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| (Draft)Rajasthan State PolicyonCamel Conservation and Development |
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# Summary

The camel is Rajasthan’s state animal and therefore there is an urgent need for its conservation and development. While the government has taken some measures to protect it, these are not having the desired effects. The solution to the problem is a Rajasthan Camel Policy that cuts across line departments to create an enabling environment for camel breeders and for secondary industries, with the goal of returning an economic rationale to camel breeding.

The following policy propositions are made:

* Secure, establish, maintain camel grazing areas (Forest and Revenue Departments)
* Establish a market for camel milk and promote it as Rajasthan’s USP
* Invest in value addition to camel raw materials ( Rural Development)
* Incentivize heritage and other hotels to utilize and showcase camel products (Tourism Department)
* Set up a separate and innovative institution along a Public Private Partnership to anchor Camel Conservation (reporting directly to Chief Minister)

# Introduction

The camel is part and parcel of Rajasthan’s heritage and history and an important part of its identity and international image. The Pushkar Camel Fair is world famous and continues to exert an enormous draw on tourists. However, Rajasthan’s camel population has been in decline for several decades and the number of camels present at the Pushkar Fair has dwindled dramatically, down to a couple of thousand animals at the most. Hardly any camels were sold at the Pushkar fair in 2016, and camel breeders are desperate, generally seeking to divest themselves from their herds. A further decline can be expected in 2017 and will be reflected in the next national livestock census.

The government has tried to act and declared the camel as Rajasthan’s state animal on 30th June 2014. Subsequently, the Rajasthan Camel (Prohibition of Slaughter and Regulation of Temporary Migration or Export) Bill, 2015 was passed on March 30th, 2015. Furthermore, on October 2, 2016, the Rajasthan government initiated a subsidy scheme, the Ushtra Vikas Yojana for all new camel babies being born.

However, it will not be possible to achieve the long-term conservation of the camel, unless it becomes economically viable to breed camels. In order to achieve this, further state interventions and public investments are necessary that could ultimately prove very rewarding and develop Rajasthan’s already famous Raika camel culture into the state’s Unique Selling Point.

The camel has unique economic potential as a source of food, fibre, organic fertilizer, and specialty and heritage products. In order to develop this potential an appropriate enabling environment has to be created. This cannot be handled by the Department of Animal Husbandry alone but requires collaboration and cooperation across a number of departments, including Finance Department, Tourism Department, Rural Development, Handicrafts, Forest and Environment, Social Justice and Empowerment, as well as Science and Technology.

The purpose of the policy on camel conservation and development is to outline the various rationales for conserving the camel, identify the factors that have led to its decline and to suggest a number of policy measures aimed at re-creating a vibrant camel economy and restore the camel to its former glory. This policy approach seeks to combine the best of tradition with the most innovative and cutting edge technology approaches to turn Rajasthan’s globally unique camel culture into the state’s USP.

# Significance of the Camel for the Ecology, Economy and Culture of Rajasthan

* 1. Ecology

### Biodiversity

There is an association between Rajasthan’s camel breeding herds and its bio-diverse wilderness areas and orans. Camel breeding herds are found where there are native trees and shrubs, such as khejri (Prosopis cineraria), jal (Salvadora oleoides), mithi jal (Salvadora persica), babul (Acacia arabica), kumtia (Acacia senegal), orabjiya (Acacia leucophloea), bor (Zizyphus nummularia), neem (Azadirachta indica), and many others. Studies in the Kumbhalgarh area have shown that camels are feeding on at least 36 different types of plants[[1]](#footnote-2).

The grazing/browsing by camels propagates many of these trees, especially Acacia spp., as their seeds need to pass through the stomach of a ruminant in order to germinate. Furthermore, the grazing behavior of camels – taking only one bite from a tree before wandering on to the next ones, has been shown to actually stimulate growth and branching out of trees[[2]](#footnote-3). The point here is that camel conservation cannot be decoupled from the conservation of natural areas, nor can the conservation of many “wild areas” be delinked from camel conservation. **Camels and Rajasthan’s wild biodiversity are interdependent**. If we conserve the former, we will also conserve the latter.

### Drought Resistance

Camels are resilient in the case of drought, thriving when other livestock species succumb. They are largely independent of groundwater resources, a significant factor in Rajasthan’s scenario of depleting aquifers and sinking groundwater levels.

### Food security

Camels make a major contribution to food security by producing milk and organic manure from natural vegetation that would otherwise not be utilized. Because of their great height, camels can reach canopy up to the height of about 2.5 m, ingesting biomass that is beyond the reach of any other species. In certain parts of Rajasthan, such as Pali district, they thrive on the thistles that grow on irrigated fields during the fallow period, converting these into milk and essentially generating an additional harvest out of a field, without any of the normal inputs for food production (i.e. fertilizer, pesticides, fuel).

The food intake of camels is low in relationship to their bodyweight. They are much more efficient than cows in converting vegetation into milk. While cattle require 9.1 kg of dry matter to produce one liter of milk, camels need only 1.9kg to produce the same amount; they are thus almost five times more efficient[[3]](#footnote-4). Camels have the added advantage of being able to make use of vegetation with a high salt content that develops when soils become salinized in the wake of irrigation projects. This factor is of great significance to Rajasthan where water-logging is a great problem along the Indira Gandhi Canal. Camels are primarily browsers, with shrubs and forbs composing about 90% of their diet. One third of their food intake must be from halophytes (salt-loving plants).

### Climate change adaptation and mitigation

 Because camels have a lower metabolic rate and eat less feed, they also release less of the climate gas methane, according to a study by the University of Zurich and ETH Zurich in Switzerland[[4]](#footnote-5). They therefore make an active contribution to the mitigation of climate change. At the same time, they are much better adapted to the rising temperatures of climate change.

## Economy

Camels have enormous economic potential, especially in the current global context of growing health concerns among many consumers, the general trend towards organic food production, and the rapidly growing demands for specialty products (gourmet and heritage products) among India’s middleclass.

### Camel milk

The camel dairy sector is the fastest growing dairy sector in the world, according to some sources. Large scale dairy farms are operating in several Arab countries, including Dubai, Abu Dhabi, and Saudi-Arabia. Smaller dairy farms are currently being set up in the USA, Europe, and Australia to cater for the demand from health-conscious consumers. In Kenya, and countries in the Horn of Africa, women are often in charge of trading camel milk and obtain good income from this occupation.

The reason for the growing popularity of camel milk lies in its therapeutic qualities. Containing ingredients that act as immune-system booster, it has been used traditionally in the treatment of Tuberculosis – in India and Central Asian countries. It also contains an insulin-like substance that is not broken down in the stomach and immediately lowers the blood sugar level. It is therefore recommended by doctors for the treatment of Diabetes patients.

But the greatest demand for camel milk comes from parents of children with Autism Spectrum Disorder. Many autistic children respond well to camel milk, establishing eye contact and sleeping better.

Camel milk can be consumed by lactose intolerant people and has a positive effect on allergies, autism, and, according to some sources even cancer and AIDS.

**Camel dairy products**

Camel milk can be processed into low-calorie ice cream, containing only 2.5 per cent fat, compared to between six and nine per cent for standard ice creams. On-going experiments by the NGO Lokhit Pashu-Palak Sansthan, with the help of international cheese experts, have shown that camel milk can be processed into cheese of top gourmet quality, including cream cheese, feta, and halloumi. These cheeses created hype and excitement among visitors to a recent exhibition on pastoralism held in Delhi in December 2016 and received international exposure in a documentary about India.

### Camel wool

Indian camels produce an average of 0.6 kg of wool per year, according to scientific reports. Camel wool is harvested at the time of Holi, then handspun by camel herders with a drop spindle and was traditionally given to the Meghwal community on contract basis for weaving rugs and blankets. The wool was also used for stringing charpoys and earlier was made into jackets, but this practice has declined.

 Scientific analysis indicates a great degree of variation in fibre thickness, and a significant proportion of high quality fine wool, with the majority of fibres being in the 17-20 micron range, which is equivalent to Cashmere quality. The length of the fibre is around 5.4 to 5.9 cm.

Separation of camel wool by colour and by fineness results in fibres that can be either woven into rugs or made into extremely high quality shawls and stoles. Especially shawls and stoles find a ready market nationally and internationally.

* + 1. **Camel poo paper**

Because of its high fibre content, camel dung can be processed into handmade paper which has a very unique and intriguing quality. Because of the biodiversity it contains, this poo paper is attractive for eco-conscious consumers and there is increasing demand to use it for the production of conference folders.

## Culture

* + 1. Heritage and history

The camel plays a major role in the state’s rich culture and heritage. A large number of folk songs and stories center around the camel which was also regarded as a symbol of love. Certainly, the history of the Thar Desert would have taken a different course were it not for the camel that provided transportation and opportunity for trade. Without camels, Jaisalmer could never have developed as a trade centre, and its famous architecture would not be there. For the rural population, the camel was a bulwark against drought, as expressed in the common proverb “Marry me into a village with many camels”. The Incredible India campaign deployed romantic images of camels with their keepers among sand dunes. The Rajasthan Tourism Department also organizes a Camel Festival and various camel related shows – camel races, camel dancing, camel polo - define the programmes of the Desert Festival in Jaisalmer as well as the Marwar Festival in Jodhpur. The National Research Centre on Camel in Bikaner prides itself as a major tourist destination. The camel is part of the Rajasthan brand which is why it is so important for the state to conserve it successfully.

# Current Status of Camel Population and Economy

## Camel population trend

Over the last two decades, the camel population of Rajasthan has seen a drastic decline which shows no sign of leveling out. This is in contrast to the global population trend: In many countries, especially Africa and Arabia, camels are experiencing an upward trend, mainly due to two factors: their resilience to climate change and the emerging demand for camel dairying.

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## Reasons for the decline

There are three main reasons why the camel population of Rajasthan has declined. They are shrinking of grazing areas, difficulties of providing veterinary care, and absence of economic returns.

### Shrinking of grazing land

Shrinking of grazing is due to the following developments:

* **Enclosures by Forest Department and Protected Areas**

Under pressure to increase the acreage of forested land, the Forest Department fences in so-called “wastelands” to establish nurseries and in the process eliminated former grazing opportunities. The establishment of wildlife sanctuaries, for instance the Kumbalgarh Sanctuary also has had far reaching percussions on camel-breeders.

* **Tubewells and irrigation**

Because of green revolution agriculture through subsidised fertilizer and electricity, huge tracts of land are now irrigated by means of tubewells. Very often, the water supply lasts only for 6-7 years, after which the farmers shift to new areas and drill another tubewell to start the process anew. The fields are abandoned without any protective vegetation cover that leaves them prone to erosion; because of the destruction of trees and other perennial vegetation they have become useless for grazing and any other productive use.

* The **Indira-Gandhi Canal** has eliminated prime camel breeding areas. In some villages in Jaisalmer district that formerly were proverbially famous for providing the best camels in Rajasthan, such as Nachna and Mohangarh, not a single camel can now be found. The canal interferes with camel migration patterns; in addition farmers protect their harvest from roaming camels by shooting them with guns or subjecting them to a slow and painful death by tying their mouths shut or attaching thorny shrubs to their tails.
* **Urban sprawl and development** is also impinging on traditional camel grazing areas.

### Disease problems

One reason why the camel numbers have decreased is the lack of veterinary care. Camels are affected mostly by two diseases: mange and trypanosomiasis. Both of these sicknesses can be treated, but the drugs are not easily available; in addition they are overpriced, and there are many fake medicines in the market.

### Lack of Economic Returns and Attraction for Young People

 In the last five years, the problems of generating income from camel breeding have become very severe. It is now virtually impossible to generate income from camel breeding. Camel breeders have not been able to sell their animals at the Puskar fair in the last three years or so. The demand for camels as work animals has petered out, and it is no longer legal to take camels out of the state due to the new Camel Law. As a result the prices for camels have dropped. At the same time, there is no organized camel milk market. While camel milk is sold in many parts of the state, this happens not in the name of camel milk, but as generic milk. Because of the low fat content of camel milk, the liter price is only around 18-20 Rs.

While camel milk was approved as a food item by the Food Safety and Standards Authority of India (FSSAI) in December 2016, the market for camel milk still needs to be built for camel breeders to obtain sufficient income.

# Need for a Camel Conservation Policy and Economic Development Strategy

The camel has been declared as Rajasthan’s state animal and the new logo of Rajasthan’s tourism department features camels. In order to do justice to this status of the camel and its cultural significance, the animal itself as well as its products once again have to become part of peoples’ daily lives. A policy is needed that makes this happen and creates positive economic incentives for the traditional guardians of the camel, especially the Raika, but also the other camel breeding communities.

## Purpose of the Policy

The purpose of the camel conservation and development policy is to address the factors that have caused the decline of the camel population. It focuses on mitigating the reasons behind it by maintaining and resurrecting camel grazing areas and by creating demand for camel products.

# Policy Propositions

The Report of the National Commission for Denotified, Nomadic and Semi-Nomadic Tribes (2008), the National Policy for Farmers (2007), the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act (2006), the Biological Diversity Act of 2002 and Biological Diversity Rules of 2004, the Raika Bio-cultural Protocol (2009) and international legislations such as the Interlaken Declaration on Animal Genetic Resources, the Global Plan of Action for Animal Genetic Resources, the Convention on Biological Diversity and the Rio Declaration, guide us in the necessary actions to support sustainable camel development in the state. Based on these documents, the following policy propositions are made:

## Secure, establish, maintain camel grazing areas

Rajasthan’s breeding camels have traditionally been sustained on native vegetation, they thrive on typical desert vegetation, including khejri, babul, bordi trees, and many others as well.

But access to such trees has been severely curtailed as customary grazing areas have disappeared or been closed off in recent decades, so that camel herds are often in an almost chronic state of starvation, impacting their reproductive rate and leading to population decline.

**Recommendation:** *Undertake a series of consultations with camel breeders to identify and mark-out dedicated camel grazing areas (this does not mean that other livestock cannot graze there) and integrate the results into Rajasthan’s Commons Policy*.

## Establish a market for camel milk

Camel breeders currently have virtually no income from their herds, as the market for draught camels has broken down and camels cannot legally be taken out of the state. This is why so many camels are going for slaughter.

The only significant source of income is camel milk.

Camel milk has nutritional and therapeutic value for certain conditions and illnesses, such as autism and Diabetes. Globally it is the fastest growing segment of the dairy sector, with camel dairy farms being established not only in Arab countries, but also in USA, Australia, and Europe.

* Encourage and subsidize private sector to enter into camel dairying
* Establish a separate collection and payment system for camel milk, starting around Jaipur where an organized but gray camel milk marketing system already exists.
* Camel milk cannot be priced as cow and buffalo milk, since it is very low in fat content, even below 2% in certain parts of the year, as was recently recognized by the Food Safety and Standards Authority of India. (FSSAI)
* Set up an advertising campaign to promote camel milk

## Invest in value addition to camel raw materials

**Rationale:**

Living camels provide a number of raw materials that can create additional income for camel breeders and form the basis of small, medium and micro-enterprises. These include hair/wool and poo that can be used to create a variety of Rajasthan typical lifestyle products. Experiences already exist, but need investment and up-scaling

**Recommendations:**

* Incentivize research and training institutes to develop new technologies and designs for products made from camel raw materials, e.g. camel poo paper, camel wool appareil and home furniture, camel milk soaps and lotions.
* Provide subsidies to artisans and micro-enterprises, processing and working with camel raw materials.
* Hold competitions for design students and professionals to create the most attractive designs for camel products.

## Incentivize heritage and other hotels to utilize and showcase camel products

Tourists are always looking for typical local products to take home and thereby can spread interest and curiosity about camels.

* Interest Rajasthan heritage hotels to use camel milk soaps, offer camel milk chai and camelcino, decorate rooms with camel hair rugs and write the menu on camel poo paper.
* Link this to the SMMEs that are producing the products
* Link this to the new Rajasthan tourism logo

## Set up a separate and innovative institution along a Public Private Partnership to anchor Camel Conservation

**Rationale**: The existing institutions are not in a position to achieve this cross-sectoral task. It needs a combination of private enterprise and an enabling policy environment to make camels in Rajasthan great again.

**Recommendation:** As first step, bring together a group of enlightened business people, PR specialists and enlightened government officials to form a high-level action committee.

# Annex 1: Supporting National and International Legislations and Policies

## The Biological Diversity Act of 2002 and the Biological Diversity Rules of 2004

The Biological Diversity Act of 2002 in its efforts to fulfill India's commitments under the Convention on Biological Diversity provides for the conservation of biological diversity, sustainable use of its components and the fair and equitable sharing of benefits arising from the use of such biological diversity and associated traditional knowledge (TK). The Biological Diversity Act sets up the National Biodiversity Authority (NBA) and the Biological Diversity Rules of 2004 lists the functions of the NBA as including regulating access to biological resources and associated TK for commercial and research purposes. The NBA is also empowered to advise the Central Government on any matter relating to the conservation and sustainable use of biodiversity and associated TK and the fair and equitable sharing of benefits arising from the utilization of biological resources and associated TK. The Biological Diversity Act among other things requires the Central Government under Section 36 to promote the conservation and sustainable use of biological diversity through in situ conservation and minimize the adverse effects on biological diversity of any project undertaken through environmental impact assessments that includes public participation. The Central Government is tasked with ensuring respect and protection of associated TK of local communities in accordance with the recommendations of the NBA including registration of TK and other sui generis methods for its protection. Under Sec 38 the Central Government is also required to preserve and protect those species that are on the verge of extinction.

In order to ensure the effective fulfillment of the role of the NBA at a local level, local bodies such as the Panchayats or Municipalities are required under Sec 41 to set up Biodiversity Management Committees (BMCs) to promote conservation and sustainable use and documentation of biological diversity and associated TK. The NBA and the State Biodiversity Boards would consult with the BMCs while taking any decision relating to the use of biological resources and associated TK within the territorial jurisdiction of the BMC. Under Rule 22 (6) of the Biological Diversity Rules of 2004 the main function of the BMC is to prepare a Peoples Biodiversity Register in consultation with the local people which shall contain comprehensive information on availability and knowledge of local biological resources and their associated TK. The Biological Diversity Act under Sec 21 envisages that the NBA will base its approval regarding any application for access to biological resources or associated TK on the whether a mutually agreed terms and fair and equitable benefit sharing has been negotiated with the local community that provides such resource or associated TK (benefit claimers according to Sec 2 (a) of the Biological Diversity Act). The local community or benefit claimers in question will be identified according to the Peoples Biodiversity Register under the territorial jurisdiction of the local BMC.

## The Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006

The preamble of the Forest Rights Act in accordance with Art 8j of the Convention on Biological Diversity recognizes that the forest dwelling scheduled tribes and other traditional forest dwellers are integral to the survival of the forest ecosystem. The Forest Act seeks to address the long term insecurity of land tenure and of these communities and therefore recognizes the rights of forest dwelling tribes and other traditional forest dwellers, which include nomadic or settled pastoralists, on all forest lands.

## National Policy for Farmers

The National Policy for Farmers (NPF – 2007) is an attempt to reorient agricultural policy to take a more holistic vision of agricultural production to include a focus on socio-economic wellbeing. Animal genetic resources and pastoralists are among the areas it focuses on to achieve in situ conservation according to the NBA.

The NPF acknowledges livestock keepers’ inherent rights to continue to use and develop their own breeding stock and breeding practices and calls on the government to recognize these rights, acknowledge livestock keepers’ contribution to the national economy, and adapt its policies and legal frameworks accordingly. As part of this effort, it underscores the need to document the indigenous knowledge of pastoral communities about animal conservation, maintenance and breeding.

To achieve these aims, the NPF calls for:

* Restoration of traditional grazing rights and camping rights in respect of forest areas and in those areas earmarked for grazing purpose in village common lands;
* Formalizing entitlements (including issue of permanent grazing cards) for traditional pastoralists/herders maintaining native animal breeds to enable free access to notified or demarcated grazing sites and migration routes;
* Conservation and expansion on grazing land and drinking water sources for livestock;
* Documentation of indigenous livestock breeds to recognize and protect the intellectual property rights of the local communities / individuals conserving these livestock breeds; and
* Involved of pastoralists in all local natural resource management programs, including village forest committees and joint forest management.

## International legislations

Many countries in the World are working on policy support to pastoralism. Under the World Initiative for Sustainable Pastoralism (WISP) “6 partner organisations, in Bolivia, Mongolia, Niger, Sudan, Switzerland and Tanzania, reported positive environmental outcomes in their country as a result of policy changes in favour of mobile pastoralism”[[5]](#footnote-6).Backed by scientific evidence, European Union (EU) policies officially endorse low intensity, transhumant livestock management in Europe as a source of diverse environmental, economic and cultural benefits. Far from seeking to eradicate mobile pastoralism, the European Union explicitly attempts to preserve it, through economic subsidies to livestock farmers, and programmes aimed at marginal grassland areas[[6]](#footnote-7).

## The Interlaken Declaration on Animal Genetic Resources

Point 9: recognizes “that the genetic resources of animal species most critical to food security, sustainable livelihoods and human well-being are the result of both natural selection, and directed selection by smallholders, farmers, pastoralists and breeders, throughout the world, over generations”.

Point 12: recognizes “the enormous contribution that the local and indigenous communities and farmers, pastoralists and animal breeders of all regions of the world have made, and will continue to make for the sustainable use, development and conservation of animal genetic resources for food and agriculture”.

## Global Plan of Action for Animal Genetic Resources

Part I Point 10: “all animal genetic resources for food and agriculture are the result of human intervention: they have been consciously selected and improved by pastoralists and farmers since the origins of agriculture, and have co-evolved with economies, cultures, knowledge systems and societies. Unlike most wild biodiversity, domestic animal resources require continuous active human management, sensitive to their unique nature”.

## Convention on Biological Diversity

Article 8: “genetic resources should be conserved in the surroundings in which they have developed their distinct properties”.

Article 8 (j): “Contracting parties shall…subject to national legislation, respect, preserve and maintain knowledge innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity…“

Article 10 (c): “customary use of biological resources is protected and encouraged in accordance with traditional cultural practices that are compatible with conservation and sustainable use requirements”..

Article 10 (d): “local populations are supported to develop and implement remedial action in degraded areas where biological diversity has been reduce”.

## The Rio Declaration

Principle 22: “Indigenous people and their communities and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development”.

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