Adaptation and Coexistence of Van Gujjars in the Forests: A Success Story

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ABSTRACT

The existence of Gujjar pastoral transhumance is one of the best examples of symbiotic relations of these pastoralists with the forests and sedentary population spread over in the migratory routes. The Muslim Van Gujjars are a pastoral group living in the foothills of the Uttarakhand Himalaya, are also known as buffalo grazers, follow transhumance between high altitude alpine meadows and forest foot hills without much diversification of subsistence strategy. The economy of Van Gujjars is completely based on milk production and supply of milk products along with the providing genetically well bred progenies of indigenous buffaloes to the hill people of Uttrakhand. The creation of new state of Uttarakhand, has led to a number of developmental initiatives taken up by the state government which includes creation of more roads, a number of dams for harnessing hydel power and sprouting up of new urban centers. All these have disturbed and disrupted the migration pattern of Van Gujjars. On the other hand, the initiatives taken up by the state forest department in restricting the entry of Van Gujjars into their forests has further added to the problems of survival of these pastoralists. The Van Gujjars are well known for having evolved a resource management practice by utilizing the alpine grazing resources in summer and migrating to foot hill forests in winter. They also provide their buffalo manure to the small land holding farmers for their agricultural fields. Besides breeding their own livestock, Van Gujjars also take care of the animals of other communities, fulfilling the role of village cowherd. Henceforth, Van Gujjars have proved themselves very resilient; they have an intact social structures and mechanisms for mutual sharing of resources with the sedentary population. They also provide ethno veterinary services to the local farmers, and their livestock also represents an encashable asset. These exchanges are immensely welcomed by the sedentary population. With increasing international emphasis on the conservation of biodiversity, policies need to be devised out for the Van Gujjars so that they are able to benefit from recognition of their role in conserving livestock genetic diversity, promoters of valuable indigenous breeds of buffalo and indigenous knowledge and also about coping mechanisms from environmental stresses.

Key words: Pastoralists, Van Gujjars, Adaptation and Survival Strategy.

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INTRODUCTION

VanGujjars are fully pastoralists following transhumance between two distinct eco zones without much diversification of subsistence strategy. The passageways between different subsistence strategies often encounter a regular thoroughfare. The present paper addresses the various issues pertaining to survival of the VanGujjars in the changing modern times and consequently the various adaptation strategies inherently undertaken by VanGujjars in pursuance of their way of living that is transhumance.

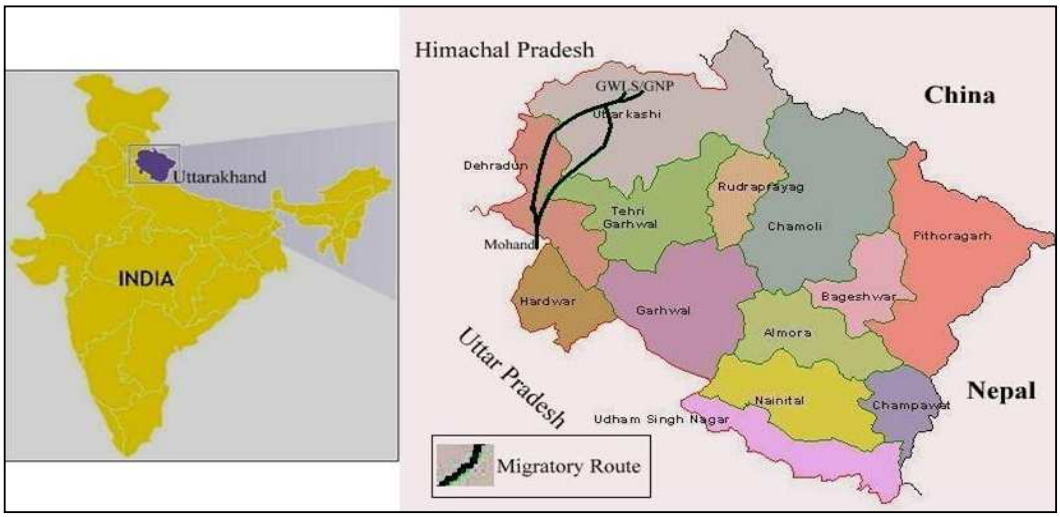
In the 2002 strategic plan document, the central government envisaged that by the end of 11th plan in 2012, India will have restored its forest cover at least 33% (India Together, 2005). For this purpose the 11th plan emphasizes on the planting of trees in areas that are traditional grazing lands. Apart from National parks, pastoralists elsewhere had the right to graze their animals in parts of the forest against a fixed grazing fee. But now some forests are being closed by the implementation of Joint Forest Management Programmes. Others are being declared as wildlife sanctuaries and National parks. Apart with this, Forests are increasingly being diverted for purposes such as industry, road building and mining. Forest land of 41.94 km2 was diverted for construction of different projects (dam, resettlement colonies, filling of reservoir) under Tehri Dam Project and Koteshwar Project. In addition, 13.58 km2 forest land was diverted in second phase of the project for rural resettlement (Govt. of Uttarakhand, 2008).This has led to problems such as enhanced soil erosion and landslides. These factors have immensely affected adversely against migration of Van Gujjars.

STUDY AREA

The winter camps of the Van Gujjars is in the Siwalik forest division which lies west of the Delhi Dehradun highway and outside the Rajaji National Park, lying between 200 25’N and 300 25’N Latitude and 720 35’E to 780 15’E longitude. While the Rajaji National Park area lies in the east of the highway and includes Rajaji, Motichur and Chila lying between 290 50’N to 300 15’N latitude and 770 55’E to 780 30’E longitude.

The summer pastures comprises of Govind National Park in Uttarkashi district covering an area of 472.08 sq.km was carved out from Govind Wildlife Sanctuary in 1990. The altitude of the park varies from 2056 m to 6323 m above msl. The alpine meadows occupy approximately one-fifth area of the park which is used as summer grazing land for more than 30 migratory shepherd groups.

Map showing migratory route of Van Gujjars from Siwalik foothill forest to Alpines



METHODOLOGY

The present article is an account of long participatory field survey and data collection about different stakeholders of forests and pastoralism in Uttarakhand. The focus has been given on Garhwal region in particular. Questionnaire survey and interviews were carried out among the Van Gujjars inside Govind Wildlife Sanctuary and National Park and of Rajaji National Park. The secondary data regarding Wildlife Sanctuaries and National Parks were collected from Office of the Deputy Director of Govind National Park and State Forest Statistics of Uttarakhand Forest Department. Different acts regarding forest and conservation were analyzed relating to the present scenarios of pastoralism in the region. Pastoral migratory routes were mapped by taking part in the seasonal migration with pastoralists through different forests and alpine pastures.

ADAPTATION STRATEGY RELATED TO MILK ECONOMY

Van Gujjars heavily rely on an economic system based primarily on animal husbandry. The primary resource of the Van Gujjars is livestock and as their territorial rights are confined to marginal environments, it is imperative for the community to move seasonally in order to ensure adequate grazing and water for the livestock. They occupy marginal lands because the better favoured environments are almost occupied by settled permanent agriculturists. Henceforth making use of the environments that other economic systems either do not want or cannot use. As regards their occupation, the Van Gujjars may be regarded as more of an exception than as a rule among pastoralists of the world, as they rely almost entirely on their herds for their livelihood (Gooch, 1998). Van Gujjars form a monopoly in the organic milk market with their cattle feeding on nutritious grass resulting in high milk yield. The Transhumant communities in Himalayas are the societies where animals have helped in adapting humans to the extreme inhospitable conditions of high altitudes, through various production processes.

Due to non existence of commercial markets in the high altitude alpines, Gujjars adapt to converting major part of milk production to Butter and Ghee to be sold to the dealers on way back to foothills. The latest adaptive strategy ensued by the youngsters is to work as labourers in the apple orchards or in forestry planting saplings or carrying timbers for supplementary income in the alpines.

With the advent of 'operation Flood', the Van Gujjars were advocated with some form of change of animal stock either by crossbreeding or by getting rid of old herds and buying new high performance Buffaloes. Van Gujjars have out rightly rejected this adaptation as they stress that animals from outside will not be able to live in the forest. They emphasize that animals from outside would not be able to adapt in the climatic conditions of alpine, walking for miles in all possible harsh conditions of no water and no food. The animals from outside need to be stall-fed which is not the same for Van Gujjar Buffaloes as they walk around and graze. As an alternative adaptive strategy, Van Gujjars have accepted new ways of marketing milk and milk products. However, what gets evident from an interaction with them is that this rejection of crossbreeding strategy is infact another adaptive strategy of Van Gujjars in order to pursue their transhumance because with the new animals it would no longer be possible to maintain traditional patterns of milk production from the roughage of marginal forests which would mean accepting a settled life outside of forests and giving up of nomadism.

ADAPTATION STRATEGY RELATED TO IMPLICATIONS OF DEVELOPMENT ON THE MIGRATORY ROUTES

As the migratory routes are of long distances, on the way they halt at common lands of various villages. Earlier the migratory voyages were marked with a lot of open spaces and forests for van Gujjars allowing them trail through predetermined sites through traditional set routes and fixed timetable. Various developmental activities like irrigation and hydropower stations, road building, mining etc have also adversely affected the forest cover. As per the state forest Department Report, during last two decades around 26,000 ha. Forest land has legally been transferred for various development schemes in Uttarakhand.

Table: Forest land diverted for non-forest purposes in Uttarakhand during 2000-2009:

Sl	**Projects**	**No. of projects**	**Area (km^2)**
1	Road construction	1025	35.83
2	Drinking water projects	391	1.36
3	Irrigation	49	0.58
4	Transmission line	75	17.37
5	Hydro power	48	11.39
6	Mining	14	39.03
7	Other	481	35.67
Total		**2083**	**141.23**

With the advent of the state of Uttrakhand in 2000 and growing emphasis on infrastructure development, the Himalayan states have gone through dramatic development in the last few decades and besides infrastructure development these states have seen tremendous tourism development, extensive road building, hydropower plants, hotels etc across the length and breadth of the Himalayas. Alongside the construction of roads in Uttrakhand accelerated after 1962 Chinese and 1965 Pakistan aggression in India. For defense purposes, many new roads even up to the most of interior places were constructed. Total 16,654 km of metalled and 2593km of nonmetalled roads have been constructed or developed in the region (Satendra, 2002). As a result, the Van Gujjars have had to alter their migratory routes and face problems of livestock being killed on roads, thefts and a constant pressure to move. There are instances where animals die due of eating noxious weeds growing close to the roads on degraded land.

Besides, the herds pass through a number of villages through the middle altitudes where fodder and water are available. Earlier the movement was during the day and the herds were halted in agricultural fields where substantial quantities of dung were left when the herd moved. Thus the villagers got manure without any expenditure. There were other transactions also, such as the purchase of *pural* (fodder) by the Gujjar and occasional purchase of *jhotas* (male buffaloes) by the villagers for breeding purposes. The relationship between the Gujjar and the local population is cordial and the Gujjars are welcomed in the vicinity of the villages. Although the expenses pertaining to the migratory routes have increased, barter system is still the basis through which the economic transactions are still carried through. Gujjars still purchase fodder from villagers as most of the areas on their trail have been declared as protected areas. Today a Van Gujjar purchases a head load of 2quintals at a rate of Rs 800 which is consumed by 10-12 number of buffaloes in a day. Along with this, the villagers charge them for the halting spaces that they provide to Van Gujjars for camping of their buffaloes to graze on. Approximately, Van Gujjars pay Rs 1000 per night for halting and grazing at a villagers' field. The Table below shows the barter system prevalent in the alpines between Van Gujjars and the villagers in approximate values based on observations:

Gujjars gives	**Value (market value)**	**Gujjars takes**	**Value (market value)**
1litre milk	Rs 22	4 Kg potatoes	Rs 32 (Rs.8per kg)
1 night field grazing	Rs 2000	1 goat	Rs 3000
1kg butter	Rs 200	25kg potatoes	Rs 200 (Rs.8per kg)
1 *Khais* (Woolen sheet)	Rs 450	1 *Goondh* (horse cover)	Rs 400
Total	**Rs 2692**		**Rs 3632**

The findings clearly show that the Van Gujjars loose out in economic terms from the barter system but since they live in such inaccessible areas that easy access to availability of things of utility plays an important role in their pursuance of barter system.

These mounting expenses have compelled poor Gujjars to adapt to situation by making camps at secluded places away from villages, at times along the highway itself. The halting places are also merged together with a constant decrease in the number of *paraos* (halts) on the migratory routes. The adaptive strategy of Van Gujjars to overcome the developmental issues pertaining to their migratory routes has been to pursue the upward movement during the night. During migration, women endure majorly by leading the qafilas and strategically negotiating with forest officials, simultaneously taking care of *maal* (caravan with loaded packed animals) moving faster than the *baas* (herd of buffaloes) who move slowly, herded by manfolk. Here the resultant adaptation has yielded a strategy whereby the manfolk start early with slow moving *baas* for the next halt while the womenfolk rest till dawn and reach with the *maal* faster to the destined *parao*.

With the road network in the interior of the Himalayas, the Gujjars can now use public motorized transport to carry their equipment as well as other necessary provisions up to the points from where the trek up mountainous trails to the *bugyals* (grasslands) begins. For example, in the Tons valley, public transport reaches up to Sankri, some 200km from Dehradun. The Gujjars migrating to Fateh Parbat, Kedarkantha, Harkidoon, Posthar etc can use it to transport their equipment and advance parties upto Mori, Naitwad or Sankri in just one day as against about ten days taken previously. This adaptive strategy has although frictioned and attacked the very process of transhumance taking away its essence. The objective left for the Van Gujjars today is to reach the *bugyals* the shortest possible time so that the herds can graze the healthy and nutritious grasses.

ADAPTIVE STRATEGY RELATED TO REDUCED PASTURES

In the high-altitude, a conflict situation is creeping up. Earlier the agro-pastoralists in the high altitudes only raised goats and sheep which used to go to pastures at higher elevations where heavy cattle like Buffaloes could not climb. Now they keep cattle which are grazed at the pastures of lower altitudes where Van Gujjars grazed their cattle consequently the Van Gujjars are compelled to take their buffaloes to high pastures. The presence of VanGujjar's herds in the higher *bugyals* creates a conflict situation with the highland shepherds who do not want the Van Gujjars to migrate to the *bugyals* as they fall within the jurisdiction of their villages and the presence of two type of animals in the *bugyals* results in competition for resources. Sheep do not touch the grass browsed by other cattle so have to be taken further up beyond the reach of buffaloes causing hardship for the shepherds. If shepherds have the backing of traditional rights as inhabitants of the region then Van Gujjars are equipped with the Official permits issued by the forest department along with a receipt of payment for the grazing in the areas. However, the Van Gujjars have devised out strategies of amicably dividing the areas to be grazed with shepherds and further on the economic gains through barter of milk products and other things with the other communities with whom they share the eco-

niche. The transhumant communities in Himalayas are the societies where animals have helped in adapting humans to the extreme inhospitable conditions of high altitudes, through various production processes.

Despite all the allegations against them, the Van Gujjars are known for there indigenous knowledge of resource management through the strategy of rotational grazing. The Van Gujjars believe that in continuously grazed pastures, the greater proportion of forage is trampled, soiled and rejected by the animals than in rotationally grazed pastures. Further more they add that grazing cattle retain approximately 20% of the nutrients ingested from forages and the remaining 80% is excreted through feces and urine. Feces and urine are important sources of nutrients for forages, mainly for grazing systems with low inputs; thereby rotational grazing followed by Van Gujjars increases the uniformity of distribution of the excreta. Van Gujjars in the literal practice of Rotational grazing graze their animals in the creation of natural feed bunks of different slopes of pastures separated by the streams or rivulets in the alpine pastures. They leave their cattle to be grazed in the open pastures which graze for around 14 to 16hours and then they are shifted to a different slope after one week allowing the grasses to regenerate in the previous pastures. Moreover, the management strategy includes inherent decision of matching animal requirements with the pasture ability to supply nutrients. Animals with greater nutrient requirements (i.e. first calf buffaloes) have access to pastures first and graze the greater nutritive value forage. They can be followed by cattle with lower nutrient requirements(i.e. mature buffaloes).The young Van Gujjar males are designated the responsibility of periodic handling of the grazing cattle under a watchful inspection of a senior Van Gujjar male who makes timely management decisions pertaining to the strategy of Rotational grazing.

ADAPTATION STRATEGY RELATED TO PROTECTED AREAS

The creation of National parks and protected areas has led to the removal of local inhabitants and/or their exclusion from traditionally used natural resources (Maikhuri *et al.*,2000).The Van Gujjar families migrating to the Alpine pastures today face the same fate of being the ‘victims of conservation’. It started in the forest of foothills at the beginning of the 1990s with Rajaji National Park, but during the last decade most of the summer pastureland in the upper ranges has also been converted into national parks, global heritage sites or sanctuaries. The tree line forest of the park is grazed by the buffaloes of 13 Van Gujjar families who have the official grazing permits ever since the official permits were allotted from the forest Department and not a single new permit was issued after that. The Forest Department restricted the entry of Van Gujjars into the Govind National Park. The situation worsened all the over after 2006.The migrating families were not issued the grazing permit and allowed to move only on humanitarian grounds. All the stakeholders dependent on the Park resources are displaced. As an effect there is a large pastoral population in the Himalayas which is affected by the formation of parks where there rights to access pasture have been denied for the purposes of biodiversity conservation.

The insecurity taking to land use pattern in the protected areas is seeping in into their existence as the Van Gujjar families entering Govind National Park are allowed to enter

the National Park after paying of the grazing taxes yet they are not issued any receipts for the paid taxes, depriving them of any evidence of their claim on the forest resources under the 'other traditional communities'. Earlier upon reaching the Alpines Van Gujjars constructed the roof of their Deras which took almost 10- 15 days to be prepared by leaves of *Kaandlu* trees. This roof was so solid that it lasted for almost 40 years and needed a bit of repairing every year but today Van Gujjars with the increasing insecurity limit themselves to the usage of plastic sheets as the roof of their *Deras* which is more instant to use. This adaptation strategy had moved them further from natural organic environment to more synthetic and artificial one. Ultimate survival strategy gets depicted in the amalgamation of various fragmented *Deras* of the lower Siwaliks into one big *Dera* at alpines in order to conserve the limited resources; emphasizing on the fact that greater the number, greater would be the depletion of resources.

ADAPTATION STRATEGY RELATED TO USAGE OF ETHNO VETERINARY KNOWLEDGE OF GUJJARS

In the Indian Himalayan region, the use of medicinal herbs/plants is still a tradition continued by ethical/ local communities. Even today, the traditional healthcare practices (household remedies) hold much potential or most of the people depend upon the common household remedies (Phondani *et. al*., 2010). The Van Gujjars tribal communities have a wealth of knowledge on the use of medicinal plants in their locality. Collection of medicinal plants from the wild has been long conducted while grazing livestock in the forests and alpine pastures. The Gujjar have a fairly good knowledge of the various diseases their buffaloes suffer from. These diseases are not peculiar to Van Gujjar's buffaloes as the livestock of the region as a whole suffer from them, but what is of special interest is that the Gujjar over the generations have preserved the knowledge of a curative system which is traditional and indigenous.VanGujjars use their indigenous curative system when the characteristics of a disease gets evident like Khurpaka (foot and mouth disease), Galghontu(Haemorrhagic septicaemia), Nakada/thanela (mastitis),Taku(epifemoral fever), Rinderpest and Surra.They have indigenous prescriptions in which concoctions of roots and tubers as well as a mixture of ash and whey are administered to the afflicted animal. Apart from the knowledge of these diseases, Gujjars are aware of the afflictions caused by various weeds including lantana and poisonous grasses or creepers.

The VanGujjars likewise do diagnose some human diseases and have their own indigenous systems of curing them .In case of human too the recourse to the modern medicine was kept as a last resort. However, of late Van Gujjars while going to alpines carry a good amount of modern medicine as the pasture areas are inaccessible in case of emergencies e.g. the Van Gujjars migrating to Govind National Park need to trail through at least 21kms of dense forests in order to reach the nearest medical help at Sankri.

DISCUSSION:

With the decreasing pasture land, disturbed migratory routes, decline in Jajmani rights, restriction of access to forest resources, enclosure of forests, expansion of irrigated agriculture, breakdown of village institutions, deterioration of pasture and common

property resources etc, the Van Gujjars face severe problems and challenges for their livelihood security.

Uttarakhand has got a new name- the “Energy State” of India for its massive hydel power projects almost on every big and small river. Large area of forests as well as settlements and agriculture land are diverted into dam sites or reservoir. Forest grazing lands on migratory routes of pastoral herders are also lost due to these dam constructions. However, Van Gujjars have adapted to the situation by migrating in the nights and halting at secluded places yet at times owing to heavy traffic and construction sites they face difficulties, opting for the tougher terrains as migratory routes. Moreover, the growing population trend in Himalayan hills has forced the people to convert forest and common lands into crop or horticulture production. Expansion and intensification of crop farming and increasing horticulture (apple orchards in particular) have affected the pastoral migratory routes. Common lands in many villages have been converted for cultivation of cash crops such as potatoes and beans. This has caused the shrinkage of grazing lands around the pastoral villages and puts extra pressure on the alpines and forests for grazing. Apple orchards are increasing in number on open hill slopes and fenced with stone walls. Some of these open slopes had been used by the Van Gujjars for camping due to good sunshine to cope with cold weather. Now the VanGujjars are compelled to camp inside nearby forests. The colder forest microclimate is harmful for the livestock. Apart from that the distance between two consecutive camping sites has been increased two to three times at some places due to the deletion of one camping site. However, this situation has been taken up by the VanGujjars as opportunity for better survival by seeking for employment in the apple orchards as daily wagers for extra income supplementation.

Evidence is gradually accumulating that pastoralists livestock can benefit the conservation of wild animals, especially predators. Often there is a long history of co-evolution between wild species and livestock. Evicting the livestock from wildlife reserves may lead to an exodus of predators, or result in habitat changes that make it unattractive for wildlife Similarly, Van Gujjars do not see wild predators as essentially antagonistic to them and their herds and they do not seek vengeance when one of their animals is carried off. What they say is that also tigers and leopards belong in the natural order of the forest and that they-just as the Gujjars and their buffaloes-have rights to be there (Gooch, 1998). As an adaptive strategy, however, Van Gujjars have begun to keep Dogs of Bhotiya breed and also lock the young calves inside a wooden enclosure during the night.

When Livestock is barred from entry to protected areas, there is often very high growth of grasses, regularly leading to forest fires. Local people know that grazing animals control the growth of grass, so preventing the spread of fires. Local people also know that livestock browsing stimulates trees to branch, leading to denser and more luxuriant top growth. Observations from the field study show that Van Gujjar’s buffaloes who are left for grazing for around 14-16 hours graze for 2hours in an instance and then browse for one hour leading to an enhanced top growth. Further on, browsing leads to dispersal of seeds by being carriers through their skin. Henceforth, migratory Van Gujjar’s

livestock also play an important role in the dispersal and germination of seeds and scatter their feces in the process in a dispersed manner, thus contributing to plant biodiversity.

Van Gujjar women enjoy the status equal to men. The Van Gujjar women adapt to the changing situations by a strategy of the eldest women leading the herd on the migratory route in order to make negotiations with the forest officials. Further on, the women seems more willing and more adaptive to modern ways of family planning and they have shown a positive result during a project of Family planning launched by Government so with changing times the Van Gujjar Females who were the followers have changed into the leaders of the *Kafilas* (Group).

Eventual adaptive strategy of Van Gujjars for the sustainability of their very identity survival has been adding of the prefix *Van* (forest) to the common Gujjar name in order to stand demarcated from the countless other Gujjar groups in Northern India. The strategy has sustained to an extent of getting referred as Van Gujjar even in the official government documents.

CONCLUSION

As the eventual outcome of the paper, the need of the hour is inclusion of Van Gujjars in 'Socialized forestry where people are inherent part of the process of management, sustainability and conservation of Nature. Sustainable pastoralism would be the only answer to the unpredictable climate changes and ever changing landscapes of Himalayas. Pastoralists are the best judges to ascertain the replenishment of depleting resources. Van Gujjars are inevitable for maintaining the Biodiversity in the alpine pastures through grazing and can best maintain the lower Siwaliks forest through plantation and conservation of local species of fodder trees. This informal scientific knowledge can be amalgamated with formal education system with special emphasis on the ethno veterinarian systems of livestock Herd management. Therefore, the impeccable strategy of constructing realistic development project with a maintained nomadic lifestyle, emphasizing on a life within the framework of 'normality' would be the ultimate sustainability measure for a sustainable development of nomadic people sharing symbiotic dependence on animals and nature.

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