRONMENTAL IMPACT (Table III)

Sr.No.	Average Score	Percentage of Respondent	
		Marh Block	Satwari Block
1	1	15.47	12.33
2	2	19.6	17.4
3	3	2.53	5.54
4	4	19.26	22.93
5	5	43.14	41.8
Total		100%	100%
Mean		20	20
Standard Deviation		14.67	13.77

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