CHAPTER II
AGRARIAN POTENTIAL OF SOUTH GUJARAT

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Agriculture is the primary generative activity of human kind.[1] Gujarat region is no exception as it records regular agrarian activity since the earliest times.[2] Before I delve into the estimation and analysis of agrarian potential of the South Gujarat territory/sub-region during the nineteenth century, a peep into the agrarian sector of India in general and Gujarat in particular is germane. The nineteenth century Indian agrarian economy had the following salient features.[3] These salient features can be understood in terms of legacies of the eighteenth century and the outcomes resulting out of political, technological, economic and social transformations.

The eighteenth century in Indian History is characterized by a period of political instability and various kinds of uncertainties.[4] This period saw the decline of the Mughal Empire and the rise of new regimes in its place often

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[1] Dharma Kumar and Tapan Raychaudhari, (Eds.), *The New Cambridge Economic History of India (CEHI)*, Vol. II, c. 1757-1970, New Delhi, 1982, p. 15 and M. S. Randhawa, *A History of Agriculture in India*, Vol. II, New Delhi, 1983, pp. 208-09.

[2] W. H. Moreland, *India at the Death of Akbar, An Economic Study*, Delhi, 1987, pp. 94 - 95; *From Akbar to Aurangzeb*, London, 1923, pp. 238 & 250-51; *An Agrarian System of Moslem India*, pp. 238, 250-51; Irfan Habib, *The Agrarian System of Mughal India, 1556-1707*, 2nd edition, Delhi, 1999, p. 16; Shireen Moosvi, *The Economy of the Mughal Empire, c.1595, A Statistical Study*, Delhi, 1987, pp. 52-59 & 141 and M. S. Randhawa, *A History of Agriculture in Indua*, Vol. I, pp. 23-24 & 151-154; Vol. II, pp. 208-209, 217 & 294; Vol. III, pp. 138-41 & 230-317.

[3] B. R. Tomlinson, *The New Cambridge History of India, III. 3, The Economy of Modern India, 1860-1970*, Delhi, 1998, pp. 1-29 and Tirthankar Roy, *The Economic History of India, 1857-1947*, Delhi, 2000, pp. 21-22; For the debate on Nineteenth Century Economy and Economic History writing, see Tom G. Kessinger, "North India", S. Bhatttacharya, "Eastern India", V. D. Divekar, 'Western India in Regional Economy', Dharma Kumar and Tapan Raychaudhari, (Eds.), *CEHI*, Vol. II, pp. 242-351; Morris D. Morris, 'Economic Change and Agriculture in Nineteenth Century India', *IESHR*, Vol. III, no. 2, June 1966, pp. 185-209 and Morris D. Morris, Toru Matsui, Bipin Chandra and T. Raychaudhari, *Indian Economy In The Nineteenth Century: A Symposium*, Delhi, 1969, pp. 1-170.

[4] C. A. Bayly, *Rulers Townsmen and Bazaars, North Indian Society in the Age of British Expansion, 1770-1870*, Cambridge, 1983, (reprint) Delhi, 1992, pp. 1-73 and *Indian Society and the Making of British Empire*, Cambridge, 1986, (reprint), Delhi, 1990, pp. 1-44.

through armed conflicts.[5] In some regions like Western Gujarat and Deccan, the safety and security of people deteriorated under threat from prowlers, who were often the remnants of the Mughal and later Maratha army. Conflicts did give rise to depopulation and decline in cultivation in some parts of India. But on the whole evidence of general anarchy and economic dislocation is not strong. Agriculture remained the most important occupation before and during the British rule.[6] The exact statistical estimates regarding the extension of cultivation and yield are not available for the eighteenth century. However, it can be stated that the cultivation on arable land continued but at the same time the negative impact of political uncertainties on agriculture cannot be ignored.[7] The regularity/stability in cultivation was due to rise of strong states such as the Marathas in Western and Central India and Hyderabad in South India.[8] The other reason attributed to the agricultural production that fulfilled the subsistent needs of the cultivators and residents of rural areas/villages was the pressure to pay the revenue. It is important to note that the agricultural growth rate was sluggish and agricultural production responded at a snail's pace to the changes outside India. Besides the political uncertainty, the other uncertainty that played a crucial role in the agricultural production and adversely affected the agrarian economy during the eighteenth and nineteenth century was the climate. A large part of India is located on latitudes that pass through some of the

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[5] M. S. Commissariat, *History of Gujarat*, Vol. III, pp. 517-541 & 699-722, Muzaffar Alam, The *Crisis of Empire in Mughal North India Awadh and the Punjab, 1707-48, Delhi, 1986*, pp. 1-17; Gordon, *History of The Marathas*, pp. 132-174 and Burton Stein, *The Making of Agrarian Policy in British India, 1770-1900*, Delhi, 1992, pp. 5-12.

[6] M. S. Randhawa, *A History of Agriculture in India*, Vol. III, pp. i-vii. Also see P. R. Mehta, *The Elements of the Agriculture of the Bombay Presidency*, Bombay, 1905, p. 1 & 138-280; George Blyn, *Agricultural Trends in India, 1891-1947: Output, Availability and Productivity*, Pennsylvania, 1966.

[7] Tirthankar Roy, *The Economic History of India*, p. 21. Also see C. A. Bayly, *Rulers Townsmen and Bazaars*, pp. 73-109.

[8] The Succession States became the chief instrument in revenue collection after the decline of Mughal authority. See *Ibid;* V. Gordon, *History of Marathas*, pp. 132-74 and Burton Stein, *The Making of Agrarian Policy in British India, 1770-1900*, pp. 12-25.

world's greatest deserts. However, India has been escaping draughts due to the river system created by the Himalayas in conjunction with the monsoon rains. Rainfall is usually adequate to raise one or two food crops in the months following the monsoons. But rainfall is rarely adequate for winter crops, and marginally adequate in some of the drier regions even for the main food crops. During the eighteenth century and first quarter of the nineteenth century, the situation was more or less difficult as the investment in irrigation systems was insignificant. If the rains botched slightly, the monsoon crops could fail and result in sudden and widespread starvation leading to frequent famines. The third legacy of eighteenth century was the agrarian relationships, which was two-dimensional as it was both generative and parasitic for the economy and the cultivating classes respectively. It was the continuation of the Mughal land revenue system with slight transformations.[9] The agrarian relationship revolved around revenue collection and rights to property that, in turn, was correlated to the political powers.[10] The nature of agrarian relationship can be understood in the words of Tirthankar Roy,

> .... A useful way to understand rights in pre-colonial India is to make a distinction between rights of revenue collection and rights to property. The rights and obligation concerning the state were usually of the former kind. A massive and pyramidal system of leasing and sub-leasing of revenue collection functioned in the major regimes before the British and for some years into the British rule in Bengal...[11]

Eighteenth century evidenced the frequent practice of revenue farming.[12] Sources speak of terms like *ijaradar, zamindar, poligar, talukadar, desai,* etc. regarding this practice.[13] The *revenue* farmers and contractors and sub-

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[9] N. A. Siddiqi, *Land Revenue Administration Under The Mughals, (1700-1750)*, Bombay, 1970, pp. 60-101.

[10] Irfan Habib, 'Potentialities of Capitalistic Development in the Economy of Mughal India'; 'Process of Accumulation in Pre-colonial and Colonial India' and 'Colonization of Indian Economy 1757-1900' in *Essays in Indian History. Towards a Marxist Perception*, Delhi, 1995, pp. 180-232 & 259-335.

[11] Tirthankar Roy, *The Economic History of India*, p. 22.

[12] N. A. Siddiqi, *Land Revenue Administration*, pp. 91-101.

[13] Yassin's *Glossary of Revenue Terms*, Br. Mus. Ms. Add. 6603 and Purnea Ms., (tr.), Hasan Mahamood, An *Eighteenth Century Agrarian Manual, Dastur-i-Malguzari, Persian Text and*

contractors held revenue collection rights for generations and contributed in maintaining security and order. In other words the pre- British *zamindars* were in practice, more important administrators of their territory than collectors. Their position was strengthened when the regional ruling power weakened. It is also noteworthy that in such a situation the condition of peasantry worsened. The fourth legacy was the nature of cultivating castes and classes. One can identify at least two distinct classes of cultivators—a relatively small group of owners with hereditary transferable rights in land described as *zamindari raiyats, muqaddams* or *maliks* and the second were those many who tilled the land without such rights. Beside these there were agricultural labour castes as well. During the eighteenth century, all these categories underwent transformations and their position worsened due to excessive revenue farming/*ijaradari* system. As a result, a notable change can be traced in the status of cultivators with hereditary rights. Their position weakened and the rise of shareholders in revenue farming became quite obvious. For instance, eighteenth century Western India saw the rise of *mirasdars*.[14] The fifth legacy associated to land revenue share was its collection and usage. During the second half of the eighteenth century, the land revenue share frequently fluctuated due to non-existence of any uniform system. The process was such that the state took away almost entire surplus and the village was left with the produce that could be utilized for consumption.[15] This resulted into the decline of rural industry on one hand and on the other hand the collected revenue, though used for public administration, remained under-utilized.[16] However, those attached to state services were relatively well off, as their consumption basket provided a sustained demand for high quality crafts and

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Translation with an Introduction, Delhi, 2000, pp. 125 & 213; E. P. Robertson, *Glossary of Guzaratee Revenue and Official Terms*, Bombay, 1865, pp. 5 & 25-26; H. H. Wilson, *A Glossary of Judicial and Revenue Terms*, Delhi, 1968, pp. 214, 562, 391,498 & 132 and N. A. Siddiqi, *Land Revenue Administration*, pp. 21, 24, 26-31, 36-39, 48 & 149.

[14] Tirthankar Roy, *The Economic History of India*, pp. 24-25.

[15] *Ibid.*, p. 25.

[16] *Ibid.*, p. 26.

services.[17] In spite of this trade between rural and urban consumers remained limited to goods like raw silk, indigo, sugar, salt, saltpeter, etc. The hectic sphere of trade was within and between the towns, or between towns and specialized manufacturing villages in highly urbanized regions like north India.[18] Further, the eighteenth century also continued with its old village community system or *jajmani* system and passed it fairly to the nineteenth century. It was a system of rural transactions where barter, customary dues, production of manufacture for local consumption and caste-based specialization remained major features. This system was fairly strong. It did not provide much chances of growth out side the village limits. It made villages integrated, self sufficient, non-commercial unchanging and egalitarian.[19] The local rural industries were textiles of the coarser kind, pottery, agricultural implements made of wood and iron, sugar, leather and oil. Other non-industrial products were raw silk, salt, indigo, etc. They added to self-sufficient village dynamics. The small and medium size urban settlement dynamics operated on the basis of the industries of finer textiles, carpets, shawls, decorative metal ware and pottery, wood and ivory carving, manufacture of arms, musical instruments, etc.[20] The elements that added dynamism to the urban industry in the unsteady environment were the affluent ruling aristocracies and land controlling elites.[21] However, the chief components of this urban dynamism subordinated producers economically and displaced urban skilled craftsmen.[22] In other words, the urban skilled

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[17] This stratum of society was in minority., *Ibid.*

[18] C. A. Bayly, *Rulers Townsmen and Bazaars, North Indian Society in the Age of British Expansion, 1770-1870,* pp. 110-15; *Indian Society and the Making of British Empire,* pp. 32-38.

[19] *Ibid.*

[20] See B. R. Grover,' An Integrated Pattern of Commercial Life in the Rural Society of North India during Seventeenth and Eighteenth Centuries' in Sanjay Subrahmanyan (ed.), *Money and the Market in India, 1100-1700,* Delhi, 1994, pp. 219-255.

[21] T. Kessinger, 'Regional Economy: North India' *CEHI,* Vol. II, p. 296.

[22] Tapanrai Chaudhari, 'Non-Agricultural Production', *CEHI,* Vol. I, p. 284 and Tirthankar Roy, *The Economic History of India,* p. 28.

craftsmen lost their independence in matters of production and carrying their produce to the market.

The agricultural and industrial revolution in England and Europe resulted into technological transformation and capital investment pattern; British rule in India led to enhancement in agrarian trends and export volume in textile and other products,[23] creation of hierarchy of markets—periodic local market in large villages and permanent markets in towns/*qasba* and large cities[24]—and development of financial sector that lead to organized banking.[25]

The first half of the nineteenth century in India evidenced remarkable changes. These changes were in land revenue assessment and collection, agrarian techniques, stress on cultivation of cash crops, livestock rearing and changes in agrarian relations. The agrarian relationship was the most vital element as it was the chief instrument of generating income to the British rulers.[26] The agricultural changes and demand for cash crops/raw material—cotton, indigo, opium and saltpeter for industries in England—led to commercialization of agriculture that was further strengthened due to introduction of railways and creation of infrastructure.[27] All these together had led to macro economic transformations since the last quarter of the nineteenth century. However, this phase of Indian economy also witnessed the adverse trend leading to de-industrialization, increase in import of ready goods/ machine-made goods and drain of wealth. Lastly, one can observe that the period beginning from mid-eighteenth century, to the end of nineteenth century was a period of transition in both political and economic terms.

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[23] Tirthankar Roy, *The Economic History of India*, pp. 29 & 32 - 36.

[24] T. Kessinger, 'Regional Economy: North India' *CEHI*, Vol. II, p. 247 and Tirthankar Roy, *The Economic History of India*, p. 31.

[25] Tirthankar Roy, *The Economic History of India*, p. 31.

[26] The new rulers experimented creating new proprietary body through *zamindari* settlement, *ryotwari* and *mahalwari* system and permanent settlement, See *Ibid.*, pp. 37-42.

[27] *Ibid.*, pp. 43-50.

The agrarian history and agrarian economy of Gujarat has been attempted during the modern period by many scholars like P. R. Mehta, J. M. Mehta, M. B. Desai, R. D. Chocksy, Jan Breaman, V. D. Divekar, Neil Charlesworth, David Hardiman and others.[28] The consensus regarding Gujarat is that it served all the purposes of a generative agrarian economy despite various setbacks.[29] Prior to the middle of the nineteenth century, agriculture remained the means of livelihood for the overwhelming majority of the population.[30] It was also an important subsidiary source of income to those engaged in rural industries, village services and pastoral occupations.[31] A considerable number of almost all castes and tribes except the merchant class of *vanis/ vanias* depended entirely on agriculture. The traditionally dominant cultivating castes in Gujarat were *kanbis, patidars, patels, rajputs, kachhias, malis, muslim boharas,* etc.[32] The period 1760-1850 also observed new policies and new administration under Marathas and Britishers respectively,[33] that had a significant bearing on agricultural development.[34] The Gujarat region evidenced expansion of the tillage area, new villages were settled by the grant of various special concessions to the new settlers, revenue concessions for the reclamation of the wastelands, undertaking of irrigational

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[28] P. R. Mehta, *The Elements of the Agriculture of the Bombay Presidency,* pp. 1-5; J. M. Mehta, *Study of Rural Economy of Gujarat,* Baroda, 1930, pp. 38-57; M. B. Desai, *The Rural Economy of Gujarat,* Bombay, 1948, pp.12-205; R. D. Chocksy, *Economic Life in the Bombay Gujarat, 1800-1939,* Bombay, 1968, pp. 62-82; Jan Breaman, *Patronage and Exploitation: Changing Agrarian Relations in South Gujarat, India,* Delhi, 1979, pp. 150-59; V. D. Divekar, 'Western India', in *CEHI,* Vol. II, pp. 332-39 and Neil Charlesworth, *Peasants and Imperial Rule: Agriculture and Agrarian Society in the Bombay Presidency, 1852-1935,* Cambridge, 1985, pp. 34-40.

[29] *Notes on the Famine Tour by his Highness the Maharaja Gaekwar,* Private Printed, 1901, pp. 109-21 and A. Love Day, *The History of Economics of Indian Famines,* London, pp. 73 &100.

[30] R. D. Chocksy, *op.cit,* pp. 52-62; and Neil Charlesworth, *Peasants and Imperial Rule,* pp. 70-82.

[31] M. B. Desai, *The Rural Economy of Gujarat,* pp. 206-44.

[32] H. Fukazawa, 'Western India' in *CEHI,* Vol. II, pp. 187-88.

[33] Stewart Gordon, *The New Cambridge History of India, II. 4, The Marathas 1600-1818,* Delhi, 1998, pp.154-95; and Baden Powell, *The Land Systems of British India,* Vol. III, Delhi, 1974, pp. 197-344.

[34] James Robertson (ed.), *Western India Reports: Addressed To The Chambers of Commerce of Manchester, Liverpool, Black Burn and Glasgow by their Commissioner The Late* Alexander Mackay, London 1853, pp. 1-35 and *Dr. John Augustus Voelcker's Report on the Improvement of Indian Agriculture,* London, 1891 in M. S. Randhawa, *A History of Agriculture,* Vol. III, pp. 233-38.

works, a continuous rise in number of landholders, an increase in the village revenue collection, changes in agricultural technology, farming methods and cropping pattern. Besides the staple food crops like *bajri, juwar,* pulses, rice and wheat as well as cash crops like indigo, cotton and opium, the region records the production of new cash crops like groundnut and tobacco and new vegetables like potato, chilies, etc.[35] The post-1850 underwent large scale transformations. These transformations were probably due to commercialization of agriculture in India and abroad.[36] The general factors and forces for commercialization of agriculture were introduction of systematic transport facilities, universal system of weight and measures, export demand, accelerated development of land, labour and financial markets. All these forces enabled agriculture for closer integration to global, regional and local market economy. Agrarian historians like Jan Breaman, Neil Charlesworth, B. R. Tomlinson, Tirthankar Roy and a few others have computed both qualitative and quantitative characteristics of commercialized nineteenth century agrarian Gujarat,[37] which gave productive dynamism to the medium and small urban settlements.

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[35] Gujarat evidenced a bigger wave of commercialization based on cotton, wheat and rice cultivation since the late eighteenth and early nineteenth centuries. Cotton and wheat both remained lucrative. After 1850's, export of both products expanded greatly, and the trade was augmented by oil-seeds, tobacco, groundnut and sugarcane. See P. R. Mehta, *The Elements of the Agriculture of the Bombay Presidency,* pp. 137-280; R. D. Chocksy, *op.cit,* pp. 83-91; and Tirthankar Roy, *The Economic History of India,* p. 61.

[36] See Knowles, The *Industrial and Commercial Revolutions in Great Britain During the Nineteenth Century,* London, 1930; Benoy Bhushan Chowdhury, *Growth of Commercial Agriculture in Bengal, 1757-1900,* Calcutta, 1964, pp. 25-26; and 'The Process of Agricultural Commercialization in Eastern India During British Rule: A Reconstruction of Notions of "Forced Commercialization" and "Dependent Peasantry" in Peter Robb (ed.) *Meanings of Agriculture,* Delhi, 1996; Amalendu Guha, 'Raw Cotton of Western India: Output, Transportation and Marketing,1750-1850', *IESHR,* 9 (1), 1972, pp. 1-42 Tirthankar Roy, *The Economic History of India,* pp. 60-79 & 88-95. Also see K. N. Raj, N. Bhattacharya, S. Guha, S. Padhi (Eds), *Essays on the Commercialization of Indian Agriculture,* Bombay, 1985.

[37] Jan Breaman, *Patronage and Exploitation,* pp. 180-82,239-40 & 253-54; Neil Charlesworth, *Peasants and Imperial Rule,* pp. 202-205 and Tirthankar Roy, *The Economic History of India,* pp. 68-70, 88-98.

Human settlements, both rural and urban in a region emerge and sustain in several related dimensions.[38] These dimensions are composed of the two chief elements, which are the natural environment of the region and the human activities carried out in agrarian and non-agrarian sectors of the region in time and space along with the functionality of political apparatus and societal network.[39] All these together helped in the formulation of economic potentiality of the region. In case of the South Gujarat territory, the role of the natural environment is significantly obvious from the discussion held in Chapter I.

In order to understand the agrarian potential of the South Gujarat territory/sub-region, it is necessary to examine the following factors and forces. These factors and forces are extent of cultivation, cultivation technique and implements, produce, produce-pattern, produce- price and income, revenue-collection, dismemberment and utilization, agrarian trade and agriculture's share in urbanization. A survey of the primary sources, both archival and in private collection suggest that the agrarian potentiality of the South Gujarat territory/sub-region can be understood in two time-scales. These two time-scale segments lie between c.1800-c.1850 and again between c.1850-c.1900. The reason for having these segments is the nature of the sources. The sources of first half of the nineteenth century are largely descriptive by nature whereas the sources for the second half are empirical. Besides these sources, I will often be referring to the sources covering the period between c. 1760-c.1800 for drawing comparisons and registering growth rates.

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[38] Adhya Bharti Saxena, Urban Dynamics in Haryana in Medieval India, (From 14th to Mid 18th Century), Unpublished Ph.D. Thesis, JNU, New Delhi, 2000, pp. 52-53.

[39] *Ibid.*

EXTENT OF CULTIVATION

The South Gujarat territory under examination comprised three fiscal/revenue territories. These were under the *talukas* in Baroda and Navsari *prant* of Gaekwad State, Broach and Surat Collectorates of Bombay Presidency and arable land for food crop in the forest territory of Dang and Native States of Rajpipla, Bansda, Dharampur and Sachin (see Tables 4, 5 & 6 of chapter I). The survey of the primary sources like *Memoirs, Memorandums, Administrative Reports,* Correspondences relating to Survey and Settlement, Political and Revenue Department Correspondences, *Survey Settlement and Revision Survey Settlement Reports and Gazetteers of Bombay Presidency* clearly identify the methods of land measurement and assessment. An attempt is therefore made here to compute the extent of cultivation in the South Gujarat territory.

Baroda *prant* was the most significant division of the Gaekwad rulers as their capital was located in it. The South Gujarat territory comprised Sinor *taluka* and Tilakwada *peta mahal.* A survey of administrative and fiscal history of Sinor *taluka* and Tilakwada *peta mahal* provide us the following details regarding the extent of cultivation in the last quarter of the nineteenth century (see Table 1). Nothing much can be stated about the first three quarters of the century due to the absence of statistical account.

TABLE 1

Extent of Cultivation in South Gujarat Territory of Baroda *Prant,* Gaekwad State during the Last Quarter of the Nineteenth Century

Talukas/ Peta Mahal	Villages			Cultivable Land in *acres*	Cultivable Waste in *acres*	Uncultivable Waste in *acres*	Total in *acres*
	Govt.	Alienated Villages	Total				
Sinor	49	05	54	34,853	7,242	8,253	50,348
Tilakwada	38	-	38	12,478	9,762	2,431	24,671

Source: *GBP, Baroda,* pp. 11, 552 & 558.

Table 1 suggests that the actual cultivated land in Sinor *taluka* was 27,611 *acres* and in Tilakwada *peta mahal* was 12,193 *acres*. It means that only 54.84% and 49.42 % of their total land was in actual cultivation respectively.

The administrative transformations and settlements that were carried out during the formation and consolidation of the Gaekwad State in the nineteenth century clearly suggest that the Navsari *prant* was a major phenomenon after the Baroda *prant* in the Baroda State. This was probably due to its location along the seacoast and the frequented major trade routes. This *prant* remained very promising in terms of agricultural produce as well as non-agricultural production. Our sources do not provide regular statistical details of the extent of cultivation for the whole of the nineteenth century; instead we have at our disposal partial information from c. 1760 to the first half of the nineteenth century and extensive details for 1850-1875 and 1875-1900. *Supplement of Mirat-i-Ahmadi* records the regular collection of land revenue from the villages of the *pargana / mahals* Navsari, Kamrej, Mahuva, Balesar and Gandevi of Surat *sarkar* that forms the nineteenth century Navsari *prant* (see Table 2).

TABLE 2
Navsari *Prant's* Agricultural Potential during the Second Half of the Eighteenth Century

Nineteenth Century Navsari *prant's Mahal/pargana*	Navsari *prant's mahal/pargana* c.1760	Navsari *prant's* Villages c.1760	Navsari *prant's* Revenue in *dams* c.1760	Navsari *prant's* Villages c. 1875-c.1900
Navsari *taluka*	Navsari	-	6,03,200	66
Gandevi *taluka*	Gandevi	27	23,00,000	30
Vyara *taluka*	Not Identified	-	-	156
Songadh *taluka* &	Not Identified	-	-	505
Vajpur *peta mahal*	-	-	-	-
Velachha *taluka*	Not Identified	-	-	137
& Vakal *peta mahal*	-	-	-	-
Kamrej *taluka*	Kamrej	-	19,35,000	78
	Haroli	-	15,40,000	-
Palsana *taluka*	Balesar	23	1,00,000	80
Mahuva *taluka*	Mahuva	-	1,20,620	77
	Anawal	06	50,100	-
	Kus	-	1,20,308	-

Source: *Supplement of Mirat-i-Ahmadi,* (tr.), pp. 213-215; *GBP, Baroda, Vol.VII,* p. 4, *An Atlas of the Mughal Empire,* Sheet 7A and p. 23 and *Statistical Atlas of Baroda State,* Map No. 11.

Though I do not find details about the extent of actual cultivated land, cultivable waste and uncultivable waste for c. 1760 in Table 2, it can be stated from the study of revenue figures and the number of villages for the year c.1760 that it remained a productive agricultural zone and agricultural activity continued with more or less similar pace during the first half of the nineteenth century. The historical profile of Navsari *prant* under the Gaekwad rulers continuously records the extraction of land revenue.[40] The details regarding the actual cultivated land, cultivable waste and uncultivable waste are available since the first survey settlement of the *prant* was carried out. Based on the information of various *pargana's/mahal's* or sub-divisions of Navsari *prant* in the Correspondences of Survey Settlement, *Survey Settlement Reports* and *Revised Survey Settlement Report* and *Gazetteers of Gaekwad State of Baroda,* I have attempted to provide a brief profile of the extent of cultivation of Navsari *prant* during the last quarter of the nineteenth century as in Table 3a and 3b.

[40] *GBP, Baroda, Vol. VII,* pp. 2-10.

TABLE 3a
Extent of Cultivation of Navsari *Prant* during 1875-1883

Taluka	Villages			Arable Land in *Bigha* & %	Cultivable Waste in *Bigha* & %	Uncultivable Waste in *Bigha* & %	Occupied land by villages, road & river bed in *Bigha* & %	Total in *Bigha* & %
	Govt.	Alienated	Total					
Navsari *taluka*	62	04	66	68,638 58.6%	5,495 04.7%	36,147 30.8%	6,728 05.7%	1,17,008 99.8%
Gandevi *taluka*	28	02	30	33,477 73.5%	262 0.57%	7,823 17.17%	3,997 08.77%	45,559 100.01%
Vyara *taluka*	149	07	156	-	-	-	-	-
Songadh *taluka* & Vajpur *peta mahal*	468	37	505	-	-	-	-	-
Velachha *taluka* &Vakal *peta mahal*	135	02	137	1,33,393 74.48%	24,953 13.9%	10,987 06.12%	9,979 05.5%	1,79,312 100.00%
Kamrej *taluka*	74	04	78	90,801 81.57%	6,831 06.13%	5,983 05.4%	7,656 06.9%	111,271 100.00%
Palsana *taluka*	72	08	80	73,055 82.8%	5,532 06.27%	4,467 05.06%	4,665 05.28%	87,719 99.41%
Mahuva *taluka*	75	02	77	76,924 59.8%	12,562 09.7%	23,376 18.2%	15,129 12.35%	1,27,991 100.00%

Source: *GBP, Baroda, Vol.VII*, p. 4, 560, 569, 572, 574, 577, 579, 581 & 583-84.

Table 3a provides information on cultivable land, cultivable wasteland, land occupied by villages, roads, river and uncultivable waste for the villages of *taluka* Navsari, Gandevi, Velachha, Kamrej, Palsana and Mahuva. Table 3a does not contain information for Vyara and Songadh *talukas*. The reason for this is that probably the survey was not carried out, as empirical details for Vyara and Songadh *talukas* are not found in our sources. The actual cultivated land in these *talukas* would have been as follows:

Taluka = Actual Cultivated Land in *Bigha* & % (1.74 *bigha* = 1 *acre*)		
Navsari	= 63,143	*bigha* or 53.96% of total land.
Gandevi	= 33,215	*bigha* or 72.91% of total land.
Velachha	= 108,440	*bigha* or 60.48% of total land.
Kamrej	= 83,970	*bigha* or 75.46% of total land.
Palsana	= 67,523	*bigha* or 76.98% of total land.
Mahuva	= 64,360	*bigha* or 50.28% of total land.
Total	= 420,651	*bigha* or 65.01% of total land.

In this way, the total actual cultivated land in Navsari *prant* during 1875-1883 excluding Vyara *taluka* and Songadh *taluka* along with their *peta mahals* Vajpur and Vakal was 241,753 *acres.*

TABLE 3b
Extent of Cultivation of Navsari *Prant* during 1883 -1900

Taluka	Villages			Arable Land in *Bigha* & %	Cultivable Waste in *Bigha* & %	Uncultivable Waste in *Bigha* & %	Occupied land by villages, road & river bed in *Bigha* & %	Total in *Bigha* & %
	Govt.	Alienated	Total					
Navsari *taluka*	61	4	65	94,717	23,312	35,833	61,983	2,15,845
				43.88%	10.8%	16.6%	28.7%	99.98%
Gandevi *taluka*	28	2	30	31,428	1,440	11,519	-	44,387
				70.80%	3.24%	25.95%		100.00%
Vyara *taluka*	-	-	-	-	-	-	-	-
Songadh *taluka* & Vajpur *peta mahal*	-	-	-	-	-	-	-	-
Velachha *taluka*	69	1	70	1,52,111	22,738	9,622	91,110	2,75,581
				55.2%	8.3%	3.49%	33.06%	100.05%
Vakal *peta mahal*	48	1	49	2,33,278	63,392	13,342	1,30,952	4,40,964
				52.90%	14.37%	3.02%	29.70%	99.99%
Kamrej *taluka*	94	4	98	1,45,416	9,289	14,676	1,13,042	2,82,423
				51.48%	3.28%	5.19%	40.02%	99.97%
Palsana *taluka*	74	-	74	78,871	4,046	9,498	62,514	1,54,929
				51%	2.61%	6.13%	40.35%	100.09%
Mahuva *taluka*	75	2	77	1,39,506	38,513	12,345	87,071	2,77,435
				50.28%	14%	4.44%	31.38%	100.1%

Source: *Jamabandi Settlement Report* (here after *J.S.R.*), *Kamrej &Palsana Taluka*, 1892, file no 693, Central Record Office, Baroda, pp. 25-26 & 13-14; *J.S.R., Velachha & Vakal Taluka*, 1892-93, file no. 694 Central Record Office, Baroda, pp. 5-6 & 9-10; *R.D., Navasari &Gandevi Taluka*, 1891, file no. 666 Central Record Office, Baroda, pp. 26-27 & 16 -17 and *R. D., Mahuwa Taluka*, 1895, file no. 613, Central Record Office, Baroda, pp. 13-16.

Like Table 3a, Table 3b also provides information on cultivable land, cultivable wasteland, occupied land by villages, roads, river and uncultivable

waste for the villages of *taluka* Navsari, Gandevi, Velachha, Kamrej, Palsana and Mahuva. As seen in Table 3a, I have not been able to say any thing for Vyara and Songadh *talukas* due to lack of information about them. The reason for this has already been stated that no survey was carried out for these *talukas*. The details of actual cultivated land in these *talukas* are stated below:

Taluka = Actual Cultivated Land in *Bigha* & % (1.74 *bigha* = 1 *acre*)
Navsari = 71,405 *bigha* or 33.08% of total land.
Gandevi = 29,988 *bigha* or 67.56% of total land.
Velachha =129,373 *bigha* or 46.95% of total land.
Kamrej =169,886 *bigha* or 38.52% of total land.
Palsana =136,127 *bigha* or 48.20% of total land.
Mahuva =100,993 *bigha* or 36.40% of total land.
Total =637,772 *bigha* or 45.12% of total land.

In this way the total actual cultivated land in Navsari *prant* during 1883-1900 excluding Songadh and Vyara *talukas* along with their *peta mahals* Vajpur and Vakal was 366,535 *acres*.

Broach and Surat in the South Gujarat territory are identified as headquarters of British Collectorates evidenced numerous changes in arable land categorization and assessment surveys during the nineteenth century. These changes were due to gradual possession of territory by British from the Nawabs of Broach and Surat, Peshwas, Scindhia's and Gaekwad's respectively and the needs of the British Government in India (see Table 4, 5 & 6 of Chapter I). Monier Williams and others made the first attempts for survey of these two Collectorates in the first half of the nineteenth century. The survey of Monier Williams got completed by the second decade of the nineteenth century.[41] This survey remained applicable till 1870-71 as the *Survey Settlement Reports* and *Revision Survey Settlement Reports* along with the *Gazetteers* were published during the last quarter of the nineteenth century. In this way I have two time segments sets of land categories and land assessment methods for the identification of the extent of cultivation of British South Gujarat districts.

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[41] Monier Williams, *Memoir on the Zilla of Baroche*, (reprint), Bombay, 1852, p. Introduction to Survey and see the *SSR* & *RSS* for each *Taluka* of Broach and Surat Collectorates.

According to the survey of Monier Williams Broach Collectorate comprised originally of three *parganas*—Broach, Ankleshwar and Hansot—that got extended to six *parganas* during the first quarter of the nineteenth century.[42] These *parganas* were Broach,[43] Ankleshwar,[44] Hansot,[45] Jambusar,[46] Amod[47] and Dahej.[48] The results of this survey served the purpose till the third quarter of the nineteenth century with a few variations.[49] I offer a brief profile of the extent of cultivation during the nineteenth century in Table 4 a, 4b and 4c.

TABLE 4a
Extent of Cultivation in Broach Collectorate, c. 1800-c.1820

Parganas	Number of Villages				Arable Land			Non-arable Land			Total Land		
	Govt.	*Wuzzefa*	*Wanta*	*Inam*	*Acre*	Rds.*	Ps*	*Acre*	Rds.	Ps	*Acre*	Rds.	Ps
Broach	162	08	-	02	225,542	3	23	49,714	2	5	275,257	1	28
Ankleshwar	50	02	-	-	58,468	1	3	27,352	1	39	85,82	3	2
Hansot	51	01	-	-	47,326	2	4	43,719	1	38	91,046	0	2
Jambusar	82	-	01	03	132,375	3	38	83,402	1	38	215,778	1	16
Amod	42	01	01	-	65,425	2	35	64,099	3	21	129,525	2	16
Dahej	10	-	-	-	15,980	1	5	19,517	2	14	35,497	3	19
TOTAL	397	12	02	05	545,119	2	8	287,806	1	15	832,926	0	36

* Rds =roods and *Ps= perches
Source: Monier Williams, *Memoir on the Zilla of Baroche*, (reprint), Bombay, 1852, p. 23.

The *Memoir* of Monier Williams remains silent on the details of actual cultivated land cultivable wasteland and occupied land by roads, river and dwelling places. Hence, it is difficult to state about what percentage of total land of Broach Collectorate during first quarter of the nineteenth century was under agricultural production but an intensive study of the *Memoir* of Monier

[42] *Memoir on the Zilla of Baroche*, pp. Introduction to Survey, 16 & Table A.
[43] *Ibid.*, pp. 1-2.
[44] *Ibid.*, pp. 3-4.
[45] *Ibid.*, pp. 4-5.
[46] *Ibid.*, pp. 6-9.
[47] *Ibid.*, pp. 10-12.
[48] *Ibid.*, pp. 12-13.
[49] For the variation in its territory see Table 4, 5 & 6 of chapter I.

Williams suggests that a large percentage was exploited for agricultural purposes particularly for cash crop like cotton on which its economy was largely dependent in terms of raw stuff meant for internal consumption and export trade and ready goods that were woven in the villages, *qasbas* and other medium size towns of the Broach Collectorate.[50] Monier Williams argues thus:

> Kupppas has, of late years, become a primary object of cultivation in this Collectorate, as well as in the adjoining purgunnas, in consequence of the advance in its price from forty five rupees to about seventy rupees per bar.[51] (48 *seers* = 1 *duree*; 1 *duree* = 1 bar)

> The only manufacture for exportation worth notice in this Collectorate is that of cloth in the town of Baroche. These consist principally of coloured cotton cloths, so generally known by the term 'piece-goods'- of coarse, white cotton cloth, called by us dungaree, coarse chintzes, turbans &c, and the Parsee weavers of Baroche make fine dotees, baftas, and dares, which are much esteemed throughout the country; they also make fine checkered clothes, and will imitate any pattern of Scotch plaid, or doylees...[52]

[50] *Ibid.*, pp. 21 & 56-58.

[51] *Ibid.*, p. 21.

[52] *Ibid.*, pp. 56-58. For agricultural estimates of Broach Collectorate during the first half of the nineteenth century see Raj Kumar Hans, 'Agrarian Economy of Broach District During the First Half of Nineteenth Century', Unpublished Ph.D. Thesis, The M. S. University of Baroda, Vadodara, 1987, pp. 77-130.

TABLE 4b
Extent of Cultivation of Broach Collectorate during 1850-1875

Talukas (1)	Number of Villages (2)			Arable Govt. land (3)		Non -arable Land (4)		Total Land (5) (*Acres* & %)
	Govt. (i)	Alien -ated (ii)	TOTAL (iii)	Actual Cultivated Land (*Acres* & %) (i)	Cultivable Waste (*Acres* & %) (ii)	Uncultivable Waste (*Acres* & %) (i)	Occupied by Village Sites (*Acres* & %) (ii)	
Broach	102	09	111	125,321 (67.55%)	10,406 (5.6%)	8,395 (4.57%)	20,182 (10.87%)	185,502 (100 %)
Ankleshwar	102	03	105	36,404 (74.32%)	29,593 (15.95%)	30,510 (16.62%)	8,213 (4.47%)	83,522 (100%)
Wagra	68	01	69	124,921 (64.11%)	12,533 (06.43%)	50, 549 (25.94%)	6,845 (3.51%)	194,848 (100%)
Jambusar	85	02	87	155,830 (65.38%)	2,123 (0.89%)	68,003 (28.53%)	12,376 (5.19%)	238,332 (100%)
Amod	53	-	53	91,479 (81.06%)	4,085 (3.61%)	9,021 (7.99%)	8,264 (7.32%)	112,849 (100%)
Total	410	15	425	533,955 (70.49%)	37,542 (4.22%)	187,676 (19.01%)	55,880 (6.23%)	815,053 (100%)

Source: *GBP, Surat and Broach*, Vol. II, pp. 337, 535, 537, 539, 542 & 545.

Table 4b identifies the actual cultivated land for all the *talukas* of Broach Collectorate during the third quarter of the nineteenth century. It also reveals about the increase in the extent of cultivation. This increase was either due to administrative transformations or reclamation of cultivable land from cultivable waste.

TABLE 4c

Extent of Cultivation in Broach Collectorate in c.1875 - c.1900

Talukas (1)	Number of Villages (2)			Cultivable Land Inclusive of actual cultivated and cultivable waste land (*Acres* &%) (3)	Uncultivable Land Inclusive of uncultivable waste and occupied by roads, river & village sites (*Acres* &%) (4)	Total Land (*Acres* &%) (5)
	Govt. Villages (i)	Alienated Villages (ii)	Total (iii)			
Broach	102	-	102	131,437* (71.02%) (111,162 *acres* remained the actual cultivated land)	53,611 (28.97%)	185,048 (99.99%)
Ankleshwar	102	03	105	144,798 (78.89%) (39,044 *acres* remained the actual cultivated land)	38,723 (21.10%)	183,521 (99.99%)
Wagra	68	-	68	132,577 (68.03%) (112,049*acres* remained the actual cultivated land)	62,294 (31.96%)	1,94,871 (99.99%)
Jambusar	85	-	85	159,000 (65.85%) (147,270*acres* remained the actual cultivated land)	82,441 (34.14%)	241,441 (99.99%0

Amod	51	-	51	93,326 (82.80%) 80,830 *acres* (remained the actual cultivated land)	19,379 (17.19%)	1,12,705 (99.99%)
Total	**408**	**03**	**411**	**6,61,138 (72.05%) (4,90,355 *acres* remained the actual cultivated land)**	**2,56,448 (27.94%)**	**9,17,586 (99.99%)**

Source: *There is a mistake in total of column 14 of Appendix B in *RSS, Broach Taluka, Broach Collectorate,* Bombay, 1902, pp. 2 & 17. The total of columns 11, 12 & 13 is 131,437 *acres* instead of 13,145; *SRBG, No. CXLVI, Survey Settlement, Broach and Ankleshwar Taluka, Broach Collectorate,* Bombay, 1874, pp. 140-41. *RSS, Wagra Taluka, Broach Collectorate,* Bombay, 1903, pp. 2 & 10 and Appendix B; *RSS, Jambusar Taluka, Broach Collectorate,* Bombay, 1903, pp. 2 & 11 and Appendix B and *RSS, Amod Taluka, Broach Collectorate,* Bombay, 1903, pp. 2 & 10 and Appendix B.

Table 4c shows the actual cultivated land along with cultivable waste and uncultivable waste for all the *talukas* of Broach Collectorate. Further, from the comparison of comparing the Tables 4b and 4c, one can conclude that there was decrease in the actual cultivated land. The probable reason for these decreases is stated in the *RSS* of the related *talukas. RSS* of Broach and Jambusar *taluka* records, " ...the decrease in the arable area is due to the transfer of assessed unoccupied *bhatha* lands to the heading of unassessed cultivable (*vide* paragraph 22)" and "...the increase of 2, 927 *acres* in the unarable waste is due to the addition of 2,208 *acres* on account of half the area of the river left out by mistake at the original survey to the area of the village of Valipur and the remaining 771 *acres* to the deterioration of fields by the inroad of salt water and to a small extent to land being taken up for public purposes (vide paragraph 7)" respectively.[53]

[53] *RSS, Broach Taluka,* p. 2 and *RSS, Jambusar Taluka,* p. 2. For a critical estimate of Broach Collectorate in the late nineteenth century see Gita Bajpai, 'Broach in the Late Nineteenth Century: Changing Profile under Colonial rule', in *Ports and Their Hinterlands in India, 1700-1950,* Indu Banga (ed.), Delhi, 1992, pp. 213-27.

Similar to the case of Broach Collectorate our sources throw immense light on the extent of cultivation of Surat Collectorate but the information is limited as regular information regarding it is available only after the mid-nineteenth century. For the pre-mid-nineteenth century period, my observations are based on the enhancement initiatives and assessment methods that were introduced in various *talukas* of Surat Collectorate from time to time.[54] All these points together suggest that there was generally an increase in the cultivable land and decrease occurred during the famine period or due to some administrative adjustments.

Statistical details of the extent of cultivation for Surat Collectorate are provided for the second half of the nineteenth century in the Tables 5a and 5b, whereas the descriptive details in our sources fairly establish that the regular agricultural production was carried out in various *talukas*.[55]

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[54] See the *RSS of* Olpad, Mandvi, Chorasi, Bardoli, Jalalpur, Chikhli, Bulsar and Pardi *Talukas* for enhancement initiatives and assessment methods. Also see Gita Bajpai, 'Rural Economy and Society in Transition in British Gujarat in the First Half of the Nineteenth Century', in *The Peasantry Through the Ages in Western India; With Special Reference to Rajasthan*, (eds.) G. N. Sharma & V. S. Bhatnagar, Jaipur, 1993, pp.16-29. See *RSS, Olpad, Surat Collectorate*, 1896, pp. 20-31 & 35-43; *RSS, Mandvi, Surat Collectorate*, 1904, pp.18-33 & 38-59; *RSS*, Chorasi, *Surat Collectorate*, 1897, pp.19-31 & 34 - 57; *RSS*, Bardoli, *Surat Collectorate*, 1897, pp. 23-40 & 43-79; *RSS, Jalalpur, Surat Collectorate*, 1900, pp. 23-34 (Appendix O, P & Q) and 1-30 (Appendix R); *RSS, Chikhli, Surat Collectorate*, 1899, pp. 34 -42 & 47-62; *RSS Bulsar, Surat Collectorate*, 1900, pp. 21-33 & 42-63 and *RSS, Pardi, Surat Collectorate*, 1904, pp. 19- 33 & 36-55.

[55] For the larger details see our primary sources pertaining to Surat Collectorate's *Talukas* on assessment and for critical interpretation see Gita Bajpai, 'Rural Economy in Transition in British Gujarat: The Surat Collectorate in the First Half of the Nineteenth Century', *The Peasantry Through the Ages in Western India, With Special Reference to Rajasthan*, G. N. Sharma & V. S. Bhatnagar (Eds.), Jaipur, 1993, pp. 13-29.

TABLE 5a
Extent of Cultivation of Surat Collectorate during c.1850-c.1875

Talukas (1)	Number of Villages (2)			Arable Govt. land (3)		Non -arable Land (4)		Total Land (5) (Acres & Approx. %)
	Govt. (i)	Alien-ated (ii)	T o t a l (iii)	Actual Cultivated Land (*Acres* & %) (i)	Cultivated Waste (*Acres* & %) (ii)	Uncultivable Waste (*Acres* & %) (i)	Occupied by Village Sites (*Acres* & %) (ii)	
Olpad	135	04	139	124,635 (61.08%)	8,420 (4.21%)	59,952 (29.38%)	11,016 (5.39%)	204,023 (100.06 %)
Mandvi	154	04	158	88,905 (53.80%)	34,142 (20.66%)	1,595 (0.96%)	31,159 (5.39%)	155,801 (94.27%)
Chorasi	68	10	78	40,295 (70.25%)	1,269 (2.21%)	5,374 (9.36%)	10,421 (18.17%)	57,359 (99.99%)
Bardoli	138	-	138	113,5535 (80.40%)	15394 (10.90%)	2,105 (1.49%)	10,177 (7.20%)	141,229 (99.99%)
Jalalpur	88	07	95	68,924 (56.04%)	1,748 (1.42%)	34,670 (28.17%)	17,714 (14.39%)	123,056 (99.99%)
Chikli	58	05	63	83,847 (81.40%)	11,529 (11.19%)	1,016 (0.98%)	6,605 (6.41%)	102,997 (99.99%)
Bulsar	96	-	96	94,675 (70.52%)	10,220 (7.61%)	3,301 (2.45%)	26,055 (19.40%)	134,251 (99.99%)
Pardi	80	01	81	80,917 (78.16%)	12,178 (11.76%)	3,915 (3.78%)	6,514 (6.29%)	103,524 (99.99%)
Total	817	31	848	695,751 (68.93%)	94,900 (8.74%)	111,928 (9.57%)	119,661 (12.01%)	1,022,240 (100.09%)

Source: *GBP, Surat and Broach*, Vol. II, pp. 2, 267,271, 274, 278, 282, 285, 289 & 292.

TABLE 5b

Extent of Cultivation in Surat Collectorate in c.1875-c.1900

Talukas (1)	Number of Villages (2)			Cultivable Land Inclusive of actual cultivated and cultivable waste land (*Acres* & %) (3)	Uncultivable Land Inclusive of uncultivable waste and occupied by village sites (*Acres* & %) (4)	Total Land (5)
	Govt. (i)	*Alienated* Villages (ii)	Total (iii)			
Olpad	135	04	139	128,963 94.62% (108,341*acres* remained the actual cultivated land)	7,329 05.35%	1,36,292 99.97%
Mandvi	152.5	-	152.5	96,915 56.79% (74,657*acres* remained the actual cultivated land)	73,740 43.20%	170,655 99.99%
Chorasi	71	07	78	41,765 74.86% (31,826 *acres* remained the actual cultivated land)	14,023 25.13%	55,788 99.99%
Bardoli	138	-	138	124,061 87.34% (90,695 *acres* remained the actual cultivated land)	17,969 12.65%	142,030 99.99%
Jalalpur	89	06	95	75,379 65.18% (46,788 *acres* remained the actual cultivated land)	40,881 35.16%	116,260 100.34%
Chikhli	60	03	63	85,618 82.68% (41,571 *acres* remained the actual cultivated land)	17,923 17.31%	103,541 99.99%

Bulsar	96	-	96	100,990 75.69% (41,272 *acres* remained the actual cultivated land	32,423 24.30%	133,413 99.99%
Pardi	79	02	81	88,696 86.19% (47,050 *acres* remained the actual cultivated land)	14,206 13.80%	102,902 99.99%
Total	820.5	22	842.5	742,387 77.26% (482,200*acres* remained the actual cultivated land)	218,494 22.73%	960,881 99.99%

Source: *See*, Appendix B, *RSS, Olpad Taluka, Surat Collectorate*, 1896, pp. 2 & 14; *RSS, Mandvi Taluka, Surat Collectorate*, 1904, pp. 2 & 14; *RSS*, Chorasi *Taluka, Surat Collectorate*, 1897, pp. 2 & 14, Appendix B; *RSS*, Bardoli, *Surat Collectorate*, 1897, pp. 1-2 & 18, Appendix B; *RSS, Jalalpur, Surat Collectorate*, 1900, pp. 2 & 16, Appendix B; *RSS, Chikhali, Surat Collectorate*, 1899, pp. 2 & 29, Appendix B; *RSS, Bulsar, Surat Collectorate*, 1900, pp. 2 & 17, Appendix B and *RSS, Pardi, Surat Collectorate*, 1904, pp. 1-2 & 14, Appendix B.

Table 5a and 5b provide us the details of actual cultivated land. Decrease in actual cultivated land is noticed for the period 1875-1900 in comparison to 1850-1875. This decrease is of 18.75%, which is definitely large. The reason that can be attributed to it is leaving the land fallow for retaining the productivity.[56]

Nothing concrete can be stated regarding the Dang territory's extent of cultivation. Sources do not record any regular system of collection of land revenue or any survey that was carried out during the nineteenth century. However, *Gazetteer of the Bombay Presidency-Khandesh* provides information that the Dang territory was ruled by *Bhil* chiefs. If had extensive forestland and there was no survey or assessment method, assessment rate or any thing similar to it. Instead, the number of ploughs used helped in collection of

[56] See Appendix B in various *RSS* of each *Taluka* of Surat Collectorate.

revenue either in cash or kind.[57] Hence one cannot estimate the extent of actual cultivated land. According to J. M. Campbell, the agricultural aspects of the Dang territory are stated below:[58]

> Black alluvial soil is found in the valleys and lowlands, and red soil in the up lands. The Vasurna and Amala Dangs contain the greatest arable area. The people move their villages with great readiness, and choosing fresh patches of forest, clear them for tillage. Such clearances are found scattered over the forests, on the tops and slopes of hills, and on the level lands in valleys. Cultivation is carried on partly by digging, partly by rude ploughing, and partly by wood ash, *dali*, tillage. The chief crops are *nagli* Eleusine coracana, rice *bhat* Oryza sativa, *kodra* Paspalum scrobiculatum, *vari* Panicum miliaceum, *bajri* Penicillaria spicata, *udid* Phaseolus mungo, gram *chana Cicer arietinum*, and *tur Cajanus indicus*. In the upper Dangs wheat is grown, but in quantities so small that, for the Government establishment and forest labourers, supplies have to be brought from Bilimora and Chikhli in Surat. Among vegetables, potatoes, locally known as *bhui kund*, grow to a great size; many of them form eight to ten pounds.

I do not find the similar statistical details for the Rajpipla except the partial information, as observed about the extent of cultivation as in case of Broach and Surat Collectorates. This partial information reveals about agricultural activity, revenue collection and distribution and agricultural trade during the nineteenth century.[59] The other details are regarding the number of villages and description of their *parganas/talukas*.[60] The survey of these sources suggest that the income generated from land revenue was not very high, instead it was agriculture trade and transit trade that contributed to the states income. As far as extent of cultivation is concerned, the information is available from early twentieth century i.e. 1902-03 onwards. According to this information only one-third i.e. 32,373.33 *acres* of the total area i.e. 971,200 *acres*

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[57] *GBP, Khandesh*, Vo. XII, Bombay, 1880, p. 603.

[58] *Ibid.*, pp. 601-02.

[59] J. P. Willoughby, *Memoir on the Rajpipla State, Prepared in 1821, Selections from the Records of the Bombay Government (SRBG), No. XXIII, New Series (NS)*, Bombay, 1856, pp. 266-67; 288-96 & 633-653 and *GBP, Rewakantha and Surat States*, pp. 91 & 95-110.

[60] J. P. Willoughby, *Memoir on the Rajpipla State, Prepared in 1821, Selections from the Records of the Bombay Government (SRBG), No. XXIII-New Series (NS)*, Bombay, 1856, pp. 263-296; *GBP, Rewakantha and Surat States*, pp. 97-98 and *Administration Report on the Rajpipla State for the Year*, 1902-03, pp. 33-35.

was cultivable land.[61] Land in the *rasti* tract was relatively more productive.[62] These Rasti *talukas* were Nandod, Bhalod and Jhaghadia.

Nothing more can be stated on the cultivable land, cultivable waste, or uncultivable waste of Dharampur State for the first three quarters of the nineteenth century as the sources are silent regarding statistical details. The *Gazetteer of Rewakantha Agency* records for the last three quarters of the nineteenth century that regular cultivation was carried out and both food and cash crops were grown. Also, the state received regular land revenue from the peasantry through revenue collecting State agency. Extensive details regarding extent of cultivation is available in the *Administration Report of the Year 1899-1900.* Dharampur State was surveyed during the last decade of the nineteenth century.[63] The state had some 190 surveyed villages and the area of surveyed villages amounted to 3,20,153 *acres* and 16 *gunthas.* The land under cultivation amounted to 1,10,528 *acres.* That means, only 34.52% was utilized for cultivation and the rest was either cultivable waste or uncultivable waste.[64]

Very limited information is available regarding the cultivation of extent of the Bansda State, as only a small portion of Bansda state was surveyed. The rough estimates of the area of Bansda State amounts to 153,600 *acres.*[65] The state had both states villages and the alienated villages. These villages amounted to 81 and 8 respectively. Land revenue was collected through revenue farmers during both the periods i.e., when the state was under the

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[61] *Administration Report on the Rajpipla State for the Year,* 1902-03, p. 3.

[62] *Ibid.*

[63] 'Letter No. 856 of 1900, 8th September 1900, Surat, pp. 1- 4 and ' English Translation of Letter no. 42 dated 1st August 1900 from Maharana Shri Mohandevji Rana, Raja Saheb of Dharampur, to the Agent to His Excellency the Governor at Surat', pp. 1-3 in *Administration Report on the Dharampur State for the Year, 1899-1900.*

[64] 'The larger portion of Dharampur State was covered with hills and jungles.' English Translation of Letter no. 42 dated 1st August 1900 from Maharana Shri Mohandevji Rana, Raja Saheb of Dharampur, to the Agent to His Excellency the Governor at Surat', p. 2 in *Administration Report on the Dharampur State for the Year, 1899-1900.*

[65] *GBP, Rewakantha and Surat States,* pp. 251-52.

British management and when it was managed by itself. According to the *Administration Report* of 1898,[66] the extent of cultivation for Bansda State is illustrated in Table 6a.

TABLE 6a
Extent of Cultivation in Bansda State c. 1896-c.1898

Extent of Cultivable Land in *acres*		Taken up in *acres*		Waste land remain at the end of year (*acres*)		% of cultivable land lying waste in *acres*	
1896-97	1897-98	1896-97	1897-98	1896-97	1897-98	1896-97	1897-98
69,911	69,911	-517	396	25,613	25,217	37	36

Source: *Administration Report on the Bansda State for the year 1897-98*, Surat, 1898, p. 3.

Our sources reveal little about the extent of cultivation of the Sachin State during the first three quarters of the nineteenth century. Information on the survey of Sachin State's land is available in the *Gazetteer of Bombay Presidency-Rewakantha and Surat States, 1880.* [67] According to this survey the total area of the State was 26, 814 *acres*. Of which 23,604 belonged to the State and 3,210 was alienated. Out of State's area only 15,649 *acres* was occupied and 1,563 *acres* was waste. The occupied land was used for cultivation of both food and cash crop during the *kharif* and *rabi* crop seasons. The Survey details are also available in the *Administration Report of the Year 1898*,[68] that are offered here:

TABLE 6b
Extent of Cultivation in Sachin during the Last Decade of the Nineteenth Century

Extent of Cultivable Area at end of		Extent of Cultivated Area at end of		Cultivable Waste remaining at end of		% of Cultivable Waste to Cultivated Area at end of	
1896-97	1897-98	1896-97	1897-98	1896-97	1897-98	1896-97	1897-98
A. G.	A. G	A. G.	A. G.	A. G.	A. G.		
16,848 15.5	16,845 17.5	16,661 6.5	16,658 8.5	187 9	187 9	1.1	1.1

Source: *Administration Report on the Sachin State for the year 1897-98*, Surat, 1898, p. 2.

[66] *Administration Report on the Bansda State for the year 1897-98*, Surat, 1898, p. 3.
[67] *GBP, Rewakantha and Surat States*, p. 262.
[68] *Administration Report on the Sachin State for the Year 1897-98*, Surat, 1898, p. 2.

The survey details reveal that the extent of actual cultivated land decreased between the periods 1896 and 1898.[69] The reason was the spread of plague at Dumas and Bhimpur.[70]

Finally, it can be stated that at an average 60% to 65% of the land in the South Gujarat territory was cultivable during the nineteenth century.

IRRIGATION

Alexander Mackay commented during the second half of the nineteenth century, "Is Guzerat a district in need of irrigation?"[71] This statement was probably made by him on the basis of the study of climatic situation and rainfall data for the first half of the nineteenth century. There was scantiness of water due to uncertainty of monsoon season. He has stated this situation in his monumental work *Western India, Reports Addressed to Chambers of Commerce of Manchester, Liverpool, Black Burn and Glasgow* in the following words[72]:

> ...It sometimes commences later or terminates early; at other times it does both; whilst occasionally, when it both begins and ends at the regular time, the supply comes in the shape of scanty drizzling rains, instead of infrequent and copious showers. One the most striking instances of the capriciousness of the monsoon was exhibited in 1848, when also was shewn the universal distress which an unseasonable drought is calculated to produce.... The distress entailed upon both man and best was deep and universal; and when the rain at length made its appearance; the tranquility of the country was on the eve of being disturbed... The consequence as might have been expected, was short and in other respects inferior crops throughout the province, from which the ryots were not the only sufferers; for in Broach alone the government the year lost thereby nearly five lacs of rupees, or about 50,000l. It is very evident that much, if not all, of this might have been saved to the public exchequer, and much misery and suffering averted from the people, had they possessed the means of making up artificially for the delay in the appearance of their natural supply of moisture, or of making good, after it was over, the deficiencies of a scanty monsoon.

He thought of means of water supply/irrigation facilities and traced from the previous reports that the irrigation facilities had existed since past centuries

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[69] *Ibid.*
[70] *Ibid.*
[71] Alexander Mackay, *Western India*, p. 173.
[72] *Ibid.*, pp. 175-76.

and for the improvisation of both food crops and cash crops irrigation was needed. In case of the South Gujarat territory, both natural and artificial irrigation is reported. The percentage of artificial irrigation remained very less and it was mostly through tanks and wells. The possibility of canal irrigation cannot be completely nullified as the references to the projects of canal construction are recorded. However, the canal projects were not completed during the nineteenth century and thus the benefits were not actually incurred. Therefore, a discussion is offered on the quantum, method and techniques of well and tank irrigation employed in the various segment of the South Gujarat territory.

In case of Sinor *taluka* and Tilakwada *peta mahal* of Baroda *prant*, the references to the wells and tanks come from the *Gazetteer of the Bombay Presidency-Baroda* and *Administration Reports* for the last quarter of the nineteenth century. *Gazetteer of the Bombay Presidency-Baroda* refers to 2 step-wells and 68 simple wells in both *pucca* and *kachha* category; 43 large tanks and some 92 ponds in case of first and 7 wells and few ponds in the second case.[73] The step-wells were used for drinking purposes, whereas the *pucca* and *kachha* wells were used for irrigation purposes for both main fields and the garden fields.

Gazetteers of the Bombay Presidency-Baroda reveal the strength of wells, tanks and ponds in the various *talukas* of Navsari *prant*, which is illustrated in tabular form as follows:

[73] *GBP, Baroda, Vol.VII*, pp. 552 & 558.

TABLE 7
Wells, Tank etc. in Navsari *Prant* during Last Quarter of the Nineteenth Century

Talukas of Navsari *Prant*	*Gazetteers of Bombay Presidency-Baroda*, 1883		
	Wells	Tanks	Ponds
Navsari *taluka*	1,444	-	131
Gandevi *taluka*	668	-	76
Vyara *taluka*	125	-	02
Songadh *taluka* & Vajpur *peta mahal*	3,728	-	408
Velachha *taluka* & Vakal *peta mahal*	-	-	160
Kamrej *taluka*	596	-	85
Palsana *taluka*	582	-	38
Mahuva *taluka*	293	-	47
Total	7,436	-	947

Source: *GBP, Baroda, Vol.VII*, 1883, pp. 561, 569, 573-74, 577, 579, 581 & 584.

Agriculture in Broach Collectorate was largely rain-fed with artificial irrigation occupying a marginal position.[74] The existence of primary, secondary and tertiary rivers and river-streams generously watered each *taluka*. According to Alexander MacKay, "if one takes whole of the British Gujarat, the artificial irrigation amounted to two percent during the first quarter of the nineteenth century".[75] In the mid-nineteenth century, it was calculated that the cultivated area of the Broach Collectorate under artificial irrigation was less than one percent.[76] It was actually 0.32% in 1845-46 and 0.31% in 1846-47.[77] The obvious reason was that the Bombay Government was aware that Gujarat would not benefit much from artificial irrigation. It is well known that Broach was rich in cultivation of cotton. Cotton soil or *kalee bhoee* doesn't require much irrigation. Hence not much effort was made for artificial irrigation in terms of canal excavation. Instead we have registered the

[74] Revenue Department (R.D.), 130, 1818, folio 2766 and *Selection from the Records of the Bombay Government (SRBG), CCCCVII, NS*, p. 39.
[75] Alexander Mackay, *Western India*, p. 183.
[76] *Ibid.*, p. 179.
[77] See Broach Collector Letter dated 30-09-1847 in Revenue Department, 16, 1849, which states that out of 734,324 *bighas* cultivated in 1845-46 only 2,382 *bighas* were irrigated and in 1846-47 the proportion was 2, 360 to 752, 671 *bighas*.

existence of wells/tanks in every village.[78] These were mostly used for irrigating *gorat* lands. The Broach Collector informed the Bombay Government in 1813 that there were two methods of watering from the tanks. In Hansot and Ankleshwar, canals were dug for the water to run into adjacent fields of rice that were bent on the sides to retain the water. When one field was filled to a certain height, the water was turned to the next. This mode employed two or three men at a time.[79] Where the fields were at a considerable distance, the water was supplied to them in watercourses by means of a scoop made of bamboo covered with leather. The water was lifted out of the tank by the scoop and thrown into the course. This system provided employment for men at that time. The collector reported that only one and a half *bighas* of land was watered in a day by this method. It was a laborious process used only in a few villages, where the number of wells was insufficient.[80] During the same period it is registered that well irrigation was more popular in comparison to tanks in the villages of various *talukas* of Broach Collectorate. I have already recorded the number of attempts made by government and individuals in Chapter I. N. B. Beyts recorded in 1871 that out of 391 wells available in the district, 8 were situated in the alienated villages, 169 wells were used exclusively for drinking purposes but 28 of them were found in utter ruin. The number of wells used for irrigation in *gorat* villages was 179.[81] Now I shall provide details of irrigation for individual *taluka* for the last quarter of the nineteenth century. *Revision Survey Settlement Report, 1902* apprises us about wells in Broach *taluka.*[82] The number of wells is much more on the banks of Narbada. The general depth of the water was about 45 feet in the monsoon and 65 feet during the hot weather. Wells in this region were dug up to 85 feet and the expenditure for each well amounted

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[78] J. M. Mehta, *op. cit.*, p. 116.
[79] R. D. 86, 1813, folio 1464.
[80] *Loc. cit.*
[81] *SRBG, CCCCVII, NS*, p. 39.
[82] *RSS, Broach Taluka*, 1902,p.8.

between Rs. 1000 to Rs. 1500. The land irrigated by it was mainly *gorat* and in the Broach *taluka* it was classed as *'bagayat* and light soil *gabhan'*.[83] In 1900, the total number of wells was 391, out of which 8 were alienated and the rest were used as follows: 141-for drinking purpose; 28- in ruined state; 30- for irrigating *bhatha* land; 149- for irrigating gorat villages and 35 remained out of use for several years.[84] Besides usage of wells in irrigation, the *taluka* record reveals some use of tanks particularly dried ones, in the cultivation of rice.[85] Ankleshwar *taluka* was richly rain-fed. Its major part was black, which did not require artificial irrigation except the *gorat* tracts that received water supply from the wells.[86] *Survey Settlement* for Ankleshwar *taluka* suggests the strength of irrigating wells as 264 in Ankleshwar *taluka* and Hansot *peta mahal*.[87] In the Wagra *taluka,* water deficiency is recorded, as it has no main river flowing through it, except for the Bhuki creek on the east and Narbada skirting in the south. The wells that were excavated remained brackish and that cannot be used for drinking but certainly for irrigation purposes. However the need was marginal, because the soil was almost black/*regur*. The wells during the year 1872, 1888 and 1898 were 158, 347 and 377 respectively. The Mahi and the Dhadhar River watered the Jambusar *taluka.* Our sources reveal about sweet water springs. However the part of the *taluka* remained deficient in water supply for which probably the tanks and wells were dug.[88] Details regarding the wells and tanks are not reported during the second and third quarter of the nineteenth century. Much information can be derived from *Survey Settlement and Revised Survey Settlement Reports.* During the year 1891-92, the

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[83] *Ibid.* Also see Appendix J on page 21 for the details of irrigated land by wells, tanks, *budkis* and other resources for the years 1891-92 and 1896-97.

[84] *Ibid.*, p. 39.

[85] ' ... It is quite possible that they could be made reproductive works and used in the irrigation of lands now growing rice on all sides as a dry crop; and cotton could be saved or improved by one waterings at the proper time'. *Ibid.*, p. 40.

[86] *GBP, Surat and Broach,* p. 546.

[87] *SRBG, CXLVI, (NS), Paper, Related to the introduction of Survey Settlement in the Broach and Ankleshwar Talukas of the Broach Collectorate, Gujarat,* Bombay, 1874, p. 143.

[88] *GBP, Surat and Broach,* p. 535.

wells reported were 834 out of which 234 were *pucca* and 3 *kachha* ones used for irrigation and the rest were used for drinking by human beings and cattle respectively.[89] The river Dhadhar fed Amod *taluka*, however it remained deficient in water supply. Wells were dug to overcome this deficiency. We don't get details of wells, as this *taluka* was not brought under Survey in 1875. Hence we derive information regarding wells and tanks from *Revision Survey Settlement Report* of 1903.[90] The wells were deep and the water level stood between 45 to 55 feet.[91] There were altogether 201 wells in Government land and 16 in the alienated land.[92] Out of these wells, only 73 were used for irrigation purpose.[93]

Alexander Mackay reports the state of irrigation through wells in the Surat Collectorate during 1849-50 in his monumental work *Western India Reports*.[94] The quantity of land irrigated by wells was 74,905 *bighas* and by tanks 17,197 *bighas* amounting to 24,692 *bighas* or 14,494.20 *acres* out of 756,603 cultivable *bighas* /444,125.96 *acres* in occupancy and 426,799 *bighas*/250,531.01 *acres* actually cultivated. This is being about 3.2 per cent of the cultivable land in occupancy and 5.6 per cent of that actually under cultivation. I have gathered the information regarding the wells and tanks in almost all the cultivable village land, both Government and alienated, in all the *talukas* for the third and fourth quarter of the nineteenth century. I offer a quantum and descriptive discussion for the eight *talukas* of Surat Collectorate based on *Government Resolutions, Survey Settlement and Revised Survey Settlement Reports.*

During the second half of the nineteenth century, the ponds and reservoirs were not used much for irrigation in the Olpad *taluka*. Wells were few and those were brackish. The Government had thought of excavating

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[89] *RSS, Jambusar Taluka*, 1903, p. 14 and Appendix J.
[90] *RSS, Amod Taluka*, 1903, pp. 3, 14 & 27-28 (See Appendix R of No. A/584 of 1876).
[91] *Ibid.*, p. 3.
[92] *Ibid.*, p. 27.
[93] *Ibid.*, p. 14 and Appendix J.
[94] Alexander MacKay, *Western India*, pp. 177-78.

canal in the first half of the nineteenth century. However, the project could not materialize and therefore dependency on well irrigation increased.[95] The number of wells grew immensely. But from a survey of the general brackishness of the sub-soil springs it can be concluded that most of the new wells were mostly for drinking purpose. Revenue officers took good care of these wells.[96] According to *Survey Settlement Report,* the figures available for wells in the Olpad *taluka* for the years 1873-74 and 1894-95 are 1,201 and 1,797 respectively.[97] It means there was an increase of 19.25%. Our sources also speak of irrigating wells and tanks details for the Olpad *taluka.* According to the *Revised Survey Settlement Report, Olpad taluka,* in 1891-92 there were 127 *pucca* and 26 *kachha* irrigating wells and tanks amounted to 2 *pucca* and 332 *kachha.*[98] Besides the Tapti, many small streams flew through the Mandvi *taluka* on their way to join the Tapti. These tributaries were of little importance, as during the hot seasons the people and the cattle faced difficulties regarding water.[99] I do not get details of wells and tanks till the year 1896-97. In 1896-97, there were 321 permanent wells[100] out of which 24 were *pucca* and 3 were *kachha* wells used for irrigation. [101] Similarly, there were 11 *pucca* and 12 *kachha* tanks put to use for irrigation.[102] Like Mandvi *taluka,* Chorasi *taluka* also faced water scarcity. The Mindhola River passed through the southern villages of this *taluka,* leaving the rest of villages deficient. There were no village reservoirs large enough to irrigate the lands in their neighbourhood while the brackishness prevented the supply contained in many of the existing wells from being used for purposes of

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[95] *GBP, Surat and Broach,* pp. 267-68.
[96] *RSS, Olpad Taluka,* 1896, p. 7.
[97] *Ibid.,* p. 6.
[98] *Ibid.,* p. 16 (see, Appendix J).
[99] *RSS, Mandvi Taluka,* 1904, p. 39 and *GBP, Surat and Broach,* p. 271.
[100] *RSS, Mandvi Taluka,* 1904, p. 5.
[101] *Ibid.,* p. 17 (See Appendix J).
[102] *Ibid.*

cultivation.[103] The number of wells in the year 1872 and 1891-92 were1, 491 and 1,725 respectively,[104] out of which 683 were *pucca* and 19 *kachha* were used for irrigation.[105] Similarly, irrigating tanks amounted to 11 out of which 1 was *pucca* and the rest were *kachha*.[106] In Bardoli *taluka*, Tapti, Mindhola and Purna Rivers were the sources of natural irrigation. However, it was in need of artificial irrigation, probably due to the shallowness of the river water. The irrigation carried out through wells and tanks was useful in rice cultivation.[107] In the years 1872 and 1891-92, there were 1,885 and 2,565 wells respectively. There was increase of 36 % in the number of wells.[108] The breakup of the wells for irrigational purpose and other uses is available in the *Revised Survey Settlement Report* of 1897, which gives the following statistics:[109]

Years	Irrigating wells	*Pucca*	*Kachha*
1886-87	2,409	700	267
1891-92	2,565	698	042

The data available for the last quarter of nineteenth century suggests that the importance of well irrigation increased in the *talukas* like Bardoli. Jalalpur *taluka* also evidenced well and tank irrigation.[110] Wells amounted to 1,975 and 2,471 during the years 1872 and 1896-97 respectively.[111] There was an increase of 25% in the number of wells.[112] I have gathered information regarding the cost of wells in Amalsad group of *bagayat* villages. Well-construction costed between Rs.100 and Rs. 400.[113] The well was sufficient to irrigate 2 to 6 *acres* of land. The Chikli *taluka* was no exception to well and tank irrigation. The

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[103] *GBP, Surat and Broach*, p. 275.
[104] *RSS, Chorasi Taluka*, 1897, p. 5.
[105] *Ibid.*, p. 18 (Appendix J).
[106] *Ibid.*
[107] *GBP, Surat and Broach*, p. 79.
[108] *RSS, Bardoli Taluka*, 1897, p. 6.
[109] *RSS, Bardoli Taluka*, 1897, p. 22 (Appendix J).
[110] *GBP, Surat and Broach*, p. 282.
[111] *RSS, Jalalpur Taluka*, 1900, p. 8.
[112] *Ibid.* Also see p. 19 (Appendix J).
[113] *Ibid.*

breakup of the *pucca* and *kachha* variety of wells for the year 1896-97 is as follows:[114]

Years	Irrigating wells		Irrigating Tanks	
	Pucca	*Kachha*	*Pucca*	*Kachha*
1896-97	930	194	0	85

All these wells and tanks definitely enhanced the agricultural yield in the main field tracts and the garden tracts.[115] The statistics of wells for Bulsar (Modern Valsad) *taluka* during the years 1872-73 and 1896-97 was 1,707 and 2,704 respectively.[116] This amounts to phenomenal increase of 58.4%. The irrigating wells during 1896-97 were 1,484 (*pucca*) and 119 (*kachha*).[117] The large number of wells found in the Bulsar *taluka* attracted the attention of touring officer Mr. Cole. When he investigated into the reasons, he found that the *taluka* had large garden tracts that definitely required well irrigation.[118] Pardi *taluka* registered the similar trends in well irrigation. There were 892 *pucca* and 162 *kachha* wells in the year 1896-97. Of these, 607 were used for irrigation. [119] Similarly, there were 102 *kachha* tanks, out of which 45 were meant for irrigation.[120] All these helped irrigating some 2,282 *acres* of land.[121] The new land that was brought under cultivation was 172 *acres*.[122]

Details of wells, tanks and ponds are not available for the Dang forest territory as not much percentage of its land was under cultivation. The wells, tanks and ponds statistics for Rajpipla, Dharampur, Bansda and Sachin is offered here in tabular form:

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[114] *RSS, Chikli Taluka,* 1899, p. 33 (Appendix J).
[115] *Ibid.,* p. 11.
[116] *RSS, Bulsar Taluka,* 1900, p. 6.
[117] *Ibid.,* p. 20.
[118] *Ibid.,* pp. 71-72.
[119] *RSS, Pardi Taluka,* 1904, p. 18 (Appendix J).
[120] *Ibid.*
[121] *Ibid.,* p. 6.
[122] *Ibid.*

TABLE 8
Wells, Tanks Etc. in Native States of South Gujarat Territory in Nineteenth Century

Native States	Wells	Tanks	Ponds
Rajpipla	Number not known	-	Number not known
Dharampur	Number not known	Number not known	Number not known
Bansda	06	-	02
Sachin	Number not known	-	Number not known

Source: *GBP, Rewakantha and Surat States*, pp. 245, 255, 258 & 293.

After the survey of irrigation facilities—both natural and artificial—it can be stated that the cultivator of the South Gujarat territory was conscious of the well being of agricultural activity to a considerable extent and adopted new and alternate arrangements in the period of crisis as well as in normal conditions. The device that was in vogue in the study region for lifting water either from wells or tanks remained similar as in other parts of the Indian sub-continent. These were *rhat* or Persian wheel, *mot, kos* or leather bag, *chandasia/* counterpoise water lift, *dhekudis* (water lift leather bags erected on the banks of river) and *dol* or *jhil.*[123] The *rhat* was used in seacoast villages. It worked well where the depth to the level of water did not exceed twenty-five feet.[124] The *mot* or leather bag was of two kinds—the *ramio* and *sundhio.*[125] The *sundhio kos* had a leather tube attached to it and was self discharging. The *ramio kos* required the help of an extra person to discharge its content. In case of the *sundhio kos* the bullocks were drawn back over the decline, whereas in case of *ramio kos* they were detached and walked up the decline. The *sundhio kos* was used for wells that were over 35 feet deep.[126] The *ramio kos* was used for shallower wells.[127] Some thirty gallons of water was fetched by the *mot* in case of normal height wells, but in case of deeper wells the size and capacity of the

[123] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, Bombay, 1905, pp. 118-19 & 121.
[124] *Ibid.*, p. 119.
[125] *Ibid.*
[126] *Ibid.*
[127] *Ibid.*

mot was reduced and only twenty gallons of water was lifted.[128] *Chandlasia* was used to lift the water, where the height of water did not exceed 5 to 6 feet.[129] It consisted of a leather or wooden box suspended by a rope to the end of horizontal pole that was balanced on a vertical support. Vertical support balanced the other end of the horizontal pole. The other end of the horizontal pole carried a counterpoise weight. It worked in a seesaw fashion by men walking along the horizontal pole. The *jhil* of Gujarat or the *dol* of the Deccan used in rice fields was another form of counterpoise water-lift.

There has been no radical transformation as far as agricultural produce, implements and cultivation techniques are concerned for the first half of the nineteenth century. In the South Gujarat territory, these remained more or less the same as in case of the second half of the eighteenth century. However, based on information of *Memoirs, Gazetteers,* Correspondences related to agriculture, *Reports on Improvement of Agriculture and Agriculture Commission, Survey Settlement Reports and Revised Survey Settlement Reports,* a brief sketch is offered for agricultural produce, yield, implements, livestock and cultivation technique.

AGRICULTURAL PRODUCE

The South Gujarat territory remained rich in production of food crops, cash crops and vegetables as well as fruits that incurred income both in cash and kind. I offer a profile of each *taluka's* produce in Table 9 during the nineteenth century. The survey of Table 9 reveals details about the crops like dangar/*bhat* (rice), *gahu* (wheat), *makai* (maize), *juvar* (great millet), *bajri* (spiked millet), *moth/math* (kidney bean), *tuvar, kodra, mag/mung* (green gram), *nagli, val* (spiked dolichos), *vatana, adad* (black gram), *vatana, banti, chola, vagaridu,* etc. These were the primary and secondary food crops. Many a time these served

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[128] *Ibid.*, pp. 119-20.
[129] *Ibid.*, p. 120.

the purpose of fodder crops as well.[130] *Kapas* (cotton), tobacco, sugarcane, *sheria* (hemp), groundnut, indigo, *chana* (gram), *tal/til* (sesame) and *develi* (castor) served the purpose of cash crops as the raw stuff and prepared goods like cloth of different varieties, edible oil, burning oil, sugar, jaggery, dye, etc. The garden crops included vegetables like brinjals, lady finger, potato, chillies, red pumpkins, *karela*, etc. and fruits like *kel* (banana), mango, *chiku*, guava, *kaju kagdi*, palm, *mahuda, amli, phanas, jambudi, amli, khajuri*, etc. for which we trace the existence of farms.[131] These crops were cultivated either in *rabi* or *kharif* season. Generally, cultivation was carried out through rotation of crops.[132]

[130] Millets were used as fodder crop. For details see P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, Bombay, 1905, pp. 146-47.

[131] *Ibid.*, pp. x -xv.

[132] For the rotation pattern of crops in Bombay Presidency see *Ibid.*, pp. 54 - 63 & 137-280.

TABLE 9

Agricultural Produce in The South Gujarat Territory in Nineteenth Century

Taluka/Prant/Collectorate/ Native State	Food Crop	Cash crop	Garden Produce	
			Vegetable	Fruit
Sinor, Baroda *prant*	rice, *bajri, moth, tuvar, & kodra.*	cotton, tobacco, sugarcane, *til & develi*.	*ringan* (brinjals)	-
Tilakwada, *peta mahal* Baroda *prant*	rice, maize, *bajri, moth, mung, juvar, tuvar, kodra, val & vagardu.*	cotton, tobacco, *til & develi*.	-	-
Navsari, Navsari *prant*	rice, *bajri,, juvar, tuver, & kodra*	cotton, tobacco, sugarcane, hemp, *til* groundnut & *diveli*.	-	*kel*
Gandevi, Navsari *prant*	rice, wheat, *bajri, juvar, tuver, kodra, nagli, val, vatana & adad.*	tobacco, sugarcane, hemp, *til, & diveli*..	-	*kel*
Vyara, Navsari *prant*	rice, wheat, *bajri, juvar, moth, tuver, banti, val, vatana & kodra.*	cotton, tobacco, groundnut, *hemp, til & diveli*..	-	-
Songadh, Navsari *prant*	rice, wheat, *bajri, juvar, moth, tuver, banti, val, vatana, kodra, nagli & chola.*	cotton, tobacco, groundnut,*til, diveli, masru & hemp.*	-	-
Velachha, Navsari *prant*	rice, wheat, *bajri, tuver, & kodra.*	sugarcane, *til, diveli,* tobacco & cotton.	-	-
Kamrej, Navsari *prant*	rice, wheat, *bajri, tuver, val vatana & guvar.*	sugarcane, groundnut & *diveli.*	-	-
Palsana, Navsari *prant*	rice, wheat , *bajri, juvar, moth, tuver, banti, val, vatana, kodra, nagli & chola.*	cotton, tobacco, hemp.	-	-
Mahuva, Navsari *prant*	rice ,wheat, *juvar, kodra, nagli, banti, tuver, vatana, chana, mag, adad & guvar.*	cotton, tobacco, sugarcane, hemp, *Diveli & til.*	-	-

Broach, Broach Collectorate	rice, wheat, *bajri, muth, juvar, kodra, val, bavto, vatana, gooar & buntee keng, urud & chora.*	cotton, tobacco, indigo, hemp sugarcane, *til & diveli..*	*bheendee*	-
Ankleshwar, Broach Collectorate	rice, wheat, *bajri,* bavto, *juvar, tuver, kodra, val, vatana muth, adad chola, kodra, buntee, gram, gooar, kaug,& moong.*	cotton, tobacco, sugarcane & *til.*	*bheendee*	-
Wagra, Broach Collectorate	rice, wheat, *bajri, juvar, tuver, val, math, gram, vatana & moong.*	cotton, tobacco & *til.*	-	-
Jambusar, Broach Collectorate	rice, wheat, *bajri, juvar, tuver, kodra, val, vatana & moong.*	cotton, indigo tobacco, sugarcane & *til.*	-	-
Amod, Broach Collectorate	rice, wheat, *bajri, juvar, tuver, kodra, val, vatana & moong.*	cotton, tobacco & *til.*	-	-
Olpad, Surat Collectorate	rice ,wheat, *juvar, bajri, kodra, nagli, banti, tuver, vatana, moong , val & guvar.*	cotton, tobacco, sugarcane, *til & diveli.*	-	-
Mandvi, Surat Collectorate	rice ,wheat, *juvar bajri, kodra, nagli, banti, tuver, vatana, moong , val, guvar.*	cotton, tobacco, hemp, *til,* sugarcane, & *diveli.*	-	-
Chorasi, Surat Collectorate	rice ,wheat, *juvar, bajri, kodra, nagli, tuver, vatana, moong , val, guvar.*	cotton, tobacco, sugarcane, groundnut, *til, diveli & chana.*	-	-
Bardoli, Surat Collectorate	rice ,wheat, *juvar, bajri, kodra, nagli, banti, tuver, vatana, moong, val, guvar.*	cotton, tobacco, sugarcane, hemp, *til,* groundnut, *diveli & chana.*	-	-
Jalalpur, Surat Collectorate	rice ,wheat, *juvar, bajri, kodra, nagli, banti, tuver, vatana, moong, val, guvar.*	cotton, tobacco, sugarcane, *til, diveli, chana,* & hemp.	-	-
Chikhli, Surat Collectorate	rice ,wheat, *juvar, bajri, kodra, nagli, banti, tuver, vatana, moong, val & guvar.*	cotton, tobacco, hemp, *til,* sugarcane, *diveli & chana.*	-	-
Pardi, Surat Collectorate	rice, wheat, *juvar, kodra, nagli, banti, tuver, vatana, moong, val, guvar.*	tobacco, sugarcane, *til, diveli & chana.*		

Dang	rice, *juvar, makai, udid, ragi, kodra, tuver, banti & bavta.*	tobacco, groundnut & *chana.*	potato, *bhinda, brinjals,* chillies, red pumpkins & *karela.*	*mango, chiku, guava, kaju kagdi & palm.*
Rajpipla, Native State	rice, wheat, *bajri, juvar, kodra, tuver, banti & bavta.*	tobacco, *til,* hemp, cotton, sugarcane, *diveli & chana.*	-	*mahuda*
Bansda, Native State	rice, wheat, *bangaliyu paddy, bajri, juvar, kodra, tuver, banti, bavta, guvar, nagli, makai, udid, moong, vatana, lang, kulthi, val, kharsani & bhagar.*	sugarcane, *til, diveli & chana.*	-	*mahuda*
Dharampur, Native State	rice, *bangaliyu paddy, juvar, kodra, nagli, tuver, banti, bavta, val, kolam, ghonsalia & wankvel.*	tobacco, cotton, sugarcane, hemp, *til, diveli & chana.*	-	mango, *amli, phanas, jambudi & mahuda.*
Sachin, Native State	rice, wheat, *bajri, juvar, kodra, tuver, banti, bavta & moong.*	cotton & sugarcane.	-	mango, *amli, mahuda & khajuri.*

Source: *GBP, Baroda, Vol.VII,* pp. 552-53, 558, 561-62, 570, 573, 575, 578, 580,581 & 584; *Administration Report on the Baroda State for the Year 1899-1900,* Bombay, 1901, p. 101; *IGI, Baroda,* p. 98; Monier Williams, *Memoir on the Zilla of Baroche,* (reprint), Bombay, 1852, pp. 17-18; *GBP, Surat and Broach,* pp. 536, 538, 541, 544, 547, 269-70, 273, 277, 280, 284, 287-88, 291 & 295. *GBP, Rewakantha and Surat State,* pp. 95, 247, 255 & 258; *Administration Report on the Rajpipla State for the year 1902-3,* p. 34; *Administration Report on the Dharampur State for the year 1899-1900,* pp. 10-11; *Administration Report on the Bansda State for the year 1897-98,* Surat, 1898, pp. 8-10; *Administration Report on the Sachin State for the year 1897-98, Surat, 1898,* p. 7 and Gujarat *State Gazetteers, Dang District,* pp. 217-23.

Agricultural yield

It is very difficult to estimate the average produce per *bigha* or *acre* with accuracy. The yield depends upon the skill of the cultivator's management of the land and the quantity of manure used. The annual *Administration Reports* for different years of the South Gujarat territory throw light on the yield of various crops. The yield varied depending upon the nature of soil and other cultivating factors like rotation, irrigation, manuring, etc. For instance South Gujarat territory remained promising cotton producing zone. According to the *Revised Survey Settlement of Broach Taluka,* the yield per *bigha* in a good black soil field in favorable year remained as follows:[133]

1st year ... 6 *dhuris* of *kappas*
2nd " ... 12 maund of *juwar*
3rd, " ... 8 maund of wheat

Sources are silent on the empirical details of the yield of various crops but in some cases these sources throw immense light on the crops. A lot of information is available for Jambusar *taluka's* yield per *acre* for various crops which is illustrated in Table 10:

TABLE 10
Yield per *Acre* in Jambusar *Taluka* at the End of Nineteenth Century
(In *maunds* of 40 *lbs*) and (vegetables from 50 to 500 *maunds*)

Crops	Average	Maxi-mum	Crops	Avera ge	Maxi-mum
Bajri	18	40	*Bavto*	16	25
Math, Mung, Wal, Adad	12	20	Tobacco	30	50
Wagadu, Rice, *Tuver*	26	42	*Til*	07	12
Juwar shialu	14	30	Safflower	05	10
Juwari sundhio	15	25	*Lang*	15	20
Cotton/ *kappas*	08	14	Mustard	06	08
Cotton/ *kappas,* Indigo	19	26	Rice alone, 2nd sort	20	32
Wheat	15	30	Rice 1st sort	24	40
Kodra, Tuver	32	42	*Guwar*	15	25
			Gram	10	15
			Caster-oil seed	10	15
			Coriander seed	17	25
			Tuver alone	20	35

Source: *SRBG, CCCCXII, (NS), Jambusar Taluka, Broach Collectorate,* Bombay, 1903, p. 39.

[133] *RSS, Broach Taluka,* 1902, p. 43.

Another significant aspect noticeable for the South Gujarat territory agricultural cultivation is mixed cropping/double crop method. Sources tell us of cotton and rice being produced together.[134] It is not clear how advantageous the double cropping method was although a source comments in the following words:

> ...When cotton is mixed with rice the double crop is not more profitable than the single one because what is gain in rice is found to be a lost in cotton, and this rule apples more or less to all mixed crops the only advantage gained is the chance the rayat has of saving one crop should the other fail.

A brief description of crops production in South Gujarat territory is mandatory.

Juwar/Indian millet is the most extensive cereal grown. Its distribution is regulated by the character of the soil as well as by the average rainfall. It is the staple crop where black or mixed black soils predominate provided the rainfall does not exceed 40 to 45 inches. During the nineteenth century, *juwar* was rotated with cotton in heavy black soil and in light soil *bajri* took the place of *juwar* in the rotation.[135] *Juwar* was cultivated both in the *kharif* and *rabi* seasons. *Rabi juwar* was extensively grown in Broach *taluka*. The occurrence of the northeast monsoon favours the cultivation of *rabi* crop in the South Gujarat territory. The various types of *juwar* grown in the South Gujarat territory included common *Juwar, dodmogria, van, ratadiu, sundiya* and *maragodia*.[136] The first four were produced in the black soil and the last two in *gorat*. The grain remained the food of the common people. It was generally ground and turned into bread but the grains themselves were often parched or roasted and finally eaten. Besides the food variety, there were several varieties of *juwar* that were especially suitable for the production of fodder.[137]

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[134] *Ibid.*
[135] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 137.
[136] *GBP, Baroda, Vol.VII*, p. 88.
[137] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 146.

Another staple diet of the region is *bajri*/ millet. *Bajri* was entirely a rain crop and occupied the lighter type of soil in all districts of moderate rainfall.[138] It was generally grown in *gorat* and *besar* soils that were best suited for its cultivation. In Baroda State, where it remained predominant, two kinds of *bajri* were grown. The first was the *deshi* or country kind and the second was the *madhodri*.[139] *Bajri* was always sown as a mixed crop. It was sown with some kind of pulses. In the South Gujarat territory the subordinate rows of *tuver* and a sprinkling of *adad, math, kulthi, ambadi,* etc. were sown simultaneously with *bajri*.[140] The sowing season started in June or July and the harvest usually took place in the month of October. The pulses with which it was sown took a longer time to ripen and remained in the fields for about a month and a half after the *bajri* crop had been reaped.[141] In Baroda state the Sinor *taluka* remained celebrated for *bajri* production.[142] The pulse crop thrived very well after the *bajri* crop was reaped. The refuse of *bajri* stalks were used as fodder for cattle. The surplus was conveyed to Bombay by rail.[143]

Wheat/*ghau/Punmia* holds the third place among the grain crops. Varieties that were known during the nineteenth century included the *red katha* and *pota* and the white grain *hansia*.[144] It was generally sown late in September and remained an annual crop. The products of wheat were semolina (*suji, ravo*) and *maida* or *pithi*.[145] Wheat was harvested by uprooting with hand aided by a blunt sickle, tied into sheaves with bands of aloes or wild grass exposed to the sun for a day or two and carted to the threshing

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[138] *Ibid.*, p. 150.
[139] *GBP, Baroda, Vol.VII*, p. 87.
[140] *Ibid.*, and P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 151.
[141] *GBP, Baroda Vol.VII*, p. 87.
[142] *Ibid.*
[143] *Ibid.*
[144] *Ibid.*, p. 80 and P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 154.
[145] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 154.

floor.[146] It was threshed under bullocks' feet. In Gujarat a threshing machine called *chakkar* was used.[147] It consisted of series of iron tooth dishes, keyed on three axles that fixed to a frame. A man sitting on a seat above the frame drives a pair of bullocks round and round. Like cotton, it was largely exported to Europe and therefore commanded a ready sale and high prices.[148]

The paddy crop flourished where there was water. Rice was grown in the South Gujarat territory where the average rainfall was over 100 inches. The best soil suited for rice was medium black, which retained moisture. Rice was grown in marshy ground, under tanks or canal and in favorable situations. It was usually sown in July and reaped in October. There were numerous varieties of rice and each rice-growing tract has its own superior varieties.[149] Inferior varieties ripened early and did not require irrigation late in October. There were two ways of sowing rice. One was to sow the seed in a bed in a large mass and when the seedling had grown to the height of half a foot, they were taken out and planted in rows in half flooded fields. The other way of sowing rice was to sow straight away in dry land. In black soil it was sown in the month of June and it took nearly three months to ripen. Poor quality of rice was also grown as a *jirayat* in dry or in salt lands. In Broach *taluka* dry crop rice was grown between the rows of cotton and was harvested before the cotton plants grow tall and bushy. There were no other crops that can be grown so successfully in rice beds during the monsoon.[150] In Surat *taluka* a few *kiaris*/rice beds possessing rich *bagayat* soil, grew sugarcane every three or four years. In the Baroda State, rice held the second place i.e. next to *juwar* among the grain crops of the division. In 1879-80, 12.58% of actual cultivated land was devoted to rice.[151] Many varieties of rice were grown in

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[146] *Ibid.*
[147] *Ibid.*, p. 158.
[148] *Ibid.*
[149] *Ibid.*, p. 159.
[150] *Ibid.*
[151] *GBP, Baroda, Vol.VII*, p. 79.

the State's territory such as *sukhvel, bangaliyu, ramsal, sutarsal, kada manjarvel, elaichi, dangi, saliu* and *bhusarvel*. The first two kinds were reckoned the best and the rest were the coarsest. The best rice lands were situated in the Songadh and Vyara *talukas*.[152] The refuse of rice was called *paral* and was used as fodder for cattle whereas the husk of the rice remained good fodder for donkeys.[153]

Barely was grown sparingly in this territory. It was always grown under irrigation in the territory. In South Gujarat mixed crop of barely and wheat was common.[154] Both the grains were ground mixed into flour. The *chapatti* or bread thus prepared was more palatable than that made from barely alone.

Maize/*Makai/Maka/Bhuta*/Corn was not an important crop in this territory. It was generally grown in small patches near the homestead for the sake of the ears or cobs, which were backed and eaten in the tender stage.[155] It was coarse and tough. Excellent maize, however, was produced in a field a well manure field. The yield of green fodder in a well manure field exceeded 2000 lbs. per *acre*.[156]

Kodra was perhaps more extensively cultivated than any of the other inferior millets. It was entirely dependent upon monsoon rainfall. The crop was grown year after year in rotation with *bajri* and *guvar*, etc.[157] It was a three-month crop. The seed was sown in July. It required considerable weeding in August when monsoon weeds such as *gundardi, bhopdi, samo* and *kutro* shot up in fields of *kodra* and obstructed its growth. The ears of corn

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[152] *Ibid.*
[153] *Ibid.*, p. 86.
[154] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, pp. 163-64.
[155] *GBP, Vol VII, Baroda*, p. 91 and P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 164.
[156] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 164.
[157] *Ibid.*

appeared in October and became ripe in November. Mostly Kaliparaj tribesmen consumed it in form of loaves.[158]

Nagli is a small grain red in colour and resembles a mustard seed. It was an entirely a rain crop that thrived on the fertile *goradu* soil. The process of cultivation was similar to that of *kada*. Like paddy of either species, it was a quarterly crop. It was invariably grown in *jirayat* or dry cropland while *kada* was grown in *kyari* or rice-land. It was grown sometimes as a drilled crop with *kodra, tuver* and sesame.[159] This grain constituted a favourite food of the *Kaliparaj* tribesmen.[160]

Guvar was an important crop in the *goradu* soil of South Gujarat. *Guvar* seed formed one of the important foodstuffs for cattle. A variety of *guvar* that was eaten as green vegetable was grown all over the presidency in small patches in the gardens. *Guvar* was grown by itself/as a row crop with *bajri*.[161]

The cultivation of *Lang* was important only in the Broach Collectorate.[162] It was considered an excellent preparatory crop for cotton and *juwar*. It was grown alone as a cold weather crop. It thrived best on deep low-lying black soil. In Broach the crop grew abundantly and covered the ground with a thick mass of foliage.[163]

Tal/Til was grown in the South Gujarat territory. Its varieties were white, red and black. The white variety was more valued not only for its appearance but also for the larger percentage of oil yield. It was sown early in July or late in September. In Gujarat it remained an important oilseed crop and was rotated with cotton and *juwar*.[164]

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[158] G. C. Mukhtyar, *Life and Labour in the Village of South Gujarat*, Calcutta, 1931, p. 92.
[159] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 165.
[160] *Ibid.*, p. 91.
[161] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 175.
[162] *Ibid.*, p. 172.
[163] *Ibid.*
[164] *Ibid.*, p. 176.

The castor oil plant/*diveli* was cultivated in all the *talukas*. It was mostly sown with *val* in sandy beds. The oil extracted from its seed was universally employed for lighting.[165] Its refuse was used as manure for sugarcane and its stalks when dry were used as fuel.[166]

Tuver belongs to the pulses category. It can be grown in all kinds of soils but attains perfection in the *goradu* soil of Gujarat. It grew into a many-branched shrub 5 to 6 feet high with a thick stem. The *tuver* plants open out when the major crop was harvested. It flowered and gave fruits between January and March.[167] In March the plants were cut down at the root, tied into small bundles and stacked on threshing floor. These were threshed out by beating on a log of wood. Two varieties of *tuver* were grown in the South Gujarat territory. These were red seeded variety of the Deccan and the white seeded variety of Gujarat.[168] The *talukas* of Baroda State yielded good quantity and quality of *tuver.*[169] It had sweet taste and white colour like *bajri.* It was sown with kinds of pulses such as *mag, adad* and *math.*[170] The consumption of *tuver dal* was more than any other pulse.[171] The tuver *bhusa* yielded excellent fodder. The *tuver* crop was very much subjected to insect pests.[172] During cloudy weather in the cold season insects attacked the pods, which remained empty and reduce the yield considerably.

The most important centres of the cultivation of *val* were the Surat *talukas* with several varieties in the South Gujarat region. *Surati papdi* was grown extensively in garden land in the Surat district *talukas* and as a vigorous climber in the backyard of the households.[173] It had a special value

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[165] *GBP, Baroda, Vol.VII,* p. 91.
[166] *Ibid.*
[167] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency,* p. 170.
[168] *Ibid.,* p. 169.
[169] *GBP, Baroda, Vol.VII,* p. 88.
[170] *Ibid.*
[171] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency,* p. 170.
[172] *Ibid.*
[173] *Ibid.,* p. 173.

as a tender green vegetable. The variety that was extensively grown in rice beds as a second crop after rice was a bitter variety called *kadva val.*

Kulthi, an important crop was cultivated in Bansda and Dharampur states. This crop was essentially cultivated in light stony red soils in the *kharif* season as a row or mixed crop subordinate to *bajri.*[174]

Math, Mag and *Adad* were the three pulses that were grown extensively in the South Gujarat territory as sprinkling in *juvar* and *bajri* fields.[175] *Math* was a light soil crop, whereas the *mag* was entirely a rain crop. *Mag* and *adad* were sometimes sown in the *rabi* season in rice beds after harvest of rice crop.

Cotton/*kappas,* grown in black soil was the staple produce of the South Gujarat territory during the nineteenth century.[176] Besides cultivation in Broach and Surat districts, it was grown in the Baroda State territory as well. The chief *talukas* of Baroda State were Sinor, Dabhoi, Padra and Baroda.[177] Cotton is entirely unirrigated crop. Two kinds of cotton were chiefly raised namely *goghari* and *kanam.*[178] The long stapled cotton was grown in the South Gujarat territory. The cottonseed was fuzzy and clunged together and in consequence required special preparation before sowing. The seed was prepared for sowing by rubbing it against the string network of *charpai* (bed stead).[179] The crop was inter-cultured with the bullock hoe and hand weeded twice. The weeding became an expensive item. In Gujarat the plough was passed between the rows in September- October as last operation. It used to take full 210 days in order to ripen and was brought to market in March.[180] When it was cultivated with great care and regularity, it yielded eight *man* per

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[174] *Ibid.,* p. 174.
[175] *Ibid.,* pp. 175-6.
[176] *Ibid.,* p. 224.
[177] *GBP, Baroda, Vol.VII,* pp. 86-87.
[178] *Ibid.,* p. 224.
[179] *Ibid.,* p. 227.
[180] *Ibid.,* p.224.

bigha.[181] Cotton was rotated with *juwar* in heavy soils and with *bajri* in light soils. But the rotation was modified according to the district's season and condition of the fields. In Broach it was rotated with *lang, tuver* and *tal*.[182] It was grown with inferior rice in separate rows in *vashilvadas* or fields that have been fallowed during the previous year in Broach *taluka*.[183]

Sugarcane was produced more or less in all the *talukas*. It required the *gorat* or *besar* soils. Sugarcane occupied some 6,000 *acres* in the South Gujarat territory during the nineteenth century.[184] Sugarcane was one of the most important crops as its cultivation provided the means for the profitable employment of labour both to the cultivator and the cattle all the year round. The varieties that were cultivated included *pundia, vasni,* white, purple and red.[185] The Gandevi *taluka* of the South Gujarat territory in Baroda State remained a prominent area for sugarcane cultivation.[186] The land required for sugarcane cultivation was to be repeatedly and deeply ploughed and needed manuring before planting. As the cultivation of the cane required considerable moisture, it was planted in the later part of October or the beginning of November. The land was planted either whole through the *nagar* or by the hand in pieces that were placed in a horizontal position and in rows at a distance from one another of from a half to three quarter of a foot. It took full twelve months to grow. It was generally cut down after the rain that was in November or December. After the cane was harvested the land was allowed to lie fallow for about six months at the end of which period it was cultivated with *tuver* and *juvar*. The land was then again placed under sugarcane. It will thus be seen that the cane was planted every fourth year. As the cane ripened, it was dug out and removed to the *kolu* or crushing

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[181] *Ibid*
[182] *Ibid.*
[183] *Ibid.*
[184] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, p. 185.
[185] *Ibid.*, p. 186 and *GBP, Baroda, Vol.VII*, pp. 80 & 90.
[186] *GBP, Baroda, Vol.VII*, p. 81.

machine so that the juice may be extracted for conversion into molasses. A pit of about four or five feet in depth was dug in a part of the very field in which the crop stood. This was fitted with a wooden crusher, which was worked by two pairs of bullocks. As the juice was extracted it fell into a large earthen jar placed in the pit. When the jar was filled up the juice was emptied out of it into a large iron circular vessel or *kada* placed over a fire. As soon as the juice was converted into molasses, it was poured into two or three large earthen vessels and stirred for a couple of hours. Molasses formed a chief article of produce and was largely exported to various parts of Gujarat. The selling price was two rupees a *man* or 40 pounds.[187] P. S. Melville Esq. C. S. I. Resident at Baroda suggested for the manufacture of good sugar by the process followed in the northwest provinces.[188] However the exercise was not carried out. The sugarcane juice was turned into molasses by the local method, the stalks when dried were used as fuel and when juicy were used as fodder for cattle.[189]

Tamakhu/ Tambakhu/ Tobacco remained crop of eminence in some of the villages situated on the Narbada in the Broach district.[190] Both dry[191] and irrigated[192] cultivation of tobacco was carried out in Gujarat. The land where it was cultivated required preparation and greater care. Two kinds of tobacco were commonly manufactured in Gujarat—*kalio* and *jarda.* A third kind, *chopadio* was occasionally prepared.[193] Tobacco meant for *jarda needed* more irrigation than that intended for *kalio.* Tobacco generally required 4 or 6 watering between November and February. To raise a crop a plot of ground was chosen in the beginning of June for the sowing of the seed.[194] This plot

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[187] *Ibid.*
[188] *Ibid.*
[189] *Ibid.*, p. 80.
[190] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency,* p. 234.
[191] On Besar retentive soils tobacco was raised as dry crop. *Ibid.*, p. 238.
[192] *Ibid.*
[193] *Ibid.*, p. 139.
[194] *GBP, Baroda, Vol.VII,* pp. 89-90.

was dressed with wood ashes or sheep manure and the seed was sown to be transplanted later. The process of preparing the fields indeed began with the sowing of the crop at the first shower of rain. The fields selected for tobacco cultivation were ploughed cross wise and left without any further process to sock in water and at the end of a week or so they were again ploughed. This was repeated about eight or ten times during a course of nearly two months. When it began to flower, the flower stems were carefully picked off. During its growth a tobacco field had to be watered two or three times according to the nature of the soil. Various methods were employed in order to obtain either *kalio* or *jarda.* Kalio used for smoking in the hookah was made through the following method:[195]

> The leaves, when stripped are placed in threes one above the other on the ground overlapping like slates on a roof. They are left thus exposed to the sun and dew for four days and in the absence of dew are artificially damped. This half dried tobacco is built into bundles (padas). The bundles are again put into heaps and subjected to gentle fermentation. The heaps are turned every second day for about a fortnight when the tobacco is cured. Each bundle weights about 1 ½ to 2 lbs. Kalio is of black brown colour. It is sold by the maund of 45 lbs or by the hundred bundles. An average acre yields 1400 lbs; and the yield from a really go defined will be twice this amount.

For the preparation of *jarda* the tobacco leaves were clipped.[196] A tobacco field suffered from various causes such as excess of rain insects and two great amounts of heat. Therefore its proper supervision was needed with great care and patience.

Hemp was another produce of commercial purpose. Out of it were made ropes by the *dheds* and *ravalias.*[197] It was also used as food for cattle and the stalks for fuel. The tender leaves of hemp were the favorite articles of consumption by the village people.

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[195] P. R. Mehta, *The Elements of Agriculture of Bombay Presidency,* p. 139.
[196] *GBP, Baroda, Vol.VII,* p. 90.
[197] *Ibid.*

Table 11a and 11b gives the percentage produce of various food crops, garden crops and cash crops in the *talukas* of the late nineteenth century South Gujarat territory. Table 11a clearly establishes *juwar* as the staple food crop followed by rice and *bajri* and tuver is recorded as the chief pulse crop followed by *mug* and *math*. Table 11b throws light on vegetables and fruits and records the Surat Collectorate *talukas* as most productive in garden crops and cotton, *tal* and castor as the promising cash crops.

TABLE 11a
Percentage Wise Agricultural Crop Production in the South Gujarat Territory in late Nineteenth Century
FOOD CROPS

Taluka/ Peta Mahal	Coarse Grains				Pulses				
	Juwar	Rice	Wheat	Bajri/ Others	*Tuver*	Gram	*Mug/ Adad*	*Math/ Kulith*	Others
Baroda *Prant*									
Sinor	-	-	-	14.32	48.41	-	-	-	36.80
Tilakwada	12.06	4.38	-	30.08	9.90	8.89	8.32	4.35	4.63
Navsari *Prant*									
Navsari	41.76	9.77	-	1.49	0.81	-	-	-	-
Gandevi	19.13	24.23	-	14.18	6.48	-	-	-	19.48
Mahuva	17.40	16.36	0.37	17.65	6.62	-	-	6.81	22.67
Velachha	63.99	12.79	6.56	6.48	2.50	-	-	-	-
Broach Collectorate									
Broach	21.83	6.61	3.73	1.49	2.70	0.05	0.09	0.12	14.34
Jambusar	20.38	4.55	13.84	9.90	2.49	0.91	0.01	1.62	0.57
Amod	23.01	3.91	5.29	1.41	1.40	0.05	0.01	0.29	17.03
Vagra	27.80	0.73	20.43	0.98	0.31	0.27	0.05	0.01	14.03
Surat Collectorate									
Olpad	23.59	3.47	26.04	5.22	2.37	0.20	0.63	0.14	2.61
Mandvi	27.30	16.88	1.73	12.30	8.16	0.80	2.30	0.05	7.70
Jalalpur	27.43	24.69	0.24	0.84	1.89	0.06	1.08	0.16	12.79
Chikhali	14.97	35.02	0.04	14.57	5.28	0.12	0.74	16.56	0.05
Bulsar	0.92	37.95	0.03	22.85	4.19	0.10	0.92	-	16.39
Chorasi	47.21	2.95	2.01	3.51	4.12	0.31	0.84	0.03	4.28
Bardoli	26.27	19.47	3.02	0.18	4.35	0.38	1.74	0.02	11.35
Pardi	0.06	34.49	0.71	28.42	4.52	0.64	1.11	-	14.38

Sources: *GBP*, Baroda, 1883, pp. 552, 558, 561-62, 569,578 & 579; *RSS, Broach Taluka*, 1902, p. 4; *RSS, Jambusar Taluka*, 1903, p. 4; *RSS, Amod Taluka*, 1903, p. 5; *RSS, Vagra Taluka*,

1902, p. 5; *RSS, Olpad Taluka,* 1896, p. 4; *RSS, Mandvi Taluka,* 1904, p. 4; *RSS, Jalalpur Taluka,* 1900, p. 6; *RSS, Chikhli Taluka,* 1899, pp. 4-5; *RSS, Bulsar Taluka,* 1900, p. 4; *RSS, Chorasi Taluka,* 1897, pp. 3-4; RSS, *Bardoli Taluka,* 1897, p. 4 and *RSS, Pardi Taluka,* 1904, pp. 3-4.

TABLE 11b
Percentage wise Agricultural Crop Production in the South Gujarat Territory in late Nineteenth Century
GARDEN AND CASH CROPS

Taluka/ Peta Mahal	Gardern Crops		Cash Crops							
	Vegtables	Fruits	Tobacco	Others	Sugarcane	Sesame / *Tal*	Castor Oil/ *Diveli*	Others	Cotton	Others
Baroda *Prant*										
Sinor	0.22	-	-	-	0.23	-	-	-	-	-
Tilakwada	1.98	-	0.18	-	-	4.63	-	7.40	2.04	-
Navsari *Prant*										
Navsari	0.45	0.30	1.85	-	-	19.78	0.56	0.63	19.76	2.78
Gandevi	-	-	0.18	-	-	-	-	8.05	0.11	8.11
Mahuva	0.01	-	0.11	-	-	0.31	6.50	-	1.49	3.63
Velachha	4.61	-	-	-	0.02	3.02	-	-	-	-
Broach Collectorate										
Broach	2.37	1.17	1.90	0.07	0.04	3.75	0.25	-	39.33	0.03
Jambusar	0.11	1.75	0.29	0.07	-	1.35	0.21	0.60	41.35	-
Amod	0.37	0.14	0.19	0.02	-	2.71	0.12	-	43.57	0.01
Vagra	0.12	0.88	0.17	-	-	2.03	0.29	-	31.74	-
Surat Collectorate										
Olpad	0.55	0.02	0.29	0.18	-	1.09	0.67	0.02	32.89	0.02
Mandvi	0.08	-	0.16	0.04	0.01	0.77	6.22	-	14.20	1.30
Jalalpur	0.20	0.07	0.05	0.73	2.35	0.61	3.61	0.24	22.43	0.53
Chikhali	0.01	-	0.04	0.11	2.53	0.03	8.47	0.07	1.00	0.37
Bulsar	0.19	0.12	-	0.16	2.55	0.03	11.74	0.15	0.01	0.70
Chorasi	3.38	1.37	0.61	0.04	1.17	0.54	1.03	0.17	25.95	0.35
Bardoli	0.12	0.01	0.03	0.16	0.34	0.29	5.12	0.01	24.78	0.32
Pardi	0.09	0.06	-	0.03	1.52	0.07	12.96	0.06	-	0.88

Sources: *GBP,* Baroda, 1883, pp. 552, 558, 561-62, 569,578 & 579; *RSS, Broach Taluka,* 1902, p. 4; *RSS, Jambusar Taluka,* 1903, p. 4; *RSS, Amod Taluka,* 1903, p. 5; *RSS, Vagra Taluka,* 1902, p. 5; *RSS, Olpad Taluka,* 1896, p. 4; *RSS, Mandvi Taluka,* 1904, p. 4; *RSS, Jalalpur Taluka,* 1900, p. 6; *RSS, Chikhli Taluka,* 1899, pp. 4-5; *RSS, Bulsar Taluka,* 1900, p. 4; *RSS, Chorasi Taluka,* 1897, pp. 3-4; *RSS, Bardoli Taluka, 1897,* p. 4 and *RSS, Pardi Taluka,* 1904, pp. 3-4.

IMPLEMENTS, LIVESTOCK AND CULTIVATION TEHNIQUE

There had been no radical transformation of agricultural implements in Gujarat like the one, which took place in Europe during the eighteenth century as a result of agricultural revolution. In the nineteenth century, the cultivator continued with the same implements and cultivation techniques that his forefathers had learnt in several hundred years. Peasants in Gujarat worked with primitive implements.[198] The implements of agriculture were simple and were made of wood with attachments prepared out of iron. As such, these could be produced and repaired locally; expertise of the village carpenter was sufficient for the task. For example the *hal* or plough is an apt illustration. While the main body of the *hal* comprised of wood, the share and coulters were made of iron. The depth at which the plough was required to work easily arranged by lengthening or shortening of the rope which secured the yoke to the beam and body of the implement.[199] Before offering details of the agricultural implements, I name few of them used frequently in South Gujarat territory.[200] These were *hal* (plough), *karab*[201] or *ramp*[202] (harrow), *dental* (harrow), *ghanio* (used for paddling), *fadko* (seed driller), *tarfen*[203] (seed driller), *chawar* (seed driller), *orani* (seed bowl), *rampadi*[204](bullock hoe), *samar*[205](leveling board), *datardu*[206](sickle), *kurpi*[207] (for weeding), *kodali*

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[198] J. M. Mehta, *A Study of Rural Economy of Gujarat*, Baroda, 1930, pp. 57 & 59.

[199] *Memoir on the Zilla of Baroche*, pp. 55-56 and P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, Bombay, 1905, p. 124.

[200] *GBP, Surat and Broach*, pp. 61 & 390, *GBP, Baroda, Vol.VII*, p. 25; G. H. Desai, *Gazetteer of the Baroda State* Vol. I, Bombay, 1923, pp. 279-80; M. B. Desai, *The Rural Economy of Gujarat*, Bombay, 1948, p. 82 and Gujarat *State Gazetteers, Dang District*, 1971, pp. 225-26. Also see P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, Bombay, 1905, pp. 124-34.

[201] A small weeding plough. See E. P. Robertson, *Glossary of Guzaratee Revenue and Official terms*, p. 7.

[202] *Ibid.*, p. 48.

[203] *Ibid.*, p. 24.

[204] *Ibid.*, p. 48.

[205] *Ibid.*, p. 55.

[206] *Ibid.*, p. 26.

[207] *Ibid.*, p. 14.

(spade), *pavado*[208](shovel for digging), *dantali* (rake for stirring), *kulaali* (axe), *khori* (rake), *jinsli* (used for lining), etc. Besides these, there were other implements, which were the improved versions of the primitive implements. Our primary sources throw some light in this direction for the South Gujarat territory as well. Monier Williams gave information on the agricultural implements during the first two decades of the nineteenth century. He provides the names of these implements along with their estimated cost in the Broach district as illustrated in the Table 12.

TABLE 12
Agricultural Implements in Broach District in 1820-21

Sr. No.	Agricultural Implements	Price		
		Rs.	Qr	Reas
1.	*Hal/Hull* (plough)	2	2	0
2.	*Panjeti/ Punjeyta/Dunta* (A kind of rake for weeding and thinning the corn)	1	0	0
3.	*Kadab/ Kurrub* (For cleaning and turning up the ground before sowing)	2	2	0
4.	*Kadabi*	0	2	0
5.	*Tarphein* (Drill Plough)	1	0	0
6.	*Kodaloo*	0	2	0
7.	Dranti (Hand Weeder)	0	0	50

Source: *Memoir on the Zilla of Broache*, pp. 55 - 56.

Similarly, in the Navsari *prant* of Baroda State, I find reference to *kodali* (spade), *kurpi* (hoe), *hol* (the small plough), *nagar* (the larger plough) and *dataru* (the sickle).[209] It also throws light on the utility of the small and larger plough[210] and price of plough in the following words:

> ...A *bigha* of land can be ploughed in a single Day of ten hours with the *hol*. The cost of the implement is about Rs. 5. The *nagar* resembled the plough in construction, but is heavier. It is only used in the cultivation of sugarcane.

The third and fourth quarter of nineteenth century did see certain transformations in agricultural implements and operating techniques. This was probably due to the growth of steel industry, as a result of industrial

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[208] *Ibid.*, p. 38.
[209] *GBP, Baroda, Vol.VII*, p. 78.
[210] *Ibid.*

revolution in England. The agricultural implements manufactured in England did find their entry in India as well and very slowly attempted for the replacement with the earlier ones.[211] It is pertinent to note that the cultivators in India did not show much enthusiasm for replacement of agricultural implements and the usage techniques. However, the initiatives of the British Government[212] in their administered territory introduced gradual changes[213] by creating a separate Agricultural Department and setting up of Agricultural Commission. For the nineteenth century South Gujarat territory, our sources do not inform much on the developmental aspect, however, the survey of *Revised Survey Settlement Reports* for the *talukas* of Broach and Surat suggest that some initiatives were being taken in this direction. However, these were not very distinct as far as manufacturing technology was concerned.[214] Besides agricultural implements, the factor that provided impetus to agricultural activity was the livestock that carried the burden of agricultural activity smoothly. For instance the livestock in Broach district witnessed enormous growth over the first fifty years of the nineteenth century. The number of oxen, the prime draught animal in the district was 41,632 in 1820.[215] By 1851, this number rose to 85,976, an increase of 106.5%. The oxen were used in two major works—tilling the land and transporting goods. The inland trade was carried through bullock-carts.[216]

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[211] M. S. Randhawa, 'Agricultural Implements In The Nineteenth Century', in *A History of Agriculture in India*, Vol. III, Delhi, 1983, pp. 246-261.

[212] M. S. Randhawa, 'Lord Mayo and Allan Octavian Hume- An Attempt to Create A Department Of Agriculture', 'Dr. Voelcker's Report On Improvement Of Indian Agriculture' and 'The Royal Commission on Agriculture', in *A History of Agriculture in India*, Vol. III, Delhi, 1983, pp. 246-261.

[213] M. S. Randhawa, 'Agricultural Implements In The Nineteenth Century', in *A History of Agriculture in India*, Vol. III, Delhi, 1983, pp. 246-261.

[214] *RSS, Broach Taluka*, 1902, p. 42; *RSS, Olpad Taluka*, 1896, pp. 36 & 46; *RSS, Chikhli Taluka, 1899*, p. 10 and *RSS, Pardi Taluka*, 1900, p. 6.

[215] Broach Collectorate, "Statistical Memorandum on Broach Zilla", No. 517, 15/5/1856, R. D., 19, 1856, para 50. Also see Raj Kumar Hans, *op. cit.*, pp. 43-44.

[216] *Memoir on the Zilla of Baroche*, pp. 6-15 *and* Broach Collectorate, "Statistical Memorandum on Broach Zilla", No. 517, 15/5/1856, R. D., 19 1856, para 55. Also see Raj Kumar Hans, *op. cit.*, p. 43.

The statistics on carts for the entire district is available for the first quarter of nineteenth century. This statistics shows phenomenal growth between 1820 and 1851. The number of carts for the *talukas* of Jambusar, Amod and Dahej increased 3,409 to 7,765.[217] Monier Williams observed in 1820 that the "large two-wheeled carts, drawn by eight and ten yoke of oxen come to Broach and Jambusar for the purpose."[218] In 1849, according to Mr. Davies, this traffic was "so considerable that every year about 2,000 carts left Broach for the inland parts of Gujarat and west of Malwa."[219] The oxen census presumably reflects an augmentation in the volume of trade. The same trend of growth is visible in the milk cattle, cows and buffaloes. Their total number was counted in 1820 at 50,542.[220] The census of 1851 reported the number of cows and buffaloes to be 88, 234,[221] i.e. an increase of 74.5% in thirty years. Further, based on the information of statistical details in our sources, I provide the number of agricultural implements and live stock[222] during the last quarter of nineteenth century, which remained extremely useful in agriculture as shown in Table 13.

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[217] *Ibid.*

[218] *Memoir on the Zilla of Baroche*, p. 57.

[219] See Mr. Davies Statistical Account, 1849 in *GBP, Surat and Broach*, p. 425.

[220] *Memoir on the Zilla of Baroche*, pp. 1-15.

[221] Broach Collectorate, "*Statistical Memorandum on Broach Zilla*", No. 517, 15/5/1856, R. D., 19 1856, para 50. Also see Raj Kumar Hans, *op. cit.*, p. 44.

[222] For details on livestock in Bombay Presidency see P. R. Mehta, *The Elements of Agriculture of Bombay Presidency*, Bombay, 1905, pp. 283- 362.

TABLE 13
Agricultural Implements and Live Stock in South Gujarat Territory during Nineteenth Century

Prant/ Taluka	Year	Plough	Carts	Agricultural Cattle	Buffaloes, Sheep, Goat, Cows and Young ones
Baroda *Prant*	1880	46,465	29,775	156,243	190,054
Navsari *Prant*	1879-80	23,293	-	65,625	715,080
Broach *Taluka*	1870	6,313	4,063	9,410	17,422
	1874	5,793	4,325	13,561	25,379
	1887	5,744	4,450	11,134	25,970
	1897	5,078	4,683	11,423	30,022
Vagra *Taluka*	1872	4,305	2,872	11,224	8,161
	1888	3,567	2,697	8,345	14,114
	1898	3,879	2,599	7,962	14,366
Jambusar *Taluka*	1874	5,927	5,036	17,092	27,337
	1888-89	6,803	4,377	12,924	23,684
	1898-99	6,031	3,976	12,428	28,031
Amod *Taluka*	1874	3,388	2,600	8,785	13,206
	1888-89	3,260	2,489	6,793	11,377
	1898-98	3,289	2,614	6,591	12,833
Olpad *Taluka*	1873-74	5,690	6,100	15,937	39,488
	1894-95	5,709	5,321	12,894	41,905
Mandvi *Taluka*	1887-88	6,734	3,058	14,775	28,881
	1897-98	6,662	3,186	14,928	33,473
Chorasi *Taluka*	1872	3,010	2,388	8,414	21,242
	1894-95	2,287	4,194	8,493	21,499
Bardoli *Taluka*	1872	7,733	6,177	21,531	45,394
	1893-94	8,504	7,322	20,000	52,341
Jalalpur *Taluka*	1872	4,744	4,370	13,885	35,305
	1896-97	4,229	4,530	9,144	37,941
Chikhli *Taluka*	1873-74	6,994	4,159	19,059	42,456
	1895-96	6,738	4,818	15,394	47,804
Bulsar *Taluka*	1872-73	7,429	4,334	18,049	38,238
	1896-97	8,554	6,064	18,425	49,450
Pardi *Taluka*	1878-79	4,951	2,925	12,420	21,840
	1898-99	7,176	4,644	15,426	34,881
Dharampur	1899-00	9,283	1,044	19,310	39,958
Bansda	1897-98	6,035	1,465	15,763	24,703
Sachin	1897-98	1,107	1,256	3,329	6,916

Source: *RSS, Broach Taluka*, 1902, p. 8; *RSS, Vagra Taluka*, 1903, p. 4; *RSS, Jambusar Taluka*, 1903, p. 5; *RSS, Amod Taluka*, 1903, p. 4; *RSS, Olpad Taluka*, 1896, p. 6; *RSS, Mandvi Taluka*, 1904, p. 5; *RSS, Chorasi Taluka*, 1904, p. 5; *RSS, Jalalpur Taluka*, 1900, p. 8; *RSS, Bardoli Taluka*, 1897, p. 6; *RSS, Chikhli Taluka*, 1899, p. 8; *RSS, Bulsar Taluka*, 1900, p. 6; *RSS, Pardi Taluka*, 1904, p. 5; *Administration Report on the Dharampur State for the year 1899-1900*, Surat, 1900, p. 44. & *Administration Report on the Bansda State for the year* 1897-98, Surat, 1898, p. 38 and *Administration Report on the Sachin State for the year* 1897-98, Surat, 1898, p. 30.

A glimpse at the volume of agricultural implements, livestock, carts, etc. suggests the reliance and potentiality of agricultural occupation in the South Gujarat territory.

Another important thing related to agricultural implements is the ploughing of land. The ploughing of land differed for different soils and different crops. For instance light soil could be easily worked in comparison to the black soil.[223] The *Gazetteer of the Bombay Presidency- Surat and Broach* informs about size of plough of land.[224] The plough of land in Broach district meant an area that can be tilled by a plough drawn by one pair of oxen. The ploughed area varied from twenty *acres* in black soil to nine *acres* in the lighter varieties of soil.[225] In case of Ankleshwar *taluka* the mean average per plough was seventeen *acres* and in Vagra *taluka,* it remained twenty-eight *acres.*[226] In case of Surat district, the ploughing acreage by one pair of bullock was nine *acres.*[227] However for cotton land, it was twenty *acres* and for wheat it remained thirty *acres.*[228] Table 14 gives in *acres* the average size of a farm and the average area to each plough in each *taluka* of Surat district.

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[223] *GBP, Surat and Broach,* p. 61.
[224] *Ibid.,* p. 390.
[225] *Ibid.*
[226] *Ibid.*
[227] *Ibid.,* pp. 61-62.
[228] *Ibid.*

TABLE 14
Comparison of Average Acreage of Farms and Average Acreage to Plough in Nineteenth Century

Taluka	Average Acreage of Farms	Average Acreage to Plough
Olpad	09	20 17/40
Mandvi	08 30/40	10 07/40
Jalalpur	08 7/40	14 25/40
Chorasi	06 14/40	16 34/40
Bardoli	05 1/40	16 01/40
Chikli	16 15/40	15 30/40
Bulsar	13 3/40	13 30/40
Pardi	14 25/40	16 14/40

Source: *GBP, Surat and Broach*, p. 62.

REVENUE MANAGEMENT AND REVENUE ESTIMATES

The South Gujarat territory traces the existence of various land revenue management methods. This depended on the nature of land,[229] peasantry,[230] intermediaries[231] and rulers.[232] For instance, the portions of Baroda and Navsari *prant* observed the presence of *vantadars/wantadars*[233] and *giras*[234]*/zamindar*. The land revenue was levied on both *khalsa* and alienated

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[229] The land was either *khalsa*/government land and alienated land. These were variously termed like *barkhali, nakari-dharmadaya, devasthan* and *pirsthan, pasaita, inam, vachania, gherania, ranvatia, hadia*, etc. See *GBP, Baroda, Vol VII*, 1883, pp. 349-52; *GBP, Surat and Broach*, pp. 220-21 & 495-97, *GBP, Rewakantha and Surat States*, Vol. VI, p. 251.

[230] This included cultivators, soldiers, village servants, etc. Also see *GBP, Surat and Broach*, pp. 217-220, 223-26 & 480-84.

[231] These were *kasbatis, narvadars, bhagdars, mehvasis, ijaradars* etc. See *GBP, Baroda, Vol.VII*, 1883, pp. 351-52, 357 & 359 and G. H. Desai, *Gazetteer of the Baroda State*, Vol. II, Administration, 1923, p. 5; *Ibid.*

[232] These were native rulers, Britishers and Dang chiefs.

[233] In the old days of the *Rajput* kingdom of Anhilwad the land administration of Gujarat were either held by chiefs on condition of rendering military service or were related direct from the crown by cultivators. They released the Hindu nobles of all obligations, military service and in return confiscated the larger portion of lands leaving them a poor remainder. The share left the chief in old days comprised one third was termed *Vanta* or share, the remainder was appropriated by the government was termed *Talpat*. Every *Vanta* was probably distinct from the *Chauth Vanta/Wanta*. *Vanta* land was day generally held by *Rajput, Thakor* and *Koli*. The first two came to Gujarat from Rajputana and the last were probably aboriginal inhabitants. *GBP, Baroda, Vol VII*, 1883, p. 340.

[234] *Giras* is a corruption of a Sanskrit word, which means a mouthful and to have come to signify subsistence to maintenance. The early Maratha invasion took place at a time when the power of the Mughals was breaking up and the original *Garasias*/more often termed the *Zamindar* and *Vatandars* were increasing in power and independence. It must be noted that

land. The proportion between the alienated and *khalsa* or government land in the southern part of Navsari *prant* during the years 1876-77 and 1877-78 stood as follows[235]:

Years	Area of Occupied *khalsa*/ govt. land in *bigha*	Revenue from *khalsa*/ govt. land in Rs.	Area of alienated land in *bigha*	Revenue from alienated land in Rs.
1876-77	344,056	1,693,910	95,441	45,351
1877-78	375,056	1,741,248	96,476	45,351

Source: *GBP, Baroda, Vol VII*, 1883, pp. 347-48.

These figures explain that the *khalsa* land was more than three times to that of alienated land and the land revenue proportion was 37.35:1 and 38.39:1 in the years 1876-77 and 1877-78 respectively. The similar proportion trends can be observed in the case of other *talukas* of the South Gujarat territory as well.[236] Besides this there were many other allowances[237] and revenue assessment and management systems.[238] A brief description of revenue assessment and management system of South Gujarat territory is must. The standard land measure was formally *kumbha* in the Baroda State and *bigha* elsewhere. The *kumbha* was more than a *bigha* and was of a varying nature in different places. Before the introduction of the Survey Assessment System several other kinds of tenures existed such as:

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the Maratha did not at once conquer and rule a large extent of territory. The nineteenth century *Garasias* lived in the hilly country to the east of the great Gujarat plain and lived through blackmail on the peaceful towns situated in the campaign country. The blackmail is known by the name of *Toda Giras*. The peaceful country was termed *Rasti* and the hill country hard of access held by the *Garasias* was termed *Mehvasi*. The *Garasias* stayed near the Mahi and Narmada rivers. Besides Rajputs, there were *Kolis- Baria, Pagis* and *Kotvals* near Mahi, *Rathods, Chauhans* and *Parmars* near Narbada in Sankheda Mehvas and Muhammadan converts. *GBP, Vol VII, Baroda*, 1883, pp. 341-42. Also see, V. Y. Kashalkar, *The Survey Settlement, Giras and Barkhali Work*, Survey and Settlement Department, Baroda State, Baroda, 1933, pp. 53-136.

[235] *Ibid.*, pp. 347-48.

[236] See The *Survey Settlement Reports* of the *Talukas* of the South Gujarat territory.

[237] These were *varshasan, moghalai*, etc. See *Ibid.*, p. 350.

[238] These were *bhagbatai, hullvero, beegotee, talookdaree*, farming, etc. See *Ibid.*, p. 349; A. Mackay, *Western India*, pp. 102, 105-06 and G. H. Desai, *Gazetteer of the Baroda State, Vol. II, Administration*, 1923, p. 3.

- *Bhagbatai* or collection in kind according to a fixed share of the produce.
- *Holbandi* or collection in cash according to assessment per plough and other such rough methods.
- Assessment by the pickaxe.
- By the perch or stand on which the cultivator sits to watch his crop.

During the nineteenth century, one finds reference to the following revenue management systems. These were *bhagbatai,*[239] *holbandi /hullvero,*[240] *beegotee,*[241] *kaltar,*[242] *bhagdari,*[243] *talookdaree,*[244] farming,[245] etc. besides the Survey Assessment System. All these were different methods with different rates of assessment. As a whole, the revenue assessment and management was quite

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[239] A, Mackay, *Western India,* p. 106.

[240] *Ibid.,* p. 102.

[241] *Ibid.,* p. 105.

[242] In the *kaltar* method of assessment the government official with the assistance of a *patel* or *panchayat* estimated the out turn of the field. The share was estimated in cash at the prevailing market rate. This method was adopted in Songadh and Vyara. G. H. Desai, *Gazetteer of the Baroda State,* Vol. II, Administration, 1923, p. 29.

[243] *Bhagdari* was another old tenure, which existed in the Kamrej and Mangrol *Talukas* but had disappeared after the Survey Settlement. The *bhagdars* of a village were like the *narvadars* shareholders or superior holders. Baroda state were allowed to realize from the cultivators what they pleased and in any manner they pleased and in general demands were much in excess of the government rates. *Ibid.,* p. 31.

[244] The *talookdaree* system was prevalent in the southern *parganas* of Gujarat. *Talatis* were appointed to check any oppression on the part of the *talukdars.* The *talukdars* paid seventy percent of the revenue to the government and kept thirty percent with themselves. Most of the *talukdars,* through extravagant habits were deeply in the power of the moneylenders, which afforded them an additional incentive to oppression wherever they can indulge in it. *Ibid.,* p. 106.

[245] The land revenue system of the early Maratha consisted in entrusting the collection of the state revenue to particular agents. The *ijaradar,* farmer who was not a district officer but the person to whom the government had leg out the rights to collect taxes was enjoyed to select from the families who inherited the right to discharge such officers. The best individuals he could find to be *desais, majumdar, amins and patels.* The *patel* and the *talatis* had to see that justice was done to his village in revenue matters; the *desai* and *majumdar* performed the same duties for the district. The duty of these officers was to supervise the improvement of the *pargana* to make the *lavani abadi* to the preparation for sowing and to settle the *jamabandi* or other rates of assessment. The local officer was called *vatandars.* The *majumdar* duty was to keep the accounts i.e. to write out the *jamabandi* of the *mahal.* The Maratha government did not interfere with the old village system, but simply superimposed machinery by which money might be collected and a few general services to the public be rendered. The *kalambandi* or circular order of 1827 enjoined that an annual statement of the sums paid to hereditary officers was to be sent in by the farmer together with vouchers and receipts; *Gazetteer of the Baroda State,* Vol. II, *Administration,* 1923, p. 3.

complex. An attempt is being made here to provide the revenue history and revenue estimates of the various *talukas* of the South Gujarat territory.

Sinor, Baroda *Prant*: - Revenue farmers till the end of 1865 A.D. managed the revenue in Sinor *taluka*. After that Maharaja Khanderao Gaekwad directed that the *taluka* should be directly managed by the state. According to settlement based on a survey, only three villages continued to be put on half share of the produce. The average revenue derived from the *taluka* between the 1856-1889 was Rs. 35,319.[246]

Tilakwada, Baroda *Prant*: - When the Tilakwada *peta mahal* fell into the hands of the Baroda government on the expulsion of the Babi rulers in 1798 A.D., two tenures *holbandi* and *ankadabandi* were in vogue.[247] These old tenures were not disturbed for a quarter of a century by the Gaekwad government. Instead, revenue farming was introduced. The farmers managed to get higher revenue by increasing the *ankdas* in the *ankadabandi* villages and by assessing *hols* at higher rates in the *holbandi* villages. In 1885, the *suba* of Baroda got the rate reduced to Rs. 30 in some villages and Rs. 25 in other villages per *hol*.[248] Thus the average realization was Rs. 17,763. The Survey Settlement rates were introduced in 1893 for 15 years with an increase of about 37 percent and the revenue amounted to Rs. 20,003. The revision settlement was introduced in 1911 for 30 years with an increase of 24 percent and the revenue amounted to Rs. 24,768.

Navsari, Navsari *Prant*: - Upto 1860, the Navsari *Prant* was farmed out in one block. It was spilt up into *talukas* and each of these was farmed out separately. Competing *ijaradars* raised the revenue of the *taluka* from Rs. 9

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[246] *Ibid.*, p. 36.

[247] *Ibid.*, pp. 41-42 and *Jamabandi Settlement Report on the Tilakwada Peta Mahal of the Baroda Division*, 1892, p. 5.

[248] *Ibid.*, pp. 42 and *Jamabandi Settlement Report on the Tilakwada Peta Mahal of the Baroda Division*, 1892, p. 5.

lakhs in 1856 to Rs.15 lakhs in 1859 and to Rs. 20 lakhs in 1862.[249] In 1864, Maharaja Khanderao instituted a survey. In 1865, the *prant* was taken under *khalsa* management and *beegotee/bighoti* rates were imposed which brought the demand upto Rs. 31 lakhs.[250] The average annual realization revenue of the Navsari *taluka* since 1876 had been Rs. 2,49,000.[251] Survey Settlement was introduced in 1893 for 15 years.[252] The revision settlement was introduced in 1908 for 30 years. The estimated revenue according to the revised rates was Rs. 2,19,870.[253]

Gandevi, Navsari *Prant*: - On acquiring the Gandevi *taluka*, the Marathas introduced the favorite system of farming out the revenue. The farmers replaced the old Mughal system, a system call *tulvari beegotee/bighoti*. Maharaja Khanderao raised the rates every year, until the revenue amounted to Rs. 281,441.[254] The People unable to meet the demand migrated in large numbers to the adjoining British territory. Therefore the revenue demand was reduced to Rs. 220,281.[255] It was again reduced to Rs 147,700 in 1847.[256] The reduction amounted to 30 percent. It was reduce by 18.8 percent in 1877.[257] Survey Settlement was introduced in 1893 for 15 years. The revenue then amounted to Rs. 111,475.[258]

Palsana, Navsari *Prant*: - In 1865, Palsana *taluka* was first surveyed and settled. The new rates were heavy. Hence the settlement broke down and farming was restored. The revenue was collected by the government agency between 1869-1874.[259] The rates were revised in 1875 and a reduction of 17

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[249] *Ibid.*, p. 48.
[250] *Ibid.*
[251] *Ibid.*
[252] *Ibid.*
[253] *Ibid.*
[254] *Ibid.*
[255] *Ibid.*
[256] *Ibid.*
[257] *Ibid.*
[258] *Ibid.*
[259] *Ibid.*, p. 49.

percent was made.[260] The Survey Settlement was introduced in 1893 for 15 years. Thus the revenue amounted to Rs. 1,84,032.[261]

Kamrej, Navsari *Prant*: - Upto 1859, the Kamrej, Kathor and Variav *mahals* which formed the Kamrej *taluka* of late nineteenth century were assessed at Rs. 2,72,762.[262] In 1877, a large measure of relief was granted from the constant rise in demand for the period 1859-1877. The annual demand was cut down and it amounted to Rs. 3,13,158[263] and especially low rates were fixed for the deserted villages in order to encourage the return of their former inhabitants. The whole of their lands was brought under tillage. The revenue had risen from Rs. 3,13,158 in 1877 to Rs. 3,87,203 in 1891.[264] Survey Settlement was introduced in 1893 for 15 years. Thus the revenue amounted to Rs. 3,33,831.[265]

Velachha (Mangrol), Navsari *Prant*: - In 1865, the Velachha *taluka* or Mangrol *taluka* of late nineteenth century was roughly measured and lands under cultivation were charged enormously. Raja Madhavrao reduced revenue by one-fourth. Out of the 69 village of the *taluka* there were 23 *kolbandi* villages. Survey Settlement was introduced in 1893 for 15 years. Thus the revenue amounted to Rs. 1,81,781.[266]

Mahuva, Navsari *Prant*: -The *izara* system of collecting the land revenue prevailed till 1875 in the Mahuva *taluka*.[267] In 1876, on the completion of a rough survey of the *talukas*, the *beegotee/bigoti* system was introduced. The land revenue collected in the last year of the *izara* amounted to Rs. 1,22,775.[268]

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[260] *Ibid.*
[261] *Ibid.*
[262] *Ibid.*
[263] *Ibid.*
[264] *Ibid.*
[265] *Ibid.*
[266] *Ibid.*
[267] *Ibid.*
[268] *Ibid.*, p. 50.

The realizations in 1876 were Rs. 1,21,204.[269] Before 1876 Mahuva was the small *taluka.* In 1876, Anaval and Valvad *tappas* were added to it for administrative purposes. In 1897, Survey settlement was introduced for 15 years and the revenue demand amounted to Rs. 1,33,704.[270]

Songadh, Navsari *Prant*: - The hill country of Songadh *taluka* was full of jungles and without any cultivation. Only the savage tribes of *bhils, kolis,* etc inhabited it. Pilajirao Gaekwad and his successors brought it into cultivation by spending large sums of money. In what year the *taluka* began deriving revenue is not known but till the year 1752 in which Surat Atthavisi was divided between the Peshwa and the Gaekwad, it yielded little or next to nothing.[271] In 1774, the *jakat* and *ain* revenue amounted to Rs. 24,000 and 32,000 respectively. In 1776, the income rose to Rs. 36,000. The *izara* system prevailed till 1775 in which year the land revenue amounted to Rs. 38,228. In 1876, Raja Sir T. Madhavrao organized the Navsari *Prant* as regards the territorial sub-division and *kaltana* mixed with *holbandi* system was introduced.[272] In that year the land revenue amounted to Rs. 38,129.[273]

Vyara, Navsari *Prant*: - Till 1875, the revenue of the Vyara *taluka* was farmed out.[274] It is impossible to know how much profit the *izaradars* made and what the cultivators actually had to pay as we lack empirical estimates. Therefore the *kaltar* system was introduced and it remained in vogue till 1888. The produce of each field was estimated by the *talatis* in October or November. Tests were taken in the course of the cold weather by the *vahivatadar* and the *naib-subah* who inspected the grain actually produced and kept it waiting in the field where it had been threshed. Rates for each kind of grain were fixed and each cultivators produce was valued. Of the total valuation six in the

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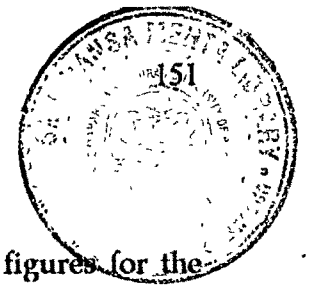
269 *Ibid.*
270 *Ibid.*
271 *Ibid.*
272 *Ibid.*
273 *Ibid.*
274 *Ibid.*, p. 51.



rupee was levied as Government assessment. The revenue figures for the period 1878-1882 are as follows:[275]

Years	Revenue in Rupees
1878	1,85,448
1879	1,75,733
1880	1,47,300
1881	1,28,805
1882	74,559

Broach District: - *The talukas* of Broach district also remained promising in terms of incurring land revenue. The district acquired administrative and political unity only in 1817 with all the *parganas* comprising it eventually coming under British political umbrella. We would first focus on Broach *paragana*, which was conquered first and for which we have continuous data from years preceding even the British takeover. In 1783, when Broach passed to the Sindhias after a brief phase of colonial rule, its land revenue was settled at Rs. 6,08,033.[276] The Sindhias farmed out revenues to one Gopalrao at the annual amount of Rs. 8,50,000. Gopalrao retained the farm from 1783 to 1791.[277] We have detailed estimates of land revenue for the Broach *pargana/taluka* from 1791-92 to 1802-03 in *Alexander Walker's Report*. For all these years the land revenue was collected under two different heads– *jamabandi* (land revenue settlement) and *veras* (cesses) as shown in Table 15.

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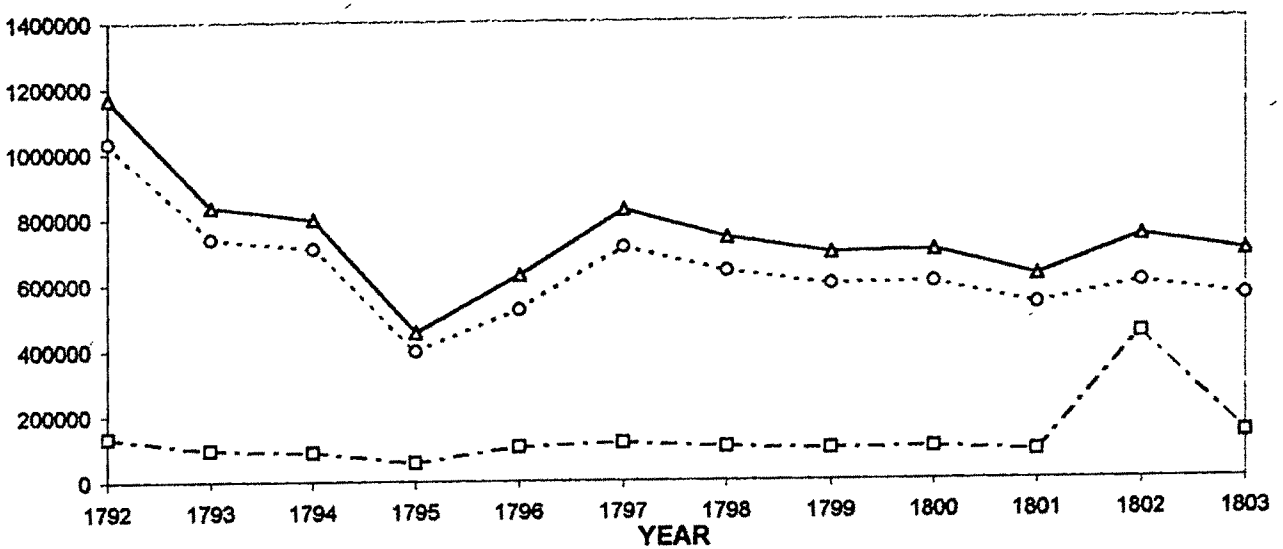
[275] *Ibid.*

[276] Broach Collector's Letter, 5.2.1783, *Broach Factory Dairy*, 269, 1782-82.

[277] Govind Nath's Account of Broach Revenues, enclosure to Alexander Walker's 8/4/1804, *R. D.*, 44, 1805.

GRAPH I: LAND REVENUE SETTLEMENT IN RUPEES IN BROACH *PARGANA* (1791-1803)



Source: Table 15

p.151a

TABLE 15

Land Revenue Settlement of Broach *Pargana/Taluka* between 1791-92 and 1802-03 in Rupees.

Year	*Jamabandi*	*Veras**	Total
1791-92	10,32,529	1,34,228	11,66,758
1792-93	7,39,781	96,769	8,36,550
1793-94	7,10,003	87,997	7,98,000
1794-95	3,97,549	57,316	4,54,865
1795-96	5,21,188	1,05,271	6,26,459
1796-97	7,10,309	1,15,425	8,25,734
1797-98	6,35,879	1,03,219	7,39,098
1798-99	5,94,679	96,511	6,91,190
1799-1800	6,00,113	97,405	6,97,518
1800-01	5,34,277	86,706	6,20,983
1801-02	5,97,741	1,42,146	7,39,867
1802-03	5,53,513	1,36,819	6,90,332

*The *Veras* or Cesses were levied at a certain percentage of the *jamabandi*, varying from year to year. In the above table the rates are as follows: 1791-94, 13%; 1794-95, 14.5%; 1795-1801, 16.25%; 1801-03, 24.75%. (Also see Graph I)

Source: Alexander Walker's Report, 8/4/1804, R. D., 44, 1805, paragraphs 49-51.

The average revenue per year calculated from the yearly totals above comes to Rs. 7,40,614. In 1804, after reestablishing their hegemony over Broach *pargana/taluka*, the British fixed it at Rs. 8,38,128.[278] It means an excess of Rs. 97,514 over the average of the preceding decade i.e. during the rule of the Sindhias and Rs. 1,47,796 over the previous year's assessment. Next year i.e. in 1805, the revenue was further increased to Rs. 9,18,535.[279] Official explanation ascribed the high figure to the rise in grain prices, which in turn had been caused by a severe famine raging in the Deccan.[280] In 1805, the *paragana* of Ankleshwar and Hansot, which had been ceded by the Peshwa to the British in 1802 by the Treaty of Bassein, were also attached to Broach and a Collectorate was thus carved out of them. The annual revenue of Ankleshwar and Hansot at the time of their cession was reported at Rs. 78,000 and Rs. 85,000 respectively. But in 1806, the Ankleshwar and Hansot *parganas* were assessed at Rs. 1,47,540 and Rs. 1,34,815[281] respectively leading to an increase

[278] *Memoir on the Zilla of Baroche*, p. 59.
[279] *Ibid.*
[280] Broach Revenue Commissioners to Bombay, 24/1/1808 *R. D.*, 60, 1808, para 11.
[281] Broach Collector to Bombay; letter No. 67, 17/5/1824, *R. D.*, 17/101, 1824.

of 89% and 59% respectively. Details of land revenue assessment for three *paraganas* Broach, Ankleshwar and Hansot from 1806 to 1821 have been illustrated in Table 16.

TABLE 16
Land Revenue Assessment: Broach, Ankleshwar and Hansot *Parganas*, 1806 to 1821 in Rupees

Year	Broach	Ankleshwar	Hansot	Total
1805-06	9,05,133	1,47,540	1,35,815	11,88,488
1806-07	9,38,384	1,42,736	1,22,188	12,03,288
1807-08	9,57,170	1,48,316	1,23,536	12,29,222
1808-09	9,79,828	1,50,683	1,25,099	12,52,610
1809-10	9,67,513	1,54,633	1,24,302	12,46,448
1810-11	9,64,338	1,60,056	1,26,589	12,50,983
1811-12	9,44,016	1,61,469	1,27,886	12,33,371
1812-13	10,00,796	1,68,800	1,30,616	13,00,212
1813-14	10,18,940	1,76,692	1,33,521	13,29,153
1814-15	10,92,748	1,79,633	1,41,843	14,14,224
1815-16	10,34,733	1,53,718	1,03,557	12,92,008
1816-17	10,77,356	1,77,217	1,32,859	13,37,433
1817-18	11,24,168	1,81,383	1,52,172	14,57,723
1818-19	10,43,755	1,70,841	1,48,868	13,63,465
1819-20	10,56,132	1,43,836	1,38,393	13,38,362
1820-21	12,28,796	2,27,337	1,92,482	16,48,315

Source: Revenue and Judicial Accountant to Revenue Board, letter No. 95, 10/ 4/ 1822, R. D., 14/38, 1822. (Also see Graph II)

A cursory glance at the data furnished in tables 15 and 16 and their graphic depictions leave of with the task of improving upon the track record of all past governments when it came to exacting agrarian surplus. The average assessment for the first eight years i.e. from 1806 to 1813 comes to Rs. 12,38,078 and for the next eight years i.e. from 1814 to 20 was Rs. 14, 03,835. The period 1806-13 represents an increase of 27% over the previous decade (computed from the land revenue returns of Broach alone as data on the other two *paraganas* are not available for the previous decade) and for period 1814 - 20, an increase of more than 13% over the first decade of British rule is obvious. We are thus faced with differences in the very order of magnitudes that needs some accounting.

For all the hardships and consequences emanating from the revenue settlement of 1820-21, it may well serve as a critical moment between two phases in the revenue history of Broach district during the first half of the century. The days of hesitations, uncertainties of learning through trial and error seem to have given way to bolder, more reckless, aggrandizing ventures–an index that colonial hold over Gujarat territories was consolidated. The new administrative structure, which had been able to dispense with the services of traditional revenue personnel, felt confident in coping with any situation that obstructed the smooth transmission of agrarian surplus. Among other things, prices during the first two decades proved quite favourable to the scheme of revenue enhancement and the nurturing of the illusion of prosperity. However, what followed after 1820 turned out to be quite problematic as colonial exploitation began to take a toll of agrarian life in a markedly intense and visible form.

A dramatic fall in prices (specially that of cotton) continuing well into the 1850's, outstanding balances against peasants whose poverty and indebtedness mounted with each year, diminution in cultivation leading inevitably to a decline in revenues, piecemeal remissions reluctantly granted by the government, and neutralized through attachments of peasant property—all these constitute the profile of the decades that followed i. e. c. 1820.

Table 17 shows the revenue settlement of the districts from 1823 to 1852. How does it compare with the preceding decade? The corresponding revenue graphs for the two periods provide the clue. While it is apparent that the general drift in both the periods is toward progressively larger exactions, the figures of 1823-52 embody more rapid and regular alternations between the peaks and dips of the graph as if within the agrarian order a primary tension operated between the escalating nature of revenue demand and the actual capacity to sustain it. This is a very valuable inference.

TABLE 17
The Land Revenue of Broach District, 1823-1852

Year	Assessment of Rupees	Year	Assessment of Rupees
1823-24	16,87,490	1838-39	11,47,233
1824-25	8,69,583*	1839-40	20,77,490
1825-26	14,57,050	1840-41	18,81,421
1826-27	14,82,652	1841-42	18,77,970
1827-28	16,59,157	1842-43	19,38,429
1828-29	14,80,635	1843-44	17,46,123
1829-30	15,70,608	1844-45	18,40,138
1830-31	19,39,251	1845-46	17,50,815
1831-32	14,17,025*	1846-47	17,80,046
1832-33	16,17,432	1847-48	18,23,703
1833-34	17,95,768	1848-49	18,39,540
1834-35	15,31,820	1849-50	16,07,256
1835-36	24,35,583	1850-51	16,26,572
1836-37	21,81,094	1851-52	16,62,117
1837-38	22,20,234		

Source: Annual Reports of Collectors of Broach and Revenue Commissioners in R. D. Nos. 5/137 of 1826; 29/182 of 1827; 3/208 of 1828; 20/267 of 1829; 37/318 of 1830 2/406 of 182; 16/484 of 1833; 7/629 of 11835; 8/695 of 1836; 15/773 of 1837; 13/976 of 1839; 17/1101 of 1840; 13/1242 of 1841; 14/1347 of1842; 14/1456 of 1843; 14 of 1845; 12 of 1846; 13 of 1847; 13 of 1848; 16 of 1849; 16 of 1851; 17 of 1851; 14 of 1852; 10 of 1856.
*Figure for 1824-25 & 1831-32 taken from the *GBP, Broach* (1877) due to the non-tractability of revenue reports for these years. The figure for 1824-25 is curiously low and gives rise to some doubt. (Also see Graph III)

After Survey Settlement and the publication of the first *Gazetteer* for Broach district the land revenue assessment method and realization was as follows. The area of the government lands in cultivation from which the full rates of assessment were drawn was 454,000 *bighas* or about 60 percent of the whole cultivated surface.[282] The receipt under which includes 85. 5 percent of the entire revenue of the district had risen from Rs. 16,87,490 in 1823-24 to Rs. 21,83,940 in 1874-75.[283] Table 18a & 18b give details of area under cultivation in *bighas,* land revenue in rupees and sterling and annual land revenue from 1830-31 to 1874-75 respectively.

[282] A. Mackay, *Western India,* p. 107.
[283] *GBP, Surat and Broach,* p. 514.

TABLE 18a
Statement of Area under Cultivation and Land Revenue in Broach District from 1817-18 to 1873-74

Year	Area under cultivation exclusive of fallows in *bighas*	Land Revenue	
		In Rs.	In Sterling
1817-18	325,074	1,966,640	196,664 0
1820-21	No returns	2,301,532	230,153 0
1831-32	289,783	1,502,164	150,216 0
1850-51	321,917	1,558,598	1,555,859 8
1859-60	340,108	1,770,763	177,076 16
1873-74	394,200	2,183,940	218,394 0

Source: *GBP, Surat and Broach*, p. 514.

TABLE 18b
Statement Showing the Yearly Land Revenue of the Broach District 1830-75

Year	Land Revenue	Year	Land Revenue	Year	Land Revenue	Year	Land Revenue
1830-31	1,38,854	1842-43	1,93,843	1853-54	1,33,674	1864-65	1,52,527
1831-32	1,29,646	1843-44	1,73,967	1854-55	1,62,088	1865-66	1,56,922
1832-33	1,33,613	1844-45	1,78,882	1855-56	1,62,493	1866-67	1,51,354
1833-34	1,48,771	1845-46	1,31,049	1856-57	1,35,267	1867-68	1,50,250
1834-35	1,05,249	1846-47	1,38,260	1857-58	1,36,721	1868-69	1,95,859
1835-36	1,87,772	1847-48	1,46,583	1858-59	1,38,749	1869-70	1,97,828
1836-37	1,68,457	1848-49	1,25,866	1859-60	1,42,852	1870-71	2,13,223
1837-38	1,57,518	1849-50	1,53,378	1860-61	1,44,287	1871-72	2,12,402
1838-39	99,320	1850-51	1,55,758	1861-62	1,42,797	1872-73	2,18,004
1839-40	2,07,594	1851-52	1,59,559	1862-63	1,38,183	1873-74	2,15,196
1840-41	1,76,277	1852-53	1,60,838	1863-64	1,52,068	1874-75	2,20,557
1841-42	1,87,552						

Source: *GBP, Surat and Broach*, p. 514.

Table 18a and 18b suggest that the land revenue receipts continuously increased except sharp decrease in 1838-39 whereas it fluctuated in fourth, fifth and sixth decade of nineteenth century frequently.

Information on land revenue for the post-1875 period for various *talukas* of Broach district is available in *Revised Survey Settlement Reports.* The Appendix O of the *Revised Survey Settlement* of Broach, Wagra, Jambusar and Amod clearly indicates the increase in land revenue for the period 1870-1898/1899 in comparison to 1800-1870 periods for the government villages of

Broach *taluka* where the Survey Settlement was introduced in 1870's.[284] Table 19 gives us an idea of average land revenue of the *talukas* of Broach district in the last quarter of the nineteenth century.

TABLE 19
Average Land Revenue in Rupees of the *Talukas* of Broach District in the Last Quarter of the Nineteenth Century.

Years/*Talukas*	Broach	Ankleshwar[285]	Wagra	Jambusar	Amod
1874/75-1884/85	5,70,410	-	3,07,473	4,83,110	2,66,065
1884/85-1894/95	5,74,261	-	3,12,036	4,80,358	2,70,258
1894/95-1898/99	5,72,571	-	3,18,146	4,86,119	2,70,688
1874/75-1898/99	5,72,414	4,20,079[286]	3,12,552	4,83,196	2,69,004

Source: Appendix O in *RSS, Broach Taluka,* 1902 p. 25; *RSS, Wagra Taluka,* 1903, p. 17; *RSS, Jambusar Taluka,* 1903, p.18; *RSS, Amod Taluka,* 1903, p. 18.

The average revenue of Broach district for the last quarter of the nineteenth century accounts to Rs. 4,09,291 excluding Ankleshwar *taluka.* From footnote 284 it is estimated that there was decrease of land revenue in Ankleshwar *taluka* between the period 1871-72 and 1900-01. It was approximately 2%. The reasons for the decrease can be attributed to leaving the cultivated land fallow. The similar figures also help in computing the average land revenue for Ankleshwar *taluka,* which is estimated as Rs. 4,20,079.

Surat District: - In Surat, the average assessment on the actual cultivated land was much higher.[287] The entire area of the British portion of Surat was about the same as that of Broach. But the cultivable surface of the former was

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[284] See Appendix O in *RSS, Broach Taluka,* 1902 pp. 10-14 & 25; *RSS, Wagra Taluka,* 1903, pp. 5-7 & 17; *RSS, Jambusar Taluka,* 1903, pp. 6-8 & 18; *RSS, Amod Taluka,* 1903, pp. 5-7 & 18. The *RSS, Ankleshwar Taluka* was not traceable either in Maharashtra Archives or Central Record Office, Baroda. Therefore the calculations for it have not been carried out.

[285] The *RSS, Ankleshwar Taluka* was not traceable either in Maharashtra Archives or Central Record Office, Baroda. Therefore the calculations for it have not been carried out. However the *GBP, Surat and Broach,* II-B, Bombay, 1904, p. 53 shows the land revenue of Ankleshwar for 1871-72 as Rs. 4,24,780 whereas for 1900-01 the land revenue is 4,15,379. The *GBP, Surat and Broach,* II-B, Bombay, 1926, p. 94 records land revenue for 1921-22 as Rs. 5,34,618. Hence it is not possible to workout the average land revenue for Ankleshwar in the last quarter of nineteenth century.

[286] Based on the calculations of the land revenue Ankleshwar *Taluka* for the years 1871-72 and 1900-01 the average land revenue for the last quarter of nineteenth century is computed as Rs.4, 20,079.

[287] Alexander Mackay, *Western India,* p. 109.

somewhat less than the actual cultivated area of the latter. The extent of the government lands cultivation in Surat was 991,381 *bighas*, of which there were in occupation in 1849-50 about 748,812 *bighas*.[288] The Surat cultivated area being one-eight larger than that of Broach. But of these there were only 426,790 *bighas* actually cultivated, the remained being either pastures or fallow lands.[289] Sources do not reveal the revenue estimates for the first three decades of the nineteenth century in case of Surat district. The detailed empirical estimates for the period 1830-31 to 1874-75 are given in table 20a.

TABLE 20a

Statement of the Land Revenue for the Years from 1830 -31 to 1874-75, Surat District

Year	Land Revenue	Year	Land Revenue	Year	Land Revenue	Year	Land Revenue
1830-31	1,41,897	1842-43	1,59,320	1853-54	1,70,000	1864-65	2,39,393
1831-32	1,17,730	1843-44	1,61,667	1854-55	1,71,671	1865-66	2,52,211
1832-33	1,07,789	1844-45	1,59,585	1855-56	1,69,391	1866-67	2,57,063
1833-34	1,43,918	1845-46	1,50,349	1856-57	2,02,049	1867-68	2,58,253
1834-35	1,50,845	1846-47	1,62,462	1857-58	2,07,377	1868-69	2,31,217
1835-36	1,50,940	1847-48	1,62,500	1858-59	2,11,426	1869-70	2,38,247
1836-37	1,51,580	1848-49	1,41,502	1859-60	2,15,798	1870-71	2,36,754
1837-38	1,51,882	1849-50	1,51,500	1860-61	2,15,248	1871-72	2,33,697
1838-39	1,47,888	1850-51	1,65,644	1861-62	2,24,537	1872-73	2,35,114
1839-40	1,51,407	1851-52	1,65,644	1862-63	2,36,443	1873-74	2,29,741
1840-41	1,53,345	1852-53	1,69,350	1863-64	2,40,938	1874-75	2,24,173
1841-42	1,56,252						

Source: *GBP, Surat and Broach*, p. 239.

Table 20a suggests smooth increasing trends in realization of the land revenue except slight variations during the years 1832-43, 1847-1851 and 1867-1869.

Land revenue for the post- 1875 period for various *talukas* of Surat district can be assessed from the *Revised Survey Settlement Reports* of Olpad, Mandvi, Chorasi, Bardoli, Jalalpur, Chikhli, Bulsar and Pardi *talukas* in the

[288] *Ibid.*

[289] *Ibid.*, p. 110.

Appendix O.[290] A Similar calculation is carried out for Surat district as done in case of Broach district in table 20b.

TABLE 20b
Average Land Revenue in Rupees of the *Talukas* of Surat District in the Last Quarter of the Nineteenth Century.

Years/*Talukas*	Olpad	Mandvi	Chorasi	Bardoli	Jalalpur	Chikhli	Bulsar	Pardi
1874-75 to 1884 -85	5,71,744	1,30,909	1,59,584	4,11,332	3,27,390	2,18,542	2,37,113	1,21,887
1884-85 to 1894/95	5,81,500	1,42,689	1,57,345	4,28,626	3,28,853	2,22,908	2,40,672	1,25,364
1894-95 to 1898/99	-	1,47,661	-	-	-	2,22,530	2,40,314	1,26,255
1874-75 to 1898-99	5,76,622	1,40,419	1,58,464	4,19,979	3,28,977	2,21,326	2,39,366	1,24,502

Source: Appendix O in *RSS, Olpad, Taluka,* 1896, pp. 8-12 & 20; *RSS, Mandvi Taluka,* 1904, pp. 7-12, 21, 22 & 23 and Appendix O, O^1 & O^2; *RSS, Chorasi Taluka,* 1897, pp. 7-11, 22 & 23 and O & O^1; *RSS, Bardoli Taluka,* 1897, pp. 9-14 & 26; *RSS, Jalalpur Taluka,* 1900, pp. 10-11 & 23; *RSS, Chikhli Taluka,* 1899, pp. 12-20 & 37; *RSS, Bulsar Taluka,* 1900, pp. 8 -12 & 24 and *RSS, Pardi Taluka,* 1904, pp. 7-12 & 22.

The average land revenue of Surat district for the last quarter of the nineteenth century accounts to Rs. 2,76,206. The comparison of revenue figures for the years 1874-75 and 1898-99 suggest an increase of 23%.

Dang: The Dang territory is not recorded as agriculturally settled area. Only Vasurna and Amala Dangs contained a vast arable area.[291] The people moved out of their villages with great readiness, and chose fresh patches of forest and cleared them for tillage. Cultivation was carried on partly by digging, partly by rude ploughing and partly by wood ash, *dali* tillage. Sources do not record any regular land revenue system.[292] The assessment rate depended not on the area tilled, but on the number of ploughs used. The system was known as

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[290] See Appendix O in *RSS, Olpad Taluka,* 1896, pp. 8-12 & 20; *RSS, Mandvi Taluka,* 1904, pp. 7-12, 21, 22 & 23 and Appendix O, O^1 & O^2; *RSS, Chorasi Taluka,* 1897, pp. 7-11, 22 & 23 and O & O^1; *RSS, Bardoli Taluka,* 1897, pp. 9-14 & 26; *RSS, Jalalpur Taluka,* 1900, pp. 10-11 & 23; *RSS, Chikhli Taluka,* 1899, pp. 12-20 & 37; *RSS, Bulsar Taluka,* 1900, pp. 8-12 & 24 and *RSS, Pardi Taluka,* 1904, pp. 7-12 & 22.

[291] *GBP, Khandesh, Vol. XII,* p. 601.

[292] *Ibid.,* p. 603.

authandi.[293] Before execution of Leases in 1842, there was no restriction on cultivation by the *Dangis*. They also had an unrestricted right of alienation. They could cultivate land anywhere in the Dangs on the payment of the *halpatti* of Rs. 6.50.[294] Later in the revised Leases of 1862 restriction were imposed on cultivation any where in Dangs keeping in mind the interest of British. The territory was divided into reserved and protected forest and some land was left for cultivation in the Protected Zone.[295] The plough tax was levied sometime in grain and sometimes in cash. During the third quarter of the nineteenth century, when revenue was collected in cash the general rate of plough tax was Rs. 5 per plough.[296] The estimated gross yearly revenue of the Dangs was partly from the plough-tax and partly from the sale of forest produce but chiefly from the lease of the forests to Government. It amounted to Rs. 19,830 during the seventh decade of the nineteenth century.[297] One cannot comment definitely on the land revenue in the absence of Survey Settlement as it could be carried out only during the first half of the twentieth century.[298]

Rajpipla: - Not much can be stated on the land revenue system of Rajpipla State for the first two decades of the nineteenth century when it was under Gaekwar management. However, the revenue then realized amounted between Rs. 2,50,160 and 2,37,960 from the rich northern districts.[299] The revenue was collected through contractor. His exploitation was so much that many times a cultivator left the cultivating site. In 1820-21, the revenue to be realized was Rs. 2,40,000. However, he collected Rs. 2,90,000.[300] Because of chaotic condition British carried out settlement for the collection of revenue in

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[293] *SRBG*, NO. XXVI, New Series, 1856, p. 166.
[294] *GSG, Dang District*, p. 362.
[295] *Ibid.*
[296] *GBP, Khandesh, Vol. XII*, p. 603.
[297] *Ibid.*, p. 604.
[298] *GSG, Dang District*, pp. 370-71.
[299] *SRBG*, XXIII, p. 280 & *GBP, Rewakantha and Surat States*, p. 103.
[300] *SRBG*, XXIII, p. 276 & *GBP, Rewakantha and Surat States*, p. 103.

Rajpipla for the Gaekwar. The details on revenue estimates for the period 1823-27 can be analyzed from the *Memoir on the Rajpipla State*.[301] The land revenue realized in 1827 was Rs. 2,43,365.[302] The period 1827-31 again evidenced mismanagement in assessment and collection of land revenue as the British supervision was relaxed. The land revenue amounted to Rs. 1,76,361.[303] This was a sharp decrease and it was due to embezzlement of large amount of revenue. The British again managed the affairs and revenue was farmed. It led to increase. The realized revenue was Rs. 2,24,633.[304] However, a shortfall was again recorded as revenue amounted Rs. 2,06,590 in 1848-49. On enquiry it was discovered that the actual revenue was greater than that entered in the state accounts.[305] Hence during 1851-52, settlement was carried out between Raja of Rajpipla, Gaekwar and British, which continued during the second half of nineteenth century with modifications from time to time. *Gazetteer of the Bombay Presidency* records the revenue of Rajpipla State as Rs. 6,70,000 for 1878, which is remarkably high.[306] This included besides land revenue *abkari*, forest, *chowth*, *jakat*, civil fee and magisterial fines, etc. The administration reports of the Rajpipla State, however, help us in the demarcation of land revenue from the total revenue receipts. The land revenue was Rs. 2,08,696 and 2,01,412 in 1898-99 and 1899-1900 fiscal years respectively.[307] Thus the survey of the revenue history of Rajpipla state in the nineteenth century suggests that the land revenue kept fluctuating, however, the cultivator continued tilling despite several mismanagements and the territory remained promising.

Bansda: One does not find reference to any land assessment settlement untill 1876. The land revenue was incurred through *ijaradars*. Parsees were the chief

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[301] *SRBG*, XXIII, p. 629.
[302] *Ibid.*, pp. 634 & 638-39.
[303] *GBP, Rewakantha and Surat States*, p. 107.
[304] *Ibid.*
[305] *Ibid.*
[306] *Ibid.*, p. 91.
[307] *Administration Report on the Rajpipla State for the Year 1899-1900*, p. 15 & 17 and para 111.

ijaradars in the Bansda State. However, some references to other *ijaradars* are also available.[308] Even during British management i.e. between 1833-1852, land revenue was given on lease for five years.[309] It was in 1876 that some parts of the State were surveyed and land revenue was estimated for various crops and lands.[310] The gross revenue of the State in 1879 stood at Rs. 1,39,860[311] which was Rs. 1, 03,860 more in comparison to 1790. In 1790, the revenue of the state was returned at Rs. 36,000 of which Rs. 30,000 was recovered from the land and other sources and Rs. 6,000 from transit dues.[312] It steadily rose to Rs. 72,500 in 1862 and Rs. 1,15,500 in 1872.[313] The *Administration Report on the Bansda State for 1897-98* gives the details of revenue of the State.[314] The land revenue figures for 1896-97 and 1897-98 stated in it are Rs. 1,34,705 and 1,29,732 respectively.[315] Thus the history of the survey of revenue estimates reveals that there remained a positive trend in land revenue collection.

Dharampur: Like Bansda, Dharampur land revenue was also farmed. The chief farmers/*ijaradars* were mostly *Parsees* and sometimes others. The farmers as a rule paid to Raja partly in cash and partly in grain and grass. The land revenue details regarding Dharampur State are not available. However, the *survey settlement* carried out in 1876 suggests that the realized gross revenue stood at Rs. 2,50,000.[316] The *Administration Report on the Dharampur State for the years 1899-1900* gives the details of gross revenue in the tabular form.

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[308] *GBP, Rewakantha and Surat States*, p. 247.
[309] *Ibid., p.* 251.
[310] *Ibid., pp.* 251-52.
[311] *Ibid., p.* 245.
[312] *Ibid.*, p. 253.
[313] *Ibid.*
[314] *Administration Report on the Bansda State for the year 1897-98*, p. 39. See Appendix XVII
[315] *Ibid.*
[316] *GBP, Rewakantha and Surat States*, p. 254.

TABLE 21

Gross Revenue of Dharampur State in Late Nineteenth Century.

Items	1898-99	1899-1900	Increase	Decrease
	Rs.	Rs.	Rs.	Rs.
Opening balance	3,407	4,282	875	-
Land Revenue	2,08,696	2,01,412	-	7,284
Abkari	1,17,379	80,519	-	36,860
Forest	50,943	28,633	-	22,310
Chowth Jakat	7,628	3,816	-	3,812
Civil fees and Magisterial fines	1,832	2,131	299	-
School fees	195	72	-	123
Miscellaneous	6,810	5,216	-	1,594
Bulsar *Giras*	-	942	942	-
Recovery of former dues	3,355	-	-	3,355
Sales proceeds of grass	-	51,367	51,367	-
Loan from the British Government				
Total	-	140,000	140,000	-
	3,96,838	5,14,108	1,92,608	75,338

Source: *Administration Report on the Dharampur State for the Year 1899-1900*, pp. 15 & 45. See Appendix XVII.

Sachin: During the nineteenth century, *khatabandi* system existed in Sachin.[317] It was a system in which land was tilled on the holding.[318] The revenue details are available since 1836. The yearly revenue increased from Rs. 95,000 to Rs. 1,89,560 between 1836 and 1879.[319] It means an increase of 49%. The Survey and Settlement of Sachin State was completed in 1883. The *Administration Report on the Sachin State for the Year 1897-98* gives the details of gross revenue under various heads, which is illustrated in tabular form.

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[317] *Administration Report on the Bansda State for the Year 1897-98*, p. 261.

[318] A peculiar system of assessment by *khatas* or distinct states, calculated to equalize distribution of the good and bad lands among the cultivators, and to keep up the cultivation of the one in proportion to the other. Each cultivator tilling a certain portion of good land must also be answerable for a proportionate quantity of bad, and the whole together is termed his "*Khata*" or "*Estate*". See Robertson, *Glossary of Gujarat Revenue and Official Terms*, 1865, pp. 11-12.

[319] *Administration Report on the Bansda State for the Year 1897-98*, p. 263.

TABLE 22

Gross Revenue of Sachin State in the Late Nineteenth Century

S.No.	Item	1894-95	1895-96	1896-97	1897-98
1.	**Land Revenue**	1,27,397	1,29,126	1,34,193	1,37,975
2.	*Abkari*	37,917	39,032	37,182	37,161
3.	Tolls	5,886	5,961	5,885	5,872
4.	Stamps	3,463	4,395	5,107	3,637
5.	Registration	775	928	1,128	699
6.	Justice	946	873	1,175	723
7.	*Nazaranas*	235	232	222	215
8.	Interest	8,836	8,445	9,417	12,896
9.	Miscellaneous	8,395	6,443	12,371	6,252
	TOTAL	1,93,850	1,94,436	2,06,680	2,05,432

Source: *Administration Report on the Sachin State for the Year 1897-1898*, pp. 10 & 31. See Appendix - XVII.

Table 22 reveals the land revenue figures for the period 1894 to 1898 that shows a constant increase.

Besides the land revenue, the agricultural income[320] was generated from various other sources. These sources included various kinds of cesses, *nazaranas*, transit duties, etc. The South Gujarat territory records the manufacture of *toddy* in the villages. This became source of full time employment or during lean season. Enormous amount was generated through it, which contributed to the rural income on one hand and created rural urban network in the nearby towns on the other hand. The agricultural trade was another source of rural income. However, a detailed discussion on trade in agricultural commodities will be carried out in Chapter III.

The analysis of the source material suggests that the South Gujarat territory had tremendous agrarian potential during the nineteenth century. It was because of this that the Britishers took special interest in the region by giving thought to the development of irrigation facilities, development in

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[320] See *GBP, Surat and Broach*, 1877, pp. 238-248 & 510-522; *GBP, Rewakantha and Surat States*, 1880, pp. 91, 253 & 260-63; *Administration Report on the Rajpipla State for the year* 1902-03, pp. 40-45; *Administration Report on the Bansda State for the Year* 1897-98, Surat, 1898, pp. 13-14; *Administration Report on the Dharampur State*, 1899-1900, pp. 15-21 and *Administration Report on the Sachin State for the Year* 1897-98, Surat, 1898, pp. 8-11.

agricultural technology, improvement in the quality of seeds particularly in cash crops like cotton, creating the network of railways that definitely gave boon to agricultural trade in cotton, creation of agricultural colleges for enhancement of agricultural knowledge and so on.

Finally, it can be stated that the developments that took place in agrarian economy in the nineteenth century, the South Gujarat territory created enough space for urban dynamism, particularly, among the urban centers of middle and small size. This discussion is taken up in Chapter III and IV.