



## **Ecosystem approach to land use, ecology and livelihood in Rajasthan<sup>1</sup>** **A policy brief**

### **Background:**

IELA paper on grazing land ecology highlighted the relevance of animal husbandry to the ecology and livelihoods of Rajasthan.

<https://ielaind.org/wp-content/uploads/2017/05/IELA-recommendations-to-the-task-force-on-grazing-ecology.pdf>

Superimposing the drainage systems of Rajasthan onto this tapestry we find a distinct difference between the drainage systems West and East of the Aravallis. In the West barring the Mahi and Sabarmati which flow into the Arabian Sea from the South West corner, the rest of the Western region is marked by a drainage system that does not flow into the sea. On the East most of the river systems form a part of Gangetic river basin. However since the slope of the Western Region, makes it a part of the Indus river basin, Rajasthan has been the beneficiary of the Indus river waters. Prior to Independence the King of Bikaner, Raja Ganga Singh, constructed the Gang canal to bring Indus waters to his kingdom. However since the subjects in his kingdom were not agriculturalists, farmers from Punjab were encouraged to come and settle down in Bikaner. Post Independence the water allocation to Rajasthan was decided based on its share in the catchment area of the Indus. The way this water has been used however is not based on any appreciation of the traditional livestock economy of the region and the soil morphology. Using the region to settle Pong Dam oustees and others needing land, disputes on water allocation, flooding due to underground gypsum layer have pock marked the drive to enhance the agricultural productivity of Rajasthan on one hand and a massive depletion of ground water resulting in more than 75% of the blocks of Rajasthan falling into the dark zone on the other. Various studies done, show that privatisation of the commons has also resulted in a severe depletion of the wool production from the sheep and a more or less failed cross breeding programme as well. On the other hand, a study of the climate pattern over hundred years shows a cooling effect of irrigation in the North Western corner of the State. Given the way, the hot thar desert stimulates the wind currents flowing from Australia to India and its subsequent impact on the monsoons of this country, it is clear that the land use pattern in Rajasthan plays a pivotal role in defining the climate of this country. <https://ielaind.org/wp-content/uploads/2017/05/drynet.pdf>

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## **The role of Aravallis as a barrier:**

The IELA paper and the drainage system of Rajasthan referred to above bring this out quite sharply so not going into those aspects again. To understand how this works at the local level would like to refer to the SPWD study on the biodiversity of Ajmer where the twin hills of Nagpahad and Nand Tillora were studied. The study showed how the Nandtillora range protected Nagpahad allowing Indo Malayan diversity to come up on its Western side which has been protected due to it being a sacred grove. It also shows how the passes in the Aravallis compounded by deforestation have allowed Western desertic (Indo Iranian) elements to encroach in the Eastern part. The study also describes in detail the destruction due to mining in Kharva region on the Eastern side, once a very rich grassland and home to the leopard as well.

[https://www.spwd.org/wp-content/uploads/2019/12/Biodiversity-Livelihoods-prosopis\\_DrLeena.pdf](https://www.spwd.org/wp-content/uploads/2019/12/Biodiversity-Livelihoods-prosopis_DrLeena.pdf)

## **The massive invasion of *Prosopis juliflora*:**

The study above documents how *Prosopis juliflora* destroyed not just the grasslands but also the agricultural lands of the region. A more detailed study on this aspect done by SPWD shows how *Prosopis juliflora* increased from 4.5% of the land area to 9% in a ten year period prior to the study.

<https://www.spwd.org/wp-content/uploads/2019/12/Biodiversity-Livelihoods-prosopis-Stage2.pdf>

A similar study done in Kutch by GUIDE showed how *Prosopis juliflora* increased from 16 to 32% in the ten year period prior to that study. The role of the goat and the drainage system in spreading the species can be seen in the pattern of expansion. On the other hand, the case study of Nagpahad and other studies done on Orans show how the local species can contain such invasion if the area is properly protected and conditions suitable for their growth and propagation are maintained.

## **The dilemma facing local breeds of Rajasthan:**

During the course of engagement with different organisations in Rajasthan, the authors and their respective organisations came across the dilemma facing local indigenous breeds in the region in the misguided promotion of cross breeds for enhancing milk production alone. This issue has been particularly stark for the Rathi (found near Jodhpur), Thaparkar (found in Barmer and Jaisalmer - though here the impact of the loss of grazing grounds due to creation of Pakistan can be clearly seen) and the Nagauri (found in Nagaur District). Germ plasm of the Rathi and Nagauri have been imported by Brazil, along with that of the Ongole bull (from Andhra) and Gir Cow (from Saurashtra). While the Gir is being bred for milk in Brazil, the major value of the other three is heat tolerance. Recent reports of India importing germ plasm from Brazil of some

of the local breeds native to India to shore up the declining state of health of the native germplasm raises strong questions as not just the animal husbandry policy of this country but also its related land use policies and recognition of the unique role played by the biodiversity of this country as well.

### **Wild Life in grassland dominated areas and related issues:**

The strong presence of the Leopard in this region which is dominated by scrub forests, grasslands and rainfed agriculture points to the relevance of ecosystems not having forests (which are not dominated by tree cover). This phenomenon can be seen in other regions of the country as well. The Tal Chhapar wildlife sanctuary host to the Black Buck, the presence of Chinkara in Jodhpur and other arid and semi arid areas, the State bird Great Indian Bustard (Godavan) in Barmer and Lesser Florican (Khandmor) in Ajmer also point to the significance and relevance of grasslands and scrub forests of the State for which proper policies have not been in place. Efforts to document the Jhunjhunu Beed Reserve Forest were done by Dr Sunil Dubey and his team of M. Sc. Environmental Science students along with help of print & electronic media from 2006 onward resulted in its declaration as Conservation Reserve in March 2012. <https://forest.rajasthan.gov.in/content/dam/raj/forest/rajasthan-wild-life/pdf/activities/PA%20Notifications/Beed%20Junjhunu%20Conservation%20reserve.pdf>

The document 'Baseline Survey of Orans (Survey and Assessment of Biodiversity) in Jawai Bandh C.R. (Sumerpur)' prepared for the forest department by IELA also reflects the importance of CCA sites that are considered as sacred, also serve as important refuge to the threatened & scheduled species of plants (including *Commiphora wightii*) and animals (including Leopard & Crocodiles) apart from serving as grazing ground for the livestock.

### **Energy policy of Rajasthan:**

The energy policy of Rajasthan focuses mainly on industrialisation and urbanisation as a way to promote growth in the State, largely ignoring the significance and relevance of the aspects mentioned above. This lopsided approach to development in the State is resulting in a major anti nature, pro mining thrust and consequent costs reflected in the large debt accrued by the State.

### **What is to be done ?**

There is a need for placing upfront the relevance of decentralised governance of ecosystems in order to capture the complex ecosystem parameters and their relation to livelihoods and ecology. This also has the advantage that various studies within the ecosystem can be clubbed together to understand the interplay between different factors and their consequent impact on livelihood and ecology.

The IELA paper on grassland ecology culls out the important aspects to be considered with respect to the different typologies of grasslands available in Rajasthan, the issues above point to

the factors that need to be looked at within different ecosystems of the region. The relevance of Orans as a gene pool reserve has been established in various studies done on the same. There is a need to examine the impact on these gene pools due to the factors outlined above.

The above points to a four pronged approach to engagement with ecology, livelihood and governance from the level of gram sabha to the State. This includes gram sabha, federation of gram sabhas at the ecosystem level and federation of federations at the State level. A cross cutting thematic based federation to deal with specific aspects provides the interplay between the local issues and thematic ones. It is obvious that facilitation of the above would require a multidisciplinary team that combines aspects related to decentralisation and coordination (centralisation ?) along with thematic specialities.

<https://ielaind.org/wp-content/uploads/2017/05/Report-of-the-BRP-Training-Programme-conducted-at-Bambora.pdf>

The report referred to above provides a road map related to one typology of pasturelands found in Jaisamand region of South Rajasthan, the approach can be replicated with suitable modifications for other typologies and thematic areas.

### **Indigenous Community Conserved Areas (ICCAs) – Charnot / Orans:**

Community Conserved Areas are natural or modified ecosystems having immense biodiversity values and ecological services being conserved and protected by indigenous and local communities through customary laws and practices. The CCAs includes pasture lands, sacred groves, wetlands, river systems, panchayat and community forests. 'Orans' (Sacred Groves) of Rajasthan are considered community conserved areas (CCAs) that act as a storehouse of biological wild gene pool, enable effective water management and serve as a community based regeneration system.

Orans/ CCAs legally fall under five main categories:

1. Revenue land 'Padath' (Culturable waste' and 'Unculturable or uncultivable waste land) ownership is of State Revenue department
2. Forest land controlled by State forests and Protected areas managed by Forest Department
3. Groves and Gaucher (village grazing lands) supposed to be managed by Village Panchayat
4. Devsthan land- ownership is of State Devsthan department
5. Private lands- ownership is of privately owned

In brief, *Orans*, serve chiefly as grazing ground for livestock, supporting biodiversity and having the capacity to reduce impacts of the climate change, apart from other ecosystem services like protecting watersheds and water sources, repositories of rich bio-genetic diversity, having

significant ethno-botanical, ethno-zoological and social codes of relation and regulation vis-à-vis nature.

If in addition to village commons and community forests, grazing and unculturable lands referred to as "wastelands" in revenue categories are also regarded as community accessed lands then the proportion of 'common lands' becomes very large indeed. Of the various types of community lands, perhaps the most significant are the Orans. It is quite surprising that despite their critical importance with regard to local livelihoods as well as biodiversity conservation there is considerable ambiguity regarding their legal status and ownership. As a result the fate of these CCAs has been decided by everyone other than the local community.

It is estimated that there are about 25,000 Orans and other sanctified ecosystems in the state. In most of the parts of Rajasthan (particularly to the west of the Aravali and north-eastern and eastern parts) the grazing lands are associated with the concept of sacred groves (Orans) or vice versa. Orans are protected by local communities through customs and sanctions, as well as through festivals and rituals. Hence development of the management strategy considering the status of the physical resources, existing management regime along with the social and cultural linkages, is an urgent necessity.

### **Current Legal Scenario of Orans/Charnots**

Legislative provisions specifically provide an important basis for identification, recognition and management procedures for the CCAs namely Biodiversity Heritage Sites (Section 37 (1) of Biological Diversity Act, 2002) and the Community and Conservation Reserves (notified under sections 18, 35, 36A and 36C of the Wildlife (Protection) Amendment Act, 2002). The guidelines for declaring Biodiversity Heritage Sites have been issued by National Biodiversity Authority. In the context of Rajasthan, the RAJASTHAN STATE FOREST POLICY 2010 highlights the importance of CCAs (i.e. orans). in which section 5.10 exclusively deals with provisions for Orans / Dev Van, having provisions for financial & legal support, preparation of their district-wise inventory and database, demarcation of their areas on ground as well as on cadastral maps and constitution of Oran Management Committees. The sub- section 5.10.2 of the policy reads as "District wise inventory and database will be prepared for all such areas with the support of local NGOs and religious trusts. These areas declared as deemed forest as per the provision of Forest Conservation Act (1980). However, demarcation of such Orans / dev vans on the ground as well as on cadastral maps is an urgent necessity. " Apart from that section 5.1 and 5.3.2, 5.4.2, 5.4.9 and 5.4.12, 5.11.3 includes provision for bringing community-owned wastelands, revenue wasteland and traditional grazing land (Gauchar) under afforestation and pasture development.

## **Biodiversity Management Committees (BMCs) as Constitutional Civic Bodies for Management of Local Biodiversity:**

The Biological Diversity Act 2002 and Rules of 2004: Section 41 of the BDA 2002 and Section 22 of the Biological Diversity Rules 2004 provides for constitution of BMCs for the purpose of promoting conservation, sustainable use and documentation of biodiversity including preservation of habitats, conservation of land races, folk varieties and cultivars, domesticated stocks and breeds of animals and microorganisms and chronicling of knowledge relating to biological diversity.

Rajasthan Biological Diversity Rules 2010 – Section 23 provides for constitution of BMCs whose key mandate shall be to ensure conservation, sustainable utilization and equitable sharing of benefits from the biodiversity. The BMC shall facilitate preparation of People's Biodiversity Register (PBR) to regulate the access of local biodiversity to outside agencies and individuals.