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Peasants, Pastoralists and Rulers: Aspects of ecology and polity in Seventeenth and Eighteenth century Rajasthan*

Mayank Kumar

Introduction:

The character and nature of polities in seventeenth and eighteenth century India has been a subject of sustained debate among historians. Nonetheless, one theme calls for further inquiry. There is a need to examine diverse and changing political structures in the context of socio-economic conditions within the larger ecological settings. Early studies on the subject focused on nature and functioning of political institutions.[1] Later on, the nature of agrarian production, trade and commerce were scrutinized to develop a picture of social and economic formations in relation to politics.[2] Although, polities during seventeenth and eighteenth centuries in India have defied easy categorization, most were tied to

* I would like to thank Prof. Dilbagh Singh, Prof. Ravindra Kumar, and Prof. G.S.L. Devra for insightful comments. I am also thankful to Prof. Mahesh Rangarajan for his comments on the earlier drafts.

[1] M. Athar Ali, 'The Eighteenth Century: An Interpretation', *Indian Historical Review*, 5/1-2, (1978-79), pp. 175-86; 'The Passing of Empire: The Mughal Case', *Modern Asian Studies*, 9/13, (1975), pp. 385-96; Muzaffar Alam, *The Crisis of Empire in Mughal North India: Awadh and the Punjab, 1707-1748*, (Delhi: Oxford University Press, 1995).

[2] Seema Alavi, 'Introduction', in Seema Alavi, (ed.), *The Eighteenth Century in India*, (New Delhi, Oxford University Press, 2002), pp.1-56; C.A., Bayly, *Rulers, Townsmen and Bazaars: North Indian Society in the Age of British Expansion 1770-1870*, (Delhi: Indian Edition, Oxford University Press, 2002).

kinship networks.[3] Early historians, perhaps due to their excessive reliance on the Turko-Persian narratives and court chronicles, defined polities in terms of administrative system and political institutions. Later, in their attempts to claim a long tradition of 'centralised state', most of them focused on the nature and composition of ruling elite and administrative machinery.[4] Subsequently, with the rise of agrarian studies, political formations were viewed primarily as agencies of revenue appropriation and distribution among and by the ruling elite.[5]

[3] G.S.L. Devra, 'A Rethinking on the Politics of Commercial Society in Pre-Colonial India: Transition from Mutsaddi to Marwari', *Nehru Memorial Museum and Library Occasional papers on History and Society*, 38, mimeo (1987). Most of these polities are broadly defined as patrimonial clan based feudal political formations. Norbert Peabody, *Hindu Kingship and Polity in precolonial India*, (Cambridge, New York: Cambridge University Press, 2003), p.169; As such one can begin with James Tod, *Annals and Antiquities of Rajasthan,* (Delhi: Penguin, 1971) 2 Vols., (first Published in 1829). See also Marzia Balzani, *Modern Indian Kingship*, James Currey, (ed.), (Santa Fe and Oxford: School of American Research Press, 2003), pp.1-23, for a comprehensive survey of anthropological writings on the kingship in India.

[4] For Sultanate period it has been argued that, 'Moreland's emphasis on Sultanate institutions and administrative structures impressed a generation of scholars trained in British Universities. R.P. Tripathi's work on the theories and institutions of kingship and the *Wizarat*. See, *Some Aspects of Muslim Administration*, (Allahabad: Central Book Depot, 1956). I. H. Qureshi, *The Administration of the Sultanate of Delhi,* (Delhi, Oriental Books Reprint Corporation, 1971) on Sultanate administration with chapters on the 'legal' and the 'actual' sovereign, the royal household and ministers, reflected the impact that constitutional and administrative histories of the United Kingdom had on the studies of the Sultanate.' Sunil Kumar, *The Emergence of Delhi Sultanate: 1192-1286*, (Ranikhet: Permanent Black, 2007), p.14. The same can safely be extended to Mughal Empire as well. W.H. Moreland, *India at the Death of Akbar: An Economic Study*, (Delhi: Atma Ram & Sons, 1962).

[5] Irfan Habib, *Agrarian System of Mugul India,* (Bombay: Asia Publishing House, 1963); G. S. L. Devra, *Rajasthan ki Prashashnik Vyavastha*, (Bikaner: Dharti Prakashan, 1981); Satish Chandra, *Medieval India: Society, The Jagirdari Crisis and The Village*, (New Delhi: MacMillan, 1982); S.P. Gupta, *The Agrarian System of Eastern Rajasthan,* (Delhi: Manohar, 1986); Dilbagh Singh, *The State, Landlords and Peasants*, (Delhi: Manohar, 1990); B.L. Bhadani, *Peasants, Artisans and Entrepreneurs: Economy of Marwar in the 17th Century*, (Jaipur: Rawat Publications, 1999).

Most of these writings treated environmental factors as marginal to the emergence of polities and to the process of state formation.

Although the contribution of early environmental historians cannot and should not be undermined, much more work is required to enrich our insights of the interface between ecology and polity in pre-colonial India. Early scholars tended towards a simple narrative based on a society-nature symbiosis, which was seen as the hallmark of pre-colonial political formations.[6] Environmental factors were attributed a marginal role in the process of governance, and therefore day-to-day negotiations between society and specificities of ecological niche were given a secondary position. Barring a few exceptions[7], most of the writings assumed that the ecological context had very limited or no implication for the political apparatuses.

Moreover, the focus of writings on environmental history of India has mostly been on issues related to, initially, forests, or irrigation during the colonial period.[8] Most have examined the nature of the colonial

[6] Madhav Gadgil, & Ramachandra Guha, *This Fissured Land,* (Delhi: Oxford University Press, 1992). Mahesh Rangarajan and K. Sivaramakrishnan, 'Introduction,' in Mahesh Rangarajan and K. Sivaramakrishnan, (eds.), *India's Environmental History, From Ancient times to the Colonial period: A Reader*, (Ranikhet, Permanent Black, 2012), pp. 1-34.

[7] Sumit Guha, 'Claims on the commons: Political power and natural resources in pre-colonial India', *Indian Economic and Social History Review*, 39/2-3, (2002), pp. 181-196; G. S. L. Devra, 'Desertification and Problem of Delimitation of Rajputana Desert During the Medieval Period', *Human Ecology*, Special Issue, No. 7, (1999), pp. 97-107; Mayank Kumar, **'**Claims on natural Resources: Exploring The Role of Political Power in Pre-colonial Rajasthan, India' *Conservation and Society*, 3/1, (2005), pp. 134-49; 'Ecology and Traditional Systems of Water Management: Revisiting Medieval Rajasthan', in Mahesh Rangarajan, (ed.), *Environmental Issues in India*, (New Delhi: Pearson, 2006), pp. 70-96.

[8] Madhav Gadgil, 'Towards an Ecological History of India', *Economic and Political Weekly*, 20, (1985), pp. 1910-18; Ramachandra Guha, 'Forestry in British and post-British India: A Historical Analysis', *Economic and Political Weekly*, 18, (1983), pp 1882-96; Richard H Grove, Vinita Damodaran and Satpal Sangwan, 'Introduction' in Richard H. Grove, Vinita Damodaran and Satpal Sangwan, (eds.), *Nature and The Orient: The Environmental History of South and Southeast Asia*, (Delhi: Oxford University Press, 1998).

state by analysing colonial policy with respect to land use, forest[9] and water resources.[10] In their attempts to highlight the ill-effects of colonialism, most of the writings on environmental history of India have suggested that the primary concern of colonial power was to cater to the needs and interests of the imperial country. By implication, pre-colonial states were seen as largely paternal or mainly as non-intrusive entities.[11] Fortunately, the recent past has seen scholars questioning the monolithic image of political apparatuses.[12] In this respect, studies on the region of Rajasthan have been of particular significance as they offer insights into the village level functioning of political apparatus and

[9] K. Sivaramakrishnan, 'Conservation and production in private forests: Bengal, 1864-1914', *Studies in History*, New Series 14/2 (1998), pp. 237-264; Ravi S. Rajan, 'Foresters and the politics of colonial agro-ecology: The case of shifting cultivation and soil erosion, 1920-1950', *Studies in History*, New Series, 14/2, (1998), pp. 217-236; V. K. Saberwal, 'Science and the Desiccanationist Discourse of the 20th Century', *Environment and History,* 4/3, (1997), pp. 309-43.

[10] Elizabeth Whitcombe, 'The Environmental Costs of irrigation in British India: Water logging, salinity and Malaria', in David Arnold & Ramchandra Guha, (eds.), *Nature, Culture, Imperialism: Essays on the Environmental History of South Asia*, (Delhi: Oxford University Press, 1995), pp.237-259; Rohan D'Souza, *Drowned and Dammed: Colonial Capitalism and Flood Control in Eastern India*, (New Delhi: Oxford University Press, 2006).

[11] Madhav Gadgil and K.C. Malhotra, 'The Ecological Significance of Caste', in Ramchandra Guha, (ed.), *Social Ecology*, (Delhi: Oxford University Press, 1994), pp. 27-41; Madhav Gadgil and K.C. Malhotra, 'Ecology of a Pastoral Caste: The Gavli Dhangar of Peninsular India', *Human Ecology*, 10, (1982), pp. 107-43. This view is also visible in some of the modern writings on the nature of socio-political structure of "traditional" Indian society at large. See Masaaki Kimura and Akio Tanabe, (eds.), *The State in India: Past and Present*, (New Delhi: Oxford University Press, 2006).

[12] Kathleen D. Morrison, 'Production and Landscape in the Vijayanagara Metropolitan Region: Contributions of the Vijayanagara Metropolitan Survey', in J.M. Fritz, T. Raczek, and R. Brubaker, (eds.), *Vijayanagara: Archaeological Exploration 1990-2000: Papers in Memory of Channabasappa S. Patil*, Vijayanagara Research Project Monographs Volume 10, (Delhi: Manohar and AIIS, 2005), pp. 423-434; David Mosse, *The Rule of Water: Statecraft, ecology and collective action in South India*, (Delhi: Oxford University Press, 2003).

its interactions with larger socio-economic context along with larger ecological settings. Most probably, easy accessibility to administrative records available at the Rajasthan State Archives, Bikaner facilitated such endeavours.

Monsoon Variability:

The largely arid and semi-arid ecology of Rajasthan conditioned the nature of agrarian production. Dependence of agrarian production, located in such ecological settings, on monsoon-based irrigation is well known. The highly sparse population in the region also testifies to the restricted possibilities of agrarian production. "The alternative route, through Rajputana was, in general, sparsely inhabited, at least as far north as Ajmer, and travellers found little to notice in this part of the country. The route from Agra to Lahore, on the other hand, lay through a dense population and the same holds true for the stretch from Lahore as far as Multan, and down the Indus to Bhakkar, but from Bhakkar onwards most of Sind was desert. In this case as well there was an alternative route across the desert from Ajmer to Tatta, but the country traversed was, as might be expected, uninhabited or occupied by nomads".[13] Although physiographic conditions in general offered possibilities of at least more than one crop a year, availability of water only during three to four months of monsoon restricted agrarian production to once a year.[14] In the arid parts of Rajasthan average annual rainfall amounted to 5 inches and most of these, as stated above, occurred during three to four months of monsoon.[15] As one moves

[13] W.H. Moreland, *India at the Death of Akbar: An Economic Study*, (Delhi: Atma Ram & Sons, 1962), pp. 11-12. More critical analysis confirming the same can be seen at Shireen Moosvi, 'Production, Consumption and Population in Akbar's Time', *Indian Economic and Social History Review*, 10/2, (1973), pp. 181-95. Relatively sparse population also meant lower agricultural production as has been argued by B.L. Bhadani, 'Population of Marwar in the Middle of the Seventeenth Century', *Indian Economic and Social History Review*, 16/4, (1979), pp. 415-27.

[14] Munhot Nainsi, *Marwar ra Pargana ri Vigat,* Vol. II., Narain Singh Bhati, (ed.), (Jodhpur: Rajasthan Oriental Research Institute, 1969), pp. 12, 36, 258-9, etc.

[15] *The Rajputana Gazetteer,* Vol. I, (Calcutta: Office of the Superintendent of Government Printing, 1879), p. 20.

towards the semi-arid parts of Rajasthan one finds gradual increase in the average annual precipitation.[16] Nevertheless, the annual, seasonal and diurnal variability of rainfall has been a cause of concern for the peasantry. The short-term and long-term variability in the monsoon could play havoc with the crops and dry up pasturage, thereby making sustenance difficult. For instance, in 1705 A.D. for *pargana* Amber it was reported by *Purohit* Harsram, that from *sawan vadi* '7' to *sawan sudi* '1', there was little rainfall in the *pargana*.[17] Similarly in 1717 A.D., it was reported to the state that in *qasba* Aaveri, rain measuring ten fingers fell on *sawan sudi*, '11', so ploughing could be done only for 4-5 days.[18] Rainfall variability necessitated continuous modifications and adaptations on the part of peasantry in their attempt to secure a good agrarian production. Amar Chand and Sahib Ram, *vakil* of the Amber court informs that due to meagre and delayed rains till the month of *Bhadava*[19], only *moth* could be sown.[20]

Methods to secure water for artificial irrigation were generally capital intensive. They were well beyond the reach of subsistence farmers. Therefore, possibilities of surplus generation of agrarian production were contingent upon the availability of systems of artificial irrigation supported by local power magnets and/or help extended by the royalty. Moreover, too much dependence of agriculture on irrigation dependent on monsoon rains often led to crop failure or low production. At times the different principalities of Rajasthan had to

[16] *The Imperial Gazetteer of India,* Vol. XXI, (Oxford: Clarendon Press, 1908), p. 92.

[17] An *arzdasht* written by Mouji Ram dated *Kati Sudi* 15, 1774 vs. Historical Section, Jaipur Records, Rajasthan State Archives, Bikaner, (Henceforth, HS, JR, RSAB), informs the state about meagre rainfall leading to drought. This resulted in the migration of the peasantry. In his *arzdasht* dated *Jeth Sudi* 1, 1762 vs. HS, JR, RSAB, Lal Chand Dala Ram informs about migration of peasantry due to drought and resultant decline in revenue collection. Similarly another *arzdasht* by Ajit Das, Man Ram dated *Chait Vadi* 3, 1752 vs. HS, JR, RSAB., informs that villages were deserted.

[18] *Arzdasht*, *Sawan Sudi* 11, 1659 vs. HS, JR, RSAB.

[19] Traditionally *Bhadva* is the third month of rainy season and usually the last one also.

[20] *Arzdasht*, *Bhadva Vadi* 7, 1660 vs. & *Arzdasht Sawan Sudi* 9, 1638 vs. HS, JR, RSAB.

face a drought like situation which often culminated in famine.[21] An *arzdasht* written by Mouji Ram dated *Kati Sudi* 15, 1717 A.D. informs the Diwan about scanty rainfall leading to drought. This resulted in the migration of the peasantry. In his *arzdasht* dated *Jeth Sudi* 1, 1705 A.D. Lal Chand Dala Ram informs about migration of peasantry due to drought. Similarly another *arzdasht* by Ajit Das, Man Ram dated *Chait Vadi* 3, 1695 A.D. informs that villages were deserted. To mitigate the vagaries of monsoon these highly stratified agrarian socio-political structures had evolved very complex sets of socio-cultural practices over a long period of time. Several technical methods and systems were developed to counter the vagaries of nature in general and monsoon in particular to sustain continuous agrarian production and habitation for centuries. The growth and sustenance of elaborate political apparatus in such conditions in Rajasthan during seventeenth and eighteenth centuries can be examined by contextualizing the complexities of socio-political peculiarities which emerged along with the given agrarian situation. The concerns and disposition of the political apparatus with special reference to low agricultural production/famine also needs to be discussed. Given the state of availability of manpower in general in the region and for agricultural function in particular, it is imperative on our part to devote a section on the premium placed on human resources. Similarly, fragile agriculture complimented by pastoral component in the economy of the region needs to be scanned in terms of taxation system and judicial systems. Component of non-agrarian taxes in the revenue of the state and imposition of most of the punishment

[21] Moreland has suggested that we should be careful while defining the terms like famine because, "At the present day the "famines" which are spoken of in India are emergencies in which the state has recognised the existence of unemployment on a scale which, in the absence of a general poor-law, requires special measures of relief. The famines, which we read of in the chronicles of the seventeenth century were not work-famine in the strictest sense, times when it was not a question of obtaining the means to pay for food, but of getting food at all…". W.H. Moreland, *From Akbar to Aurangzeb*, (Ist ed. 1923), (Delhi: Oriental Books Reprint Corporation, 1972), p. 205. It is important to point out that the modern notions of famine and famine relief are constructions of capitalist world. David Arnold, *Famine: Social Crisis and Historical Changes*, (Oxford: Oxford University Press, 1988), p.7.

in cash suggest necessity of investigations on these counts as well. However, before a detailed discussion is undertaken to fulfil the objectives mentioned above, it seems appropriate to give a brief sketch of the region under discussion and the nature of evidences available for the period and region under consideration.

Region and Sources:

It is very difficult to classify whole of Rajasthan as a singular entity either in terms of political authority or in terms of geographical features. The western part of Rajasthan is characterised by arid climatic conditions and where land is primarily sandy. Low precipitation is also reflected in meagre flora. "Jaisalmer and the north and north-west of Marwar, as well as Mallani and a large sandy tract south-west of the country towards the Runn of Kutch, produce nothing worthy of the name of forest, although belts of Khejra are common throughout the sandy plains, and some of the more fertile valleys in the hard desert are well stocked with these trees".[22] The only river of importance is the Looni. It rises in the Pushkar valley close to Ajmer, and runs south-west for about 200 miles into the Runn of Kutch.[23] It receives and cuts off from the western plains all the drainage brought by the mountain torrents down the western slopes of the Aravallis between Ajmer and Abu. Beyond Looni, to its north-west and north-east, there are no perennial streams. However as one moves towards east, precipitation improves. "In the Southwest which is more directly reached and with less intermediate evaporation, by the periodical rains, the fall is much more copious; and at Abu it sometimes exceeds 100 inches. However, except in these south-west highlands of Aravallis, the rain is most abundant in the south-east Rajasthan. The southern states, from Banswarah to Jhalawar and Kota, get not only the rains from the Indian Ocean which sweeps up the valleys of the Narmada and Mahi rivers across Malwa to the region around the Chambal, the region also receives the last of the rains, which come up from the Bay of Bengal in the south-east; and this supply occasionally reaches all Mewar. If

[22] Archibald Adams, *The Western Rajputana States, A Medico-Topographical & General Account of Marwar, Sirohi & Jaisalmer*, ((first published, 1899), (London: Vintage Books, 1990), p. 397.
[23] *The Imperial Gazetteer of India*, Vol. XXI, Op. Cit., p. 86.

the south-west rains fail early, the south- east rains usually come to the rescue later in the season; so that the country is rarely subjected to the extreme droughts of the north-western tracts".[24] Enhanced precipitation is visible at the level of flora as well. Though, "there are no large timber forests in Rajasthan, but the woodlands are extensive upon the southwestern Aravallis and throughout the hilly tracts adjoining, where the rainfall is good. Mount Abu is well wooded and from Abu northeastward the western slopes of the range are still well clothed with trees and bushes upto the neighbourhood of Merwara. The hills and ravines of Sirohi are generally wooded and some of them in the neighbourhood of Abu and Neemuch produce fine timber; while in the north and east of state it is mostly undergrowth".[25]

It is equally difficult to offer details of size and/or revenue of the total area. Given most of the area was under the Watan Jagir of Rajput rulers with fluctuating boundaries, it is difficult to define the region with certainty. However, Irfan Habib has provided details of *Jama* (standard assessment or expected revenue from a region) for a long span of time for the *subah* of Ajmer, which was 28,84,10,557 *dams* in 1595-96 and rose to 65,33,45,702 *dams* by the year 1709.[26] The region of Rajasthan enjoyed a strategic position in the trading network of the sub-continent due to its geographical location between the ports on the western coast of the Indian subcontinent on the one hand and the fertile plains of North India on the other. The landscape of the region along with its climatic conditions was an additional contributory factor in the growth of trade and commerce of the region. The region being arid with limited rains and absence of perennial rivers induced and facilitated the traders to move round the year. Tavenier says, 'In other words, it can be said that Rajasthan is situated in between the trading ports of western India and the very fertile region of Indo-Gangetic plain. Any alternative route which bypassed Rajasthan, from North India to western ports had to travel through Vindhayas and Satpura mountain ranges, making the journey cumbersome. Tavenier considers environmental constrains as an important factor for the purpose. He

[24] Ibid., p. 92.
[25] Ibid., p. 127.
[26] Habib, Op. Cit., pp. 395-405.

says, "There are two [routes] in particular between Agra and Ahmadabad... One may, however, avoid passing the territories of these two Princes by taking another route from Agra to Surat by way of Sirnoj and Burhanpur; but these are fertile lands intersected by several rivers, the greater number of which are without bridges and without boats, and it is impossible to ford them until two months after the rainy season. For this reason the merchants who have to be at Surat by the season for going to sea, generally make their way through the country of these two Rajas, because it can be traversed at all seasons, even during the rains, which consolidate the sand of which nearly the whole country is composed".[27]

The very factors that facilitated greater trade and commerce were detrimental when it came to agrarian production. Most of the ecological constraints were the result of either delay or part or total failure of the monsoons. As regards dependence of agriculture on monsoon, it should be noted that any single failure of monsoon would have rarely led to famine barring very arid parts of Rajasthan, as there was a possibility that winter showers would help *rabi* crops. Delays in monsoon prompted peasants to opt for crops having shorter gestation period or low requirement of water. The population density in the arid region of Rajasthan was low and the economy of the region was largely pastoral in nature, which shaped and influenced the socio-economic structure and also supplemented the agricultural economy of the region. The practice of inter-mixing of crops was quite prevalent in the whole of Rajasthan. Numerous small millets were grown along with cereals with the object of replenishing the productivity of the soil; the most important being *kangri*, *kodra*, *kuri*, *malicha* and *sama*. The creeping pulses *moong, urad, moth* were sown sometimes with *jawar*. The winter pulses *masur* and *tur* were grown to serve the same purpose.[28] This technique required sowing of two or more crops simultaneously in which at least one crop was a nitrogen-fixing legume. Since these crops were harvested at different times, these crops complemented the requirements of each-other or at least the legume crop provided

[27] Jean Baptiste Tavenier, *Travels in India*, (Tr. V. Ball), (Delhi: Oriental Books Reprint Corporation, 1977), p. 31.
[28] S.P. Malhotra, 'Man and the Desert' in Rakesh Hooja & Rajendra Joshi, (eds.), *Desert Drought and Development*, (Jaipur: Rawat, 1999), p. 27.

nitrogen for the other crops.

There are several genera of official documents available in Rajasthan Archives related to this period. We have extensively utilised *Arzdashts* and *Sanad Parwana Bahi*. *Arzdashts,* available in archival repositories for Amber region, were written by the *Amils, Faujdar* or other *pargana* officials to the rulers. These officials regularly reported, to the ruling authorities, about various revenue and administrative details of the areas under their control. These documents were written to inform the Amber court about the day to day functioning at village/ pargana level and therefore provide useful insights into the various concerns of state and peasantry along with other village level concerns. Simultaneously, they also give us the responses/remedies, evolved to solve the problem.

For north-western region, i.e., Marwar, we have used a very informative document known as *Sanad Parwana Bahi.* The term *sanad* and *parwana* explain the functions that the documents performed. These are primarily imperial directives issued to the *pargana* officials in response to various complaints and representations received by it. The subject matter of these documents range from routine complaints of undue exaction of revenue against the state officials, to the mutual disputes over share of water of a well. A good deal of light is thrown on the problems faced by the peasants, the primary producing class, and the methods of redress adopted by the state in the *kagad bahi* of Bikaner. Various kinds of concession and support were offered by the state to the peasantry, as monsoon failures were frequent in this region. Along with directives issued to the traders regarding not to hoard the grain, details of various concessions offered by the state in times of natural exigencies have also been recorded in the *kagad bahi*. Along with these, seventeenth century administrative treatise, *Marwar Pargana Ri Vigat*, written by Diwan Munhot Nainsi, has been very illustrative for this study. These sources delineate the official response to the natural uncertainties and at the same time by implication, these provide us glimpses of contemporary socio-political responses and concerns. We can further substantiate our findings with the literary and epigraphic sources which are also available in good measure.

Premium on Human Resources:

In the seventeenth and eighteenth centuries most of India had very favourable man-land ratio.[29] Given the relative paucity of manpower available, the political apparatus offered several concessions and incentives to those whose labour was vital for production. The weaker sections of society were offered several grants and rebates by the state whenever required. Ritual prescriptions were also bypassed at times to ensure sufficient supply of labour to work on cultivable land which was available in abundance.[30] This was not a condition peculiar to Rajasthan as James C. Scott suggested that "The key to successful statecraft was the ability of the political apparatus to attract and hold a substantial, productive population within a reasonable radius of the court. Given the relative sparseness of the population and the ever available possibilities of physical flight, the control of arable land was pointless unless there was a population to work it".[31] For obvious reasons of climatic conditions, situation in Rajasthan was tilted in favour of man.[32] Any conjecture about the number of people living in this region during the pre-census period is doubtful. Tod tried to give an estimate about the number of people living in the region in the first half of the nineteenth century. He estimated a population of 539,250 for the state of Bikaner and an average density of 10 persons per sq. km.,

[29] In the mid-seventeenth century, there were 35 persons to a sq. km and as late as 1881 it was double that at 70 to a sq.km. See Mahesh Rangarajan 'Introduction,' in Mahesh Rangarajan and K. Sivaramakrishnan, (eds.), *India's Environmental History, From Ancient times to the Colonial period: A Reader*, (Ranikhet: Permanent Black, 2012), p.7.; However, Sumit Guha has argued that Southeast Asia has always seen greater density since ancient times. See *Health and Population in South Asia from the Earliest Times to the Present*, (Delhi: Permanent Black, 2001) and Gadgil & Guha, Op. Cit.

[30] Devra, 'A Rethinking on the Politics of Commercial Society in Pre-Colonial India', Op. Cit.; Nandita Prasad Sahai, *Politics of Patronage and Protest: The State, Society, and Artisans in Early Modern Rajasthan*, (New Delhi: Oxford University Press, 2006), p. 127, also refer to fn. 12 on the same page.

[31] J.C. Scott, *Weapons of the Weak: Everyday Forms of Peasant Resistance,* (New Haven: Yale University Press, 1985), p. 185.

[32] Bhadani, 'Population of Marwar in the Middle of the Seventeenth Century' Op. Cit.

for Jaisalmer it was 74,400 with an average density of 1 person per sq. km., for Jodhpur state a total of 2,000,000 persons. For Shaikhawati he gives average density of 30 persons per sq. km, leading to a population of 424800. Hence, the total population for the arid region was about 3038450 with an average density of 14 persons per sq. km. However, the most authentic record for the contemporary period, The *Ain-I-Akbari* by Abul Fazl, does not give any idea about the number of people. Moreland remarked that "Rajputana was in general sparsely inhabited"[33] in the beginning of the seventeenth century.

Political power cannot be measured solely in terms of geographical expanse. 'A growing, productive population settled in the ambit of a monarch's capital was a more reliable indicator of a kingdom's power than its physical extent'[34], seems to be closer to reality. A continuous attempt on the part of political apparatus to increase the number of settlements in their territory was clearly visible.[35] S. P. Gupta has pointed out that the Kachhawaha rulers at times encouraged even *pahis* "to come and settle in new villages and, in such cases, were provided with ploughs, bullocks, seeds, manure and money either directly or through a *bohra* (moneylender)".[36] *Arzdasht* of Kusala dated *Jeth vadi* 8, 1694 A.D., informs about the colonisation of 14 new villages. He informs that peasants of one village have settled in other village; hence attempt of their retrieval is going on. Similarly, Lal Chand Dala Ram in his *arzdasht* dated *Asoj vadi* 15, 1699 A.D., informs us about the colonisation of village by offering exemption from payment of land revenue for the year. Similarly, village Singrampur in *pargana* Chatsu had been deserted for the past 100 years, however, with the construction of non-masonry well in 1733 A.D., agriculture flourished.[37]

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[33] Moreland, *India at the Death of Akbar: An Economic Study,* Op. Cit., p. 22.

[34] Locating the relative strength of a state between Occidental and Oriental regions Scott has stressed that Southeast Asia has traditionally witnessed low population density and therefore, the state actively guarded its human wealth. J.C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, (New Haven & London: Yale University Press, 1998), p. 185.

[35] *Arzdasht, Jeth Sudi* 4, 1742 vs.; *Falgun Sudi* 2, 1743 vs.; *Jeth Sudi* 4, 1742 vs. HS, JR, RSAB.

[36] Gupta, Op. Cit., p. 119.

The rehabilitation of deserted villages was a major concern even for the other regions. Documents from Marwar provide evidences that tax concessions were offered for rehabilitating a deserted village.[38] For example, village Purwa, when settled in 1706 A.D., tax concessions were offered. Taxes like *korad*, *bhuraj*, *jukhiro* were to be taken at only half the normal rates for one year from all the inhabitants.[39] Similarly, in village Godavro, in pargana Merta, all those indulging in cultivation were allowed to pay only half of *hasil* for two years.[40] For the same reason migrations during the years of environmental distress were actively contained by offering monetary assistance and fiscal concessions along with material support.[41] Precisely for these objectives, peasantry who had migrated were brought back with promises of concessions and remittances in revenue demand by the socio-political elite.[42] A *pargana* official (*amil*), Kesodas wrote to Diwan Kalyan Das in 1685 A.D., 'The *raiyatis* (probably *khud-kasht* peasants) have gone to some other places in famine years. Therefore, I have instructed all the *chaudhari* and *qanungos***,** *patel* and *patwari* and *ijaradars* of *pargana* Bahatri, Piragpur, Jalapur and Bhankok, to console the *paltis* who have gone to Malwa, Burhanpur, Kulibhit, and Purab and towards Agra and Sri Mathura. To attract them inducements for *patta batai* (concessional sharing of *patta*), bullocks and seed were to be offered. I (Kesho Das) have also granted concessional *pattas* to the *patels* of two out of four villages who have gone to bring the *paltis* back'.[43] Thus attempts were made to rehabilitate villages which were deserted due to environmental disturbances.

Rulers were well aware that excessive exploitation of peasantry

[37] Singh, *The State, Landlords and Peasants*, Op. Cit., p. 51-52.
[38] *Sanad Parwana Bahi* No. 1, 1821, vs. Jodhpur Record, Rajasthan State Archives, Bikaner. (Henceforth, Jodh. Rec. RSAB)
[39] *Kagad Bahi, Asoj Sudi* 11, No. 2, 1820 vs. Bikaner Records, Rajasthan State Archives, Bikaner. (Henceforth, BR. RSAB)
[40] *Sanad Parwana Bahi*, *Asoj Vadi* 2, 1843, vs. Jodh. Rec. RSAB.
[41] The pre-colonial kingdom thus rode a narrow path between a level of taxes and coercive exactions that would precipitate wholesale flight. See Scott, *Seeing Like a State*: *How Certain Schemes to Improve the Human Condition Have Failed*, Op. Cit., p, 185.
[42] *Arzdasht*, *Magh Vadi* 9, 1765, vs.; *Asad Sudi* 2, 1762, vs.; *Jeth Vadi* 7, 1752, vs.; *Chait Vadi* 3, 1752, vs., HS, JR, RSAB.
[43] Dilbagh Singh, 'The Role of Mahajans in the Rural Economy in Eastern Rajasthan during the 18 Century', *Social Scientist,* 2/22, (1974), p. 16.

would compel them to migrate and would create labour shortage and thus adversely affect production activity of the locality. This consideration was all the more crucial in areas where agricultural land was available in abundance but there was acute shortage of manpower. It was perhaps because of this reason that ruling power discouraged the recovery of old loans by the *bohras* which also suggests that such loans were generally unrecoverable and therefore written off.[44]

In cases where inhabitants had already deserted, they were encouraged to come back with an assurance of special remission of certain taxes. The *arzdasht*s also make it clear that while many old villages were getting deserted, attempts were simultaneously made to settle new villages. Many old villages were inhabited by new peasants at the initiative of the intermediaries and supported by rulers. In one particular instance, the land of 10 deserted villages was first handed over to peasants of other villages (*pahis*) to cultivate on a purely temporary lease and eventually, the land was transferred to *palti;* the peasants of other villages who were then permanently settled in the village.[45] In *mauza* Kolahara, *pargana* Averi, Jaipur principality, a new village was settled with the help of peasants from neighbouring areas.[46] In another instance, a Rajput resettled a deserted village by shifting peasants from his original territory.[47]

Similarly, when most of the inhabitants of village Kalu were migrating in 1763 A.D., they were directed by the ruler to continue staying on the promise of remission of their *bach* and *hasil*.[48] Similarly, in the village of Baladsar, the Jogpati was asked to prevent all people from migrating and also encourage new ones to settle there, in lieu of which *bach* tax was to be levied at half the rate. An *arzdasht* written by Mouji Ram dated *Kati sudi* 15, 1717 A.D., informed the court at Jaipur about meagre rainfall leading to drought. This resulted in the migration of the peasantry. He also informed that he was trying hard

[44] Ibid.
[45] *Arzdasht, Jeth Sudi* 4, 1742 vs. HS, JR, RSAB.
[46] *Arzdasht*, *Falgun Sudi* 2, 1743 vs. HS, JR, RSAB.
[47] *Arzdasht*, *Jeth Sudi* 4, 1742 vs. HS, JR, RSAB.
[48] *Arzdasht*, *Jeth Vadi* 11, 1820, vs. HS, JR, RSAB.

to check the migration. In his *arzdasht* dated *Jeth sudi* 1, 1705 A.D., Lal Chand Dala Ram writes of the migration of peasantry due to drought and resultant decline in revenue collection. Similarly, Nanhu Ram informs about migration and later on, rehabilitation.[49] In his *arzdasht* dated *Jeth sudi* 1, 1705 A.D., Lal Chand Dala Ram informs about the rehabilitation of village.[50] Similarly another *arzdasht* by Ajit Das, Man Ram dated *Chait vadi* 3, 1695 A.D., wrote villages deserted due to drought have been rehabilitated.[51] There are evidences of financial assistance also being offered. In his *arzdasht* Shyam Singh Rajawat informs us that financial support was offered to the peasantry to rehabilitate the deserted villages.[52] In some such situations the local revenue officials would extend material support also. *Purohit* Haras Ram informs in his *arzdasht* that due to poor rainfall the water table in wells have gone down, hence digging of new wells has been started to support original production and peasantry in the village.[53]

It is not surprising to note that semi-arid landscape of other regions also witnessed active intervention on the part of ruling elite to not only sustain agrarian production but also to increase the area under cultivation. Political apparatus along with ruling elite took initiatives to develop water management systems to extend cultivation in the marginal areas as well. Kathleen Morrison on the basis of epigraphic as well as paleo-climatic studies suggests, "Other settlements appeared in area that had previously been only sparsely occupied and used for more extensive activities such as grazing and collecting. These new settlements are associated with facilities relating to dry farming and often with newly built, runoff-fed reservoirs, facilities which required a considerable amount of resources and labour to construct and maintain, but which helped mitigate the effects of the region's low and variable rainfall. Areas that saw a major sixteenth-century expansion include the Daroji valley and the Dhanaya-kanakere area southwest of

[49] *Arzdasht*, *Magh Vadi* 9, 1765, vs. HS, JR, RSAB.
[50] *Arzdasht, Asad Sudi* 2, 1762, vs. and *Jeth Vadi* 7, 1752, vs. HS, JR, RSAB.
[51] *Arzdasht*, *Chait Vadi* 3, 1752, vs. HS, JR, RSAB.
[52] *Arzdasht*, *Jeth Vadi* 11, 1820, vs. HS, JR, RSAB.
[53] *Arzdasht*, *Paus Vadi* 4, 1761, vs. HS, JR, RSAB.

Hospet".[54] Moving further south, Tamil Nadu also offers the way irrigation systems have evolved over long period of time and reflect continuous power negotiations. "The hydrology has been manipulated politically for centuries for example, through the layout of drainage networks, the damming and diversion of rivers, the interlinking of tanks, or the repositioning of channels. And locally, village elite have long reinforced 'multi-faced advantages' by controlling and changing the physical flow of scarce water through diversion structures or the positioning of sluices and height of weirs".[55]

The practice of offering land at concessional revenue rates or as revenue free land in order to increase the area under cultivation has a long history. Mughals visualised developments in this respect primarily in two dimensions; extension in the area under cultivation and to promote cultivation of cash-crops. It appears on the basis of "an extant document …that reports about the newly settled villages and the number of their peasants were called for by the headquarters".[56] Quite distinct from the practices prevalent in Rajsathan, Mughal administration as a concession to extend cultivation on the *banjar* land offered cultivator the choice to select the method of assessment. It was also expected that if there is a possibility to extend cultivation and additional *banjar* land is not available, then *banjar* land from the neighbouring area can be added to the village.[57]

Taxation System: Significance of non-agrarian taxes

The economic set up of Rajasthan was marked by a combination of agricultural and livestock rearing practices. A substantial portion of state produce during seventeenth and eighteenth centuries in Rajasthan was directly or indirectly generated from agriculture based activities. The natural vegetation of the region, especially of the north-western part, encouraged sheep and goat rearing for wool and milk and camels

[54] Morrison, 'Production and Landscape in the Vijayanagara Metropolitan Region: Contributions of the Vijayanagara Metropolitan Survey,' Op. Cit.
[55] Mosse, Op. Cit., p. 3.
[56] Irfan Habib, *Agrarian System of Mughal India 1556-1707*, Oxford University Press, New Delhi, (revised ed.), 1999, p. 293.
[57] Ibdi., p. 294.

for transport.[58] Trade and commerce was also an important component of these economies as is evident in the nature of taxation where non-agricultural production was also taxed extensively. Even in the semi-arid areas with better rainfall, rains confined to four months and relative paucity of perennial rivers restricted possibilities of second crop. The nature of the taxation system (revenue) provides further insight into the agro-economic constraints of the region. There were two modes of revenue assessment prevalent in the region. Firstly, a cash assessment per unit area of land or the *zabti* system; and secondly, the crop-sharing method or *batai* based on a physical division of the crop in an agreed proportion between the peasant and the state. These two systems coexisted for each *qasba* and village and for each harvest.[59]

The magnitude of land revenue demand was determined by the quality of the soil, location of the field with respect to irrigation/ inundation possibilities, duration for which the field was left fallow and the degree of capital and labour investment. These considerations resulted in the formulation of a complex schedule of graded tax rates for each crop.[60] It is important to note that the type of crop grown determined the method of assessment, the *zabti* or *batai* method or sometimes a combination of both. However, since this was an area of dry farming that was prone to uncertain harvests, crop sharing was clearly advantageous to the cultivator. It was the preferred mode of discharging ones revenue obligations. Thus it can be suggested that in conditions of uncertain production, the preference for crop sharing, especially for rain-fed crops, was consistent with the risk aversion strategy of the peasant.

Intercropping was preferable and extensively practised in the arid and semi-arid environment of Rajasthan. Unlike mixed crops where different crops are sown and harvested simultaneously, inter-cropped plants, whether or not sown together are harvested separately.

[58] The large area available for grazing must have sustained a large livestock population. Bhadani has calculated the cattle wealth for the period.
[59] Gupta, Op. Cit.
[60] Madhvi Bajekal, *Agricultural Production in Six Selected Qasbas of Eastern Rajasthan (c.1700-1780)*, Unpublished Ph.D. Thesis, (London, University of London, 1990).

Intercropping was practised to avert the vagaries of monsoon. The timing and duration of the rains determined the crop combination and the order of preference among them. Moreover, the disparity in productivity and prices led to the intercropped plants being assessed separately. In such cases of crop combinations, where each crop was separately harvested, it was most appropriate to resort to the physical divisions of the crops for revenue purposes. State's share was appropriated as specified in the *batai* schedule.[61]

The accessibility and types of irrigation facilities determined the rates of land revenue to be collected. The tax burden on artificially irrigated land was less. This low rate of tax was perhaps to compensate for the high cost of the instruments and the cost of running it for irrigation purposes. For example, the crop cultivated in *bara* or *vor* or *varakyari* (land of the premium quality) were charged at the rate of one-half, while the *piwal* or *piyal* (irrigated) lands watered by wells (*dhenkli*) and tanks *(tals)* were charged at a lower rate.[62] Even when cash crops like sugarcane were produced on land naturally inundated by river water, it was more heavily taxed (₹ 5 per *bigha*) than that which was artificially irrigated by wells (₹ 3 per bigha).[63] Furthermore, the rate of taxation varied according to the means of irrigation. It was a general practice that, *bhog* (land revenue) was stated as a rate on *arhat* (Persian wheel). However, the rate varied according to the kind of wells.[64] This further testifies that the ruling elite were aware of environmental constraints on agricultural production and it was visible in the nature of taxation. Determination of land revenue according to the means of irrigation also testifies the extent of investments made by the ruling sections of the society in seventeenth and eighteenth centuries.

The degree of intervention made by the rulers can also be gauged by the imposition of *rokad-rakam.* The non-agricultural taxes collected in cash (*rokad*) were collectively termed as *rokad-rakam*. Recognising the precarious nature of agricultural production, the rulers of Bikaner relied more on *rokad-rakam,* which consisted of a large number of

[61] Ibid.
[62] Gupta, Op. Cit, p. 148.
[63] Bajekal, Op. Cit., p. 118.
[64] Bajekal, Op. Cit.

taxes and was the main source of income from the countryside. Unlike settled agricultural zones, pastoral communities were semi-nomadic, which were difficult to be taxed. The livestock rearing communities were taxed on the basis of the number of families in the community or in terms of the number of kitchens maintained, therefore, the tax was known as *dhuan bhachh* (smoke from the chimney of the kitchens). It was a poll tax and was realised from each household at the rate of one rupee each. It was a major component of the *rokad-rakam* and contributed around 40 to 50 per cent of the total revenue. Generally *rokad-rakam* approximated 48 to 50 per cent of the *hasil*, the total income.[65] Similarly, a tax-*talibab* was levied on non-agriculturist class at the rate of ₹ 4 per family.[66] Similarly, appreciating the limited agricultural production, rulers in Marwar were forced to tax the pastoral communities as well. The state imposed tax on the temporary settlements according to the number of houses. It was known as *jhumpi*-hut.[67] To further extend non-agricultural taxes the rulers of Bikaner imposed an extra cess of eight *annas* per camel load of goods brought by the merchants for sale in the state.

Significance of pasture in the region needs to be located in the importance of pastoral component not only in the economy of the region but also as sustenance strategy.[68] In the arid region, pastoralism was supplemented by the mono-cropped agriculture of *kharif*. There are numerous evidences of fight over the ownership of livestock implying the significance of cattle wealth in a pastoral society. In the arid region especially, and even in the semi-arid region, livestock formed a major component of their wealth. Their social significance can be recognised by the fact that cattle were sought or offered as a part of dowry.[69]

[65] G.S.L. Devra, 'Nature and incidence of *rokad rakam* (non-agricultural taxes) in the land revenue system of the Bikaner State (1650-1700 AD)', *Proceeding of Indian History Congress*, (1976), pp. 190-195.

[66] P. W. Powlett, *Gazetteer of Bikaner,* (Calcutta: Office of the Superintendent of Press, 1874), p. 162.

[67] Nainsi, *Marwar ra Pargana ri Vigat.,* Vol. II. Op. Cit., p. 88.

[68] Guha, 'Claims on the commons: Political power and natural resources in pre-colonial India', Op. Cit.

[69] Munhot Nainsi, *Munhot Nainsi Ri Khyat*, (ed.), Acharya Badri Prasad Sakaria (Jodhpur: Rajasthan Oriental Research Institute, 1963), Vol. III, p. 63. Pabuji promised his sister to give camels in dowry.

There were various ethics and rituals and social-religious practices where the protection of livestock was envisaged. The significance of livestock can be gauged from the fact that the five famous saints (*Panj Pir*) of Rajasthan had been related to the protection of livestock. Saint Gogaji died while rescuing cows.[70] Similarly, Pabuji "is worshipped by his rural devotees as a saviour of man kind and pastoral wealth".[71] Another saint, Tejaji, also sacrificed his life to protect the livestock from invaders.[72] Recognising the value of animal husbandry to the economy of the kingdoms, the rulers even intervened to regulate the usage of grass. Documents clearly point out that there were reserved grazing lands.[73] In this context, it is important to point out that even illegal and unauthorised cutting of grass from forests or hills was punished.[74] Meadows were important for the military as cattle and horses used in warfare needed fodder. Ploughing and transportation was primarily based on cattle power and the need for pasture played an important role in the state policies.[75] Pargana level officials actively procured grass to maintain a reserve stock[76] for the cavalry — horses, camels and elephants — the mainstay of their army. It was mandatory for the cultivators to share one fourth of the grass produced by them with the state.[77] This was a very substantial share given the aridity of the region, the low rates of biomass growth and the centrality of animal rearing to the economy. Moreover, there is considerable evidence of administrative regulation of grazing grounds. To augment its resources, the state charged *singothi* — a tax of one *paise* per head of cattle. In Marwar, the tax from the cattle owners using grazing grounds was

[70] Pemaram, *The Religious Movements in Medieval Rajasthan*, (Ajmer: Archana Prakashan, 1977), p. 33.
[71] G. N. Sharma, *Social Life in Medieval Rajasthan*, (Agra: Lakshmi Narain Agarwal Educational Publishers, 1968), p. 227.
[72] Pemaram, Op. Cit., p. 37.
[73] *Arshatta*, *Pargana* Bahatri, 1777 vs. and *Pargana* Mariana, 1791 vs., Historical Section, Jaipur Records, Rajasthan State Archives, Bikaner, (Henceforth, HS, JR, RSAB).
[74] *Arhsatta*, *Pargana* Bahatri, 1777 vs.; *Pargana*, Naraina, 1791 vs. HS. JR. RSAB.
[75] Guha, 'Claims on the commons: Political power and natural resources in pre-colonial India'. Op. Cit.
[76] *Sanad Parwana Bahi, Jeth Sudi* 9, 1825 vs., Jodh. Rec. RSAB.
[77] *Kagad Bahi* 1827, vs., BR. RSAB.

known as *ghasmari*[78] and *pancharai*.[79] Since the rearing of livestock was a prominent occupation in the western region, the cultivator had to give a share of the grass produced in his field to the state. In Marwar, it was one bullock cartload of grass per plough of land. Furthermore, there was tax on the sale of grass in the region, 'charged at ₹ 2.50 on the first ₹ 100 worth of fodder, and ₹ 1.50 upon every successive ₹ 100 worth'.[80] Rather than common property, many grazing grounds were part of a hierarchy of resource extraction.

Judicial System: Punishments imposed in cash

The rulers also imposed fines on different kinds of illegal usage of natural resources. For instance, the felling of green trees was severely dealt by the state for obvious reasons. In Rajasthan especially central and western, the vegetation was very thin and sparse. There were very few mature tree/forests in the region. In such a situation it was necessary to protect the already existing ones. Lalchand complained to Amber ruler on *Jeth vadi* 1, 1699 A.D., about the tree felling in his *pargana* and expected punishment for the culprit. We even have references from Amber records about cash punishments for such crimes.[81] In village Saithal, *pargana* Bahatri, a person was punished for cutting a *neem* tree.[82] Similarly, village *patel* of Kharkhura was punished.[83] *Neem* had tremendous medicinal properties, thus, needed protection. Being a medicinal plant, it was considered inauspicious to cut neem, and thus act of cutting was liable to punishment. Similarly,

[78] Munhot Nainsi, *Marwar ra Pargana ri Vigat Vigat*, Vol. I, Narain Singh Bhati, (ed.), (Jodhpur: Rajasthan Oriental Research Institute, 1968).
[79] Bhadani, *Peasants, Artisans and Entrepreneurs: Economy of Marwar in the 17th Century*, Op. Cit.; Nainsi, *Marwar ra Pargana ri Vigat,* Vol. I, Op. Cit.
[80] Nainsi, *Marwar ra Pargana ri Vigat,* Vol. I, Op. Cit., p. 223.
[81] *Arshatta*, Sawai Jaipur 1798 vs. HS. JR. RSAB.
[82] Village, Kundala, *pargana* Bahatri, 1745 vs.; Village Bilhata, *pargana* Bahatri, 1774; Qasba Jaipur, *pargana* Jaipur, 1798 vs.; Village Deewara *pargana* Malpura, 1774 vs.; Village Manauli *pargana* Malpura, 1772 vs.; Qasba Malpura *pargana* Malpura, 1772 vs.; Village Bhabhuvas *pargana* Bahatri, 1819 vs. HS. JR. RSAB.
[83] *Arshatta*, Village Manauli *pargana* Malpura, 1780 vs. HS. JR. RSAB.

the cutting of trees of *peepal*,[83] and *bad*,[84] was considered inauspicious. At the same, it is important to point out that *Peepal* and *Bad* were worshiped; thus religious considerations led to punishment. However, the punishment was substituted by a cash payment. The penalty became part of the state's revenue and religion had no role to play either in collection or expenditure of this amount. Alongside, we have evidences of punishments for cutting *Jamun* tree as well.[86] The cutting of *babool* trees was also a punishable offence.[87] *Babool* had been part of natural vegetation of Rajasthan and it needed little or no care. In the arid areas, *babool* was the dominant tree and provided food for the camels. Considering the economic and ecological value of *babool*, it was necessary to punish people who tried to cut it. It signifies that the state was not protecting any particular tree rather it was interested in the extraction of maximum revenue. However, reducing the practice of conservation to mere economic explanation shall be only a partial explanation. The conservation of trees has been a very old practice and part of culture. Similarly, defacing village ponds through use of dyes was subject to penalty.[88] The agro-pastoralist nature of economy puts premium on the cattle wealth. Buffalo is economically valuable even in the regions bestowed with favourable climatic conditions. Therefore it is not surprising to detect cases where, killing of buffaloes was fined.[89] However, it is not clear from the available records as to who were the officials responsible for imposition or collection of such

[84] *Arshatta*, Chandpur, *pargana* Bahatri, 1775 vs.; Village Mahin Nala Khurd, *pargana* Bahatri, 1781 vs.; Village Brahmanvas, *pargana* Gazi ka Thana, 1807 vs.; Village Mahwa, *pargana* Tonk, 1858 vs.; Village Sairora *pargana* Malpura, 1821 vs.; Qasba Baswa *pargana* Bahatri, 1722 vs.; Village Maheba *pargana* Malpura, 1774 vs. HS. JR. RSAB.

[85] *Arshatta*, Village Chauroti, *pargana* Hindaun, 1785 vs.; Village Shivpur *pargana* Tonk,1777 vs.; Village Nuka Kivas *pargana* Lalsot, 1820 vs. HS. JR. RSAB.

[86] *Arshatta*, Village Nadu *pargana* Bahatri, 1774 vs. HS. JR. RSAB.

[87] *Arshatta*, village Palasoli, *pargana* Naraina, 1791 vs.; Qasba Baswa *pargana* Bahatri, 1745 vs.; Village Jaisinghpura, *pargana* Bahatri, 1775 vs.; Village Kalouta, *pargana* Bahatri, 1774 vs.; Village Kankroli, *pargana* Bahatri, 1701 vs.; Village Nadu, *pargana* Bahatri, 1701 vs.; Village Madhubanpur, *pargana* Phagi, 1707 vs. HS. JR. RSAB.

[88] *Arhsatta*, *Qasba* Malpura, *Pargana* Malpura, 1791 vs., HS, JR, RSAB.

[89] *Arhsatta*, Village Kiratpura, *Pargana* Bahatri, 1774 vs., HS, JR, RSAB.

fines. The records suggest that such enforcement was evidently commonplace.

In the tropical landscape of India and especially in the regions without perennial rivers, water was the most limiting factor for agriculture.[90] The availability of irrigation facilities made substantial difference to the agricultural productivity. Afif shows how Firozshah Tughlak noticed the scarcity of water in the arid landscape of Hansi, modern Haryana. He then decided to dig the canals and connect them to the rivers. So, two canals were dug up to Hissar Firoza city. One was from the Yamuna, the other one from Satluj. The former named as Rajibaha and the latter as Ulagkhani. Both the canals after passing from Karnal used to reach Hissar Firoza via Hansi.[91] The construction of big reservoirs by blocking the seasonal rivers[92] or by diverting the rainwater to tanks[93] and later on distribution of water through the canals[94] was extensively practised in area under consideration. There is a long tradition of state supported initiatives to harness the rainwater for agrarian production.[95] Similar evidences of active interventions on the part of political authorities are available from other regions as well.

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[90] Tripta Wahi, 'Water Resources and Agricultural Landscapes: Pre-colonial Punjab', in Indu Banga, (ed.), *Five Punjabi Centuries,* (Delhi: Manohar, 1997), pp. 267-84.

[91] Sams Siraj Afif, *Tarikh-i-Firozshahi*, in Saiyid Athar Abbas Rizvi, (tr. & ed.) *Tughlaqkalin Bharat*, Vol-2, (New Delhi: Rajkamal Prakashan, 2008), p. 74.

[92] Ravindra Kumar, 'Structural Engineering of Gravity Dams In Medieval Mewar' in Geeta Bajpai and Hasan Mahmood, (eds.), *Studies in Social and Economic Change in Western India Thirteenth to Twentieth Centuries*, (Baroda: M.S. University, Baroda Press, 1997), pp. 51-63.

[93] Rajiv Sharma & Syed Ali Nadeem Rezavi, 'Aspects of Hydraulic Engineering in Medieval Rajasthan: A Case Study of Water System in Jaigarh Fort', in Ahsan Jan Qaisar and Som Prakash Verma, (eds.), *Art and Culture*, (Jaipur: Publication Scheme, 1993), pp. 129-131.

[94] I.A. Khan, and Ravindra Kumar, 'The Mansagar Dam Of Amber' in Anirudha Ray and S. K. Bagchi, (eds.), *Ancient and Medieval Technologies in India*, (New Delhi: Sundeep Prakashan, 1986), pp. 25-40.

[95] Kumar, 'Ecology and Traditional Systems of Water Management: Revisiting Medieval Rajasthan', Op. Cit.

As discussed above, the supply of water by natural precipitation was meagre and sporadic in Rajasthan. The long as well as the short-term variations in the climate and rainfall ruined the crops and dried up fodder, thus making the living conditions difficult. Given the absence of perennial rivers and the erratic nature of rainfall, the only viable alternative option was to tap water through artificial methods of irrigation.[96] In such a scenario, it is not surprising to note that most of the disputes over water uses have pertained to illegal cutting of the canals and draining of water by the peasantry for irrigation.[97] There is evidence even of cutting of embankments to secure water for irrigation.[98] Even Afif writes that to look after the canals, Firozshah had to depute a number of soldiers and officers so that the water could flow safely through the villages and towns.[99] Furthermore, there are records to show that even in disputes between individuals over the right to use water, the state imposed cash punishment.[100]

The states' attempt to generate more and more revenue through judicial intervention extended up to family conflicts as well. Examining the intrusive nature of state Dilbagh Singh suggests that "documents … give us a different picture of the state — here it appears to be overarching in its authority and not hesitant to put its administrative apparatus (Judicial power) to full use in regulating affairs of the state and society down to the level of village, its distinct social groups, the family, and even its individual members".[101] Each time rulers imposed a penalty in cash and in most of the cases it went to the exchequer.

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[96] 'The ecological limitations of the region made the need for agricultural inputs [irrigation] considerably higher than in other more favourable located areas…' Singh, *The State, Landlords and Peasants,* Op. Cit., p. 67.
[97] *Sanad Parwana Bahi, Jeth Sudi* 9, 1825 vs., Jodh. Rec. RSAB.
[98] *Arhsatta*, Village Raitoli, *Pargana* Dausa, 1825 vs.; Village Dhamorki, *Pargana* Chatsu, 1775 vs.; *Qasba* Baswa, *Pargana* Bhartri, 1774 vs., HS, JR, RSAB.
[99] Afif, Op. Cit., p.28.
[100] *Arhsatta*, Village Raitoli, *Pargana* Dausa, 1825 vs.; Village Dhamorki, *Pargana* Chatsu, 1775 vs.; *Qasba* Baswa, *Pargana* Bhartri, 1774 vs.; Village Neemblo, *Pargana* Bhartri, 1774 vs., HS, JR, RSAB.
[101] Dilbagh Singh, 'Regulating the domestic: Notes on the Pre-colonial State and the Family', *Studies in History*, New Series, 19/1, (2003), p. 85.

Even in cases where officials recommended compensation to the affected party, it demanded its share and realised it in cash.

Conclusion:

To summarise, the political apparatuses in seventeenth and eighteenth century Rajasthan took ecological factors into account while formulating and implementing policies or laws. An attempt on the part of the politico-administrative structure to share the risk associated with the agrarian production is discernible. Political compulsions to intervene in the agrarian production activities were further warranted by the vagaries of monsoon. Sustenance strategies of the region had received due recognition by the contemporary polities. The nature of intervention differed with different sections of society. The peasantry had evolved alternatives to mitigate any disturbance in the water cycle while ruling elites tried to promote artificial irrigation. Furthermore, ruling elites at times demanded revenue at reduced rates and at times completely waived off the revenue demand. On other occasions, the ruling class ensured the availability of loans to the peasantry and stood as surety if the moneylender insisted. Most of the disturbances in the environmental features affected agrarian production, thereby affecting the income of the ruling class. During such times even the appropriators of revenue were compelled to share the burden by offering concessions and remittances to the cultivators. It is very clear that political powers did not simply attribute vagaries of nature and resultant decline in the agrarian production to fate,[102] they, on the contrary, took preventive steps by extending support to peasantry in their negotiations with ecological settings.

The above findings encourage us to reconsider the nature and functions of political authorities in seventeenth and eighteenth century Rajasthan. The earlier view that the political apparatus had no place or a very limited role to play in the agriculture seems inadequate and

[102] Meena Bhargava, 'Changing River Courses in North India: Calamities, Bounties, Strategies—Sixteenth to early Nineteenth centuries', *The Medieval History Journal*, 10/1-2, (2007), pp. 183-208. She has pointed out that vagaries of nature were often attributed as will of God and political powers accepted it as their fate.

problematic. It is now accepted that the ruling elites were part and parcel of the workings of the agrarian system. To a certain extent their survival and well-being was also contingent upon it. Later writings on the subject, though broadly within the larger domain of agrarian studies, did differ in significant manner. Scholars began examining the nature of political power by looking at the intra and inter-relationship between various social strata, however, offered little space to ecological niches of different regions.[103] A welcome departure can be seen in the writings of Kathleen Morrison who gives a long term view with special attention to state and elite creation of water storage facilities in dry-land south India.[104] Earlier, Ludden showed the importance of tank irrigation technologies brought in by colonist settlers in medieval Tamil Nadu: an alliance with rulers enabled landscape transformation.[105] Mosse looks at modern Tamil Nadu where armed peasant groups invested in water provisioning by mobilizing Dalit labour. In each case states or elites or notables or two of the above combined to intervene in processes of production by enhancing water availability. While much of these works have been useful and important, still there continues to exist significant gaps in their understanding. There has been a tendency to segregate the concerns of ruling elites and those of rural society especially producer groups. It is assumed that actual negotiations with the ecological niche were a concern of rural society, which was negotiating with the vagaries of nature, and that powerful groups or classes were not concerned with it. The knowledge of ecological cycles, tools of production, processes of agrarian production were treated as exclusive domain of rural society and political formations were simply interested in revenue appropriation. There is an urgent need to revisit such

[103] Chandra, Op. Cit.; Gupta, Op. Cit., etc. There are some references in Irfan Habib, *An Atlas of the Mughal Empire*, (Delhi: Oxford University Press, 1982). See also Divyabhanusinh, *The End of a Trail: The Cheetah in India,* (Revised Second Edition), (Delhi: Oxford University Press, 2001).
[104] Kathleen Morrison, 'Dharmic Projects, Imperial Reservoirs, and New Temples of India: An historical perspective on dams in India', *Conservation and Society*, 8/3, (2010), pp. 182-95.
[105] David Ludden, *Peasant History in South India*, (New Jersey: Princeton University Press, 1985); *An Agrarian History of South Asia: The New Cambridge History of India* Vol. IV-4, (Cambridge: Cambridge University Press, 1999).

premises in the light of recent writings, drawing attention towards the importance of ecological context.

This paper has argued that the ruling elite in Rajasthan continuously aspired and strived to realise the agrarian potential of the region. At the same time it also sets in motion necessary preventive measures against natural uncertainties which adversely could affect agricultural production and productivity of the region. Political authorities were accommodative in their attitude towards the revenue realisation and extended necessary relief to safeguard their long-term interests. If not by choice then definitely under compulsions of natural exigencies, the ruling elites were forced to try and secure the well being of the peasantry at large. The latter, after all, provided the much-needed manpower for cultivation. There is a need to integrate the implications of the inherent dynamism of the physical environment with social history for a more nuanced and logical explanation of the past societies. Further exploration of the subject may help in integrating the analysis of the changing ecological context with the wider socio-cultural milieu of the region.

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