Impact of the COVID-19 lockdown on pastoralists of Telangana

CfP Report 2021

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Contents

List of Acronyms 7
Introduction 8
Survey Method 11
Findings 11
Conclusion 17
Annexure I 20
Annexure II 22
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List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>COVID-19</td>
<td>Coronavirus Disease or 2019-nCoV</td>
</tr>
<tr>
<td>PVTG</td>
<td>Particularly Vulnerable Tribal Group</td>
</tr>
<tr>
<td>NT</td>
<td>Nomadic Tribe</td>
</tr>
<tr>
<td>WASSAN</td>
<td>Watershed Support Services and Activities Network</td>
</tr>
<tr>
<td>RRAN-WASSAN</td>
<td>Revitalising Rainfed Agriculture Network-Watershed Support Services and Activities Network</td>
</tr>
</tbody>
</table>
Mobility in immobility: Mobility – A Pastoralist Perplexity!

Kanna K. Siripurapu

Introduction

Telangana is home to pastoralists of many hues, cultures and traditions, including those who undertake annual migration over long distances, besides agro-pastoralists that combine some form of pastoralism with agriculture, urban pastoralism and so on (Sharma et al 2003). These communities are often closely associated with a particular livestock species (ibid.). Given the long history of mobile pastoralism in the state, Telangana happens to form a very important part of the pastoralist systems found in the Deccan plateau and south-eastern coastal regions of the country.

Pastoralism in Telangana, like in many other Indian states, is in a constant flux with communities moving in and out of the mobile lifestyle. For instance the Chenchu community, which is a non-traditional pastoralist tribal group, was recently inducted as a pastoral community (Siripurapu et al 2020, Shameer 2014). While traditional pastoral communities are moving out of pastoralism and taking up settled agriculture on their own lands, pursuing government or private jobs, and moving to urban centres and even abroad in the hope of finding better economic prospects. Nonetheless, inherent to the very nature of pastoral lifestyle is the unique relationship that pastoralists form with their animals and the land they use for grazing those animals.

The major traditional pastoralist communities of Telangana include the Golla, Kuruma and Lambadi (known also as Banjara/Sugali).

The community that is popularly known as Lambadi in Telangana is also known as Sugali in Andhra Pradesh. They are officially classified as members of Denotified nomadic tribes. One of the largest tribal populations of the country, the Lambadis are believed to have migrated from the Mewar region of the north Indian state of Rajasthan and settled in Telangana more than four centuries ago (Dhanavath 2020, Kurup and Burman 1961). They have close cultural ties to cattle. In Nagarkurnool district, they are known for rearing Poda Thurpu, the first registered cattle breed of Telangana (Siripurapu et al 2019b). While those living in Kamareddy and Rajanna Sircilla districts rear the indigenous cattle breed called Vandhara (Siripurapu et al 2020).

The Golla, also known as Yadava/Yaduvanshi, rear cattle with the belief that they too belong to the same lineage into which Lord Krishna was born. The name Golla, is derived from ‘Gopal’, a Sanskrit word, meaning caretaker/protector of cows (Joshua 2019, Yaadav 2010).

Kuruma, also known as Kuruba in Karnataka and Dhangar in Maharashtra, are primarily a sheep rearing mobile pastoralist community.
They have a close affiliation with sheep, and both sheep and wool form an integral part of their cultural identity.

Telangana, with 32 million heads of livestock, ranks 8th amongst the states of India. Of the 74.26 million sheep in the country, it is home to 19 million (26%) sheep. These are managed under extensive systems of animal husbandry. The state also has significant cattle, goat and pig populations managed by various pastoral communities.

Telangana’s sheep breeds are predominantly hairy (non-woolly), mainly raised for meat purposes. The Deccani sheep breed, an extremely hardy, dual purpose, wool and meat producing breed, was once the dominant breed in its native tract in the region. It has been replaced by hairy meat purpose breeds in almost its entire native tract (Mithun 2018, The World Bank et al n.d., Sudhakar 2017, Amareswari et al 2017, Janyala 2017, and Ramdas 2015). This is because of the collapse in demand for wool owing to the easy availability of imported long-staple, non-coarse wool. The reduction in demand for coarse wool blankets (known locally as Gongadi), and unavailability of shearers are other contributory factors for the replacement. Moreover, in recognition of the high demand for meat, the Golla and Kuruma communities have been encouraged to switch from the wooly Deccani to the hairy, Red Nellore sheep breed, via an official policy recommending precisely this switch (Mishra et al. 2007).

Background to this study

Pastoralism in India is beset with multiple issues and challenges – perhaps the biggest among these is the growing limitation in accessing pastures for their animals due to the encroachment of common lands and grasslands by agricultural and industrial activities.

At the same time, the areas demarcated as protected areas have grown, further restricting pastoralists’ access to areas they have grazed over the years. Other issues include a growing desire of the younger generation to settle, and to avail of government services and explore opportunities that allow them to lead a lifestyle that is more comfortable than that of pastoralism (ATREE 2019; 2020, Down To Earth 2019, TERI 2017, Vanak et al. 2017, Jitendra 2017, Sharma et al 2003).

Adding to these already existing troubles is the COVID-19 pandemic. The lockdowns that arrived in the wake of this dreaded virus brought the world to a screeching halt, affecting every aspect of human society. In India the plight of migrant labour (mostly engaged in the formal/informal industry and service sectors) during the lockdown received considerable attention in the mainstream media, but little has been
written about how pastoral communities, some of whom are perpetual migrants, experienced the lockdown.

This prompted the Centre for Pastoralism (CfP) to undertake a preliminary study across eight states in April, 2020 to understand how pastoralist communities were experiencing the lockdown and its aftermath. Results of the study helped in the identification of key issues faced by pastoralists and have been examined in this more detailed survey.

Study Area

Respondents were selected from 46 villages of three districts of Kamareddy, Nagar Kurnool and Rajanna Sircilla. Nagar Kurnool district is located in the southern part of the state, while Kamareddy and Rajanna Sircilla lie close to the central part. The state’s topography is undulating and covered in semi-arid savannah-like forests with tall grasses (Rawat and Adhikari 2015). Climate of the region is hot with four seasons. The summer lasts from March till May, which is generally the hottest month of the year. The Southwest monsoon extends from June till September. Following which the Northeast monsoon arrives which stays till December end. Winter lasts from December till February.
**Survey Method**

The findings of the pilot study conducted by CfP mentioned earlier were used to design a simple questionnaire. The questionnaire primarily focused on collecting data regarding the impact of the lockdown with respect to the following issues: (i) movement, (ii) livestock markets, (iii) income and expenses, (iv) labour, (v) veterinary care, (vi) access to groceries and ration, (vii) social stigma, and (viii) perceptions about COVID-19’s impact on life in general. (See Annexure II for questionnaire). Data was collected through interviews conducted by resource persons and trained field coordinators. Interviews were conducted at herders’ camp sites as per their convenience, strictly adhering to social distancing and following the other COVID-19 related safety protocols. Five pastoralist communities were selected based on the knowledge of their traditional involvement with mobile pastoralism in the study area. A total of 44 interviews were conducted.

**Findings**

Respondents belonged to Kamareddy, Nagarkurnool, and Rajanna Sircilla districts. The communities interviewed include Golla, Kuruma, and Lambadi. Individuals from the non-traditional pastoralist community, the Chenchu, were also interviewed. The Chenchu constitute a particularly vulnerable tribal group (PVTG), indigenous to the study area. The Golla, Kuruma, and Kuruva belong to the Other Backward Class community, while the Lambadi belong to the Nomadic Tribe (NT) category. All participants reported that they practice mobile pastoralism, have Aadhar cards and bank accounts. The major pastoralist livestock species reported from the study area are cattle, sheep and goats.

![Figure 1: Community wise composition of respondents](image-url)
All participants reported they were with their livestock during the lockdown and a majority of them (92%) were on migration. Only 8% of the participants reported that they were grazing their livestock in and around their places of residence. Fifty nine percent of respondents reported that the lockdown impacted their movement positively while 41% felt they were affected negatively by the lockdown.

**Table 1: Profile of respondents**

<table>
<thead>
<tr>
<th>Community/Group</th>
<th>Aadhar card holders</th>
<th>Bank account holders</th>
<th>Herd size</th>
<th>Presence of sheep and goat</th>
<th>Travel beyond 10 kms from their native village in summers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Golla</td>
<td>8/8</td>
<td>8/8</td>
<td>84-148</td>
<td>5/8</td>
<td>8/8</td>
</tr>
<tr>
<td>Yerragolla</td>
<td>8/8</td>
<td>8/8</td>
<td>60-152</td>
<td>8/7</td>
<td>8/8</td>
</tr>
<tr>
<td>Lambada</td>
<td>7/7</td>
<td>7/7</td>
<td>84-280</td>
<td>0/7</td>
<td>7/7</td>
</tr>
<tr>
<td>Lambadi</td>
<td>3/3</td>
<td>3/3</td>
<td>100-142</td>
<td>0/3</td>
<td>3/3</td>
</tr>
<tr>
<td>Kuruma</td>
<td>16/16</td>
<td>16/16</td>
<td>60-260</td>
<td>13/16</td>
<td>16/16</td>
</tr>
<tr>
<td>Chenchu</td>
<td>2/2</td>
<td>2/2</td>
<td>72-132</td>
<td>0/2</td>
<td>2/2</td>
</tr>
</tbody>
</table>

**Figure 2: Livestock composition of respondents (percentage wise)**

**Impact on mobility**

All participants reported they were with their livestock during the lockdown and a majority of them (92%) were on migration. Only 8% of the participants reported that they were grazing their livestock in and around their places of residence. Fifty nine percent of respondents reported that the lockdown impacted their movement positively while 41% felt they were affected negatively by the lockdown.
Accessing forage, fodder and water
The mainstay of fodder and water of the livestock are cultivable fallows, forest/protected areas and village commons. However, about 36% of respondents (only cattle herders) also depend on the market for fodder. Forests, protected areas and village commons are used for grazing during July – October/November, to prevent the animals from straying into farms and raiding crops. Cultivable fallows are used as the main source of fodder and water during December – June. It is during this time of the season when the cattle pastoralists depend on the market for supply of fodder. But shepherds never rely on the market for fodder as they depend exclusively on cultivable fallows, forests/protected areas and village commons for their herds.

However, an interesting informal exchange system has been reported by the shepherds. A barter system exists between farmers and shepherds according to which instead of purchasing fodder from the market, shepherds give away lambs to farmers in return for supply of fodder for the flock. On an average lambs worth Rs. 12,000 are usually given away by shepherds to farmers for allowing their flocks to graze on farmlands.

Like any year, the cattle pastoralists (31.8%) reported purchasing fodder from the market during the lockdown. And pastoralists on the whole were able to access one or the other form of forage for their animals throughout the lockdown.

Impact on revenues
Respondents reported that the lockdown had a mild (45.4%) and medium (55.5%) impact on their incomes. Almost all cattle pastoralists reported a mild impact on their income. Since the sale of cattle normally...
occurs during Dussehra, they were not unduly concerned on this count, expecting the lockdown would be over by then (Siripurapu et al 2020).

The majority of sheep pastoralists reported the lockdown had a medium impact on their income. The impact was primarily linked to limited sale of animals in meat markets which were closed and due to the low-key celebration of major festivals like Eid. There were also difficulties in transporting small livestock as transport facilities were hard to find.

Since shepherds in the area maintain animals for meat, rather than milk or wool, they were largely unconcerned about the closure of milk and wool markets. Cattle herders are maintained for purposes of sale as draught animals and the milk is generally left for the calves to suckle. Occasionally, it is used for domestic purposes but never sold.

Impact on expenses

The major expenses normally incurred by pastoralists are linked to the purchase of medicines for livestock, transportation of livestock, food, and hiring labour for managing herds. During the lockdown, a majority of the pastoralists (59%) reported incurring higher than the usual expenses for purchasing medicines for livestock. Increased expenditure on hiring labour and transportation of livestock was reported by 25% and 16% of the pastoralists respectively. However, it is only the shepherds who reported incurring higher expenses for transportation of livestock. Cattle pastoralists on the other hand did not incur any expenses for transportation of livestock. This is because it is usually the shepherds who rely on transportation for moving their animals, while cattle herders do not.

Figure 4: Herder responses w.r.t. expenses incurred (percentage wise)
Labour
Pastoralists owning large numbers of livestock employ labour for taking care of the herd during migration. The average number of labour hired by both cattle herders and shepherds is two. Among the respondents, 76% of the owners reported their hired labour accompanied the herd and could move without any restriction. About 20% reported that labour could not join their work due to restrictions on the movement. Only 2% said that both their livestock and labour were stranded at far off places while the remaining 2% shared that labour left the job due to movement restrictions on the movement (fig. 5).

Access to Veterinary Services
During normal times, respondents depend primarily on public veterinary clinics for animal health care. Under normal circumstances, 36% respondents consult veterinary surgeons at the public clinics. While 59% rely on free medicines for their livestock and 5% get their livestock vaccinated at public clinics.

During the lockdown, only 31% respondents were able to consult veterinary surgeons due to limited functioning hours of public clinics. A limited supply (27%) of free medicines and total absence of vaccines in the public veterinary centres was also reported. Forty two percent reported a complete suspension of veterinary clinics and services. The lack of adequate medical support services forced pastoralists to consult private veterinary surgeons and procure medicines and vaccines from private drugstores at higher prices. Altogether, veterinary services, medicines and vaccines were the main reason for the escalation of expenditure on livestock health care during the lockdown. (Figure 6.)

Figure 5: Herder responses w.r.t. situation of labour (percentage wise)
Access to groceries
Pastoralists depend on farmers, local grocery stores, or bring groceries and supplies directly from home. The source and frequency of buying supplies varies as per the migration pattern. The main source of groceries and supplies during December to June are farmers who host herds for penning on their farms and local grocery stores. The owners of the penning land (farmers) provide pastoralists with ration supplies and Rs. 500 per day (this amount varies with the number of animals penned). Pastoralists usually fetch ration from home or nearby villages either once in a fortnight or weekly during July to October/November, when herds move in and around the forested areas, away from villages and habitations. Since 90% of respondents were already on their migration at the time of lockdown, they relied on their usual sources, i.e. social networks with farmers to access rations.

Availability of State support and experiences of social stigma
Almost all respondents reported receiving nominal support from the state during the lockdown. They received Rs. 1,000 and ration for a month from the state government during the lockdown. In addition, a few (2.3%) received support from local not-for-profit organizations. Thirty three percent faced difficulty in finding a camping site during the initial days of the lockdown as many villagers blocked entry into villages. In addition, 32% faced some level of stigma when residents of the host villages raised concerns about outsiders arriving at their villages. These tensions however died down within a few days. What really helped herders was the support that they could draw on from their long-standing relationships with farmers. For the most part, there were hardly any restrictions on movement of the pastoralists. None of the respondents were required to carry a COVID-19 free certificate to migrate or enter a new village.

Perceptions about life
A majority of respondents (84%) perceived their life was better-off when
compared to other similar communities during the pandemic, while the remaining 16% felt worse-off. One reason for this positive outlook stems from the economic security that is offered by the livestock. Majority of the respondents expressed they had something to hold on to while other groups lost their jobs and did not have any work that could generate an income for them. Many reported that income from penning acted as a shock absorber when they were facing difficulties in selling livestock or its products.

However, almost all respondents expressed a serious concern over the escalating conflicts with the forest department while accessing their customary grazing lands inside forests and protected areas. Respondents shared they constantly face harassment by forest department personnel and hope that the government will do something about it.

The major challenges faced by pastoralists were difficulties in selling, and unavailability of medicines for livestock. These problems were in one way or the other related to the movement restrictions imposed due to the lockdown. However, one should also bear in mind that some of these challenges are perennial in nature. But there is no denying that all of these problems were amplified vastly during the lockdown.

The limited availability of public veterinary services led to an increase in expenditure on animal healthcare. Closure of public transportation and restrictions on movement impacted the sale of dung as farmers could not travel to buy dung for their farms. It also impacted the income of shepherds as neither they nor the traders could ship livestock to the markets.

**Figure 7:** Herder responses w.r.t. issues faced (percentage wise)

**Conclusion**

The major challenges faced by pastoralists were difficulties in selling, and unavailability of medicines for livestock. These problems were in one way or the other related to the movement restrictions imposed due to the lockdown. However, one should also bear in mind that some of these challenges are perennial in nature. But there is no denying that all of these problems were amplified vastly during the lockdown.

The limited availability of public veterinary services led to an increase in expenditure on animal healthcare. Closure of public transportation and restrictions on movement impacted the sale of dung as farmers could not travel to buy dung for their farms. It also impacted the income of shepherds as neither they nor the traders could ship livestock to the markets.
However, despite the various difficulties, herders were able to handle the crisis fairly well. Further, a majority of respondents reported feeling better-off compared to the other similar communities during the lockdown. Both of these things throw light on the resilient nature of pastoralism. A crucial supporting role was also played in this by pre-existing relationships that herders have with farmers in the area. Had it not been for those social networks, the experience of pastoralists might have been much more difficult than what it was.

References


DTE (Down To Earth), 2019. How India lost its finest Banni grasslands to an exotic species called Prosopis juliflora. Down To Earth, India.


Joshua Project, Yadav (Hindu Traditions) in India. Joshua Project, a ministry of Frontier Ventures, 2019. Accessed online: https://joshuaproject.net/people_groups/16187/IN

Mishra AK, Ramana DBV, Prasad MS and Ramakrishna YS. 2007. Feeding and Management of Small Ruminants. Krishi Vigyan Kendra, Central Research Institute for Dryland Agriculture, Hyderabad, India.


Annexure I

Summary of findings from a telephonic survey undertaken by CfP in April 2020

1. Restrictions on movement
Pastoralist migrations were halted by state governments either temporarily or for the entire year, on the assumption that all movements held the potential for transmission of the virus, and hence represented a threat to communities that pastoralists interacted with. In some instances, pastoral communities were able to convince governments to permit them to continue with their migrations. Others, such as the Van Gujjars of Uttarakhand were banned from moving to their summer pastures for the entire year, and were forced to either stall feed their buffaloes or find alternative grazing arrangements within the lower altitudes. Either option resulted in higher costs but also significantly reduced animal productivity. The Himachal government was particularly proactive in supporting pastoralist movement, because for the most part herders travel alone and tend to spend time in relative isolation, reducing the likelihood of viral transmission.

b). Accessing markets:
Pastoralist communities across states spoke of the difficulties of accessing milk, meat and feed markets, all closed due to the national lockdown. Some surplus milk was being converted into ghee and buttermilk, but as the weather warmed, even these products needed to be disposed of to avoid spoilage. The closure of meat markets had implications for immediate cash flows but did not represent the loss of a crop, such as may have been experienced by milk-selling pastoralists or by farmers with perishable, fresh produce.

c) Shortage of Labour:
In some instances, herders had returned home in February to attend to family functions or to help with cultivation. Post the imposition of restrictions, these herders were unable to move to where their herds were, resulting in a significant shortage of labour in managing the herds.


Many herders also reported instances of hired labour choosing to return to home, owing to the limited information available on the pandemic and the associated desire to be close to home during this period of uncertainty.

d) Shearing sheep:
Sheep need to be sheared just before the onset of summer, and this is generally undertaken by shearers not necessarily part of the herding community. When sheep are not shorn, ahead of the summer heat, there are heightened levels of sickness within the herd. Owing to the lockdown, shearers were simply unable to travel to where the sheep were located. While the Himachal government was ultimately able to facilitate shearer travel to the herds, in most States shearing operations were badly impacted. Many herders spoke of the likely impact of the lockdown and its aftermath on the import of wool and on the export of woollen carpets and durries.

e) Obtaining ration
Pastoralists on the move normally obtain ration from village kirana shops or from shops in small towns. Pastoralists across the country spoke of the fact that villagers, normally welcoming, were wary of potential transmission of COVID and were often unwilling to have transient pastoralists enter the village. In instances where the state was providing ration, pastoralists tended to miss out since they were on the outskirts of villages or were grazing their animals at some distance from human habitation.

f) Social Stigma:
Pastoralists from various parts of the country reported that they experienced a great deal of social stigma on account of their religion or their nomadic lifestyle. Gujjars in Chamba, Himachal Pradesh and from the Rishikesh/Haridwar areas in Uttarakhand faced ostracism as minorities and had difficulty in selling milk and in embarking on their annual migrations. In both instances, there were rumours to the effect that their milk carried the coronavirus and so customers should not buy their milk. Pastoralist mobility in itself has been causing social stigma for many decades and reports from across the country indicate this was accentuated throughout the lockdown.

g) Pastoralism, Resilience and COVID-19:
Several pastoralists mentioned that they may have experienced fewer negatives resulting from the lockdown than many other with rural livelihoods. This is likely linked to the fact that pastoral communities have historically needed to adapt to climatic, political and other changes. Pastoralist adaptability may have played a role in mitigating to some degree the various issues listed above.
Annexure II

Questionnaire to understand how pastoralists have fared under COVID-19

Code (State letters, followed by 1st three letters of Community name, followed by serial number of interview, in two digits – e.g. GUJRAB01)

<table>
<thead>
<tr>
<th>Interviewers name</th>
<th>Date</th>
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</tbody>
</table>

a. Name b. M/F
c. Community d. Phone #
1. Home Location 2. Current Location
3. Aadhaar Card Y/N 4. Bank account Y/N
5. Migratory Y/N 6. Owner/helper?
7. Are you with the herd Y/N 8. What animals do you manage?
9. Herd size 10. Were you on migration during
  LckDn Y/N

On each of the following please describe your normal practice and how this is affected because of the COVID epidemic:

A. Obtaining forage/water
1. What is your normal pattern of migration at this time? Do you cross district or state boundaries?
2. Has your movement been interrupted this year? Positively/Negatively?
3. Where have you obtained forage and water this year (village commons, Forest Department land, Protected Area, cultivated land, purchased, others?)
4. Do you normally purchase fodder? Were you able to do so this year?

B. Revenues/Expenditures
1. During lockdown have you had difficulty in the following:
   a) Sale of milk and milk products
   b) Sale of animals
   c) Sale of wool
      i) Difficulties with shearing?
      ii) Getting wool to markets?
   d) Penning
2. Has COVID/lockdown caused a fluctuation in the rates you receive for produce?
3. Where have these expenses changed (medicines, food, water, transport, alcohol, labour)?
4. Has COVID had an impact on your earnings?
   A bit, Medium, A lot

C. Labour
1. What is the normal labour requirement? How much of this is hired labour?
2. What is the situation during lockdown? (could not come, had to leave, stranded?)

D. Veterinary care
1. What are the normal veterinary services that you access? Health camps, doctors, medicines, vaccinations?
2. Are these services available during lockdown?

E. General Questions (Rations, health care, places to stay, social stigma)
1. Where do you normally get your rations while on migration?
2. What difficulties have you encountered because of the lockdown?
3. What state or other support has been available to ensure you have adequate ration?
4. Were you required to carry a Coronavirus free certificate? Where were you required to show such a certificate? Did you need permission to move?
5. Have you experienced difficulties in finding places to camp during the lockdown?
6. Have you experienced social stigma? Please elaborate?

F. Open-ended
1. During COVID have you been better off or worse off than other rural communities (agriculture, settled livestock keepers)... Can you compare your situation with others from your community who have moved out of herding?
2. What are your hopes and fears with regard to the next 6-12 months?
3. Do you have anything to add?

G. Additional Comments by interviewer