



## PASTORAL COMMUNITIES OF GUJARAT STRUGGLING FOR ECONOMIC SOURCES DURING CLIMATE CHANGE

Dr Hiren Rana<sup>1</sup>

### ABSTRACT

*Gujarat is renowned for its customs, traditional attire, food, and way of life, all of which are emulated by various communities and become trends in other states and nations that wish to copy them in their own societies. Examples of these include the clothing styles of the Rabari, Jat, and Bharvad communities, which are primarily pastoral communities. Gujarat is home to a pastoral community that lives primarily in rural and tribal areas. They make their living by raising cattle, such as cows, buffalos, goats, and camels, and selling milk, meats, fur, and wool. They are also involved in compound activities involving agriculture and cattle, and they perform odd jobs to make ends meet. The study's goal is to investigate the various ways that climate change has affected Gujarat's pastoral populations' traditional means of subsistence. The second goal is to determine the tactics Gujarat's pastoral communities are doing to lessen the negative effects of climate change and the role that women play in empowering these communities.*

Keywords: *Pastoral Communities, Climate Change, Conventional Livelihood*

### INTRODUCTION

“Pastoralism” is a rarely mentioned and undefined category in research and philosophy literature. Initially, the word “nomads” was in use as a category that consisted by a huge number of non-pastoral groups in India. If we see demographically, nomadic pastoralists remain prevalent in western India’s dryland, and at the Deccan Plateau located between the eastern and western ghats of southern India and in northern India, in Himalayas (Sharma, Rollefson , & Morton , 2016)<sup>2</sup>. Moreover, pastoralists scattered based on some of the around 46 castes and communities have specialized identities of pastoralists who reared animals like cattle, buffalos, sheep, goats, camels and yaks.

---

<sup>1</sup> Independent Researcher, Ahmedabad, Gujarat  
Email: rhiren69@gmail.com, M:8347865864  
ORCID: 0000-0003-3577-8130

<sup>2</sup> Sharma, V. P., Rollefson , I. K., & Morton , J. (2016). *Patoralism in India : A Scoping Study*. Ahmedabad, Gujarat, India: Centre Management in Agriculture Indian Institute of Management Ahmedabad. Retrieved Janaury 16, 2023, from <https://assets.publishing.service.gov.uk/media/57a08ce2e5274a31e00014fa/ZC0181b.pdf>



## SIGNIFICANCE OF THE STUDY

It is believed that Gujarat is the resident of nomadic pastoralists who namely called Rabaris, Bharvads, Jat, Charan, Banjaras Maldharis & Gajars who owned huge number of cattle in comparison to farmer who owned more buffalos (Rangnekar, 1994)<sup>3</sup>.

In Gujarat, 1.5 million pastoralists reside there, as Gujarat is the home. They survive through peculiar work such as raising cattle like cows, goats, buffalos, camels, donkeys, sheep, yaks, ducks, etc. and selling its milk, wool, fur, meat, etc. not only earning income but also providing employment to others. However, their income consistency affected by government policy implications with the changing scenario. Pastoralists made use of their animals to cultivate fertile unproductive land in rural and tribal have been displaced by rich people from that field and led them for the thirst of income and occupation. Further, unhealthy experiments on land to get huge production and industrial mechanisms have affected the land and made it unfertile, which not only eliminated them from that business but also made them optimistic about surviving from other sources of income. Hence, they are migrating from one place to another cyclically in search of income source with their livestock and managing themselves with their livestock on new migratory routes.

Nomadic pastoralists migrate in the Kuchch and Saurashtra regions and these two regions see the seasonal migration of 7.4 million livestock in search of work like farming. Sometimes migration becomes inevitable for Maldhari, Rabari, and Bharwad pastoralists because of the scarcity of rangeland forage and crop residue and the lack of stored feed for a large number of livestock and landless pastoralists (Chachra, 2020)<sup>4</sup>.

The scattered population of pastoralists often found across south Gujarat and north Gujarat, who are Rabari and Bhawad cattle keepers, is often associated with the livestock production system of the village or depends on forest grazing seasonally. However, owing to recent interest in forest protection, afforestation, and the conservation of wildlife habitats, their access to these regions has been restricted, making forest grazing uncertain for them. Another group is Banjara, who owned donkeys, and also kept goats, buffalos and cattle to treat them as a means of earning money to survive. In recent scenario, agro-pastoral production has become one of the sources of income for Gujarat's pastoral population as pastoralist's livestock produce about 74% of India's meat and 53% of its milk (Earth, 1993)<sup>5</sup>. Hence it is believed that India is a country that produces a high amount of milk and is the largest exporter of goats and beef

---

<sup>3</sup> Rangnekar, D. V. (1994). A Collection Of Papers From Gujarat And Rajasthan. *Some Observations On Pastoralism In Parts Of Gujarat And Rajasthan*, P. 13. Retrieved January 29, 2023, From <https://Cdn.Odi.Org/Media/Documents/5405.Pdf>

<sup>4</sup> Chachra, S. (2020). *Pastoralist's Life In Lockdown A Study Of Five States During Covid-19*. New Delhi, New Delhi: Actionaid Association. Retrieved January 29, 2023, From <https://Www.Actionaidindia.Org/Wp-Content/Uploads/2020/08/Pastoralists-During-Covid19-Report-O-F-Study.Pdf>

<sup>5</sup> Earth, D. T. (1993, December 14). *India Environmental Portal*. (D. t. Earth, Producer, & India Environmental Portal) Retrieved January 17, 2023, from India Environmental Portal: <http://www.indiaenvironmentportal.org.in/content/16735/pastoralists-at-the-crossroads/>



worldwide, which has a long-lasting impact on the growth of the rural economy (Kishore, 2020)<sup>6</sup>.

## **OBJECTIVES & METHODOLOGY**

The secondary data were collected from published journals, printed reports, national & local surveys, news and media, e-websites, etc. The study was conducted on the basis of the following objectives:

1. To explore the diverse effect of climate change on the conventional livelihood of pastoral communities in the state of Gujarat.
2. To identify the strategies being followed by pastoral communities to mitigate the adverse effect of climate change.
3. Role of women in empowering the pastoral communities in the state of Gujarat

## **PASTORALISTS DURING CLIMATE CHANGE IN THE STATE OF GUJARAT**

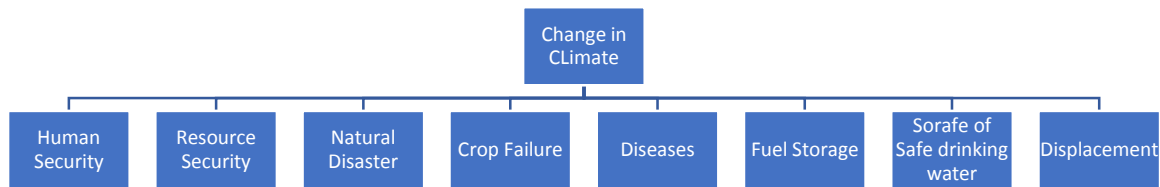
According to the Internal Government Panel on Climate Change “Climate Change means change in the environment that is noticeable by the sudden change in temperature, and the vulnerability in property and human beings and that persists for an extends or longer period.” Primeval human beings were supposed to live by managing the ecosystem without affecting it or its characteristics but with the increasing need for crops, humans have become more sophisticated to increase the agricultural productivity. It’s resulted in the disruption of natural resources because of the introduction of alien species and its overutilization in a different manner and from different perspective. Consequently, it degrades the natural resource and decreases the diversity of natural species.

In pastoral communities, livestock is the only way to earn income for poor and marginalized communities performing social, economic, and risk management functions. Grassland assists closely 30-40 million pastoralists who depend on livestock which provides livelihood to them but rarely from growing crops, fuel, or tourism. However, their livelihood has been affected by the concept of industrialization. The change in a climate brings short- and long-term effects that not only misbalance the temperature but also affect natural resources such as wind and rainfall, which also misbalance livestock productions.

## **EFFECTS OF CLIMATE CHANGE**

---

<sup>6</sup> Kishore, K. (2020). *Accounting for pastoralists in India*. Germany: The League for Pastoral Peoples and Endogenous Livestock Development (LPP).. Retrieved January 17, 2023, from <http://www.pastoralpeoples.org/wp-content/uploads/2020/09/Accounting4pastoralists-IN.pdf>



Source: (Mir & Batool, 2022)<sup>7</sup>

Dryland covers more than one-third of the earth's surface. The arid zone of India consisted of 2,50,000 km, of which Kachchh district covers 10,400km, excluding the Great Rann of Kachchh and the other small islands. Kachchh grassland located at desert rarely supports to pastoralists creating a compulsion for them to migrate for their livelihood. The general problem of the Kachchh region is that it has arid and semi-arid areas with larger population, which is one of the human ecologies. In this jurisdiction, small water resources are available but are substantially used for animal and human being which limits the invention of new plants. Furthermore, inevitable rainfall leads to scattered species, and which in turn produces famine periods. The significance is an imbalance between the animal and human populations on the one hand and the water, plant, and land capital on the other, which causes a gradual depletion of resources (Patel, 2013)<sup>8</sup>.

Further, it was noticed that every three years, the rain had been noticeable in Kachchh region in the 20<sup>th</sup> century, while in the 21<sup>st</sup> century Kachchh faces the problem of erratic rainfall, floods, cyclones, often sees droughts and heat waves (Bhagat-Ganguly & Pinerio, 2022)<sup>9</sup>.

## PROBLEM FACED TO CONVENTIONAL LIVELIHOOD OF PASTORALISTS

Although pastoralists are following adaptive strategies for their livelihood on a timely basis as per the change visible in climate. However, their presence is not visible in Government Policies and Schemes. Pastoralists frequently face difficulties proving their identity and relationship because of their migration in search of a livelihood and their nomadic locality, which are the primary reasons for not having government identity. For instance, they are not able to receive food assistance from public rations distribution shops, which offer free ration based on with community and area levels, because their name is not visible on either their voter identification card for elections or on their ration card. Due to their small structural community and weak influence in political parties, their expectations to represent the views of pastoralist communities have not been considered or acknowledged in society. Further, their entries into greenery grazing zones have been prohibited, and now they are in secure spaces.

<sup>7</sup> Mir, S. A., & Batool, M. (2022, May 09). Impact of Climate Change on Gujjar and Bakarwal Communities of Jammu and Kashmir. *Journal of Sustainability and Environmental Management (JOSEM)*, 1(2), 102. Retrieved January 21, 2023, from <https://www.nepjol.info/index.php/josem>

<sup>8</sup> Patel, Y. S. (2013). *Contribution To The Floristic And Phytosociology Of Banni Region, Kachchh District, Gujarat, India*". Jhunjhunu, Rajasthan, India: Shri Jagdishprasad Jhabarmal Tibrewala University, Chudela. Retrieved January 21, 2023, From [https://Shodhganga.Inflibnet.Ac.In/Bitstream/10603/10588/1/11\\_Chapter%201%20introduction.Pdf](https://Shodhganga.Inflibnet.Ac.In/Bitstream/10603/10588/1/11_Chapter%201%20introduction.Pdf)

<sup>9</sup> Bhagat-Ganguly, V., & Pinerio, K. (2022, May 26). *Impact of climate change on Gujarat pastoralists' traditional livelihood*. (A. P. University, Producer) Retrieved January 22, 2023, from [azimpremjiuniversity.edu.in: https://alumni.azimpremjiuniversity.edu.in/f/impact-of-climate-change-on-gujarat-pastoralists-traditional-livelihood-varsha-bhagat-ganguly-karen-pinerio-15005](https://alumni.azimpremjiuniversity.edu.in/f/impact-of-climate-change-on-gujarat-pastoralists-traditional-livelihood-varsha-bhagat-ganguly-karen-pinerio-15005)



The most notable traits of pastoralists are their use of sustainable land and maximum resource use, together with their mobility and flexibility to adapt to market demands, which demonstrate their capacity to adopt solutions against climate change. However, because of their displacement from government policy, they faced discrimination when they used available common resources. Marginalization has had a significant impact on pastoralists. Alien social and governance structures have been imposed due to a lack of knowledge of their way of life and the enormous contribution they make to the agricultural economy and nutritional security (Shridhar, 2021)<sup>10</sup>. Additionally, their marginalization is being exacerbated by the absence of public safety nets in managing the escalating climate uncertainty. For instance, they have to migrate over a long distance for a longer period, affecting their survival resources and political growth (Pineiro & Bhagat-Ganguly, 2022)<sup>11</sup>.

### **STRATEGIES BEING FOLLOWED BY PASTORAL COMMUNITIES TO MITIGATE THE ADVERSE EFFECT OF CLIMATE CHANGE.**

Bhagat-Ganguly & Pineiro (2022)<sup>9</sup> defined four strategies that are being used by pastoralists to mitigate the diverse effects of climate change on conventional livelihoods.

#### **1. Routine Migration:**

The pastoralists' catchphrase, "We travel wherever the feed is," also reflects their conviction that mobility promotes the health of their livestock. This transhumance between pastures throughout the seasonal transition is a well-planned method of grazing to support animals. Migrating based on requirements defining the abilities of pastoralists and their prior arrangements is called micromanagement. Micromanagement is a method that they use as it is believed that migration means an advance and a long-term lot of preparation and occupying ourselves for the same. Further, the preparation with their livestock is not easy to do for one group, it's a collective action where four to five pastoral groups do the preparation together. The leader of the group, known as Mukhi, makes a plan to route and stay, further, he analyzed the environmental situation, calculating available resources for them and their livestock such as fodder and water. Moreover, they plan which group goes on which route, the availability of resources such as healthy fodder, and water and their accessibility. Based on the availabilities and accessibilities, they further plan to deal with several farmers for their stay, park their cattle and sell their products like milk, ghee, and manure (Balbo, Buggethun, Salpeteur, Puy, & Biagetti, 2016)<sup>12</sup>

---

<sup>10</sup> Shridhar, T. (2021, September 19). *Pastoralists, Original Livestock Keepers Of Civilisation, Pushed To Margins*. Retrieved January 29, 2023, from [www.outlookindia.com/website/story/pastoralists-original-livestock-keepers-of-civilisation-pushed-to-margins/392261](https://www.outlookindia.com/website/story/pastoralists-original-livestock-keepers-of-civilisation-pushed-to-margins/392261)

<sup>11</sup> Pineiro, K., & Bhagat-Ganguly, V. (2022, August 4). *What pastoralism teaches us about adapting to climate change*. Retrieved January 22, 2023, from <https://idronline.org/article/livelihoods/what-pastoralism-teaches-us-about-adapting-to-climate-change/>

<sup>12</sup> Balbo, A. L., Buggethun, E., Salpeteur, M., Puy, A., & Biagetti, S. (2016). Resilience of small-scale societies: a view from drylands. *Ecology and Society*, 2. Retrieved January 30, 2023, from <file:///C:/Users/Cankids/Downloads/ES-2016-8327.pdf>



During migration, pastoralists make use of their dynamic knowledge and resources. They are more flexible, both with space and timing. For instance, they may change their route if they become aware that some other groups of pastoralists are following the same route; further, if another group requires to stay for a fortnight, then they allow them to stay and use available resources, they make them flexible and movable according to the timings and situations. Further, they also make use of dynamic resources, such as some pastoralists use mixed cropping strategies as per the environmental situations, such as moong, tuver, guvar, cotton and castor.

## 2. Breed's selection

Pastoralists of Gujarat mainly raise two kinds of cattle, such as zino maal and moto maal (St. Xavier's Nonformal Education Society, 2002-03)<sup>13</sup>, whereas zino maal means a group of small cattle like sheep and goats while moto maal means a group of big cattle like cows, camels, and buffalos. Pastoralists make the best use of their knowledge based on their experience and choose breed conservation and development based on climate feasibility and accordingly, they rear particular livestock.

Pastoralists control the population of the herd and its quality in accordance with breed conservation and development based on climatic change. Reproduction and keeping the animals in their herds are largely dependent on climatic change, which guarantees the welfare of their livestock and breed growth. To ensure the quality of breed and avoid inbreeding, every three-year, pastoralist family changes a male of the herd.

Furthermore, breed selection has been based on emerging market demands such as increasing milk demand, which has resulted in the establishment of dairies in a few places in Gujarat, such as Mahi and Sarhad dairies in Jadav village in Lakhpat. Consequently, the pastoralists have started rearing cows and buffalos instead of camels. The population of camels in the Jadav village has decreased from 2500 to 200 in accordance to the increasing demands for milk and meat. Further, in Sanosara village, which is located near Bhuj, a collection point has been set up for camel milk, so the pastoralists have started rearing camel and their population that has been increased in Sanosara village. These are the true example how the pastoralists make choose of breed and development of it.

Any further change in cattle from zino maal to moto mall purely contingent on the availability of funds and support assistance from the government. Further, there is no government policy for them when their cattle are adversely affected by natural calamities such as floods, cyclones, and droughts. They do receive financial assistance for rearing their moto mall–big sized cattle during the natural calamities. Additionally, they receive philanthropic support from Jivadaya a group of Jain families in the state of Gujarat, and this thing influences them to rear big animals like camels. Further, GauSeva and GauShala are set up by Government which also influence to rear cows.

## 3. Climate Foresight Development

---

<sup>13</sup> St. Xavier's Nonformal Education Society. (2002-03). *Baseline Survey: Bhachau And Rapar Taluka Of Kachchh District*. St. Xavier's Nonformal Education Society, Behavioural Science Centre. Ahmedabad: St. Xavier's Nonformal Education Society. Retrieved January 30, 2023, from <https://hdrc-sxnfes.org/wp-content/uploads/2020/04/Kachchh-Baseline-full-report.pdf>



Pastoralists use this strategy to forecast rainfall, which is important because it is one of the ways they ensure the availability of water, which is required to keep their cattle alive. During the years 1895-89, there was a drought in Kachchh, hence, the pastoralists of Kachchh were migrating to Mahesana, Panchmahal, and Vadodara districts during these years, as these districts have deep borewells. They were returned to Kachchh when they heard the news of the rainfall. Hence, most of the pastoralists make predictions about the rainfall and make a plan to migrate prior to the arrival of monsoon.

#### **4. Developmental & Sustainable Market**

During the migration, pastoralists deal and manage their links with famers, producers, dairy cooperatives, meat sellers to sell their products, and this is the strategy through which they manage their traditional livelihood. On the route of migration, a symbolic relationship was formulated by pastoralists during the migration. During their stay at the particular geography, pastoralists provide manure to farmers to use as natural fertilizer, and in return, they receive feed for their cattle. Sometimes, farmers provide an employment opportunity for them to clean farms and get fodder.

### **ROLE OF WOMEN IN EMPOWERING THE PASTORAL COMMUNITIES IN THE STATE OF GUJARAT**

Women in this community can be considered producers in charge and pastoralist entrepreneurs. She is a robust family manager and a highly skilled craftsperson. The decision-making power related to their familial issues lies in their hands, They are dressed in black and red, sometimes depending on their Hindu or Muslim categories, with highly weighted ornaments on their necks, ears, noses, hands, and legs, woolen outfits with glittering mirror embellishments; and silver jewelry, They migrate with herds of camels fully loaded with entire households while children and juvenile animals are walking on the roads, and this common sight is visible in certain months of the year (Mehta Sonal, 2013)<sup>14</sup>.

When it comes to animal husbandry, women are really important. In reality, several jobs that can only be performed by women, such as caring for small calves, milking cows, providing them with food and water in the shed, and the women's specialty of using the milk to make curd and ghee. Women conduct business in the neighborhood Bania in permanent settlements and keep track of their transactions (Ghai, 2021)<sup>15</sup>.

### **RECOMMENDATION & SUGGESTIONS**

1. Youth from pastoral communities to be aspired to be engineers, doctors, workers, and enable them whatever they wants to be to earn their livelihood.

---

<sup>14</sup> Mehta Sonal. (2013, April 1). *Changing Mode of the Pastoralist Economy and Globalisation of Kutch*. Retrieved January 29, 2023, from <http://www.revolutionarydemocracy.org/http://www.revolutionarydemocracy.org/rdv19n1/kutch.htm>

<sup>15</sup> Ghai, R. (2021, March 11). Understanding 'culture' of pastoralism and 'modern development' in Thar: Muslimpastoralists of north-west Rajasthan, India. *Pastoralism: Research, Policy and Practice*, 6. Retrieved January 26, 2023, from <https://ideas.repec.org/p/pramprapa/106615.html>.



2. Government of Gujarat should consider the pastoral communities with special consideration like a Dalit community and help them to create their identity and special recognition should given to them while their mobility.
3. Like MGNREGA, special schemes to be implemented by Government of Gujarat & India when the work allocation to be done to them with consideration of their communities and livestock which help them for consistence livelihood.
4. Women are in the center of pastoral communities who are caring the animals and their wards, hence the women of pastoral communities to be inspired to be pastoral women entrepreneurs.
5. Further study to be done on youth of patrol communities & their role in empowering patrol communities.

## CONCLUSION

From the foregoing, it can be concluded that the change in climate has a substantial impact on pastoralist communities as well as on their traditional way of life. Although the pastoralists move from one place to another (Meena, Garai, Maiti, & Mandi, 2019)<sup>16</sup>, this does not indicate that they are stuck. They utilize their dynamic expertise to employ methods against the climatic change in order to survive as well as to support their cattle. They are fighting for their lives; therefore, they may rely on having a lot of internal resources to support them. The largest difficulty facing the development community is making sure that current paths are cleaned and not blocked. Due to this, It will be important to establish new guidelines in collaboration between governmental bodies, nonprofit organizations, and the local populace due of this.

---

<sup>16</sup> Meena, D., Garai, S., Maiti, S., & Mandi, K. (2019). Pastoralists in Modern India: Current Status and Future Prospectus. AkiNik Publications. Retrieved January 30, 2023, from [https://www.researchgate.net/publication/352933210\\_Pastoralists\\_in\\_Modern\\_India\\_Current\\_Status\\_and\\_Future\\_Prospectus](https://www.researchgate.net/publication/352933210_Pastoralists_in_Modern_India_Current_Status_and_Future_Prospectus)



## REFERENCES

- Balbo, A. L., Buggethun, E., Salpeteur, M., Puy, A., & Biagetti, S. (2016). Resilience of small-scale societies: a view from drylands. *Ecology and Society*, 2. Retrieved January 30, 2023, from file:///C:/Users/Cankids/Downloads/ES-2016-8327.pdf
- Bhagat-Ganguly, V., & Pinerio, K. (2022, May 26). *Impact of climate change on Gujarat pastoralists' traditional livelihood*. (A. P. University, Producer) Retrieved January 22, 2023, from [azimpremjiuniversity.edu.in](https://azimpremjiuniversity.edu.in): <https://alumni.azimpremjiuniversity.edu.in/f/impact-of-climate-change-on-gujarat-pastoralists-traditional-livelihood-varsha-bhagat-ganguly-karen-pinerio-15005>
- Chachra, S. (2020). *PASTORALIST'S LIFE IN LOCKDOWN A study of five States during COVID-19*. New Delhi, New Delhi: ActionAid Association. Retrieved January 29, 2023, from <https://www.actionaidindia.org/wp-content/uploads/2020/08/Pastoralists-During-Covid19-Report-o-f-Study.pdf>
- Earth, D. T. (1993, December 14). *India Environmental Portal*. (D. t. Earth, Producer, & India Environmental Portal) Retrieved January 17, 2023, from India Environmental Portal: <http://www.indiaenvironmentportal.org.in/content/16735/pastoralists-at-the-crossroads/>
- Ghai, R. (2021, March 11). Understanding 'culture' of pastoralism and 'modern development' in Thar: Muslim pastoralists of north-west Rajasthan, India. *Pastoralism: Research, Policy and Practice*, 6. Retrieved January 26, 2023, from <https://ideas.repec.org/p/pramprapa/106615.html>
- Kishore, K. (2020). *Accounting for pastoralists in India*. Germany: The League for Pastoral Peoples and Endogenous Livestock Development (LPP),. Retrieved January 17, 2023, from <http://www.pastoralpeoples.org/wp-content/uploads/2020/09/Accounting4pastoralists-IN.pdf>
- Meena, D., Garai, S., Maiti, S., & Mandi, K. (2019). *Pastoralists in Modern India: Current Status and Future Prospectus*. AkiNik Publications. Retrieved January 30, 2023, from [https://www.researchgate.net/publication/352933210\\_Pastoralists\\_in\\_Modern\\_India\\_Current\\_Status\\_and\\_Future\\_Prospectus](https://www.researchgate.net/publication/352933210_Pastoralists_in_Modern_India_Current_Status_and_Future_Prospectus)
- Mehta Sonal. (2013, April 1). *Changing Mode of the Pastoralist Economy and Globalisation of Kutch*. Retrieved January 29, 2023, from <http://www.revolutionarydemocracy.org>: <http://www.revolutionarydemocracy.org/rdv19n1/kutch.htm>
- Mir, S. A., & Batool, M. (2022, May 09). Impact of Climate Change on Gujjar and Bakarwal Communities of Jammu and Kashmir. *Journal of Sustainability and Environmental Management (JOSEM)*, 1(2), 102. Retrieved January 21, 2023, from <https://www.nepjol.info/index.php/josem>
- Patel, Y. S. (2013). *CONTRIBUTION TO THE FLORISTIC AND PHYTOSOCIOLOGY OF BANNI REGION, KACHCHH DISTRICT, GUJARAT, INDIA*". Jhunjhunu, Rajasthan, India: SHRI JAGDISHPRASAD JHABARMAL TIBREWALA UNIVERSITY, CHUDELA. Retrieved January 21, 2023, from [https://shodhganga.inflibnet.ac.in/bitstream/10603/10588/1/11/11\\_chapter%201%20introduction.pdf](https://shodhganga.inflibnet.ac.in/bitstream/10603/10588/1/11/11_chapter%201%20introduction.pdf)



- Pineiro, K., & Bhagat-Ganguly, V. (2022, August 4). *What pastoralism teaches us about adapting to climate change*. Retrieved January 22, 2023, from <https://idronline.org/https://idronline.org/article/livelihoods/what-pastoralism-teaches-us-about-adapting-to-climate-change/>
- Rangnekar, D. V. (1994). A COLLECTION OF PAPERS FROM GUJARAT AND RAJASTHAN. *SOME OBSERVATIONS ON PASTORALISM IN PARTS OF GUJARAT AND RAJASTHAN*, p. 13. Retrieved January 29, 2023, from <https://cdn.odi.org/media/documents/5405.pdf>
- Sharma, V. P., Rollefson, I. K., & Morton, J. (2016). *Pastoralism in India : A Scoping Study*. Ahmedabad, Gujarat, India: Centre Management in Agriculture Indian Institute of Management Ahmedabad. Retrieved January 16, 2023, from <https://assets.publishing.service.gov.uk/media/57a08ce2e5274a31e00014fa/ZC0181b.pdf>
- Shridhar, T. (2021, September 19). *Pastoralists, Original Livestock Keepers Of Civilisation, Pushed To Margins*. Retrieved January 29, 2023, from [www.outlookindia.com](http://www.outlookindia.com): <https://www.outlookindia.com/website/story/pastoralists-original-livestock-keepers-of-civilisation-pushed-to-margins/392261>
- St. Xavier's Nonformal Education Society. (2002-03). *BASELINE SURVEY: Bhachau and Rapar taluka of Kachchh district*. St. Xavier's Nonformal Education Society, BEHAVIOURAL SCIENCE CENTRE. Ahmedabad: St. Xavier's Nonformal Education Society. Retrieved January 30, 2023, from <https://hdrc-sxnfes.org/wp-content/uploads/2020/04/Kachchh-Baseline-full-report.pdf>