CHAPTER-V
ECONOMY AND MODERNIZATION IN BARODA STATE

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The importance of economics in explaining the actions of governments and their role in fostering a prosperous society has been apparent from the earliest days. For a society, economics provides enough data to analyze and understand government decisions for ensuring stable economic growth. Economic methods also provide the tools by which policy analysts study the possible costs, benefits and effects of government policies in a range of areas, from security, infrastructure, healthcare, education and so on. Thus economy is the operative component of any state. Economy before Sayajirao-III was local-based, restricted and highly agrarian. In this chapter an attempt is made to look into the efforts made by Sayajirao-III for the growth of economy by improving state of agriculture; streamlining revenue system; introducing and promoting industries and by opening and encouraging financial institutions like commercial bank, agricultural banks and co-operative societies. The study is further sub-divided into:- 1) Agriculture; 2) Revenue; 3) Industries and 4) Finanace.

Section-1 Agriculture

Agriculture is the science, art and occupation of cultivating the soil, producing crops and raising livestock. Agriculture is the very basis of civilization. There are not many studies that have been carried out in this field in case of Baroda state. The Baroda state territories, comprising of rich agricultural tracts were full of promise of economic returns. It catered to one of the economic requirements of the era of 'New Imperialism', which was requirement of raw materials for the growing British industries. The rural economy was thriving to meet the demands of the foreign trade.[1]The other study that is based on the issue of agriculture of Baroda state is by J.M Mehta, which focuses on the state of agriculture in the twentieth century.[2] The study by the Baroda state government titled as "Agricultural Development in Baroda state: The Future Policy and Proposed Method of Approach to the Cultivator" in the year 1936 focused on

[1] Bajpai, G. (1989). *Agrarian Urban Economy and Social Change: The Socio-economic Profile of Select Districts of Gujarat, 1850-1900*. Daya Books.

[2] For details, please see, Mehta J M, (1930) *A Study of Rural Economy of Gujarat: Possibilities of Reconstruction*. Baroda State Press

plan that was designed by the state government to improve the condition of the peasantry.[3] Manilal Nanavati's Report on Agricultural Indebtedness in Baroda state" showed the conditions of the peasantry and the reforms planned by the state to improve their condition.[4]

The Baroda state under the Gaekwad came to be established only in the early nineteenth century. The attempts at consolidating the administration continued till the third decade of the nineteenth century. It was during the reign of Sayajirao-II (1819-1848) that an attempt was made at structuring the agricultural sector. Thereafter too limited attempts were made by the state to regulate the sector. During the time of Khanderao Gaekwad (1858-1870), some efforts were put in by the state. However the collection of revenues remained the thrust of the policies formulated by the state. As has been mentioned in the previous chapter, that, it was T. Madhavrao (1875-1881) who was the regent-dewan, who in true sense introduced improvements in revenue and consequently in agriculture, thus creating foundational grounds for further development in the field of agriculture. The first task of the regency administration in 1875, on the accession of the young Sayajirao III, was to reorganize the whole land revenue administration. The base for the further reforms was created through summary reduction of the land assessment. Further, the scientific survey of land, soil and tenures commenced leading to establishment of a regular Survey and Settlement department in 1883. This was not restricted to one district but was put into application for the whole state on just and equitable basis.[5]Sayajirao-III too continued the work of T Madhavrao realizing fully well the importance of agricultural sector. He said *"There can be no industrial advance, unless the material condition of the millions of agriculturists and workers in the country is improved, as it is related to the purchasing power of these people.*"[6]He toured in all the districts of the state for getting firsthand information about his *ryots* and their problems. This was done to enquire into the roots of the problems. Moreover this was an important step for bringing positive change in the society, as all his reforms were based on the ideology of research, realization of schemes, carrying out rectification or reform work and last but not the least follow it up by continuous appraisals. Based on this pattern when the research

[3]For details, please see *The Report on Agricultural Development in Baroda State: The Future Policy of and Proposed Method of Approach to the Cultivator* (1936) Baroda State Press

[4] Please see Nanavati, M. (1913). Report on the agricultural indebtedness in the Baroda state.

[5] Shah M H, (1942). *Baroda by Decades 1871-1941,* Shah M. H., Baroda, 51; (Foreword written by V. T. Krishnamachari, the then Dewan of the Baroda State)

[6] Newham C E, (ed.) (1938). *Speeches and Addresses of Maharaja Sayajirao Gaekwad*, Vol. IV, 1934-1938, London, 887, Op. Cit

was carried out it was realized that in 1881, 64.4% of the total population in Baroda State derived their livelihood from agriculture. In South Gujarat or Navsari district of the state, the percentage of the people depending upon agriculture was as high as 80 %.[7] The total land in the state was 93, 31,641 *bighas,* of which 56, 09,011 *bighas* were arable. In 1881 45, 47,889 *bighas* were under cultivation. The actual arable land was 69, 69,080. [8]However the state faced certain problems initially which it was able to meet up with the introduction new technologies. The next section focuses on the problem that the agricultural economy was facing.

1.1 Problems in Agricultural Economy

i. Fragmentation of Holding: Major problem for the state of agriculture was fragmentation of land holding. This was because of various reasons, for example division in families from time to time; sale of land and; mortgage of land. The average holding per *khatedar* (land holder) came around twelve *bighas* which was less to give substantial produce.[9]

ii. Lack of Awareness: The agriculturists of the State were still working with traditional technology, as the new technology had not reached them. The farmers were not growing produce for large market. They also were not experimenting with new crops or were making any efforts use better manure; to employ new ways of irrigation. There were no agricultural schools or agricultural researches to teach agricultural know-how.

iii. No provision of improved techniques: The next problem lay with the administration. The state administration too so far had made efforts to improve techniques or introduced new machines aiding effective agriculture. There was this realization that agricultural science should be applied for better results. T. Madhavrao had realized its dearth and had advised the young Sayajirao-III to resolve by giving encouragement better ploughing, better manuring, better weeding and irrigation.[10]

iv. Lack of finance: The other problem that the state encountered in its research was the rural finance. Majority of the peasants were poor and illiterate. Even if the state was able

[7] Shah M H, 40
[8]BSA, *HPO*, Section No-1, Gen. Daft. No.1, File No- 6-A, 109-110, Information of Baroda State for Encyclopedia
[9] Clark A C & Desai G H, Vol-I, 258
[10] T Madhavrao, 199-201

to provide them with modern equipments and latest technology, the problem remained that the peasantry would not be able to afford it. This predicament was added by the fact that the income of an agricultural farmer was not stable. In times like draught, excessive rain fall, less market price of the produce gave a blow to the income of the cultivators. To overcome the problem of finance, the State had to create possibilities to provide finance at low rate of interests to the cultivators.

v. Lack of effective backup plans for the years of crisis: As has been mentioned above, agriculture was the most uncertain profession as it depended not only on the internal and the external forces that affect it but also on nature. Since agriculture was majorly dependent on rainwater for irrigation, the risk of bad times owing to either scarcity or excessive rainfall remains high. The lack of proper irrigation facilities added more to the troubles of the agriculturists. Especially during the famine years, there was no effective system in place, which could enable the farmers to sashay over it easily. The effective famine relief plans were the need of the time. There were no alternate vocations like animal husbandry; dairy Industry etc. during the time of agrarian crisis.

The above account reflects that the state successfully identified the problems that the agricultural sector was facing. Now it was up to them to bring about plausible solutions and thus bringing about an overall development in the field. The following section focuses on process of modernization that led to change in the policy of the state and improvement in the agricultural sector.

1.2 Agricultural Modernization

The beginning was made with reorganization of the Agricultural Department and implementation of the policy drawn. This was followed by various measures that were adopted by the state to bring about agricultural awareness. The state did not merely talk about it but also introduced the improved techniques. It recognized the need for creating markets to enable the peasants to sell their products at right prices without exploitation.[11] Apart from these the state also focused on providing an alternate employment in dire circumstances. The state also gave the

[11]BSA, *HPO*, Section No-11, Gen. Daft. No-16, File No-13, 15-19, Extract from letters dealing with sending student and officers to Royal College Cirencester.

farmers loans in times of need. The primary task was done to restructure their agricultural department.

i. Re-organization of the Agricultural Department:- For the success of any venture proper planning is a precondition. The task of resurgence of agriculture was in itself challenging because there was the multiplicity of undertakings and the Department of Agriculture in the beginning was substandard. Up to 1909, agriculture in Baroda had been under the supervision of a branch of the Revenue Department. Some students were sent to England to be trained in Royal College of Agriculture at Cirencester and on their return were placed in charge of farms and in the Agricultural Department. During the period of twenty years from 1887-1907 the officers in charge of the department had several other duties to perform. For instance, at one time, a person was in-charge seven departments.[12]

In 1899, when the western India was hit by a great famine, both the Indian government and the state government were forced the state to take substantial steps for the improvements of agriculture. Between 1900 and 1904, various measures were taken by the government of India to reorganize their Department of Agriculture and several experts in Agricultural Chemistry, Economic Botany, Mycology and Entomology were engaged. An Imperial research institute was founded at Pusa and Provincial Department of Agriculture was restructured. To co-ordinate their activities and to carry out a well-considered policy for the whole of India, the office of the Inspector-General of Agriculture was created in the Government of India.[13] Agricultural policy of the Government of India influenced the Baroda Government to reorganize its Department of Agriculture. Thus in the year 1909, an independent Department of Agriculture was established in the State. The Department carried out activities to bring improvement into agriculture. It was assigned the work to look into a) Farms viz. model, experimental and miscellaneous b) dairy, c) entomology and d)

[12] BSA, *HPO*, Section No-11, Gen. Daft. No-16, File No-13, 15-19, Extract from letters dealing with sending student and officers to Royal College Cirencester.
[13] Clark A C & Desai G H, Vol-II, 304

propaganda work for spreading far and wide within the state, the activities of the agricultural department.[14]

The Department was placed directly under the Dewan with a view to personal attention of the head of the administration. There was a continuous exchange of ideas with similar office of Indian government. For instance, arrangements were made for periodical visits by the officers of the various departments of Agriculture in British India to the Model Farm at Baroda and vice-versa. This arrangement continued till 1912. Since, the department had no expert or district staff it was unable to carry out any special research work. In 1912, Dewan Bahadur V. M. Samarth assumed charge of the Department of Agriculture. He at once commenced the laying of the foundations of a new and progressive policy of co-operation between the officers responsible for the welfare of the different districts of the State and the Department of Agriculture.[15]The result was that substantial amount of research work was carried out, which enabled the department to resolve the problems in the agricultural sector.

ii. Measures to minimize the fragmentation of the Holdings: As has been discussed in the previous section, that the when the Maharaja acceded to the throne, he faced with few problems in the agricultural sector. One of the major problems was fragmentation of land holding. Prior to 1905, the revenue rules permitted sub-division up to three *bighas* for the *jirayat* lands and one *bigha* for *bagayat* lands. In that year (1905) the revenue department, for the 'convenience' of the cultivators, amended the rules and permitted the sub-division of the dry land up to a *bigha* and a half and of the wet land up to half a *bigha*. Even then the rules were not fully effective, for they could not prevent sub-divisions decreed by the Judicial Courts. In the year 1917 a committee was appointed by the state government to consider what steps could be taken to stop the excessive sub-divisions of agricultural holdings. The Committee's recommendations were divided into two groups (a) for prevention of further minute sub-division and (b) those for the union of small and scattered fields to create a bigger land. To give effect to these recommendations of the Committee an act for the

[14] *Baroda Administration Report,* 1912-13, 169

[15]Sergeant P W, (1928). *The ruler of Baroda: an account of the life and work of the Maharaja Gaekwar*. London: J. Murray, 241

consolidation of scattered holdings was passed on 16th December 1920.[16] The Land Revenue code was also amended laying down a land ceiling was fixed. For instance, *Jirayat* land (dry crop) could not be divided below eight *bighas*, *Bagayat* land (irrigated land) below three *bighas* and *Kyari* land (small piece of fertile land) below one and half *bighas*. The act was put into application by notification to any village where two- third of the *khatedars* desired it. According to the law, the Land Commissioner was to redistribute the holding in such a way that each *khatedar* could get, in one piece, land equal to the amount of his previous holding in small and scattered pieces. [17] The Act for the consolidation of scattered holdings was a permissive one and could be applied by notification to any village where 2/3rd of the *khatedars* holding at least one-half of the total occupied land of the village desired it. The rights of mortgages, tenants and others were not to be affected. The owners were to have the same rights on the new consolidated holdings as they had on its component parts.

In the years to follow, it was realized by the state government that no substantial advantage was taken of the Act. Therefore the government thought of making policy level changes to arrest subdivision of land beyond specific limits. With that in mind a committee was appointed in the year 1922. The committee was to advise government, as to the best means of promoting the object in view. When the committee came up with their recommendations the government accepted most of them and the organization of co-operative societies for consolidation of holdings was undertaken. The first landmark was the application of the cooperative principle to the consolidation of agricultural holdings. The next step was that a provision was made in the Partition of Immoveable Property Act to restrict fragmentation. The problem still was of fragmentation through sale and mortgage. To prevent this, an act regarding the Prevention of Fragmentation of Agricultural Holdings was passed by Government in the year 1933. Under this Act, neighbors and co-partners were given a right of purchase of the adjoining lands under prescribed limits and sellers were required to

[16] Shah M H, 153
[17] Clark A C & Desai G H, Vol-I, 260

inform the neighbors of their intention to dispose of their lands.[18]Unfortunately, the legislation of fragmentation of holding did not work very satisfactorily and it had to be abandoned.[19]

1.3 Measures to Create Agricultural Awareness:-

The other attempt made by the state-government under Maharaja Sayajirao-III state was to draw measures to create awareness towards better farming. These are classified into three sections 1) Agricultural Education, 2) Agricultural Research and 3) Agricultural Propaganda

1.3.1 Agricultural Education:

The Maharaja thought it fit to make efforts to educate the peasantry by educating them regarding various changes that had taken place in the field. Agriculture education was a novel feature initiated towards better farming by the State. Opening of Agricultural School or classes was an idea given by Hargovinddas Dwarkadas Kantawala, one of the leading citizens of Baroda. In 1886-87, a special Agriculture Vernacular School was started in Baroda, which was later on transferred to the Education Department. [20] The school was initially started with just twenty-five students in it. Agriculture department of the college was established in 1889 by order of Sayajirao-III and was supplied with a competent staff. In 1890, a class for training students for the Bombay University was opened in the Baroda College.[21] That year itself, the state established the Agricultural Institution. This was a first of its kind to be established in western India. Here the progressive farmers were encouraged for learning the scientific "agro-know-how". Courses in Agriculture were also introduced in the Kala Bhavan and in the Male Training College, as well as in the Dhanka Boarding School in the Navsari District. All these schools were provided with small farms; but the students trained in the schools and colleges, instead of following agriculture as a profession, sought Government service. As they had failed to justify their existence they

[18] Nanavati M B, (1966). *Rural life problems: personal experiences.* [Bombay]: Indian Society of Agricultural Economics, 40
[19] Shah M H, 154
[20] Baroda *Administration Report* ,1900-1901, 20
[21] *Baroda Administration Report*, 1891-92, 90

were closed. In 1895, for the benefit of the boys of the backward classes, separate schools were also opened at Songadh, Arhati and Maha in Navsari Districts and at Kadi (North Gujarat). [22]

An effort was made in 1904 to introduce agricultural courses in the Patel Boarding School at Amreli, however that too failed. This was due to the fact that there were no takers for the courses. In 1916, a special school to train the boys of the agricultural classes was opened at Jagudan, and later was transferred to Baroda.[23] This school was also closed owing to absence of sufficient number of students. The efforts made by the Maharaja met with a failure in the field of agricultural education. The reason was that the general education was less advanced and training imparted was more theory than of the field. Naturally in spite making efforts the state could not lure students. Sayajirao was upset with the passive response of the people. In 1909, speaking before the Baroda College students Sayajirao-III expressed his desire that "some of the young students should settle down in the country as farmers, adopt improved methods of agriculture, start cooperative credit societies and introduce in villages something of the civilization of the age to help them to improve health and sanitation and management of their villages." [24] The agricultural education was also extended to the government servants. The officers of the Revenue Department had to attend the agricultural educational class. The Maharaja also focused on education of agriculturists i.e. imparting general education to the farmers. He emphasized that the cultivators should also undergo primary education training which could help them in their life and profession.

During the course of time, the Maharaja expanded the possibility of the agricultural education of the students. In order to encourage more students, concessions and scholarships were offered. This revived his efforts to greater extent after initial set back. Public appreciation of the efforts towards agricultural education grew high and the demand for admission exceeded accommodation. An Agricultural Institute was established at Baroda in 1936 called as Sheth Dosabhai Maganlal Agricultural Institute.[25] This institution offered facilities of specialized training and higher agricultural education. In 1938 an Agricultural Vocational Institute was

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[22] Parikh, R. G.(1973) *Social, Economic and Political Ideas of Maharaja Sayajirao-III of Baroda*, Unpublished Ph.D.Thesis, The M. S. University of Baroda, 168

[23] Clark A C & Desai G H, Vol-I, 303

[24] Widgery A G, Vol. *I*.-23

[25]The Imperial Council of Agricultural Research (1940), *Agriculture and Animal Husbandry in India, 1937-1938,* 245

created. [26]The Education Department also designed a special course for agricultural training in many schools in rural areas.

The state also invited experts from various countries to share their experiences and also sent the students to train from them. Skilled and enthusiastic students were sent for further studies and training in the subject. In those days, the Royal College of Agricultural of England at Cirencester had a great reputation. Arrangements were made to send students and officers of the state to undertake training in agriculture.[27] Provisions were also made to import agricultural implements from abroad and the cultivator was encouraged to learn and understand its mechanism. Wherever Maharaja travelled, he would be alert to any new developments in the agricultural field. Wherever, he would find anything interesting, he would bring it with him. In this manner, he some high-breed varieties of sugar cane, cotton, wheat, tobacco, indigo, potatoes, mulberry etc. were imported for the farmers. Experiments were also made by Agricultural Department on tobacco-curing, cheese-making and even breeding sheep imported from Australia.

Apart from this, nation-wide, agro-educational trips and exhibitions of experimental and observational nature were organized. Several such trips were taken to tube-well areas in United Provinces, Imperial Agricultural Institute, New Delhi, and other farms. Practical training in agriculture and gardening was also imparted at Thakarda Boarding School, Patan. The visual-film documentary was being used for the agricultural education purpose in the state. Thus the state essentially introduced these modern measures to educate its people.

1.3.2 Agricultural Research:-

The agricultural research in the state fell within five main groups[28]viz. Experimental Farms; Seed Supply; Agricultural Chemistry; Plant Breeding; and Plant Pathology. This section discusses the attempts by the state to bring improvements in the field.

i. Experimental Farm: Agriculture as a subject cannot be confined to class-room learning only. As has been discussed earlier that the agriculture classes at first could

[26] Shah M. H., 69
[27] BSA, *HPO*, Section No-11, Gen. Daft. No-16, File. No-13, 15, A report honouring Khaserao Jadhav for his efficient in-service training in agriculture and contribution in the field.
[28] Shah M. H., 65

not attract many students. The primary reason was that they were theoretical in nature and not practical. However the interest of the students increased when, experimental farms were attached to agriculture institutions. In 1893 the agricultural farms were placed under officers specially trained at the Royal College of Agriculture, England. Initially the work that was carried out on these farms was more of an observational nature than of an experimental one. Later the experimental farms were organized with two aims i.e. to experiment in local environment and to breed sufficient quantity of the improved seeds for distribution to the farmers. The best method of tillage and crop treatment were investigated and demonstrated to the cultivators. The investigation also consisted of varietals, manurial, spacing and double cropping experiments.[29]

There were many Experimental Farms that came to existence as a result of the efforts of the state. For example, Baroda farm carried out cultural, varietal and manurial experiments with the crops of the district consisted chiefly of desultory trials of cotton, tobacco, groundnut varieties and even of jute. The Horticulturist and the Economic Botanist conducted their researches on this farm. The crop experiments were conducted at Baroda. The Jagudan Farm represented the sandy alluvial soil of the Mehsana district. It conducted systematic trials and experiments with the more important crops of the area such as cotton, ground-nut, *juwar*, *bajri*, and wheat.[30] The farm was associated with Dhollera's cotton improvement scheme sponsored by the Indian Central Cotton. The principal object of Dabhoi farm was to serve as a centre for the production of pedigreed seeds. Eight types of cotton were used undertake experiments for the study of the special problems connected with the irrigation of black cotton soils. In 1933-34, a small sugar-cane and paddy farm covering twenty-one *bighas* was opened at Vyara. The Vyara Farm was to experiment with the new types of sugarcane and supplied sets of improved cane to cultivators. In 1936-37 the cotton farm covering 109 bighas was established at Vesma. The primary function of

[29] BSA, *HPO*, Section No-11, Gen. Daft. No-16, File No-13, 15-19, Extract from letters dealing with sending student and officers to Royal College Cirencester

[30] BSA *HPO*, Section. No- 316, Gen. Daft.- 163, File. No.-12-A, Administration Report, Information about the moral and material progress of the State of Baroda from 1900-1928

the Farm at Vesma was to supply seed of cotton. The farm at Songadh was engaged in the trial of *jowar*, cotton, *bajra*, certain vegetable crops etc. In 1937-38 a small fruit farm covering thirty *bighas* was constructed in Gandevi. In Amreli, a small farm was set up in 1927-28. It represented the medium black soil of the tract and conducted experiments on important crops and multiplies seed of promising types. The Dholleras cotton scheme also functioned at this farm.[31] At Kodinar a small farm of twenty *bighas* was started as a joint enterprise with the Banking Union. It provided the *taluka* and the union with a nucleus for the effective testing of new varieties of crops and served as a principal focus for the expansion of fruit in the area.[32]Besides the above farms, two dry farming stations were also established- one at Harij for North Mehsana District and the other at Kalyanpura in Okhamandal.[33]

The Experimental farms more or less followed the practice of similar farms established in British India. Experiments with local and exotic varieties of cotton, tobacco, ground-nuts, wheat, and garden crops; in artificial, green, farm yard, and village waste, manures; and, in tillage, with iron ploughs, harrows, and other implements were made. Honorary correspondents were appointed and encouragement was given to the supply of improved implements to the cultivator at less than cost price. The four districts were allocated to the graduates from the agricultural institutes. They had to supervise the trial of new crop or manure.[34] Unfortunately the results, with an exception of ground-nut crop, green manures were not as successful as was desired. Efforts were made to introduce exotic varieties of cotton and sugarcane, to extent the cultivation of wheat, tobacco, indigo, safflower, potatoes, and mulberry and Indian fruit trees. Trials were made with artificial manures on dry and irrigated crops.[35] The total farmed land of the department increased from 244 in 1930 to 515 *bighas* in1940.

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[31] BSA *HPO*, Section. No.-1, Gen. Daft. No.-1, File No .3A
[32] Shah M H, 68
[33] Ibid.,
[34] BSA, *Baroda Administrative Report* 1912-13, 169.
[35] Clark A C & Desai G H, Vol-I, 303 Op. Cit

ii. Seed Supply: There had been constant demand on the part of agriculturists for pure seeds which retained better yielding capacity and better disease resistance. To meet this demand of agriculturists, experiments were made on the experimental farm for getting improved and pure seed. After the successful experiment, the seeds were supplied to the seed growers. Sufficiently large nucleus of such types of seeds were created so as to meet the requirements of first class registered seed farms whence the selected verity could pass out to growers' seed unions or to the seed farmers in the village better farming societies for further multiplication and subsequent distribution for commercial sowings.[36] For easy and speedy supply of compost and seeds--fertilizer stores were created at different places like Padra, Kheralu, Songadh, Kodinar and at Kalol; and seed stores were opened cotton, juar, and other seeds were opened.[37]

iii. Agricultural Chemistry: The third aspect that the state focused was in the field of agricultural chemistry. It is the study of both chemistry and biochemistry, in agricultural production. It means the processing of raw products into foods and beverages, and in environmental monitoring and remediation. The application of science to agriculture began in Europe during 1834s when Jean Baptiste Boussingault laid the foundation of agricultural chemistry.[38] Later in 1840, Justus von Liebig did experiments with artificial soil fertilizers and held that the transformation of inorganic into organic substances takes place exclusively in plants. In his classical monograph on agricultural chemistry he at once attracted the attention of the agriculturists in Europe to the supreme importance of soil and the soil solution in the raising of crops. The landowners in Britain realized the responsibilities of improving their land and improved the agricultural knowledge of their tenants. As a result, Britain soon took the premier place as the most successful farming country in the world.[39] When the East India Company (EIC) established their rule in some parts of India they took

[36] Shah M. H., 69

[37] BSA*, HPO,* Section. No- 316, Gen. Daft- 163, File No.12-A, 345,Administration Report, Information about the moral and material progress of the State of Baroda from 1916-1928

[38] Please see Wisniak, J. (2007). Jean Baptiste Boussingault. *Revista CENIC Ciencias Químicas*, *38*(1). 270

[39] For details, please see Sen, S. (2010). Scientific Enquiry in Agriculture In Colonial India: A Historical Perspective. INDIAN JOURNAL OF HISTORY OF SCIENCE,*45*, 199-239.

interest in the agricultural produces and practice of Indian cultivators. In 1892, Dr. J.W. Leather, an agricultural chemist was appointed and a cadre began to evolve. It was not a permanent post and Dr. Leather was engaged for a period of five years. His appointment marked the beginning of research in agricultural chemistry and soil science in India. The credit goes to Dr. Leather for initiating permanent manure experiments for critically evaluating soil productivity on a long-term basis. The major developments in field however took place only in the beginning of twentieth century.[40] The Baroda state government influenced by the results engaged itself with the understanding of the field. The government sanctioned the appointment of an Agricultural Chemist in the year 1936. The initial deputation was made to the Central Provinces to gain intensive experience in Agricultural Chemistry, primarily that of soil and water. Certain thrust areas were identified on which the office of the Agricultural Chemist worked during four years (1937-41).[41] For example the extensive survey and intensive study of well and tank waters was to be carried out; the growth of different cottons in different tracts; application of rapid chemical methods of analysis to soils and irrigation waters; sugarcane research was carried out at Vyara; and investigations were carried out into the salt lands near Nimetta.

iv. Plant Breeding: The Agricultural Research Program also included plant breeding. Each district of the state due to its location had peculiarities of soil and climate. This led to varied response of same breed of crop in each district. This group of research mainly dealt with examining and determining suitable crop for particular type of soil and climatic conditions. However as cotton had been uniform crop throughout the state, hence most of the researches were carried out with cotton. The other crops of importance for research and trial were *juwar*, *bajra* and castor.[42]

v. Plant Pathology or Phytopathology: This group of research dealt with the study of the origin, nature and course of diseases in relation to crops and plants. Its major task was

[40] Borthakur, A. and Singh P, *History of Agricultural Research in India*, (http://www.currentscience.ac.in/Volumes/105/05/0587.pdf)

[41] Shah M. H, 70

[42] BSA *HPO*, Section. No- 316, Gen. Daft- 163, File. No.-12-A, 7-10 ,Administration Report, Information about the moral and material progress of the State of Baroda from 1900-1928

to investigate into the organism responsible for the root-rot causing the failure of crop or for its poor quality and quantity yield. Again like plant breeding cotton was of its prime importance being a uniform crop; and hence it was largely financed by the Indian Central Cotton Committee. Also the Department of Agriculture had for some years devoted much attention to the improvement of cotton cultivation on the same lines as in the Bombay Presidency, and this policy had resulted in the rapid elimination of inferior varieties.[43]

1.3.3 Agricultural Propaganda

The idea of imparting agricultural education and carrying out agricultural research undoubtedly was prolific. But its limitation was that it could not bring a large number of farmers in touch with the work done on the demonstration farms and their outcomes. It was therefore essential to propagate their researches. Developments like the improved seeds, scientific collection of manure and improved methods of cultivation had to reach to the public. This was being tackled through agricultural propaganda. Agricultural propaganda took shape first during 1893-94. There were various steps taken to familiarize cultivators with the improvements made in the field.[44]For example special officers were appointed and Agriculture Associations were formed to meet the objective; Agricultural Museum was started at Mehsana which arranged cattle shows[45]; Travelling Agricultural Exhibitions were organized; B.B.& C. I. Railways wagon was hired for such purpose; demonstration of improved implements were made and were supplied at almost at half the price; informational lectures were delivered and demonstration of implements were made by revenue officers and Inspectors of Agriculture Department; informational literature like leaflets and pamphlets on various subjects such as the advantages of raising fodder, the improvement of cattle breeding and the inconvenience of small holdings, were published and freely distributed. Some important publication among these were: Annual Agricultural Calendar a 'Khedut Panchang', an Agricultural Quarterly of Gujarat-'Kheti and

[43] http://www.gaekwadsofbaroda.com/content/ruling-princes-and-chiefs-india
[44] Clark A C & Desai G H, Vol-I, 306
[45] BSA, *HPO*, Section. No-65, Gen. Daft. No-112, File No.11, 85-111, Prospectus of Baroda Agricultural and Industrial Exhibitions of Baroda State 1919-1928

Sahakarya'; a bulletin summarizing work of Baroda Agricultural Department and Publication of leaflets to show use, tests and types of motor tractors.[46]

It was after 1927 several new agencies had been added and all possible efforts were made to bring home to the cultivators the results of various experiments and researches in agricultural improvement. The new agencies like the Rural Reconstruction Centres which were created to induce the rural population to take practical and active interest in all matters of their economic welfare. This meant naturally leading to better sanitation, health and citizenship and finally to better economic condition. Two Rural Reconstruction centres were organized one at Kosamba and the other at Karjan. The other agency that was organized was called as Intensive Unit. Five 'units' comprising hundred villages were planned out in such a way as to carry out intensive propaganda in the tracts suitable for particular items of possible agricultural improvement. Arranging Itinerant Cart Circuits were arranged. In the areas outside the intensive zones, the work of agricultural propaganda was carried out through itinerant cart circuits or travelling cart circuits. There were also various societies formed which were called as 'Better Farming Societies'. At each village in the areas under intensive attack, there was a Better Farmers Club with membership ranging from about twelve to forty. There were about five hundered such societies in 1940-41 in the state.[47]

1.4 Introduction and Usage of Improved Techniques

Agricultural Engineering signified scientific techniques and improved implements used in agriculture. It was the lack of capital; and ignorance combined, that explain the kind of tools and techniques employed in the vocation. In order to achieve increased quantity and improved quality of the produce from the fields, the Indian agriculture had to look to science for improvement. The modern state of Baroda did not miss out on this aspect as well. The section Agriculture Engineering was established in 1909. In 1917-18, the first Agricultural Engineer was appointed. The work of this section was to introduce boring-well, tractor ploughing and improved agricultural implements. Every attempt was made to make agriculture intensive changes were made in the field of irrigation, manure, scientific implements and so on.

[46]BSA, *Baroda Administration Report,* 1912-13, 171
[47] Shah M H,62- 64

So far the tools used in state were simple and primitive. In 1902 Sayajirao earnestly hoped and appealed that the peasants should adopt new implements like iron plough and thrashing machines. However he had realized peasants' apathy towards such new implements.[48] Initiation was made then to introduce better tools like iron ploughs, reapers, cane crushers, winnowers, steam ploughs, and other costly and heavy machinery.[49]The agricultural tractor made its first appearance in India by about 1919. It was also during this phase that tractor ploughing was introduced in Baroda.[50] The tractors of that day were engaging in contract ploughing. The prices of tractor ploughing which ruled during that period ranged between Rs. 26/- and Rs.31/- per acre. The tractors then were of low power and ran on kerosene. They were not really constructed for the very heavy strain demanded in ploughing the black soils of Navsari and Baroda. It was in the year 1937 that the first systematic effort to design and construct agricultural implements suited to local needs and to create a local industry was made. This attempt resulted in the creation of the Gandhi-Allan cultivator and hoe which was capable, with adjustment, of several types of work and was particularly suited to Gujarat soils and planting conditions. Another useful production of this section was an improved threshing implement.[51] This did away with the need of the large number of bullocks employed for this purpose, making them available for better tillage.

This measure of the state was received well by the people. There was a notable stimulation of popular interest in ploughs, cultivators, hoes, and fodder cutters. This can be discerned from the figures which showed that while the number of implements supplied to farmers was only twenty seven in 1935, it rose to about 1000 in 1941. Further encouragement was given with the introduction of a system of hire purchase. Rebates were made available to the poor cultivator by the provision of Rs. 6000/- per annum for a period of three years from the Diamond Jubilee Trust Funds.[52] Workshops were also established in Baroda for repair and maintenance of boring material, ploughs and for construction of miscellaneous requirements.

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[48] Parikh, R. G.172
[49] Clar Clark A C & Desai G H, Vol-II, 303, Op. Cit
[50] Shah R J, 96
[51] Shah M. H. 79
[52] Ibid., 80

So far as use of manure was concerned, experiments were conducted for manure which would best suit the particular soil, crops, and climatic conditions. Experiments were also conducted to eradicate plant diseases. Demonstrations and supply of collection of scientific manure was being made. It was during 1902, that the export of cotton-seeds had increased immensely. The cattle had to go without cotton seeds and their manure was becoming practically valueless. The crisis of quality manure had grabbed Sayajirao's attention for which he suggested artificial manure to be necessary as an alternative to cattle manure.[53] In 1936, writing to his Dewan Sayajirao-III intimated his idea of using 'human excreta' for manure purpose. He wrote "you might see if it is possible to get one or two Chinese or Japanese (experts) here to demonstrate the method.[54]

1.5 Irrigation

Baroda was a state of agrarian economy. Majority of people depended upon rainfall, which naturally was unpredictable. This caused adverse seasonal conditions year after year and hence irrigation became an essential necessity. Prior to the year 1885, In the Baroda State there were no large-scale irrigation works. There were small irrigation works, especially, "Paddy Tanks", which were used extensively for watering the rice, the chief of the monsoon crop. The number of small tanks in each taluka varied with the nature of the staple crops, soil and the capacity of the cultivators to irrigate the fields. Navsari, possessed fertile soil and possessed a large number of paddy tanks.[55] A great impetus to the installation of well-defined and controlled irrigation systems was given following the famine of the year 1899-1900. The intention was to bring up the development of irrigation to the level of the British India, especially the work done by British Government in Madras Residency. Expert engineers like Mr. G. R. Lynn, Mr. Chunilala Dalal, Egerton Purves and E. L. Glass had served the state for the irrigation projects.[56]

[53] Parikh, R. G.174 Op. Cit.
[54] BSA, *HPO*, Section No-11, Gen. Daft. No. 16, File No. 311, 21
[55] Kulshreshtha S. (2008), *Ecological History of South and Central Gujarat*(1875-1935), unpublished Ph.D. Thesis, The M. S. University of Baroda, 152
[56] BSA, *HPO*, Section No-177, Gen. Daft No.-550, File No 17

Several irrigation tanks with small distributing channels and other river irrigational projects were undertaken. Below is the resume of the various irrigation projects carried out to ameliorate scarcity of water in different districts of the state.[57]

i. Baroda—Haripura Tank, Karachia Tank, Orsang irrigation works, Khokhara Tank, sarsi tank, the Lachraj Tank, Vadhavan tank in Baroda, Alwa tank in Jambua River velley

ii. Navsari—Umrat Irrigation Tank, The Bhadarpada Project, Chikhli Weir No 14/A, Doswada project no.11 in the Vyara taluka, the Valvi project on the River Mindhola in Vakal taluka and the Purna river project on the River Purna in the Vyara taluka were in the initial stages of their construction. Besides these, Navsari had small tanks in almost all the villages, project for storing water of river Tapi in the vicinity of Vajpur of Navsari division, construction of reservoir across Zankri River.

iii. Kadi—Mehsana-Sidhpur water supply project. Mahudi project, Sabarmati River Project, Kadarpur tank and weir across river Saraswati etc.[58]

iv. Amreli—project over Singoda River in kodinar, Bhimkhkhaja project, Setrunji River project and so on.[59]

Of the river irrigation projects, two deserve special mention here, Sabarmati river project and Zankhari irrigation project.[60] Zankhari irrigation project was although small project, in comparison to other parts, yet it was an effective one. The plan was to construct a masonry dam, which was to be 3,500 feet in length and was to cover the length across the combined Zankhari and Gira valleys. The reservoir was to have the storage capacity of 120,000 acre-feet. It was to provide irrigation to an area of 9,000 acres. The falls on the canals was to generate 2,300 K.W. of power. The estimated cost of the scheme was one crore of rupees. The Sabarmati project was to build a masonry dam across the Sabarmati River. This was to make a reservoir with a storage capacity of 2, 30,000 feet. A pick up weir was to be constructed twenty-five miles downstream.

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[57] BSA, *HPO*, Sect. No-177, Gen. Daft No.-550, compiled from files 4 to17
[58] BSA, HPO, Section No. 177, Gen Daft. 549, File No. 7, 13
[59] BSA, HPO, Section No. 177, Gen Daft. 549, File No. 3, op cit
[60] BSA, *Baroda Administration Report*, 1936-37, 232

It was to provide irrigation to 45,000 acres and generate 6,000 K.W. of power. The estimated cost of the project was Rs. two crore.[61]

Another important source of irrigation was by wells, from which water was raised by means of water-bags. Irrigation in the State also depended largely upon well-water. Of the 6 % of the area that was irrigated, nearly 5.04% was irrigated by well-water.

Melvill, Angent to Governor General, wrote about the importance of the well in Baroda, *"that irrigation in these territories mainly depends on wells, there are no canals to speak of, and there are also no tanks of any note (1882) such as would supply water for irrigation in a season of drought. Gujarat being a flat and sandy country, does not afford facilities for the storage water for irrigation purpose. wells are then the only means of irrigationin tis country at present It has been found by an experience that though a few wells may fail, the majority may be relied on at least during one season of draught. The Baroda Government is alive to desirableness of encouraging sinking of wells by the people, It has taken action in this direction*".[62]

The importance of wells was recognized by the Sayajirao's government and therefore special loans were given called as Tagavi loans, especially so during the drought times. The loans were given for sinking new wells and maintain old ones.[63] This did not mean that the measures the state took met with immediate success. In fact, the development of irrigation in its initial stage was met with partial success. This was mostly because the peasants were not convinced to use the irrigation facilities as it was something they were unfamiliar with. Gradually the value of irrigation was recognized due to failure of rains, when the crops were saved. In spite of this the peasants would depend upon irrigational facilities only during hour of crisis. For example the real impetus was given during the famine in the year 1900. However in other times, the irrigation policy in Baroda did not meet with as much success. This was due to peasant's perpetual dependence on rains. This led to the government putting hold on undertaking any new substantial works. Even the existing ones fell into a state of deterioration. There were

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[61]BSA, *Baroda Administration Report*, 1936-37, 232-233

[62] BSA, HPO, Section. No-177, Gen. Daft., No-549, File.No-4, 19, Letter from Melvill, Agent to Governor General, a Reply to Bombay Government's query on irrigation in the Baroda State, dated 13th June, 1882

[63] Nanavati, M.(Director of Commerce and Industry Baroda State)(1916). *Notes on Industrial Development in the Baroda State*, Baroda Printing Works, Baroda, 4

20,000 *kaccha* (rudimentary) wells and 35,000 *pacca* (constructed) wells in the state.[64] However due to public responsiveness there was a change in the Government policy after 1925 to preserve and rectify past irrigation works. Besides the tanks and wells, the focus was laid on other sources of irrigation.

So far as the drainage channels were concerned, between 1880 and 1900 several of them were constructed mainly in Baroda and Kadi district. This was mainly done to prevent water logging. After its success in these two areas, further field drainage work was carried out in the next twenty years in the Petlad, Karjan and Sinor *taluka*s of the Baroda district.[65] The completed drains were carefully maintained to prevent silting. Irrigation by pumping and irrigation by tube wells were also common.

Well boring operations for the improvement of agricultural well water made the way in the State in 1909-10 when in Padra *taluka* a hand boring set borrowed from Bombay was used. However an attempt to stand on its own was made as early as 1906. Mr. Ito, a Japanese expert, who had conducted some experiments in well-boring in the Bhavnagar State, was appointed in Baroda State in December 1906. He began to work on the Baroda Model Farm initially. The well that was being bored had gone down about 120 feet by the end of July 1907.[66] However, this attempt ended in a failure. By 1910-11 as has been previously mentioned, the state borrowed the technology from the British and continued to work in the field. In 1912-13, twenty boring machines were put up in the Navsari, Baroda, Petland and the Kadi division. 204 boreholes were made during the year in seventy six villages, as against 119 of the previous year. The successful wells gave 565 *koses* of additional water.[67] In 1919-20, the department had whopping 103 applications for boring, of which fifty seven wells were bored, out of which thirteen were unsuccessful.[68] At this time the rock boring power machines were particularly successful and there was an increase in the demand of such a well. The total expenditure of the boring branch in this financial year amounted to Rs 15,273-11-7 and the earnings came to be Rs1, 184-0-8.[69]

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[64] Nanavati M, 4
[65] BSA, *HPO*, Section. No-177, Gen. Daft. No.-549, File No.-4, 19
[66] BSA, *Baroda Administration Report,* 1906-07,78
[67]BSA, *Baroda Administration Report*, 1912-13, 30-31
[68] BSA, *Baroda Administration Report*, 1919-20,172
[69] Ibid.

In 1924-25, the possibilities of improving the wells were successfully investigated and in 1927-28, demonstrations regarding the effectiveness of portable pumping sets on co-operative basis were given.[70] The department alongside also, organized a campaign of tube-wells. Irrigation by tube-wells was attempted with a view to utilize and develop sub-soil water supplies. The chief centre was Vijapur. In this scheme, a number of wells were worked by electric grid. The estimated cost of the scheme was about Rs. 10 lakhs.

At times borings on such a large scale led to the reduction of the water table, which consequently resulted in the scarcity of water. This fact became obvious in the year 1923-24, when in the Baroda state; there was an acute shortage of water supply in the wells and the tanks even for the drinking purposes[71]. This spurred the local boards to adopt measures for meeting the solution, but the number of applications for the boring of wells kept on increasing.

Following table gives an account of Boring Operations in the State between the years 1931 to 1934.[72]

Sr. No.	Item	Year 1931-32	Year 1932-33	Year 1933-34
1	Applications received	29	49	45
2	Wells taken up	29	42	44
3	Successful bores	17	30	30
4	Increase of water in kos	28.5	38.5	35.25
5	Total depth bored in feet	_	_	2,978

[70] Shah M H,77

[71] BSA, *Baroda Administrative Report*, 1923-24, 1925, 193

[72] Data collected from *BAR*, 1932-33, 1933, pg.167 and *BAR*, 1934-35, 1936, pg.152

In a district like Amreli which was based on rock stratum, drilling and blasting was introduced to deepen the well or to tap new streams. The introduction of two tractor operated compression drills to facilitate this work and free provision of Tagavi loans for such improvement was made. The number of wells thus blasted up, rose from twenty in 1935 to 589 in 1940.[73] To encourage this, the state-government offered to share half the cost of dynamite used. Later oil-engine and pumps were introduced which became progressively more popular.[74]Around Baroda city itself a there was a marked increase in the use of electric power in pumping. The result was that nearly hundred wells were fitted. By 1939-40, there were 88,213 wells in general which were in use. Of the total cultivated area of the State, 3, 34017 *bighas* or about 6% was irrigated through different means of irrigation. When the data was compared to Bombay under Indian government, the percentage of irrigated to the cultivated area was only 1.69%, Baroda had good irrigation facilities.[75]

1.6 Market and Marketing

For any flourishing economy consumer markets play an important role. The entrepreneurs and the government keep on making various attempts through marketing techniques. The modern state of Baroda too, under the aegis of Sayajirao Gaekwad attempted the same. As can be gleaned from above, the state in the modernization process had made efforts to ensure better quality and quantity of agricultural yields. However there was lack of enough big markets which connected the rural economy to other national and international economies. This was due to poor market facilities, poor communication, negligible industrialization, lack of capital, absence of surplus good and other factors.[76] Most of the time the needs of the villagers were met with at the weekly markets and it was here that the surplus was disposed of by the cultivation. There were indeed certain market towns, most of them generally being *taluka* or the district headquarters. They were located as following in different *prants*.[77]

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[73] Shah, M. H., 77

[74] Clark A C & Desai G H, Vol.-I, 270

[75] Shah M H, 92

[76]Extracts from Montagu Chelmsford Report, Ch.2, (Extract from Market) *Countryside and the towns – predominant of agriculture: Indian Statutory Comm. Report Vol.1*, Calcutta, Govt. of India, Central Publication Branch, 1930; and Bajpai Gita, 16

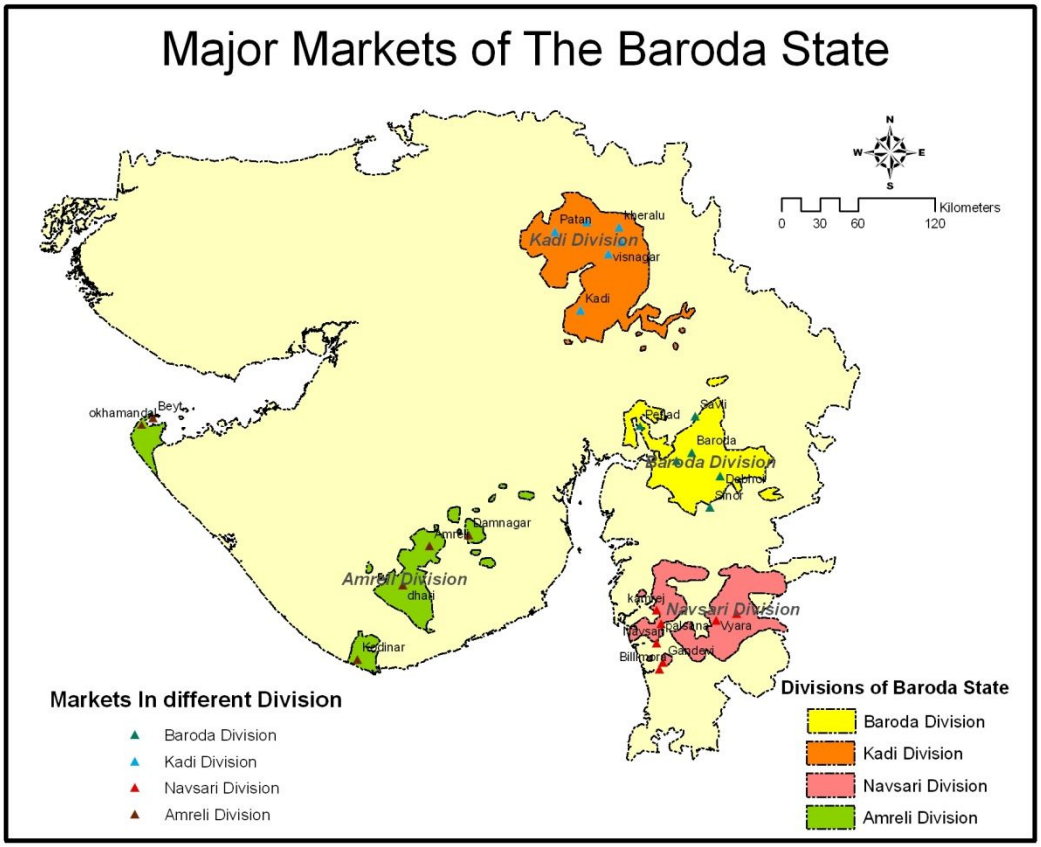
[77] Bajpai G, 16

1) Baroda: Petlad, Baroda, Padra, Dabhoi, Sinor, Savli and Sankheda.

2) Kadi: Kadi, Sidhpur, Patan, Visnagar, Vadnagar and Kheralu

3) Navsari: Navsari, Gandevi, Palsana, Kamrej, Vyara, Songarh and Billimora

4) Amreli: Amreli, Damnagar, Dhari, Kodinar, Okhamandal and Bet



However these markets were not enough and their location at great distance rendered it difficult for the peasants to sell in these markets at a better price. In addition there were other problems like great fluctuations in markets rates and excesses of the middlemen. A cultivator who already had been under burden of debt was compelled to trade his harvest with middlemen at any price that it fetched. The state desirous to find a solution looked into establishing co-operative societies in order to eliminate the borrowing from the middlemen. The result was that by the year 1930, co-operative sale societies were organized. From 1934-35, an exhaustive

survey of all the major crops and animal products of the State was undertaken to provide a foundation on which a comprehensive and efficient system of marketing was based.[78] The other activities of the section were ghee grading and grading of eggs. Grading eggs was the activity started after the year 1939. The cooperative sale societies were extremely successful. The result was that among all the princely states, the Baroda state had 269 co-operative societies with nearly fifty thousand members in the year 1947-48. The paid up share capital came to Rs. 13.77 lakhs in the same year. The value of storage was Rs.1.27 crore. This led to the rise in value of sale to Rs. 1.41 crore.

There were also pooling centers which were organized for the cooperative marketing of the cultivators' crops. Provision of loan was made available for the purpose by Government and Bank of Baroda. In 1937 a marketing officer was put at Surat to keep groups of farmers and sale societies in touch with the market. Besides the above office, two marketing officers were appointed in the year 1938.[79]

1.7 Development of Substitute Vocations

Since agriculture as an occupation contained lot of uncertainty which made the subsistence of the agriculturists difficult. The Government in order to bring some equilibrium to this unfortunate condition of the cultivators thought to stimulate them to adopt substitute vocations like animal husbandry, dairy industry, and cottage industry. The state government carried on many schemes and projects and measures for the development of these substitute vocations.

i. Systematization of Livestock Census: Systematic Livestock census was started as a part of progressive policy of the state. Earlier it was the village accountants that took a census of the cattle stocks. From that a total was made out for every *taluka* and district and was published with an Annual Administration Report of Revenue Department. However this system had to be followed through with counter-checks and also a need was felt to establish a thoroughly reliable statistics. In order to achieve this end, a census of live stocks was taken in October 1920 in connection with the general census, along with the numbering of houses, the number of its cattle

[78] Shah M H, 85
[79] Shah M H,87

and of its ploughs and carts were recorded.[80] It was the most complete as well as the most comprehensive Cattle Census ever under taken by the State.

ii. Veterinary Dispensaries: The first veterinary dispensary was opened in 1880-81 and by 1887-88 there were dispensaries at Mehsana, Baroda and Amreli. By 1923 there were thirteen veterinary dispensaries in the state located at Baroda, Sankheda, Bhadran, Petlad, Dabhoi, Navsari, Vyara, Kathore, Karchelia, Mehsana, Patan, Vijapur, and Amreli.[81] Of the thirteen veterinary dispensaries five were maintained by the state-government and the remainder was started by local boards and received aid from government.[82]After this the number of veterinary hospitals was increasing every year due to the liberal policy adopted by the state-government in co-operation with the Local Boards. The veterinary surgeons in charge were required to tour in surrounding villages to give their advice and assistances when cattle disease broke out. During such times surgeons with the help of Assistant Surgeon organized cattle camps to help out the people of their respective regions with the issues regarding their cattles.[83] In the late nineteen twenties the veterinary system had been satisfactorily reorganized and well qualified staff was provided. The Veterinary service was made cheaper, more efficient and readily available. The number of dispensaries, which was twenty-three during the year 1927, was increased to thirty seven by 1939-40. Thus the veterinary dispensaries in the state were three in 1907, thirteen in 1923, twenty-three in 1927 and thirty seven in 1941.[84]

iii. Animal Husbandry: For cattle-breeding the cultivators were dependent upon the village bulls and buffaloes which were not stalled, but were allowed to roam about and graze in the village fields. The Agriculture Department undertook to supply, free of cost, bulls and buffaloes for the free use of cultivators The Local Boards of the villages undertook to maintain them. The improvement in the breed of livestock was

[80] Gazetteer of Baroda State, Vol.-I, 265
[81] BSA, *HPO*, Section No- 316, Gen. Daft. No.-163, File No .12-A, Administration Report, Information about the moral and material progress of the State of Baroda from 1916-1928
[82] Parikh, 95
[83] BSA, *HPO*, Section No.-316, Gen. Daft. No.-163, File No -12-A, 129, Administration Report, Information about the moral and material progress of the State of Baroda from 1900-1928
[84]Shah M. H. *Khedut ane Sarkar*, 95, Op. Cit

encouraged by issuing selected bulls in the year 1892-93 and later on in the year 1895-96 in a scheme to issue free Gir bulls. Cattle breeding farms were maintained in the districts of the states and exchange of best breed cattle were done among then for better breeding purpose.[85] A stallion was maintained at Patan veterinary dispensary. Sayajirao-III suggested on the matter that the breed of cattle should be improved and people should also undertake the breed of other stocks such as horses and mules. To acquaint people with the best breed of cattle, cattle shows and exhibitions were organized at different places.[86]

A Cattle and Fodder Committee was appointed to consider plans of improving fodder supplies and improvement in the breed of cattle. A premium bull system was established and concessions were made available for cooperative breeding. [87] Modern methods of castration were introduced in 1924-25.[88]The premium bull system was further developed and two new schemes were inaugurated for livestock improvement. The first scheme was Kankrej breeding farm scheme-aimed at supplying pure Kankrej bulls for improving cattle. The second, scheme was Rabari Development Scheme. It was the most important of the schemes of livestock improvement, aimed to put the Rabaris in a position to produce necessary feeding material for their cattle by developing the available Government grass and waste lands and improving their conditions by carrying on their work systematically.

iv. Fodder: The silage for the stocks was available as per the season. If there was the normal year it was the least problem to get it but no steps were taken to deal with in the bad season. The stacking of fodder for emergency years had not yet become an established practice, except in Kadi it was practiced to fair level. It was used in a wasteful manner in good years when fodder was plentiful. The practice of stacking grass was decreasing from year to year owing to the dread of incendiary. The problem of fodder reserve had lately engaged the attention of the government, owing to the successive bad seasons causing a deficit of fodder, and consequent heavy mortality

[85] BSA *Baroda Administration Report,* 1912-13, 181
[86] Clark A C & Desai G H, Vol-I, 339
[87] Gazetteer of Baroda State Vol.-I, 168
[88] Shah M. H., 94

among cattle. A committee was appointed in 1918 to report on the best means of grass conservation. Its recommendation had been approved in theory, but few of them had found public acceptance in actual practice.[89] Co-operative Societies were being specially organized with the object of creating grass reserves.

Arrangements were also made by Government that when grass failed in the famine years it was imported by rail from the State jungles, and from other parts of the country, and there was thus less fear of great losses of cattle than in pre-railway days.[90] Since, Sayajirao-III encouraged his people to adapt to progressive west. In this field too he urged the people to follow the example of Australia in regard to the growth of deep rooted grasses which would prevent mortality of cattle in time of famine and drought.[91] It would help meet the needs of and would resist drought.

v. Dairy:The most important industry connected with agriculture was the dairy. Almost every cultivator used to keep one or two buffalos, and the *Rabaris* and *Bharvads* or professional cattle-breeders were keeping large herds of cows, goats, and sheep. The milk was utilized for domestic use and for the manufacture of *ghee*, which was sold to local dealers who exported it to Baroda, Ahmedabad, Bombay and other cities. Charotar in Gujarat (Baroda District) and Gir in Kathiawad (Amreli district) were especially noteworthy for ghee. From Gir, ghee (butter) was exported to Jaffrabad and thence to Bombay. During the decade from 1910 to 1920 the dairy industry had been greatly developed in Charotar. In almost every village there was a cream separator. The cultivator sold his milk to the merchant who separated the cream and sold it to Bombay and Ahmedabad butter factories, while the separated milk was either thrown away or crude casein was prepared from it.[92] Dairy Industry proved to be a great boon to the farmers. Baroda State had a very important trade in export of ghee which was seen to be diminishing owing to the prevalent practices of adulteration. It was necessary to start centres for ghee-grading. Two centres were opened: one at Visnagar

[89] BSA, *HPO*, Section No- 316, Gen. Daft. No.-163, File No-12-A, 59, Administration Report, Information about the moral and material progress of the State of Baroda from 1916-1928

[90] Ibid.,
[91] Widgery A G, Vol.-II, 100
[92] *Gazetteer of Baroda State*, Vol.-I, 299

and the other at Dhinoj, both in Mehsana District, in January 1939. Two more centres were later started; one at Baroda and one at Dhari.[93]

vi. Cottage Industries for Farmers: Besides animal husbandry and dairy industries another important industry that could help the agriculturists to earn their bread during odd times was Cottage Industry. Much attention was given to develop village industries like handloom and weaving, eri(silk)-rearing, wood-carving, tanning and manufacturing leather articles, metal work, lacquer work, oil pressing, pottery, soap making, manufacture of perfumes, basket making, glue making etc. Trained artisans were maintained at Petlad to help people engage in crafts like: i) rope making, ii) carpet weaving. iii) durry (mat)weaving, iv) Calico Printing, and v) weaving on fly-shuttle loom.[94] The idea that the Maharaja Sayajirao had in this field can be discerned from his speech in which he said that," men can take up wood-carving and toy making and women can engage themselves in needle work and embroidery, such industries can keep agriculturists remunerative in time of slack season."[95] This was followed through and attention was paid to the growth of these industries. Later in the year 1936, he added rearing up of hens and ducks for the men agriculturists. These cottage and rural industries are dealt in detail in this chapter under separate section called Industries.

1.8 Famine and Flood Relief Measures

Under the progressive age, substantial attention was paid to famine relief. The agricultural production was dependent on good monsoons, however in case of absence of rains, the farmers suffered a great deal. The state- government played an important role to ensure relief in this direction. During the famine years an appointment of Famine Commissioner was made. He was entrusted the task of preparing famine relief programme. A Famine Relief Code to meet the pressing requirements of bad times was passed. It was first passed in the year 1899 but was revised in the year 1904 following the lines laid down by the report of Sir Anthony MacDonnell's Famine Commission. The report had made various suggestions regarding the

[93] Shah M. H., 88
[94] BSA, *HPO*, Section No.- 316, Gen. Daft- 163, File No.-12-A, 339
[95] Widgery, Vol.-II, 238

different methods of exacting work from relief seekers. This included the allotment of tasks to the workers, the fixing of their wages, the classification and the payment of labourers according to their age, sex, and physical condition, and the relief of their dependents on works.[96] Different schemes and measures were carried on viz. writing off the arrears or remission in land revenue, loans for sinking wells, creation of employment, supply of food and fodder etc. An Executive Council was also formed for preparing famine relief programme.[97] Broadly the following measures were undertaken within this program:

i. Officers at work: As soon as the premonitory symptoms were to become evident, appointment was to be made of an officer as Famine Commissioner to plan and organize relief operation. The district and *taluka* officers and the Executive Engineers were to be engaged fully in relief operations and the subordinate supervising staff was to be prepared.

ii. Irrigation and drinking water- The state-government made provisions of from one or two lakhs of rupees for sinking of the wells. For this advances were made of about one or two lakhs on very easy terms and easy installments spread over thirty years. Large sums were placed in the hands of the District Officers for ensuring sufficiency of drinking water. Special boring tools, capable of penetrating to the deeper strata, were ordered from Europe and America[98] and every effort was taken to ensure that the resources of civilization were brought to the aid of the people in their need.

iii. State-government helped in getting food, fodder and seed:- Large amounts were sanctioned as advances to cultivators to enable them to buy seed, corn, and agricultural implements, such as ropes and motes for their wells. Whenever there was scarcity of fodder it was distributed from the State forests in the Navsari and Amreli districts to the cultivators either for cash at reduced rate, or as *tagavi*. The supply of fodder to different *prants* was made through the railways.[99] If the price of food grains

[96] Baroda Administration Report, 1904-05, 273
[97] Ibid, ii
[98] Clark A C & Desai G H, Vol-I, 314
[99] *Baroda Administrative Report,1918-19,* 93

rose to any abnormal pitch a scarcity allowance was given to the subject as maintenance loan.[100]

iv. Efforts to revive artisans- Separate loans were given to the artisans especially weavers, potters, and blacksmiths. Encouraged with State loans, the artisan manufactured the articles and supplied it to the government. This proved useful especially in famine works.

v. Gratuitous relief- Gratuitous relief to the aged, the sick, and the impoverished were given. In larger centers poor houses were started for the reception of helpless victims of the famine.[101]

vi. Public work- The remunerative and protective works were given priority over other works during the famine times. Among all works the first choice of course fell on large irrigation reservoirs and dams as well as drainage works which were calculated to have a remunerative as well as protective value. The construction of railway occupied a prominent place in the famine program of the State. The Baroda territories had been intersected by a network of small railways which, besides being very useful, were also fairly remunerative. Their earthwork alone provided the kind of unskilled labour which was suited to the capabilities of the relief seekers. The earth-work of the Vijapur-Kalol was started as Famine Relief Work in the year in 1899.[102] Some other public works that were initiated during the famine period were building of bridges, masonry culverts, metalled road etc.

vii. Relief in revenue- The collection of the land revenue demand in its entirety would militate against the considerate and humane measures. Remission in or suspension of the demand were made. The land revenue demand was either suspended or remitted according to the nature of the distress. In ordering the suspension of revenue demand

[100] Ibid
[101] Ibid., 314
[102] Gazetteer of Baroda State Vol.-I., 367

the state-government had followed the principles laid down in Sir Anthony Mac Donnell's Famine Commission Report, of 1880.[103]

Another kind of natural disaster which struck the Baroda state in the year 1927-28 was floods due to heavy rainfall. The state had undertaken appropriate relief measures, which provided the people with much needed respite in time. Yet there was a criticism coming forth from the Bombay government stating the mismanagement of the relief measures. However, this was countered by the Dewan of the state Krishnamachari in following words. He said, *"Baroda has been a butt of criticism outside politician for its supposed sins of omission and commission…the attitude of Bombay Governnment , towards the relief operations in Gujarat may serve as a point for comparison, and judged from that point of view there is no doubt that the Baroda Government has responded admirably to the call of suffering humanity…The success of the measures of government would undoubtedly depend on the spirit of helpfulness and courage displayed by the people themselves in such an unprecedented crisis".*[104]

1.9 Financial Aid by Government

To cope with the financial problems agriculturists were given *tagavi* loans by the government at low rates of interest. There were three kind of *tagavi* granted. 1) Fixed or *Jathu*, 2) Famine, and 3) Special.[105]The *Jathu tagavi* was granted out of fixed sum allowed to each *taluka* and on this *tagavi* 5% interest was charged. The sum was to be repaid by installments. Fixed tagavi was given for purpose to construct new wells and to make *pacca* wells out of *kaccha*; to make agricultural improvements including purchase of bullocks, seeds, implements, grass, and the building of farm house; and also to maintain the family. Famine *tagavi* was granted during famine times and was given for all sorts of purposes, such as the purchase of seeds, fodder, *kos,* and *varat*, and for the digging of wells. As a rule no interest was charged on these loans. Special *tagavis* were granted when some special improvements were to be effected such as the digging of wells and the installation of oil-engine, pumps and tractors. Soon after the

[103] Ibid, 316, Op. Cit
[104] BSA, HPO, Section No-103, Gen. Daft. No., 143, File No-38, 47, A speech by Dewan V, T, Krishnamachari on Criticism by outside politicians over Baroda flood relief operation; Also see, Baroda Administration Report 1927-28, Chapter-V, Flood Relief, pp-131-152
[105] Ibid , 275

great famine of 1899, large sums were sanctioned, without interest, as *tagavi* for the construction of wells. Similarly Rs. 7,00,000 lakhs were earmarked as interest-free tagavi during the famine of 1918.[106]

The financial support given by the State was not enough to meet the needs and demands of the agriculturists. Measures were taken by the state to conform it by giving encouragement to set up co-operative societies and agricultural banks for easy availability of finance. The establishment of co-operative societies and banks proved to be boon for the agriculturists. The details on how these financial institution were established and organised are dealt with in a separate section 'Finance' of this chapter Economy.

The result of Baroda state policy to improve the condition of agriculture and agriculturists can be seen in the constant growth of cultivable area, cultivated area and even cultivators. The below table illustrates the expansion in agriculture.[107]

Year	Total Area	Cultivable Area	Cultivated Area	Percentage		Agriculture as profession of population (in %)
				3 to 2	4 to 3	
1881	93,31,641	56,09,011	45,47,889	60	81	54.5
1891	89,58,114	66,23,327	54,94,193	75	88	57.05
1901	88,19,811	67,61,362	58,15,095	75	86	51.9
1911	89,10,198	67,61,362	60,74,321	75	90	63.4
1921	88,50,303	69,68,511	64,37,079	82	92	66.4
1931	88,90,596	70,91,298	66,98,376	77	94	71.7
1941	88,90,460	70,60,892	66,87,452	77.72	96	64.4

[106] BSA, *HPO*, Section No.- 316, Gen. Daft. No-163, File No .12-A, 59

[107] The content of the table is compiled from Baroda Administration Reports from 1881 to 1941.

This table shows that 17.71% more land was brought under cultivable area from the period 1881 to 1941. It was the result of the policies that the State adopted wherein the indigenous profession like agriculture was introduced to the modern techniques which increased the possibilities of growth of agriculture. Investigations involving modern methods were made to determine quality of land, seed, manure, irrigation etc which proved to be important factors to attract people towards cultivation and to also make useful improvements. The population opting agriculture as a profession also increased with every decade. This clearly suggests the effective measures taken by the State and the favourable response of the people to the State measures succeeded. The stark changes could be seen only in the two decades i.e. in 1891-1901 and 1931-41 when there was a fall of about 6 percent in both the cases. This was due to the great famine of 1899 which led many to relinquish agriculture to turn to the other means of subsistence. The fall in the percentage in 1931-41 was due to the tendency of the withdrawal of population from agriculture to opt other developing professions with the development of industry, transport and commerce. Nonetheless this shift of population from agriculture to industries was essential as it would turn the public to the exploitation of available natural resources other than land; and thus would lessen the burden on agriculture and reduce fragmentation of land to the beneficial extent.

Section-2 Revenue

The revenue had played a central role in any governance. As has been already discussed the princely state of Baroda under the Gaekwad's presented an interesting case for the study of agrarian structures and state policy. The state initially gave away the rights of revenue collection to the intermediaries. These rights later were retained after much struggle from the revenue farmers. According to Gita Bajpai, the period from 1861 to 1881 marked the period of this struggle between the state, its agents and the peasantry. She says that essence of the problem lay in, "the state, its agents-the intermediaries in the administrative machinery, who collected land revenue; and the cultivators who produced agricultural produce… (I)it was in the unequal and disproportionate distribution of the surplus which accrued to these three principal categories of claimants that lay the crux of the problem of the producing classes."[108] The problems according to her lay in number of things; for example, the *ijara* system was considered to be the worst

[108] Bajpai, G., 3

feature of the land revenue system before the actual modernization process took place.[109] The *Barkhali* tenure or the rent free tenure of alienated lands "was certainly responsible for the scarce financial budget of the state, and hence an eyesore to the Gaekwads." In 1860's i.e., during the rule of Khanderao Gaekwad, these rent free holdings had increase in vast proportions all over the state, thus depriving the state of substantial income.[110] All this of course changed with the change in power in the late nineteenth century. With the accession of Maharaja Sayajirao-III, there was a change in the state policy which led to more moderate but definite changes in the field of land revenue.

Majority of the population of Baroda State was dependent on agriculture for its livelihood. The total receipts of the state in the year 1880-81 were Rs. 143.82 lakhs (Baroda Coin), out of which Rs.97.37 lakhs were contributed by the land revenue. This meant that as much as 67.7% were derived from land revenue, while the contribution of the other sections was only 32.3%.[111] The revenue system in Baroda state before Sayajirao-III was not uniform and also was an imprecise one. It is already learnt in the first chapter that the Gaekwads initially were getting their share only by the way of *mulukgiri* expedition and not by perusing systematic procedure for obtaining revenue. No doubt with the gradual stability, steps were taken to systematize the revenue system by different rulers. Sizeable changes however, were brought only under the administration of Sir T. Madhavrao. He reduced the land tax, redistributed land, took measures to attract people towards agriculture. He did away with the *gadi nazarana* or Accession Tax and many other 'objectionable' miscellaneous taxes. He proceeded cautiously and not without first ascertaining how each tax affected the payer and how the whole burden of taxes paid weighed on the village or district. Further on, the task was left for Sayajirao III to examine more closely the question of these miscellaneous taxes and other important measures regarding revenue administration.[112]

2.1 T Madavrao's 'Minor Hints'

[109] Ibid, 4
[110] ibid
[111] Shah M. H., 172.
[112] Clark A C & Desai G H, Vol-II, 71

The concern of the Maharaja regarding reform in the revenue administration was not without any basis. T. Madhavrao had urged Sayajirao-III with the fact that *"the Raj is not Maharaja's private estate, but it is a public trust. He is entrusted with the public revenues under obligation to spend them for the public advantage"*.[113] And above all he warned him to not incur *zooloom* (tyranny) on them in the name of revenue. He was with a view that[114]the *ryots* who pursued agriculture as their profession constituted a very important portion of the settled population, and the produce they raised every year from the land constituted a very important portion of the wealth of the country. Therefore it was the duty of the government to administer the *ryots* well. So far as the government's tax on the land was concerned, T. Madhavrao opined that it should be so moderate as to leave to the *ryots* enough to maintain themselves and their families in fair comfort. He thought that the *ryots* should have a good tenure for holding the land. The *ryots* should feel that, provided they pay the tax regularly, they could hold the land for generations. When the land was made to yield more in consequence of the application to the land of the *ryots*' labour and capital, the *Sarkar* was not to increase its tax on that account and thereby deprive the *ryots* of the fair return due to their labor and capital. The *Izaradars* or farmers of revenue were not to be employed between the *ryots* and the *sarkar*. They oppressed and impoverished the *ryots* terribly. According to him, the best system of revenue collection was the *Ryotwari* system that is the system under which the *sarkar* deals with each *ryot* directly. This system was deemed to be most favourable to the *ryot*; it secured him the best justice and the best consideration, and promoted his self-respect and independence. *Bhag-Batai* or sharing the crops was not a desirable venture as it gave the opportunity to the government to take a portion of land. This system was however not really practiced during this time as Maharaja Khanderao had taken considerable measures to reduce it to the minimum. T. Madhavrao suggested to the young Maharaja to fix the land-tax moderately and equitably. In order to do that a regular survey and re-assessment were indispensably necessary. Although it could prove costly but it was quiet necessary. T. Madhavrao was against charging arbitrary and unjust taxes like *gadi nazarana*, palace *nazarana*, marriage *nazarana*, and so forth. Agricultural produce was not to be burdened with any heavy duties and attempt was too make it completely duty-free for easy trade. The food-grains according to him should be free from duty altogether. It can be said that above were the guiding

[113] T Madhavrao, P.-103
[114] Ibid,(Extracts from PP.193 to 198)

norms for Sayajirao-III which directed him to greater extent in carrying out his reforms in revenue matters.

2.2 Beginning of the Process of Modernization

Armed with the suggestions by the regent-dewan T. Mahdhavrao, the Maharaja was ready to embark on the changes in the field of revenue administration. The following segment discusses the modernization process to streamline the revenue department.

i. Survey and Settlement Department: The beginning was made with creation of a Survey and Settlement Department. Sayajirao-III assumed the reigns of administration in the year 1881-82, and in the following year new Survey and Settlement operations were introduced. The Department was created in the year 1884. For the convenience of work it was divided into three branches namely Survey; Maintenance; and Survey Record. Apart from the work of survey and settlement, the department also looked into the matters of settlement and record of lands like *Barkhali*, *Giras*, *Devsthan* etc. It also focused on confiscation and compensation of land.[115] Registration and Stamp also fell under the same department. The Department was placed under Mr. F.A.H. Elliot, a Bombay Civilian and once a tutor to Sayajirao-III.[116] However the original settlement in Baroda was introduced in the year 1880. Messrs Elliot and Seddon, the two British Settlement officers, followed the 'New Empirical Method of Bombay' and their settlement was based on the principle that 'land should be assessed in accordance with its capabilities'. With these scientific principles, lands were divided into dry and irrigated and each division of land was classified according to factors that affect their natural productivity, depth, texture, quality of soil and irrigational facilities.[117]

The new settlement system was virtually the Bombay system, and had all the merits and demerits of the Bombay system. It equalized the land tax to large extent, basing it on the capabilities of the soil. It imposed rates which were somewhat lower

[115] Nene V. P.(1939) *Pragatipanthe Vadodara(Guj.)*Nene V. P.,28
[116] *Baroda Administration Report,* 1883-1884, 185
[117] Gowda, D. S., *Economic and Political Life in Baroda or Bhagyanagar Raj*, 59

than the previous demands.[118] However the demerits can be seen when it took away from village communities the rights to regulate their lands thus weakening useful organization indigenous to the land. It made the revenue payable by tenant dependant on the will and judgment of one officer, without any consultation with the tenants themselves, either individually or collectively through the village headmen and representatives. And lastly it swept away the *Bhagbatai* system which also accepted payment in kind. This system as has been previously discussed was prevalent in the early nineteenth century. Although in some talukas of the state like Amreli, the system was still in practice. The bane of new survey and settlement system was that it fixed unvarying money demand which, to the cultivator, meant a large demand on the produce of his field than the current piece of crop would indicate. The lowering of the revenue demand in such a case brought no relief, since the demand had to be met by cash payments.[119]

Although Elliot introduced the fixed cash or *Bighoti* system in imitation of the Bombay rules, he did not altogether did away the *Bhagbatai* or payment in kind. Before leaving the service of the state, he strongly recommended that, in the district of Amreli where seasons were so variable and uncertain, a varying *Bighoti* system should be introduced. His idea was that the assessment should vary year to year, according to the character of the harvest obtained. In years of bumper harvest the state government could take more than the present demand, and in bad years it could take less. Accordingly orders were passed for granting remission when crops failed and to some extent the principle of the old *Bhagbatai* system was still followed.[120] However later with the purpose of bringing uniformity in revenue administration and revenue laws, the *Bhagbatai* system was swept away completely.

Apart from this scientific survey operations were carried out in the state. The first scientific survey operation went through different stages during the years 1882-1908. The first period fell from 1885-89 when the *talukas* of Amreli Divison and certain *talukas* of the Baroda Division such as Dabhoi, Padra and Sinor were dealt with. In

[118] BSA, *HPO*, Section No. 1, Gen. Daft. No. 1, File No. 3B, 47, Op. Cit
[119] *Baroda Administration Report*, 1883-84, 186
[120] *Baroda Administration Report*, 1883-84,185

this settlement the villages were treated individually and no group or standard rates were fixed. During the second period (1888-95), most of the Baroda division and Navsari and Kadi *prants* were surveyed and settled. The satisfactory working of the settlement in the Amreli Division gave greater confidence to the officers. The problem of peasants was attended to first by reduction in revenue demand and granting remissions. In the years of famine and depression further more reduction was granted. Special rules for realization of land revenue by installments were also passed by Sayajirao-III in the year 1886 to relieve the cultivators.[121] The third and last stage of the settlement was during the years 1895-1903 and included most contested settlement viz. that of Petlad.[122] This was the major undertaking of the state-government and the one most necessary for the development of agrarian community. Once the work of settlement was accomplished, its revision settlement was approved for fifteen years. An important provision was made during the Revision Settlement which was to reduce burden of taxation on the cultivators. The cultivators land should not be charged on the profit arising from improvements in his land, which included wells tanks; it was ensured that the peasant was secured against an increase in assessment on account of improvement in the soil or conversion of dry land into irrigated land. The exception was to be made only when there was a change of permanent nature in the physical feature of the soil over a fairly large area.[123] This was followed through and later the period of settlement was extended generally to thirty years with certain changes.

ii. The separation of Judicial and Executive functions: The attempts had been made to separate the Judicial from Executive since the time the Maharaja acceded to the throne of the Baroda state. The *taluka* executive officers (*vahivatdars*) used to try all criminal cases in years past, while the *talukas* Judicial Officers (*Munsiffs*) took cognizance of civil cases. The *vahivatdars* were unable to devote that degree of attention to their executive and revenue work which it needed, when much of their time was taken up in trying criminal cases. Secondly, the exercise of the criminal

[121] Clark A C & Desai G H, Vol-II,79
[122] Bajpai G, 57
[123] Gowda D S, 60

powers impaired them as revenue officers, and armed them with an authority which was inconsistent with the discharge of their revenue duties.[124] To separate the two departments, opinions of concerned official were taken and an intricate understanding of the actual work of administration was obtained. After careful consideration the separation was effected. Initially it was directed that three-fourths of the criminal cases should be tried by *munsiffs*, and one-fourth only should be tried by *vahivatdars.* The bulk of the criminal work was thus assigned to trained judicial officers who performed no executive or revenue work: a small portion of the work was till the year 1906 was left in the hands of the executive and revenue officers. But later the rest one-third work was also handed over to the *munsiff*. The scheme for the separation of executive and judicial functions was revised and finally adopted in the year 1907-08. From then onwards all civil and criminal cases were tried by the *munsiffs*.[125] The additional *munsiff* courts were sanctioned which were later found in almost all the *talukas*. While the revenue and executive officers devoted all their time to their legitimate revenue duties.

2.3 Land Alienation and Rules to check Further Alienation

Efforts were made by the early rulers to settle the problem of Barakhali or alienated lands but were not successful. Considerable efforts were made by Maharaja Khanderao Gaekwad to deal with it however he denied recognizing these as *inam* lands thus failed to obtain state control over it. After the death of Khanderao Gaekwad, no efforts were made to settle the problem or alienated lands by Malharrao Gaekwad, his successor. On the Contrary, the Maharaja granted permanent possession to *dan-patra* (religious) holders of alienated land as a token of gratitude for recovery from illness. i.e. he further gave away some lands of the state as alienated lands.[126]T. Madhavrao desired to sort this problem but he understood the work had to be done with precision as the parties concerned were of all classes, *sardars, shiledars, darakhdars vatandars, parekhs*, concubines, dancing girls, *karkuns, bargirs* and a host of others. The first step taken was to create a Settlement Department. The Department was to deal with the claims to allowances of various kinds and also with regards to alienated land in villages. The task was to

[124] *Baroda Administration Report*, 1904-05, 38
[125]BSA, *HPO*, Section No. 1, Gen. Daft. No. 1, File No. 3B, 49
[126] Clark A C & Desai G H, Vol- II 85

streamline the allowance drawn by the officers under various Gaekwad regimes. Also, at times a same person drew allowances from different places, which posed a problem.[127]

The actual solution was brought during the reign of Maharaja Sayajirao. In the year 1883, a proclamation was issued which forbade the alienation of land. Steps were taken to redeem lands which had been previously alienated. It was declared that future alienation would not be valid, and lands so alienated would be considered and treated as *Khalsa* without the payment of any compensation to the vendee or the mortgage. [128] In 1888-89 Mr. Elliot submitted proposals for the re-organization of the *Barkhali* Department which received the sanction of the state government and came into force from 1st May 1889. However in 1904 it was branched out of Survey and Settlement Department and was made a separate branch of Revenue Department. Rules for the guidance of the *Barkhali* department were made in 1889. Closely connected with *Barkhali* lands were *wanta* lands and *inam* villages. However, they differed in origin and purpose and their interests involved that they could not be brought under the same rules as *Barkhali*. Accordingly separate rules were framed for each. The rules for *wantas* were made 1898.[129]

2.4 Abolition of Miscellaneous Taxes

Taxes played an important part in the prosperity of the people. Real welfare of the people can be judged only by calculating what the people actually pay to the state and what the state gives in return in the form of good administration; educational and medical facilities transport etc. Lighter taxation cannot necessarily be the unconditional criteria of the goodness and efficiency of the government and the prosperity of the governed.[130] However this theory could not be applicable in the case of agricultural economies like Baroda. Moreover Sayajirao-III's was the formative era when economic activities like agriculture and industry needed stimulation and hence exemption or reduction in different taxes was a necessity. Thus from the commencement of his rule, Sayajirao aimed at the discovery of means to lessen the burden of taxation on the poor.

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[127] Clark A C & Desai G H, Vol-II, 86.
[128] BSA, *Baroda Administration Report*, 1883-84, 185
[129] Clark A C & Desai G H, Vol-II,95
[130] Shah M H, *Rural Economy of Central Gujarat*, Part-1, 29

There were multiple *veros* or taxes which can be classified as Agricultural and Non-Agricultural. They were continuous from older times and were not uniform in the whole state or even in any one *taluka* or village. The amount demanded depended upon the revenue collectors who were mostly revenue farmers. The temperament of the farmers also mattered here which could be said to be based on the theory of 'survival of the fittest.[131]If the farmer or government servant was strong and oppressive the state could levy more, while if the payers were obstinate or turbulent they escaped scot-free or paid only a little.

On the introduction of the Survey Settlement in the several *talukas* of the State, the agricultural taxes were abolished as separate levies, and were amalgamated with the land assessment.[132] At the same time precautions were taken that the land assessment should not be excessive. With the introduction of the Survey and Settlement in all the *talukas* of the State, the *veros* ceased to exist. Water-cess was reduced. The cess was at first amalgamated with the land revenue. Later in 1903-04, however, the proceeds of local cess and land revenue were separated again in order to create Local Boards for the purpose of introducing self-government in local matters.

So far as the non agricultural taxes were concerned, the Survey and Settlement Commissioner submitted a report in the year 1892 on the (non-agricultural taxes) *verso*. The report made proposals to reform the NA taxes in one uniform system. It was found that there were one hundred and eighty two non-agricultural taxes of which only major nine were continued and the rest were abolished.[133] The long established taxes on the non-agricultural population however could not be so speedily removed. The *veros* as they were termed formed an enormous list and much investigation went into ascertaining the area of the taxes and the nature of taxes. The complication arose when multiple taxation were implemented in the same area. This created problems which were met with opposition from the people. People appealed to the Maharaja to lessen the burden by nullifying few of them. Sayajirao-III asked the *Suba* of Baroda district to submit a scheme of the abolition of a number of small taxes. The *Suba* recommended *Aypat vero* or Income tax.[134] Income tax was thus introduced in the Padra *Taluka* of Baroda

[131] BSA, *Baroda Administration Report*, 1906-07, 76
[132] BSA, *Baroda Administration Report*, 1904-05, 137
[133] Shah M H, 174
[134] Shah M H, 175

prant of the State in 1896; then in Baroda *prant* and later in 1904 in the whole State with uniform rates both in towns and villages. However the Income Tax Act or *Aypat Vero Nibandh* was passed in the year 1908 on the lines of British Income Tax Act of 1886 with necessary changes to suit the Baroda administration. Up to 1939-40, experiments were made with the minimum taxable income, the amount varied from Rs. 100/- to Rs. 300/- and from 300/- to 500/-. It was in 1907 the minimum taxable income was raised to 750/- which remained the same up to the year 1939-40 when it was raised to Rs. 2000/-. The advantages of the new system were that it made a clean sweep of all the numerous and oppressive *Veros* which used to be levied before; and it exempted the poor from taxation and was imposed only on the wealthier class.[135]

2.5 Introduction of New Acts

Revenue Department of the state was gradually being systematized; and rules and regulation were framed uniformly in the state. Some important rules are under:

i. Land Revenue Code- During the administration of Sir T. Madhavrao circulars and orders based on the Bombay Land Revenue Code were issued from time to time, as the need arose. However no regular rules were made. It was after Maharaja Sayajirao III assumed power that a *niyam shakha* (rules drafting branch) was created. This branch was created in the *Sar Suba* Office for drafting and passing rules on various subjects. The Baroda Land Revenue Code was enacted in the year 1915. This set of rules was a compilation of various rules previously described in separate *niyams, vathukums, and jahernamas*.[136]

ii. Registration Act- Initiation was made by Khanderao Gaekwad regarding registration which however was vague in nature and did not work to its fullest. It was in the year 1885 that the new Registration Act was enacted. The norms that were followed were all documents relating to immovable property were compulsorily liable to registration; No document was admitted for registration after six months from the date of execution; and Civil Courts were prohibited from admitting as evidence unregistered documents, the registration of which was compulsory. The Registration Act of 1885 was revised and amended in the year

[135] BSA, *Baroda Administration Report*, 1908-09, 54
[136] Clark A C & Desai G H, Vol-II, 74

1902. Fraudulent dealing was minimized with the Registration Act.[137]

iii. Stamps Act- Stamp duty was a means of revenue by indirectly taxing property holder. The new Stamp Act in the state was framed on the model of similar enactment in British India and was sanctioned in the year 1885-86. But its operation was held in abeyance till rules for the working of its provisions were framed, and stamps were prepared of proper value, color, and form as required under the Act. This was done in the year 1888-89, and the new Stamp Act was then put into force.[138]

iv. Court Fees Act-The provisions relating to court fees were separated from the general Stamp Act. A regular Court Fees Act for the State was framed in the year 1896, and came in to force in the same year. The court fee on suits was revised and to some extent reduced. The Court Fees Act of 1896 was revised in the light of twelve years' experience and a new Act was passed in the year 1909.[139]

v. Boundary Rules- Baroda State was expanded into four divisions or *prants*, scattered in all four direction in a way interlacing with British territories and those of other Indian States. This had led to frequent dispute between the parties over boundaries of their territories. A special officer was appointed in the year 1878 to settle the boundary disputes. Later in the year 1884, when the Revenue Survey and Settlement of the State was formulated, Sayajirao-III made proposals in this subject which were approved by British Government. Mr. F. A. H. Elliot, then in charge of the Survey and Settlement of certain *talukas* issued orders for the demarcation of their boundaries at that time. This proved unsatisfactory and a subsequent change was ushered when a Boundary settlement office was organized in the year 1891. It did the work of delimitation and maintenance of the state boundaries. After ten years, this office was amalgamated with Revenue Office.[140] Rules for the settlement of boundary disputes were framed on the model of the princely states in Rajputana and Central India. These rules were known as the

[137] BSA, *Baroda Administration Report*, 1904-05, 40
[138] Clark A C & Desai G H, Vol-II, 163
[139] Ibid. 163, Op. Cit
[140]BSA, *Baroda Administration Report*, 1904-05, 42

Boundary Rules of 1878. They were revised in the year 1913.[141]

All the above measures helped the state revenue in institutionalizing and systematizing to work effectively. The purpose of Sayajirao-III's administration was to reduce revenue to lessen the burden of the peasantry which was realized to a great extent. This can be discerned from the following table:[142]

Year	Total Receipts in lakhs (Baroda Coin)	Receipt from Land Revenue (Baroda Coin)	Percentage of Land revenue from Total Receipt	Increase or Decrease in percentage
1881	143.82	97.37	67.7	-
1891	177.71	116.07	65.4	-2.3
1901	136.61	87.69	64	-1.4
1911	171.72	103.15	60	-4
1921	208.55	111.25	53	-7
1931	259.66	117.48	45.2	-7.8
1941	252.45	95.07	37.6	-7.6

It is clear from the above table that there had been considerable growth in total public revenue and constant decrease in the percentage of land revenue in the total receipt. This also determines that there was an increase in income from sources other than land revenue as there was considerable decrease in the land revenue.

[141] Clark A C & Desai G H, Vol-II, 139

[142] Table Compilation of BSA, *Baroda Administration Reports,*1881 to 1941 and Shah, M. H., 173

The following table shows the comparison between the receipts of different sources of revenue during the years 1881 and 1941. [143]

Heads	1880-1881 (Receipt in lakhs)	1940-1941 (Receipt in lakhs)
Land Revenue	112.34	95.07
Customs	12.41	27.79
Railways	.86	21.92
Interest	9.34	19.72
Forest	---	4.64
Excise	2.77	27.85

The above table shows that Railways and customs had shown an immense growth in the year 1940-41 as compared to the year 1880-81. From a negligible source of revenue in the year 1880-81, Railways in the year 1940-41 had become an asset to the State.[144] Moreover, the reduction in the land revenue epitomized the efforts of the state to relieve the peasantry; and the growth in the income of railway, excise and customs symbolized the growth of industries.

Section-3 Industry

Industrial development is one the primary characteristics of a modern society. Sayajirao-III being the advocate of modernity had attached great importance to its development. Consequently as soon as he assumed the powers he embarked on promotion of industries sparing no effort. He also knew that diversion of some pressure of population from agriculture was inevitable to prevent the further severe fragmentation of land holdings and also to have standby source of economy to rely on in the bad times. This fact was previously put forth by T. Madhavrao, who said that "Manufactures must be encouraged in every manner. This is all the

[143] Compilation from BSA, *Baroda administration Reports* 1881-82 and 1940-41and Shah, M. H. 171
[144] BSA, *Baroda Administration Report* 1941-42, 23

more imperative because the population is increasing and there is not land enough to occupy all the population".[145] Moreover the industrialization process that had occurred in Europe, America and the other industrially developed countries made him compare it with his own state where it had hardly made its headway. The indigenous handicraft industries had suffered a great deal because of the policies of the British government and it had its impact on the princely states as well. The Dewan felt that these indigenous industries too should be given encouragement. These small scale industries were giving employment to about 18% of the population.

Before the getting on with the task accomplished by the administration of Sayajirao-III to bring about industrial development, it is important to take a clear estimate of the state of industry in the Baroda state and the problems faced by the state government. The villages and the towns of the state had ironsmiths, carpenters, tanners, weavers, brass-workers etc. who supplied the needs of the local people. Some towns were noted for their special manufactures like: Patan for *patolas*, Visnagar for brass and wood work Kadi and Patan for cutlery, Sankheda for horn and lacquer work, Navsari for wood-carving, Baroda and Patan for silk and gold thread industry, Padra, Kathor and Nandol for dyeing and printing, Baroda for glassware, Dabhoi for turbans, Bilimora for ship-building etc. All these were hand industries carried on by artisans mostly in their homes.[146] However these old village industries giving employment to a bulk of population were running sick. They further received a setback owing to the influence of modern industrialism. Factories of modern type were set up in India and there was also a great influx of cheap machine-made articles from foreign countries as well.[147] The finished and cheaper products made through machines were preferred to the unfinished and pricey hand-made products. These dying industries were in need of resurgence and upturn. Apart from this the state faced many other challenges that are listed below.

3.1 Challenges Faced by Sayajirao's Administration

i. Want of Infrastructure and other Aspects to Boost the Industrial Development: Infrastructural necessities like transportation and communication have always played

[145] T Madhavrao, 201
[146] Nanavati, M. B.(Director of Commerce and Industry Baroda State)(1916). *Industrial Development in the Baroda State*, Baroda Printing Works, Baroda, 13
[147] BSA, *Baroda Administrative report* 1941-42, 161

an important part in the growth and development of industry. The great bulk of produce had to be carried to the market for sale. Therefore the need was felt to make roads of different classes, according to local requirements and resources, and had to expand rail-roads where ever suitable.[148] The basic requirement was to bring in and out the raw material needed for industry. Although the railways had already made its way in the state of Baroda yet its expansion was necessary for economic development. Thus the state needed to expand and develop its roads, railways and ports. Other important infrastructural developments like supply of electric power, modern machinery, standard weight and measures and legislation in relation to industries were either entirely absent or were lacking in standard.

ii. Availability of resources but no accessibility: The natural resources of the country were unlimited in their extent, variety and promise.[149] The only need was to draw the attention of people toward their usefulness and to make them easily accessible. Thus the call of the time was to do investigations and surveys of these resources; and then to acquaint people with them by educating them.

iii. Need of Stimulation from State: There was an absence of encouragement from the side of Government in appealing to the entrepreneurship of the general people. No initiation was made by the earlier rulers to introduce small or large scale industry on public or public-private sector. For creation of atmospheres and to build confidence among the people it was necessary for the state government to establish new industries.

iv. Absence of Easy Finance: Industries can be a great lucrative instrument but also demands large investments first. In the absence of funds the ablest manufacturer is helpless. Thus finance plays key role for establishing and running an industry. As has already been discussed in detail in the previous section, the financial affairs in the State were largely dependent on the indigenous bankers. They charged a heavy rate

[148] T Madhavrao, 200
[149] Nanavati M B, 5-6

of interest discouraging the nascent entrepreneur.[150] The introduction of commercial banks, co-operative societies and such financial institutions could resolve the problem by lending money at low rate of interest and easy installments for the repayment.

3.2 Administrative Modernization

In order to meet the above challenges the state government took certain administrative steps. The first step being Department of Commerce and Industry was found. [151] This was followed by number of changes brought for the effective and smooth working on the project different boards, committees and councils were also maintained according to the need of the time, of them some important along with their functions are mentioned below

i. Department of Commerce and Industry**:** In the beginning the important work of developing commerce, trade, and agriculture was entrusted to the Revenue Department with the assistance of the public works department and some of the Naeb-Dewans who took personal interest in economic problems. In the year 1905, a separate branch was opened in that Department under a special officer in charge of commerce, industry, agriculture, customs and few other allied branches. It was found out, however, that no one officer could cope up with the work of the entire Department.[152] In 1906, office of Economic Adviser was created and the service of Mr. Whiteneck, an American gentleman, was utilized as Economic Advisor. He had a unique blend of hands-on industrial experience and a sound knowledge of economic fundamental.[153] In the year 1907, this Department was converted into that of Director of Commerce and Industry. This Department was separated from the Revenue Department in 1909 the year and was placed under the Dewan so that industry came in the direct charge of the head of administration. In the year 1915 the Department was again placed under the Joint Revenue Commissioner. [154]The functions of the Department were as under[155]

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[150] Chandavarkar A, (2007). The Modern India's Pioneer Economic Adviser, *Economic And Political Weekly*, Vol. 42, No. 51,66

[151] BSA, *HPO*, Section No.-1, Gen. Daft. No.1, File No.6-A, 28

[152] BSA, *HPO,* Section No-1, Gen. Daft. No.1, File No.6-A, op.cit

[153] Chandavarkar A, 66

[154] Nanavati, M., 15

a) To study industrial and commercial conditions;

b) to conduct industrial experiments and to give demonstration of successful processes;

c) to advise manufacturers, merchants, and artisan;

d) to advise Government of measures affecting commerce and industry;

e) to assist the people in organization of trade, commerce and industry; and

f) to investigate and recommend applications for concessions to His Highness's Government.

The Department of Commerce and Industry also assisted private capitalists in making through preliminary investigations for the industries they wanted to establish at half the expense incurred on investigations borne by the State. If the result of the investigation was favourable for the applicant to run profitably then the expense had to be borne entirely by the applicant and in altered case the Government borne half the cost.[156]

ii. Industrial Advisory Committee and its Constitution: In order to associate the people in the work of developing the resources of the State on proper lines, an Industrial Advisory Committee was appointed by His Highness the Maharaja in the year 1914. The Committee consisted of thirty two members of whom thirteen were non-officials. The non-official representatives were recruited four from each district, two from the Legislative council, two from the Baroda City Municipality, one from the Baroda Chamber of Commerce, and one from the Mill-owners' Association.[157] The Principal function of the Advisory Committee was to study the local needs both as regards industries, agriculture and forest, and advice the Department as regards economic development. It was financed by Government, and met once a year, though its sub-committee met more frequently.

iii. Development Board: The Development Board was established in 1929 which marked the beginning of active interest of Government in this direction. The functions of this board were mainly advisory: to assist the development departments in framing their

[155] Clark A C & Desai G H, Vol-I, 407, Op. Cit
[156] Ibid, 414
[157] Clark A C & Desai G H, Vol-I, 408

respective programmes of work and thus to coordinate the work done by these departments in the direction of social and economic uplift of the people of the State.[158]

iv. Baroda Economic Association: A Baroda Economic Association was found in 1934. It received response of leading men of State and gradually it the number of its members rose to one hundred and twenty.[159] It was formed with the purpose of dealing with the economic problems of the state.

v. State Economic Board: In 1937 the Government established another board known as State Economic Board which considered all questions relating to the economic development of the State and helped the development departments in executing the industrial schemes.[160] This board also performed the functions of the Central Communications Board and the Advisory Board for railways. Each district had its economic board and this central board worked as a coordinating agency in solving the economic problems of each district.

vi. State Industries Board: Another board known as the Industries Board was also established in the year 1937.[161] Its functions were to mainly to advise Government in technical matters of different departments; to make proposals for new industries; to study marketing and financial facilities; to send proposals to several experiments to Government; and to investigate & examine the possibilities of starting new industries in the State.

vii. Technological Institute: The Government established Technological Institute for industrial research in 1936 and placed it in charge of the Industrial chemist. With this institute Shree Sayaji Jubilee Science Institute, Public Chemist, the Agricultural Chemist and the laboratory of the chemistry department of Baroda College were all working in close consultation and collaboration. The Industrial Research Section of

[158]Kapasi B,(1940), *Industrial Activities in Baroda State*,(An article from *Beautiful City Baroda*, A book compiled as per the orders of Maharaja Sayajirao-III); and Shah M H,(Ed.),14
[159] Ibid, 13
[160] Parikh R G, (1973), *Social Economic and Political Ideas of Maharaja Sayajirao-III of Baroda*, (Unpublished Ph. D. Thesis), The M. S. University Baroda, 201
[161] Shah M H, (1942), *Baroda by Decades 1871-1941*,Shah M H, Baroda, 145

the Technological Institute carried out the analysis of a variety of products such as type-metal, ink, starch, soap, waters, different types of ores, industrial raw materials, textile auxiliaries, etc. both for the Government departments and the industries in the State.[162]

The above account clearly reflects that during the reign of Sayajirao-III, the state was ready with a modern administrative apparatus. This naturally was only one aspect, the Baroda state government focused simultaneously on development of their infrastructure as well. The next part focuses into the infrastructure facilities and other opportunities provided by the State.

3.3 Development of Basic Infrastructural Facilities

The growth and development of the means of communication and transportation gave encouragement to the expansion of trade and industry. State had made lot of efforts to develop and expand the railways, roads, ports, ferries, etc with a view to give further boost in the modernization of the industries. A Communication Board was instituted in 1928. All the question relating to the programme of roads constructions, new railway projects, railway extension projects, telephone installation are referred to the board for investigation and advices.[163] Different means of communication are discussed as under.

i. Railways: Railways in Baroda were already introduced during the time of Maharaja Khanderao. Prior to the year 1908, the construction and management of the railways in the State was entrusted to the B. B. & C. I. Railway Company, but since 1908 the state established its own Department of Railways. The foundation of modern railways was laid under the regent-Dewan Sir T. Madhavrao. He had comprehended its worth and advised for its expansion to be significant factor for state economy. In his book Minor Hints, he counted certain advantages of railway.[164] For example an increased connectivity of the villages to the towns—to provide building material from the neighbouring areas to the city

[162] Ibid., 147
[163] BSA, *HPO*, Section No 316, Gen Daft No-163, File No.12-A, 355, Information About Material and Moral *Progress of Baroda*-1928
[164] T Madhavrao, 201

of Baroda.[165] There was a sizeable rail borne trade in raw cotton, cotton goods, sugar and molasses, cereals, oilseeds, *mahuda* flowers, tobacco, timber and stones as building material between the districts of Baroda, Kadi, and Navsari.[166] The railways also facilitated greater socio-cultural interactions between the subjects of the Gaekwad.

Moreover, the cost of construction of railways and repair was considered to be lower; the charges for moving goods and passengers were clear; the journey was performed much more comfortably and much more safely; the journey was to be performed in all seasons, irrespective of the state of the weather; the rail-roads paid some returns on the capital spent on the same, whereas metalled road did not; and it was to be remembered that when produce had to be carried on the heads of the coolies, the cost of carriage was highest; when pack bullocks carry the produce, the cost of the carriage was lowered,; when carts carried the produce, especially on metalled roads, the cost of carriage was still further lowered; and lastly carriage of produce by railway was the cheapest of the whole.[167]

Sayajirao had realized importance of railways and accordingly further expanded it in all the direction in the state to make it a major and cheaper source of transportation. When in the year 1877, the British Government decided upon an extension of the railway from Ahmedabad to Rajputana, and the Government of Baroda willingly granted the land required in Baroda territory free of all cost. Full jurisdiction, short of sovereign rights, was also given over such land so long as the railway might last. On the 24th April 1879 the Government of India resolved to adopt the meter gauge for this extension which was named Western Rajputana State Railway.[168] B. B. & C. I. Railway, with its auxiliary the Rajputana-Malwa Railway, was passing from south to north, almost in a straight line, through Navsari, Baroda and Kadi districts, and had many important

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[165] BSA, HPO, *Selection,* Part II, Section C, p.181, Dewan's Cutcherry, Baroda, 8th Oct, 1877, para. 6,

[166] BSA, HPO, *Selections,* Part II, Section C, p.167, No. 314, Diwan's Cutcherry, letter dated, 21st August, 1877

[167] Nanavati M, 8

[168] Clark A C & Desai G H, Vol-I, 365

stations. In addition to these main lines, there were several branch railways connecting important places in the interior of State with the main lines and serving as its feeders. Up to 1938 , the total mileage of railways was 723 miles of which 21.42 miles were broad gauge, 345.85 miles were meter-gauge and 355.73 miles were narrow-gauge.[169] In comparison to the area and population of the state, Baroda state had perhaps the highest percentage of railway in India. Revenue division sheets (earning by GBSR) were exchanged with twenty seven foreign lines (for example BB&CI, RMR, Guzerat Railway, and others). The amount due to GBSR from these railways was Rs. 1,17,127 and the amount due to them by GBSR on account of their share of freight, etc., amounted to Rs. 25,96,516.[170]

ii. Roads: Development of roads was also done alongside the rails ways. The State continued the policy of constructing feeder roads to facilitate greater access to its railway lines. The State sanctioned and authorized the local panchayats to construct 152 feeder roads with a length of 469 miles, to connect as many villages as possible with its railway system. Of these, 112 covering a length of 283 miles had been completed. The expenditure incurred up to 1938 came to Rs. 8,75,758 of which the Government grants provided nearly half of that amount.[171] However in the same year the earnings of the narrow gauge railways declined as the result of unfavourable monsoon conditions and motor competition.[172] To try and contain the competition which was developing between the two modes of Transportation, the Durbar authorised the State Economic Board to and take charge of the matter. A decision was taken—henceforth all road authorities had to get their proposals for new roads accepted by the State Economic Board, on which the Railway department was represented. The Board also decided on what roads the plying of buses for hire would be permitted and on what roads this would not be permitted. Further the Board also decided to refuse licences for the

[169] *Baroda Administrative Report,* 1937-38, 1938, 248
[170] Ibid
[171] *Baroda Administrative Report,* 1937-38,p-viii
[172] *Ibid*., 239

roads which ran parallel to railways or short circuited the railway lines.[173] These measures minimised completion for the time being. This was further supported by following an integrated transport policy--the railways organised additional fast train services where needed, and opened a few flag stations for public convenience and issue road-cum-rail tickets in important areas.[174] After initial absence of substantial *kaccha* and *pakka* road, they were constructed especially connecting with important trade centres and pilgrims; the Bombay Ahmedabad Road(the old trunk road) and iii) railway lines and branch railways.

The state had metalled and unmetalled roads and the total mileage up to the year 1940 were 1712 miles. Out of the total mileage of roads, 479 miles were metalled and 1233 miles were unmetalled roads.[175]

Ports: There were four ports, one at Rupen in Okha, the second in Mul Dwarka at Kodinar, the third at Beyt in Okha and the fourth at Velan in Kodinar. Out of these, two were fair-weather sea-port namely Rupen in Okha and the other Mul Dwarka in Kodinar both doing merely local trade but of minor importance. The harbor at Okha was surveyed by the Royal Indian Marine in the year 1882 but the real work could not be started earlier than the year 1922.[176] Okha could not be developed as a port because of various factors like sparse population in the surrounding area; scanty rainfall; poor soil; and complete absence of railway connections with other parts of Kathiawar, Gujarat and Central India. However with the encouragement from the state administration under Sayajirao-III all these difficulties were overcome the port was completed by the year 1925. It was formally opened in 1926. Only within eighteen months of the opening of the port, the Viramgam Cordon was reestablished. In regards to river port, Bilimora in the Navsari district was the only river port of any importance. It was the centre of much traffic before the construction of the railway

[173] *Baroda Administrative Report,* 1937-38, 244
[174] Ibid., 244
[175]Clark A C & Desai G H, Vol-I, 365

[176] Clark A C & Desai G H, Vol-I, 361-63

the port had dwindled down.[177] It was also that the river had changed its course and some rocks had appeared which prevented larger ships entering it. In 1926 eighteen foreign steamers with a total tonnage of 1,20,000 came harboured at the port and had brought nearly 13,700 tons of cargo.[178] This denotes the significance of ports for the industrial development.

iii. Ferries**:** Very few of the rivers within the State were not fordable, except during the occasional floods of the monsoon. Permission to establish ferries, or to maintain boat services, was auctioned by the state as gleaned from the *Hodi Sambandhi Niyam.*[179]The Navsari district was watered by several rivers. In the Baroda district there were twenty two places at which ferries were supplied. In the Kadi district the ferry was on the river Sabarmati only between Alva and Sadra, whereas in Amreli district Okhamandal had 10 ferries.

iv. Electric Power supply: Supply of electricity was a cry of the time as electric power run machines were being brought in. It was during the decade 1901-1910 that a complete electrical generating plant was installed for supplying electric light and power to persons in the Baroda City.[180] This furthermore proved to be great assistance for the industrial development.

The above account reflects that the eventual aim of Sayajirao-III's government was to bring about overall infrastructural transformation.

3.4 Relief in Taxation

In 1875, when the new administration commenced its work of reform and reconstruction, there was a system of duties on imports and exports both by land and sea. The goods that were traded had to pay duties every time they passed the frontier of the several *talukas*. These duties operated severely against the development of trade and commerce. T. Madhav Rao, the Dewan-regent had advocated that "to make people opt the field, it is important to keep the tax to be

[177]Nanavati M,9
[178] BSA, HPO, Section No-316, Gen. Daft. No- 163, File, No.- 12-A, 289-90
[179] Clark A C & Desai G H, Vol-I, 383
[180] *Baroda Administrative Report*, 1910-11, 165

imposed on manufacture moderate. The things needed for manufactures such as raw material, machinery etc. should be either tax free or the rate should be lower."[181]Transit duties by the new regime were abolished in most places, as custom duties brought substantial revenue (about 8 lakhs) per year. The administration could hardly go further than this in its simplification. But later on, preliminary to the total abolition of these duties in1904, the Custom Act was revised and minor items of duty were removed, except on cotton and *mahuda*. Thus a large number of duties which had so far hampered the internal trade were abolished in 1904. However, with the growth of industries in the state, it was found worthwhile, even at the sacrifice of the large revenue involved to abolish all import and export duties except at the ports of Kathiawar where the state was bound to levy them under its treaty obligations. Finally the custom duties of every kind were abolished in 1909. Even town duties were removed.

The State territories did not form a compact block. They were interspersed with foreign territories everywhere and the advantage of the import duties was not properly realized. At this time, the Municipal Act came into operation and Municipalities were permitted to levy octroi duties within their own limits. Wherever possible, the town authorities were asked to levy house tax instead of octroi. The octroi schedules were closely scrutinized and all the articles intended for local manufacture were meticulously removed from the list.[182] Thus, besides town duties, there was only the income-tax that industries had to pay on their profits. This enabled the public to engage in smaller businesses and also invest in the larger industries provided fillip to the modernization of the industries.

3.3.5 Industrial Legislation

Industrial legislation or the laws to protect the industrial growth was very much a modern concept and was practiced to some extent in British India. Baroda state too, in order to facilitate the promotion of industries and to regulate them on well-established principles made some important laws which are discussed as follows.[183]

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[181] T Madhavrao, 201

[182] Clark A C & Desai G H, Vol-I, 417

[183] Compiled from *Baroda Administration Report* (1897 to 1938)and *Gazetteer of Baroda State* Vol. II

Act and Rules	Year of passing
Companies Act	1897
Boiler Act	1898
Rules for opening factories and acquisition of land therefore.	1904
Customs Act	1904
Weight and Measures Rules	1904
Mining Act	1908
Factories Act Factory Act(Revised 1930,1940…)	1913
Rules for the Development of Commerce and Industries in the State	1915
The Trade Unions Act	1938

Except the two, namely Weight and Measures Rules, and Rules for the Development of Commerce and Industries in the state, the rest were based on similar legislation in British India with suitable local variations. It was in the year 1915 that rules for the development of industries were made by the state government. These rules defined the orbit within which the government assistance was to be given to the existing and new ventures in the state. The rules for government assistance to the industries in the state, which were first made in the year 1915, were later revised and made more elaborate and liberal.[184]

3.6 Industrial Education and Research

Availability of the natural sources was a precondition for any industrial development process. In case of Baroda state in the pre-modern times, the utilization of natural resources for industries was either unknown to the people or was partially grasped. Thus it became the

[184] BSA, *HPO*, Section No-1, Gen. Daft. No-1, File No. 3-B,7, Review of Progress affected During the Administration of Sayajirao, 1881 tp 1918

responsibility of the government to carry out industrial researches in natural resources and acquaint people with its usage for establishing industries. Sayajirao-III proposed to his Dewan and other officers to form a committee. This committee was to suggest recommendations on commercial education and industrial encouragement.[185] Soon, the state government spared no effort in this direction and came up with the plan to impart industrial and technical education. The following discussion entails the work carried out to technically educate the society by the government.

i. Technical Education: The most important endeavor for imparting technical education in the State was the establishment of Kala Bhavan in 1890. It was Mr. Gajjar who proposed to start such an institution on the grant in-aid principle at Baroda where the technical education was to be imparted in local language. [186] The various objectives necessitated to help the people to improve the existing industries and to introduce new ones that might be remunerative. It was also decided that the courses taught in the institution should be based on course structure adopted outside Baroda state.[187] The courses of instruction combined theory and practice so as to turn out a more skilful artisan than before.

The following schools were accommodated-(1)School of Art. (2) School of Carpentry and cabinet making, (3) School of Mechanical Technology-first and second divisions. (4) School of dyeing and calico printing. (5) School of Agriculture, (6) School of Pedagogy-1st 2nd and 3rd grades.[188] On 31st July 1891, in all there were 350 students studying in this new institution-Kala Bhavan. By 1941 three more branches were added into it. Attached to the Kalabhavan was the Kalabhavan Workshop established for the purpose of practical training of students but as outside orders were likely to prove useful in their training, they were also accepted and executed. A vocational high school was also attached to this institute. [189]

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[185] BSA, *Dewan Khangi Huzur Office*, 1900-1901, 3

[186] *Baroda Administrative Report*, 1905-06, 234

[187]BSA, *Dewan's Khangi Huzur Office*, 1900-1901, 3, March 26, 1901

[188] Nanavati M, 29, Op. Cit

[189] Chavda V K, (1985), *'Development of Science Education and Growth of Scientific Institutions in the Native State of Baroda in the Nineteenth and Twentieth Centuries'*, NISTADS Seminar on Science and Empire, New Delhi, 4

ii. Some Other Institutions: The facilities for technical education in the state were fairly wide and comprehensive. Besides the central institution known as Kalabhavan, facilities for technical training were available at G. B. S. Railway workshop, district industrial schools at Petlad, Patan and Amreli, J.N. Tata Hunnarshala Navsari and Chimnabai Industrial Home, Baroda. The school at Amreli taught carpentry, weaving and tailoring; while the school at Patan offered industrial courses in turning, fitting and smithy, wireman's course and a carpentry course. The Hunnarshala at Navsari imparted training in mechanical engineering, cabinet making and drawing.[190] The Chimnabai Industrial Home was also an important institution in Baroda where women received training in a number of useful and remunerative handicrafts. The above institutions were run by the government except Hunnarshala at Navsari, which was grant-in-aid institute. Moreover the Baroda Industrial Museum was established at Baroda in the year 1894.[191] It was divided into two segments-Science and Arts. Science mainly dealt with Geology and Biology, whereas there was a special department devoted Baroda industries in Arts.

iii. Training Facilities for Cottage Industries: In Baroda state education was made available for all. The vocational education too was given equal importance. Special attention was paid to the skill based occupation, in which the theory was immediately likely to be put into practice. The state government earnestly endeavored to improve the educational facilities. Village industries in order to thrive were to monopolize certain articles. This could be done by gaining specialization in designs, knitting, colors etc. It was therefore necessary that they should be taught cheaper processes and special designs. The state government therefore founded the Diamond Jubilee Cottage Industries Institute in 1936.[192]Also sales depots were established to sell their products. The basic intention was to impart practical training in improved methods of work in various cottage and small industries especially to sons of artisans and the

[190] Parikh, R. G. 201
[191] BSA, *HPO*, Section No-1, Gen. Daft. No- 1, File No-3, 7 Review of Progress affected During the Administration of Sayajirao, 1881 tp 1918
[192] *Baroda Administration Report*, 1945-46, 133

unemployed. Attention was also paid to organize the marketing of the products of various cottage industries in the state.

The Diamond Jubilee Cottage Industries Institute was the central institution of the state. There were seven classes working in the Institute with about sixty boys during 1939-40.[193]Besides this central institution, training classes were also run in various districts of the state. These were established for training in various fields like tanning, spinning and weaving, calico printing, seri rearing and bee keeping. With a view to encourage people of the state to take full advantage of the above described training facilities, a sum of Rs. 10,000 was allotted from the Diamond Jubilee People's Trust Fund for giving scholarships for training in different cottage industries in as well as outside the State.

3.7 Surveys, Investigations and Researches

Besides the above mentioned features Sayajirao's period was also marked with geological and economical surveys. Investigation and survey were made to aid industries with concrete results for establishing new industries and for improvement in the existing ones. The Industrial Research Section of the Technological Institute was carrying out these survey and investigation. The following surveys and investigations were made.

i. Geological Survey: The Geological surveys were undertaken with a view to explore the strength and extent of the natural resources of the state upon which rested the possibilities of industrializing the state. The first geological survey of the State was made in the year 1892 by Mr. Bruce Foote of the Madras Geological Survey and his report was published in 1898.[194] To determine the economic value of the various geological deposits, another survey was ordered in the year 1907-08 for which the service of Mr. Sambashiva Iyer of Mysore State was untilised. Later his work was extended by the Department of Commerce and Industry.[195] Most of the deposits

[193] Shah M H, 137
[194] *Baroda Blue Book* ,1943, 62
[195] Nanavati M, 5

consisted of lime and sand stone, marbles, china clay, ochre, calcites, and such other minerals.

ii. Survey of Forest Resources: Forests being of significant importance for the industrial development the state felt it imperative to carry out a survey. A detailed survey of the forest resources was made under the Industrial Board. The survey provided with the possibilities of establishing industries like paper making, straw-board making, rope making, brush making and manufacture of Katha[196]; also some other minor industries were established like glue making, rubber and lac manufacturing etc. It was also useful for medium scale and small scale wood-based industries like furniture, match making and paper making.

iii. Natural Gas: Natural gas was found at Jagatia in the Kodinar taluka in the year 1919 and in Baroda in the year 1921. [197]Borings were made at various places but the flow of gas was small and its source of supply very limited. At Baroda the gas was observed at two places in wells while boring for water. The supply in one of the wells seems to be fairly large.

iv. Ceramic Survey: In the year 1920-21 a ceramic expert was engaged and all the clays were analyzed and physical tests were made. [198]The possibilities of working clay industries on economic lines were under consideration.

v. Industrial and Economic Survey: The first industrial survey was made in the year 1893. A committee consisting of three officers and one non-official member visited every *taluka* and submitted a report in the year 1895-1896.[199] It was concerned both with the agriculture and industries, but so far as the latter were concerned only the existing hand-industries received attention. The important fact brought out by the Commission was that the old hand-industries were dying out. Consequently, several branches of the Kalabhavan(School of Art) were started in some of the *taluka* towns. However they were closed down in the following years due to lack of public support.

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[196] *Baroda Blue Book, 1947*, 62
[197] BSA, *HPO*, Section No-1, Gen. Daft. No- 1, File. No.-3 ,6
[198] *Gazetteer of the Baroda State*, Vol-I, 409
[199] *Baroda Blue Book,* 1943, 62

vi. Economic and Sociological Inquiry: The Baroda state government under the Maharaja ordered periodical inquiries into the economic condition of the people" living in particular villages to situations should be made and that as an immediate step a Sociological survey may be made of the servants (numbering 800) of the Khangi(Palace) Department."[200] This inquiry was made in the year 1914 and the report was published in the same year. The second step in making a similar inquiry was the survey of a typical village. Under the orders of Sayajirao-III, village in Petlad *taluka* was selected and a full economic survey was made. Beside these general economic surveys, industrial survey of towns like Petlad, Bilimora, Dabhoi, and Baroda had been made. These towns' surveys were useful in so far as they revealed the needs of local industries. A general survey was also conducted in the Okhamandal *taluka.*[201]

vii. Investigation of natural resources: The Baroda state administration also carried out comprehensive investigation of various natural resources present in the state. Following is a description of few of these.

a) Glass- Experiments were made in Baroda in the year 1887-88 with the various sands found in the state to meet their suitability for glass manufacture. Better class sand was found, and a Glass Factory was established in Baroda.[202]

b) Cement- So far as the cement was concerned; an English cement expert was engaged to report on the suitability of clays found at Dwarka and Velan for the manufacture of cement. Favourable reports were received for Dwarka and a lease was immediately granted. The Factory was opened by the Maharaja in the year 1921, which was the largest in Western India. Later a lease of Velan was given to Bombay capitalist.[203]

c) Fisheries- The services of Mr. James Hornell, F. L. S., Marine Biologist and Inspector of Pearl Banks Ceylon, were engaged to investigate the possibilities of finding in that pearls in the creek. He visited the Okhamandal coast and submitted report in the year

[200] Clark A C & Desai G H, Vol-I, 409
[201] Ibid.,
[202] *Administration Of Baroda State,* 1912-13, 182
[203] Clark A C & Desai G H, Vol-I, 412

1909, in which he made several suggestions for the development of the fisheries of the Okhamandal *taluka*.[204] In 1913-14 two science graduates were selected and were sent to Madras for training. One was given training in pearls and edible oyster culture and the other in fish-curing, canning, and allied subjects. On their return they were asked to make a survey of the cost of the state and to submit report of the existing conditions of the fisheries, and the future lines of their development. For this purpose two experimental stations were started, one at Okha for window-pane and pearl oyster culture, and the other at Madhwar in Kodinar for fish-curing and fish-canning.[205] All experiments were completed in the year 1920-21. The whole of Okha coast was inspected; new oyster beds were created at Balapur, Gopi and Kamusen where nearly twenty lakhs oysters were relayed. The life history of the oysters was fully studied. The Madhwar station was open for two years, once for experiments in fish-curing and second time for experiments in fish-canning, especially of pomphrets where these were caught in great abundance.[206] The experiments in fish-canning have been successful, and it is hoped that private parties will be sufficiently interested to take up the work industrially.

d) Oil-seed - A thorough inquiry into this industry was made. Local seeds were sent to America to be tested for their oil yielding properties and the results of these investigations were published. In the year 1905, Sayajirao ordered to find possibility of establishing a castor-oil factory on the lines set up in Calcutta.[207] As a result a mill was started in Baroda. The factory crushed caster and other oil-seeds, but could not deal with cotton-seeds as unsuitable machinery was purchased.

e) Oil and Soap Industry- American expert was engaged in the year 1910 to investigate the possibilities of oil industry and the manufacture of soap and other products. His report, however, failed to give adequate information or practical advice.[208]

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[204] Ibid., 415
[205] Nanavati, M. 22
[206] *Gazetteer of Baroda State,* Vol.-I, 416
[207] Parikh R G, 210
[208] Shah M H, 110

f) Tanning- In the year 1907, an expert trained in America was engaged to make experiments in Chrome Leather Tanning and a set of machinery was purchased. [209]It was proposed to make experiments in Kalabhavan, but before the work was started a joint-stock concern purchased the machinery and started the factory. Unfortunately, both the agents and the expert proved incompetent and the factory was closed.

g) Calico-printing- In the early period of Kalabhavan a set of machinery for calico-printing was purchased. The experiments proved unsuccessful and the machinery was sold.

h) Hand-looms- Experiments were made in order to find new type of hand-loom to replace the old style throw-shuttle loom. As its result a new type of fly shuttle hand-loom was designed and introduced. Experiments in better class weaving in silk and wool were also conducted. A weaving expert with a staff of demonstrators was engaged and attached to the Department of Commerce and Industry.[210]

i) Alkali Manufacture- The possibilities of manufacturing many alkalis from the salt deposits of Dwarka and Kodinar were investigated and as a result, concessions was granted to two parties one at Dwarka and another at Velan.[211]

j) Button Making- All the shells found on the cost of Okhamandal, were tested to ascertain their value as button material. The result showed that some of the shells were suitable and a scheme was prepared for the development of a factory.[212]

k) Wood Distillation-The wood found in the State forests were analyzed and tested for their value for wood distillation. A concession was granted by Government as soon as the experiments proved fruitful to an organization to work in the Vajpur forests of the Navsari district.[213]

3.7 Industrial Exhibitions

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[209] Clark A C & Desai G H, Vol-I, 412, Op. Cit
[210] BSA, *HPO*, Section No.-316, General Dafter No.163, File No.12-A; and *Gazetteer of Baroda State* Vol.-I, 413
[211] Ibid.,
[212] Clark A C & Desai G H, Vol-I, 413
[213] BSA, *HPO*, Section No-1, Gen. Daft. No.1, File No.12-A,169, Report on Material and Moral Progress of Baroda, 1922

The main object of the industrial exhibitions was to encourage the Arts and Industries of the state by presenting a display of the resources, processes of manufacture and products of the state. This was done along with similar products in other parts of India. This was done in order to gain mutual benefit. The exhibitions were also organized with an intention to propagate the products of industries and to show practical work of handicrafts, so that people could get encouragement to adopt it as profession.[214]

3.8 Finance for Industries

Financial help was the chief feature of government encouragement to the industrial enterprises of the State. As has been previously discussed, in the absence of banks, Baroda state had undertaken to finance the nascent industries. However the initial enthusiasm was gone as many of them of the debtors failed to repay their loan leading to the state suffering a loss. Some of these factories were not even bona fide, they were started just to get Government assistance which was given by over enthusiastic officers without adequate inquiries either into the nature of the industry or the security offered.[215] The state government withdrew financial assistance temporarily. They revived it only when some genuine cases came forward for government aid. This time however stricter rules were made to be followed before granting loans. Gradual success, of the efforts of the administration and those of private concerns, persuaded state to adopt liberal policy towards granting further loans. Some factories like file work, jute mills, Copper sheets were financed by Government with requisite loans.[216] The upper limit was fixed up to Rs. 25 lakhs to be given as a loan to the small and large industries. The loan policy of the state during the decade of 1931-41 was particularly helpful for the development of small industries. The reasons being, that the loans were given increasingly, to comparatively small industries; and the terms for granting these loans were fixed to be more liberalized. The liberalization was fixed considering the rate of interest, the period for which the loans were granted and the nature of security taken.[217]

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[214] BSA, *HPO*, Section No-65, Gen Daft. No.112, File No.11, 85-111, Prospectus of the Baroda Agricultural & Industrial Exhibition, June 1917

[215] Nanavati M, 22

[216] BSA, *HPO*, Section No.-316, General Dafter No.163, File No.12-A, 50, Report on Material and Moral Progress of Baroda, 1917-1918

[217] Shah, M. H. 142

Apart from financing the large and the small scale industries attempts to meet the fiscal problems of cottage industries were also made. A sum of a crore of rupees was donated from private purse of the Maharaja Sayajirao-III for the purpose. Besides this, the income of Diamond Jubilee People's Trust Fund was also utilized in giving scholarship to agriculturists to learn dealings agriculture and subsidiary industries.[218]The fund created out of the saving effected from contributions made by the people of the state at the time of the Diamond Jubilee of Sayajirao-III. During the decade of 1931-41, special grant of Rs. 28,000/- was sanctioned, every year for granting small loans, free of interest to various cottage industries.[219] The main object of these funds was to affect the social and economic upliftment of the masses. The Director of Industries had got powers to grant loans up to Rs. 200 in each case, either for buying raw materials or for implements to persons engaged in different cottage industries. These loans were given free of interest and were repayable in small monthly installments ranging from Rs. one to Rs. four, according to the amount of loan.[220] The state government also gave grant-in-aid to private institutions which promoted the development of cottage industry and provided loans for starting them.

The establishment of Bank of Baroda proved to be a feather in the crown for the State economy. It provided loan at reasonable rate of interest and for sufficiently long time to the industrialists. Another method of financial assistance was a purchase of share. But as the companies failed to work and went into liquidation and most of the money was lost. It was however then led down that shares of industrial concerns would not be purchased by the way of help.[221] Concessions were also given for various things like exemption from custom duty on lump sum payment; remission in custom; fully or partially free use of natural resources; subscription to the share capital; provision service of technical experts at state cost; concession in water rates etc.

All the above incentives and efforts of the State come off well as the industries in the state were cropping up like mushrooms and were also doing well. The following section deals with the development of industries.

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[218] *Baroda Administration Report,* 1942-43, 141
[219]Shah M H, 142
[220] Ibid,136
[221] Nanavati M, 23

3.9 Growth of Industries during the Reign of Sayajirao-III

Sir T. Madhavrao in his 'Minor Hints' advised Sayajirao-III that, "Government should generally abstain from undertaking any work which would otherwise be done by the people themselves. By so doing the government deprives the people of the means of their livelihood." [222] However Sayajirao-III felt a huge economic loophole in his modernization program, if he followed the 'advice' of his mentor. He felt the need to initiate the process of industrialization by introducing state run and state aided industries to provide encouragement and to wipe out conservatism of the people. Thus in contradiction of the advice of Sir T. Madhavrao, the policy adopted by the State was to start industries as an object lesson to the capitalists of the state; and to give it over, as soon as, possible to private entrepreneurs. As a beginning a few model factories such as cotton and sugar mills were started.

The period from 1881 to 1905 might be considered as a period of pioneering efforts and laying the foundation of industrial development in the state. This effort of the state was met with the efforts of the people. The people also organized a few small industries such as pencil-making, button and soap making, etc. A number of small industries such as cotton ginning, press factories, flour and rice mills and dye works sprang up during the period of 1887-1905.[223] The progress during the initial stages would naturally be slow. Industrial enterprise and manufactures on the Western model were yet confined only to a few large cities.

It was in the first decade of the 20th century that industrialization in the State was given further impetus. The determining factor of this impetus was the Swadeshi Movement of Bengal in 1905. The Movement focused on boycott of everything foreign and adopted everything manufactured and produced in India. As a result of this movement many dying industries were revived.[224] This provided an opportunity to the existing industries to augment further and for the new ones to establish afresh. Baroda state too took advantage of the enthusiasm of the people and extended its help to all new ventures that were started with loans and many other ways.[225]The state government left to its people to decide what was essential to be manufactured

[222] T Madhavrao, 202
[223] BSA, *HPO*, Section No-316, Gen Daft. No.-163, File Nos.-12, 12-A, 13 and13-B, op. cit
[224] *Baroda Administration Report,* 1929-30, 194
[225] Widgery, *Speeches and Addresses of Sayajirao-III,* Vol-I, 78

at home. The other event which gave fillip to the entrepreneurs in the beginning of the twentieth century was the establishment of a special Department of Commerce and Industries; followed by the starting of the Bank of Baroda in the year 1908. The Department of Commerce and Industries as has been previously discussed, administered the industries whereas the Bank of Baroda provided the needed finance to the entrepreneurs. Whiteneck said at the time of establishment of the Bank of Baroda that, "The bank is not designed to assist the Baroda government in financial transactions by providing loans, since government has ample funds of its own but to help the people in their industrial pursuits". Whiteneck proposed to convene a public meeting, very much on the lines of American town hall meetings, to educate the people on the objectives and usefulness of the proposed bank, which was duly held on July 19, 1908 in the presence of the Maharaja.[226]

This fruitful decade was followed by another lucrative decade for the industrial development. As has been discussed in the above section, numbers of actions were undertaken by the state like industrial education and researches; easy and low-interest loans; industrial codification; industrial exhibitions; and expansion of means of communication and transportation. These proved to be fruitful as number of small and large industries sprang up. Industries like cotton ginning factories, cotton presses, cotton spinning and weaving mills, silk factory, brush factory, dyeing factories, leather factory, saw mill, sugar factory, water works, opium factory, brick factories, oil mills, chemical works, rice mill, furniture factory, electric light company, printing presses and other were established. The industrial development continued in the third decade of the twentieth century as well, especially after 1925. The policy of industrialization of the State, which was steadily pursued, achieved the form of intensive drive towards industrialization under the guidance of Sir V. T. Krishnamachari, the Dewan of the State.[227]Following is an account of the number of industries that sprang up in the state as a result of the modernization policy of the Sayajirao's government. This has been divided into state initiated or aided industries and those industries which were established as a result of private entrepreneurs.

3.9.1 State Initiated or Aided Industries:

[226] Anand Chandavarkar, *Modern India's Pioneer Economic Adviser*, 66
[227] Shah M H, 114

i. Cotton Mills- The first venture initiated by Baroda state was Cotton Spinning and Weaving Mill. Attempts were made by T. Madhavrao to introduce spinning and weaving factory. His objective for establishing the factory was to provide employment to the labouring classes and to secure the state the advantage of a lucrative trade.[228] It was established in May 1882 to provide stimulation to the entrepreneurs to establish industries. The total cost of main and subsidiary building was Rs. 1, 79,500 and that of machinery and building amounted to Rs. 3, 63,500. [229]Subsequently, some more looms and machineries were added. Soon the importance of Cotton Mill Industry was well understood and many private enterprises came forward to establish new mills. The Cotton Mill Industry too was sold to private investors for Rs. 5, 00,000. Several Cotton Mills were later established in various places like Kalol, Petlad, and Navsari etc. In the year 1938-39, sixteen cotton mills were working in the State, four in Baroda, three in Petlad, three in Kalol, two in Sidhpur, two were established in Navsari and one in Bilimora.[230]

ii. Sugar Factory- The second industry pioneered by the state was the Sugar industry. The possibility of its success of sugar industries was great, as the soil of Gujarat could yield fine canes.[231] Initially Baroda was acquainted with the process of making *goor* (jaggery). In 1876 experts were called from Punjab to train into the processes of making sugar. But during that time much was not done on a large scale.[232] The first sugar factory was started at Gandevi, in the year 1884. At first it was started as a joint stock concern, the state owing half the shares. However as this did not work satisfactorily, the State purchased the factory at a cost of Rs. 3, 00,000 and worked it for some time. The experiment was unsuccessful and resulted in heavy losses. The factory was sold for Rs. 70,000 in 1904.[233] The reason why the factory suffered losses was when the factory was first established it was assumed that an ample supply of cane would be obtained from the surrounding districts. Unfortunately no serious

[228] MSA, *Political Department,* Vol.12, 16
[229] BSA, *Baroda Administrative Report*, 1882-83, 68
[230] Shah M. H.,113
[231] MSA, *Political Department,* Vol.12,Annual Report,1877, 15
[232] Ibid.,
[233] Kapasi B, 15

efforts were made to develop the cultivation of cane, nor were any attempts made to extract juice from the date palms fount in great quantities in the district. The new purchaser organized a joint stock concern and leased the factory to another merchant who worked it only for a short time.

iii. Glass Factory- Soon after the establishment of a sugar factory in the year 1884, the possibilities of establishment a glass factory were explored and several experiments were made with sands found in the State. But the project had to be abandoned as a result of unfavorable reports. Eventually, Baroda Glass Work Company Ltd. was established near old Railway Station in Baroda. Experiments were also made with some sand obtained from crushing and washing the sandstone in the beds of the right bank of the Sabarmati River to find.[234]

iv. Brick Factory- To meet the growing needs of the Public Works Department, a Brick Factory was started in the year 1890 at a cost of Rs. 24,722.[235] Provision was made to manufacture Manglore tiles. After that earthen ware pipes and jars, and the necessary machinery was purchased. For some time experiments were made in manufacture of the other articles mentioned, besides the regular manufacture of bricks, but none of the experiment proved successful. In the year 1907, the factory was sold to a contractor for Rs. 16,699, on condition that he should supply the Public Work Department with the fixed number of bricks at special rates.[236]Besides bricks, it was manufacturing Mangalore tiles. Experiments were also made in the manufacture of jars and earthen ware pipes.

v. Chocolate Factory- The chocolate factory was established in 1898. The proposal had come from a private entrepreneur seeking government aid to establish a factory. The Maharaja accepted the request with a condition that the chocolate factory be named after him. The factory was to be established at Bilimora (Navsari Dist) and five bighas of land in Bilimora was allotted on nominal rent. Alongside these privileges, more privileges like the remission of custom duties too were granted for ten years.

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[234] *Baroda Administration Report,* 1907-08, 76
[235] Kapasi B, 16
[236] Clark A C & Desai G H, Vol-I, 411

One forth of subscribed shares were subject to maximum of Rs.7,000/- . Purchase and the matters like control, inspection and correspondence etc. were left to the Sar Suba of the District. [237]

vi. Chrome Leather Tanning:- This factory was planned to be established in the year 1907. An expert trained in America was engaged to make experiments in chrome leather tanning. In 1909, machinery for Chrome Leather Tanning was purchased.[238] Before the factory could be started, it had a private buyer to whom the company was sold and the machinery was transferred at the cost price.

i. Furniture and other factories- In order to meet the requirement of the Palaces as well as the Departments of the State, a furniture factory was started in the year 1909. Equipped with modern machinery driven by electric power it constructed high class furniture.[239]

3.9.2 Growth of Industries in the Private sector

The setting up of state run industries gave stimulus to many private industrialists who invested in it. As a result many private industries were started in the state. Industries like textile, chemical, iron manufacture, cement, salt, etc were established. A short account of some important enterprises is given as under:[240]

i. Textile Industry: Textile industry ranked the first among all the other industries. The number of mills in the State increased from ten in the year 1926 to nineteen in the year 1940. Of the nineteen mills established, seventeen were cotton mills and the rest two were woolen. The capital invested in these mills showed an increase of about 160% and the number of looms increased from 1876 in the year 1926 to 6914 in the year 1940. The quantity of yarn produced increased from 154 lakhs lbs. to 344 lakhs lbs. The number of operatives employed in these mills also increased from 6250 in the year 1927 to 19,000 in the year 1941. The cotton consumption of these mills averaged to about 1, 20,000 bales per annum, and they produced thirty two million

[237] BSA, *Dewan Khangi Huzur Office*, 1897-98, No. 8,letter dated Feb. 21, 1898
[238] Clark A C & Desai G H, Vol-I, 411
[239] Ibid.,
[240] BSA, *HPO*, Section. No-1, Gen Daft. No.1, File No.6-A

pounds of cloth.[241] The easy availability of cotton, being a main and uniform crop of the state, played a significant role in the growth of this industry. Moreover the reason for the progress of textile industry was due to conditions created by the war.[242]Besides the cotton and woolen mills, there were waste cotton spinning plants, sewing thread industry and a plant to manufacture bobbins, pickers, and shuttles, supplementing the textile industry.[243]

ii. Chemical Industry: Chemical industry came next to the textile industries in its set up. It was the second largest industry in the State. The chemical industry of Baroda in fact occupied an important place in the entire country. The beginning was made with the establishment of Alembic Chemical Works in 1907[244] followed by the Tata Chemical Works, the Baroda Chemical Works, the Petlad Chemical Works, the Bilimora Chemical Works and other small concerns. These chemical industries manufactured different products like pharmaceutical chemicals, drugs, fine chemicals, alkaloids, rectified spirit and spirituous preparations. Soda ash, caustic soda, Potassium chloride, bleaching powder and allied products were also manufactured.[245] Hydrochloric acid and nitric acid, copper and iron sulphate and alum and aluminum sulphate from the dilute sulphuric acid, soluble oils, sizing and bleaching materials, liquid soap, varnishes and polishes, disinfectants such as phenyl, Paris green, mosquito oil were manufactured in above different chemical industries.[246]

iii. Iron: The iron work was first of its kind to be started the Gaekwad Baroda State Railway (GBSR). The GBSR besides doing railway work, dealt with the manufacturing iron articles like drilling machines, sterilizers and other iron articles. The other bigger iron industry was Sayaji Iron works which was added to the list of Baroda industries in 1914. It manufactured agricultural implements; cast iron articles

[241] *Baroda Administrative report* ,1941-42, 161-2
[242] *Baroda Administration Report*, 1941-42, 163
[243] Parikh, R. G. 207
[244] Kapasi, Bhikhalal, 18
[245] Ibid,17
[246] BSA, *HPO*, Section No.316 , Gen. Daft. No.163,File No.12-A,130-131, Report on Material and Moral Progress of Baroda, 1920

like pipes, sluice valves etc.; machinery for road building; and bleaching machines for textile mills. It was also involves castings of any specifications and also of manufacturing locomotive cylinders and diesel engine cylinders from centrifugal castings. This was imported from Europe.[247] The Baroda Bolt and Engineering works was another important concern manufacturing nuts, bolts, dog spikes and rivets.[248]

iv. Salt Industry: The Salt works at Mithapur situated on the northwest corner of Kathiawar and was a joint-stock company was initiated in 1926 with an authorized capital of Rs. 10 lakhs for manufacturing salt and allied products. It produced salt of superior quality which was mostly exported to Bengal. The production of the industry reached the maximum level in the year 1939-40 when 75000 tons of salt was produced.[249]

v. Cement Industry : The Dwarka Cement Company was floated in the year 1929. It was working under the management of the associated Cement Companies Limited. This industry flourished to a great extent as can be seen from increase in its production from 9,550 tons of cement in the year 1929-30 to 1,20,000 tons in the year 1939-40.[250]

vi. Match Factory:The investigations for establishing match factory was done in the year 1924 and it was after this that the match factory was started. By 1939, there were three factories in the state-one each at Baroda, Petlad and Bilimora.[251]

3.9.3 Village Industries:

The question of revival of the fading village industries was equally important just as was of introduction and expansion of the new modern industries for growth of the state economy. The population relied majorly upon the agricultural land as there were insufficient industries to be dependent upon. Even the subsidiary industries were not sufficient enough. Thus resurgence of

[247] Shah M H, 112
[248] BSA, *HPO*, Section No- 1, Gen. Daft. No-1, File No .3A; and Section No- 316, Gen, Daft, No-163, File. No.12
[249]BSA, *HPO*, Section No-316, Gen. Daft no. 163, File No. 12-A, 261,Report on Material and Moral Progress of Baroda, 1926
[250] Kapasi, Bhikhalal 17
[251] Shah M H,124

village industries was necessary for many reasons like to reduce the increasing pressure from agriculture; to provide village community with remunerative vocation; to use spare time of agriculturist in some constructive and remunerative work; and to give economic assistance to agriculturists to cope up in the times of crises.[252]

Baroda state administration had made attempts to reinforce the subsidiary industries by giving training in Diamond Jubilee Cottage Industry Institution into the updated techniques and designs as per demand. Beside classes were also organized in the districts to give training different crafts. State also had provided loans for the purpose and steps were taken to encourage the craftsmen and work to organize non-agricultural societies. Due to these measures some industries like hand-spinning, hand-weaving, eri-rearing, rope and lace making, embroidery, artificial flower making and others were found to exist in the State.[253]

Of all these industries, handloom spinning and handloom weaving stood foremost in Baroda, as elsewhere in India. The survey carried out by the industries department of the state during 1940-41 estimated the number of handlooms to be fourteen to fifteen thousands in the whole of the State. About 35,000 persons got livelihood from this industry. A notable centre of handloom spinning and weaving in the state was Chalala. A 'Khadi Karyalaya' was established there on 1st January 1938 under the supervision of All India Spinners' Association.[254] It received considerable help from Baroda Government. Centres of spinning and weaving were also opened at Amreli and Vasda.[255]

The other industries which could be adopted by the village community as a full time profession or spare time vocation were wood-carving, tanning and manufacturing leather articles, metal work, lacquer work, oil pressing, pottery, soap making, manufacture of perfumes, basket making, glue making, poultry etc.[256] These types of industries required a complete survey of the local raw materials and also a study of the manufactures that could be obtained out of them.

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[252] BSA, *HPO*, Section No-316, Gen. Daft. No.163, File No.12-A, 345, Report on Material and Moral Progress of Baroda, 1928
[253] Ibid.,
[254] Shah M H, 130
[255] Ibid.,
[256] BSA, *HPO,* Section. No.-1, General Dafter No.1, File No.6-A, op. cit

Training classes were organized in cottage industry of to teach techniques of leather tanning and manufacture of leather articles. Experiments were carried out by a glue expert in glue manufacturing in the Diamond Jubilee Cottage Industry Institute. Poultry was under the supervision of the agriculture department. The scheme had been in operation since the year 1937 and a special officer was in charge. To popularize and spread this industry, poultry development centers were organised in the State.[257]

All the above industries whether large, medium or small scale; be modern or indigenous substantiated the fact that Baroda was being ranked amongst the industrially advanced states of India in the twentieth century. This can also be gauged from the fact that during years 1927-41, the number of operatives employed in industrial concerns coming under the Factory Act rose from 17,000 in the year 1927 to 41,101 in the year 1941. The number of factories rose from 122 in the year 1927 to 148 in the year 1941. The paid up capital of joint stock companies rose from Rs. 319 lakhs to Rs. 1,164 lakhs, and the number of towns rose from fifty in the year 1927 to sixty four in the year 1941.[258] The industrial development proved progressive to place Baroda State among the contemporary modern regions in India like Mysore and the British India. The introduction of modern machineries, the creation of banks on the modern lines to create capital for industries, development of means of communication, the introduction of codified laws and a migration of people from rural to the urban setting all exemplified the presence of modernization in Baroda State and Industries had played vital role in making Baroda a modern state.

Section-4 Finance:

The section 'Finance' deals with the making the State economy better; and specially their role in the expansion of agriculture and industries. Finance is a broad term that describes two related activities: the study of how money is managed and the actual process of acquiring needed funds. The introduction of modern banking system in the state represented the financial modernization. Another aspect was the growth of co-operative societies. These societies performed varied duties like financing, carrying collective commercial activities, consolidating scattered lands etc. All these developments symbolize modernity in different aspects of society including finance and commerce.

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[257] Shah M. H., 134
[258] Ibid, 114

To improve the financial condition of the State and the people, progressive measures were taken by Sayajirao-III. Much deliberation went into the progress and development of Industries along with agriculture. Potential efforts and means were proposed considering research, repair and review pattern to assure their success. The primary problem for attaining success was found to be the lack required finance. The amount needed for the advancement of agriculture and industries was too large. There was a demand of huge money to buy implements, manure, machines, raw material etc; to construct buildings; to create irrigation facility and so on. Capital was needed at every stage of agricultural and industrial processes. The State had already invested and aided fair amount of money in the development of the rudiments and it was essential that public investment too should be considered.

Moreover the indigenous banking system wherein money was borrowed from the *sahukars* on interest was also diminishing gradually. Earlier the financial resources of the State and the personal funds of the Maharaja and the Royal family were pooled in the *dukans* of the *sahukars* and they were made available for satisfying the banking requirements of the whole State.[259] From 1875-1881, T. Madhavrao, the Dewan of the state had ushered in a new era in the old State banks or the *dukans*. The dukans belonging to *sahukars* or to the state were replaced with the state treasuries which were established at the important places in the State. Furthermore, from 1876, the transactions of the State were carried through various branches of Bank of Bombay. The revenue collection within different districts was exchanged into the currency of Government of India via adjacent branches. From there it was transferred to the Head Office at Bombay into the account of the Baroda State. This process of remittance of money into these banks had continued till 1903-04.[260] This had given setback to the institution of indigenous banking, as the bankers were quite dependent upon revenue farming and had derived huge profit out of it. The British Government had consequently earned maximum benefit out of this new development. The State (T. Madhavrao) on the other hand invested its income in the securities of the British Government. Therefore the money which had earlier stayed with the *shahukars* was later transferred out of the State. The *dukans* were affected to a large extent.[261] This only meant

[259] *Report of Baroda Banking Inquiry Committee* 1929-30. Baroda State Press , 44, Op. Cit
[260] Vaidya, Maitree, *Indigenous Banking System in Baroda State*, 238
[261] Ibid.,

that the conditions were created for the development and modernization of finance economy in Baroda state.

4.1 Baroda Pedhi Company:

The indigenous banking system was at the threshold of decline and the banks on modern lines were already established in the neighbouring British India like Bombay and Ahmedabad. For an observant ruler like Sayajirao-III these developments in the adjoining regions were illustrative enough to make similar or suitable improvement in his own State. Nonetheless his idea of modernization was never of phasing in the new by discarding the old one entirely, providing the accommodation of new in the old set up was possible. He was in favour of introducing new banking system which could benefit his State but at the same time he never intended to do away with the indigenous banking community, which had provided valuable assistance during the past one century. Therefore he made an attempt to establish an intermediary agency based on the earlier set up and tried to modernize it. This was to help revive the draining economic position of both state and the indigenous bankers. His first attempts to establish such agency failed. However the very first endeavor to start an indigenous institution on modern lines was initiated by the indigenous bankers themselves in the 1860's, but nothing concrete was achieved.[262] An effort was also made to start Servant Deposit Chest which did not succeed. Later with the efforts of a British officer G. E. Seaward a Servants' Bank was successfully institutionalized in Madras for the servants of Malharrao who was deported there. Therefore the first successful modern bank of Baroda was started at Madras. But within the Baroda State, modern banking began with the operation of the Bank of Bombay branches.

Renewed efforts to open a modern banking institution were made at the initiative of Sayajirao-III and some leading bankers; thereby a Baroda *pedhi* Company was established. In 1884 the Baroda Pedhi was started with a capital of Rs. 3, 00,000 divided into 600 shares of Rs. 500 each. One and a half lakhs of the share were taken up by Government and other half by the public.[263] It was registered as 'The Baroda Pedhi Company limited'. This institution had remained as some kind of fusion between the traditional and modern system. However it was not successful as the scope of functioning of the *pedhi* was limited. The bankers involved were not

[262] Vaidya, Maitree, 254

[263] *Report of Baroda Banking Inquiry Committee* ,1929-30, 47, Baroda State Press

yet fully open to the idea of any kind of institution with the State's support, which would take away their hereditary powers. Due to the threat of competition they were facing in the form of the branches of the Bank of Bombay, they still were only slightly convinced of the need of such institution within the State. Moreover the founders of the *pedhi* retained the features of the traditional banking and the main activity of the *pedhi* remained to be money lending instead of accepting deposits. They had believed in hoarding capital rather than utilizing it for profitable investment in the modern sense.[264] There were other reasons besides mentioned above for the languish performance of the *pedhi.* The *shahukars* for instance were not experts of the dealings of the modern banking system. Their experience was limited to moneylending. The state-government had left management of the institution in the hands of sahukars and did not pay the required attention to it. Also the state government had established its own departmental banks which leered away the business from the *Pedhi*. The people of the state had yet to accommodate with the strict rules of modern banking systems. These reasons were sufficient enough for people to place less faith and not deposit their savings with the Baroda Pedhi Company. Shortly the *Pedhi* was absorbed into the impeding 'Peoples Bank of Baroda' which automatically dissolved with the birth of Bank of Baroda.

4.2 Industrial Commission and Agricultural Banks

Before establishing Bank of Baroda in 1908 measures were taken to start some other banks too. In the year 1890, small banking institutions were opened to help the financing of the Baroda army, the servants in the palace, and the police. These banks were under the control of *suba* of the state. Similar banks were established in different parts of Baroda around the same time. For instance, in Visnagar a state bank was established which was under the control of the *Sar Suba.* The bank was not successful as the office had other responsibilities as well. Hence it was not well managed. The fractured modern banking in the state suffered more with the famine of the year 1899 especially the bank at Visnagar. In 1904-1905 it was liquidated and the share capital was fully re-paid to the shareholders.[265]

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[264] Mishra P, (1988), *The Baroda pedhi:- Rise and Decline of an Intermediate Urban Agency, in Urbanization in Western India* - Historical Perspective, (Ed) Makrand Mehta, Gujarat University, Ahmedabad, , 169-70

[265] *Report of Baroda Banking Inquiry Committee* 1929-30, Baroda State Press, 46, Op. Cit

The last decade of the nineteenth century also saw the Baroda state giving encouragement to industries to along with agriculture. However lack of enough financial institutions could not fulfill the fiscal needs of agriculture and industries. During this time, the industrial development in the state was in its early stage. In order to understand the tribulations of fractured financial and industrial growth, the Baroda Government appointed an Industrial Commission in the year1894. It consisted of three officials and three non-officials. The Commission concluded that the essence of the problems focused on the continuous drain of money from the State; the extinction of the *sharaffi* (coin changers); the dearth of capital; and the exorbitant rates of interest charged by money-lenders. The difficulty of procuring capital for industrial or agricultural improvement was reported from every *taluka* and the only remedy was to establish state government banks in each *mahal*. It was suggested by the Commission that wherever possible it should be a joint stock concern in which the capitalists of the *mahal* should be induced to take share, the state government taking the rest.[266]

The state government took into consideration the suggestions of the Industrial Commission to establish Government banks and an initiation was made by establishing Agricultural Banks. The credit flow to the rural and agricultural sectors had remained generally dismal. The rural population suffered from a great deal of indebtedness and was subject to exploitation in the credit market due to high interest rates and the lack of convenient access to credit. Thus in the absence of a better system of agricultural finance, the private money-lenders or *sahukar* had to be tolerated. To minimize the dependence on *sahukars*, it was decided to increase an efficient system of agricultural banking. In this regard state government established an agricultural bank in the most backward tract of the State- the tract in the Songadh and Vyara *Talukas*, inhabited by the Kaliparaj tribe. The first bank was opened at Songadh with a branch at Vyara in the Navsari district. A similar bank was opened at Harij in the Kadi district in the 1901. They were followed by three more; at Visnagar in 1905, at Amreli in 1909 and at Bhadran in 1910.[267] Between the years 1890 and 1900, seed-depots were organised all over the state. But most of them did not work satisfactorily. Some of them were converted into *Sadar* or chief

[266] Ibid., 47
[267]Clark A C & Desai G H,Vol-I, 277

banks, with the clientele of old ones as their members. These were subsequently transformed into *Pedhis* or Agricultural Banks after the Egyptian model.[268]

The directorate of the Agricultural banks was composed of eight members, four of whom were to be elected from private share-holders, the rest being nominated by state government. The government nominees were the *suba* of the district, an *assamdar* of the district, the *vahivatdar* of the *taluka*, the Sub-registrar of the *taluka*. The *suba* was the chairman. The principal concessions granted by the State to these banks were 1) subscription of half the share-capital, and payment of dividends on government shares to the maximum of 5%; 2) exemption from the payment of stamp and registration duties; 3) collection of arrears by revenue process; and 4) audit and inspection by the State.[269] Rules were made allowing advances and repayment of loans to be made in kind. The last concession enabled the banks to maintain grain-stores, the idea at the back of it being to follow the practice adopted by money-lenders. Arrangements were also made to enable them to advance very small loans- even from week to week- as they could not be trusted to handle large sums of money. The state soon found out that this attempt at modernization too did not meet with complete success. As a result, the inefficient banks of Harij and Visnagar were closed. The banks of Songadh and Amreli were prohibited to transact business with individual cultivators. They were asked to restrict their dealing only to co-operative societies which were under their jurisdiction. In brief they were approximated to co-operative central banks. The Vyara branch was found to be doing good business; so it was converted into an independent institution.

4.3 Bank of Baroda

The partial success of Agricultural banks cautioned the state government against further economic degradation. Following the then economic exigency of the State, Sayajirao-III appointed an economic advisor in the year 1906. An American economist, Mr. Whitenack was designated "as expert adviser in matters relating to the industrial development of the state"; but he requested a change in his title to Economic Adviser to the government. The reason why Whitenack had insisted on a change of title because he had realized that industrial development

[268] *Report of Baroda Banking Inquiry Committee* 1929-30, 48, Baroda State Press
[269] Clark A C & Desai G H,Vol-I, 277

required a congenial macroeconomic environment.[270] Later his office was converted into Department of Commerce and Industry. Whitenack while conducting his research too came to almost the same conclusion about the deteriorated state of economy. This being that a good deal of money was hoarded in small sums and that it remained more or less unproductive; and with the closing of the old *dukans*, the state had started investing the major portion of its resources both public and private, outside its jurisdiction, namely in the Bank of Bombay, while local industries were starving for want of capital. Moreover the old *saraffi* was disappearing fast on account of the sudden withdrawal of state funds from it leaving agriculturists and industries without capital. Amidst of all these, two proposals had been put forth for establishing a branch in Baroda. One was from the Bank of Bombay and the other one from Indian Specie Bank. However both the proposals were refused owing to the hesitation on the part of banking community. They thought that such branch would develop into nothing short of a feeder to its parent Bank and that in the near future it would suck up all the resources of the State.[271] Whitenack came up instead with a plan for Baroda State to have its own bank instead of transacting with and benefiting to the Bank of Bombay. He had sensed the reluctance of the *sahukars* to receive any outside financial agency within the state. Assured of the support from the sahukars, Whitenack worked strenuously to set up an independent Bank of Baroda. He rapidly built up a consensus between the *sahukars*, the state and other interested parties to provide for a deposit of three-fourths of the paid-up capital of the bank or Rs 7.5 lakh, whichever was lower, at 4% interest per annum. Also, an amount of the interest-free government fixed deposit was reduced from Rs 3 lakhs to Rs 2.5 lakhs. A compromise formula was evolved under which the Baroda government agreed to give a loan of up to Rs 7.5 lakhs at 4% interest for 15 years. This was over and above the state's interest-free deposit of Rs 2.5 lakhs already agreed upon.[272] Thus came into existence a joint-stock and at the same time a state-subsidized banking concern in Baroda with the foresight of Sayajirao-III, determination of Ralph Whitenack and assistance of well-known financiers from Baroda, Bombay and Ahmedabad. After scores of

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[270] Chandavarkar, Anand, The Modern India's Pioneer Economic Adviser, *Economic And Political Weekly*, Vol. 42, No. 51 (Dec. 22 - 28, 2007), 66

[271] Selections from the *Record of the Baroda Government, The Bank of Baroda*, Baroda Press, 50-51

[272] The Modern India's Pioneer Economic Adviser, 66

persuasion the 'Bank of Baroda' came into existence on 20th July 1908, under the Companies Act of 1897.[273]

Whitenack strongly maintained that the bank was designed to help the people in their industrial pursuit and not to assist the government. It was purposed to satisfy a demand which the people themselves had made upon the government from time to time for such a financial institution of their own. Whitenack proposed to convene a public meeting to educate the people on the objectives and usefulness of the proposed bank, which was duly held on July 19, 1908 in the presence of Sayajirao.[274] The state government had left the management of the bank to a private corporation, withholding its hand from any official interference with the operations following in this respect the example of the Presidency Banks of Bombay, Calcutta, and Madras. Bank of Baroda proved a beneficial agency for lending, transmission, and deposit of money and was a powerful factor in the development of art, industries and commerce of the State and adjoining territories. The bank soon took over the work of the State Treasury. Its branches were started at Bombay, Ahmedabad, Navsari, Surat, Mehsana, and Bhavnagar and even at Dabhoi, Amreli, Patan and Petlad. [275] The Bank of Baroda provided complete modern banking facilities of for the development of commerce and industry throughout the State and was running reserves shortly after its establishment. The establishment of the Bank of Baroda was an epitome of modernization in Baroda which in turn was to chart the growth of economy in general.

4.4 Agricultural Finance

The growth of industries was somehow ascertained with the founding of Bank of Baroda. But agriculture was still a matter of apprehension for the Government. The farmers usually were in need of finance not only for current year but also to disburse the debt of previous years. This is the general state of affairs in country like India even today where the farms are small, monsoon is uncertain and life is regulated mostly by expensive customs the financial condition of the farmers remain pity. The same was the fact about the farmers of Baroda State. Most of the farmers of the state were indebted and the majority of their debts were incurred for non-productive purpose. In 1901 A. D., the committee appointed by Sayajirao-III reported that out

[273] http://www.bankofbaroda.com
[274] The Modern India's Pioneer Economic Adviser ,66
[275] BSA, *HPO*, Section. No.316, Gen.Daft. No.163, File No. 12-A, 146-47

of 2,53,734 *khatedars*, 1,57,722 or 60% were indebted to an extent of Rs. 7,57,17,190 or rupees four hundred and sixty per indebted *khatedar*. In 1912 A. D., Sir Manilal Nanavati submitted a report that the total indebtedness of the *ryots* amounted Rs. 8, 06, 44,520 and the average debt per indebted *khatedar* was about rupees four hundred and fifty. Several other estimates were also made by the Baroda Economic Committee, the land Mortgage Bank Committee, and the Banking Inquiry Committee.[276]

In 1917, a special committee was appointed to formulate workable proposals for the question of indebtedness. The committee's opinion was that initially instead of the State undertaking a big ambitious scheme with complicated machinery, it was better to make a small beginning by utilising institutions that existed at the time. They suggested that the Central Co-operative Bank at Baroda and the Agricultural Bank at Bhadran might be entrusted with the work of liquidating old debts of the members of co-operative societies besides meeting their current needs. The banks could do this work through the co-operative societies. It also recommended that the government should give a deposit of one lakh of rupees to the banks and half that amount to the cooperative societies for a period of ten years at 3½ % per annum.[277] The recommendation of the committee were sanctioned and accordingly sums were placed at the disposal of the above two banks for the liquidation of the old debts of the members of the societies. The committee finally hoped that if redemption operations were started on these lines, the state might be in a position later on, if the experiment proved successful, to push on the work on a much larger scale.

The actual scheme of starting a separate institution for disbursing old debts was made possible as late as 1933. The first Land Mortgage Bank in the state was started in Baroda in 1933 with specialized machinery for investigation of title to lands and their valuation, and securing long term funds by the floatation of debentures. It gave loan of about Rs. 5,000 at 6 1/2 % rate of interest for a long term of fifteen to twenty years. These banks gave loans generally on the security of mortgage of land at a moderate rate. The bank had issued debentures of Rs. 3, 00,000 at an interest rate of 3%. Out of which the public had to buy the debentures worth rupees 1, 58,750 the rest was to be with the government. The bank had total fund of Rs. 4, 38,446 out of

[276] Gowda D.S, 66
[277] Shah M H, 159

which up to 1939 Rs. 3, 74,714 were lent.[278] The government had guaranteed the repayment of the principal and interest of the debentures issued by these banks. Free services of the Land Valuation Officer and grants towards the expenses of management were also given to these banks. Having obtained encouraging results in the working of the Baroda Land Mortgage Bank, many banks were started at different places in the State.

4.5 Co-operative Banks and its assorted role:-

Co-operative movement was a people's movement. In India the co-operative movement was introduced as a remedy to improve the conditions of the small agriculturalists. It was the government of Madras who grasped the possibilities of co-operative movement in India. However the origin of urban co- operative credit societies in India can be traced to the close of 19th century. Inspired by the urban co-operative credit institutions organized in Germany and in Italy, the first urban co-operative credit society named "Anyonya Sahakari Mandali" was established in Baroda on 5th February, 1889, under the guidance of Shri V.L. Kavthekar.[279] But the co-operative credit societies got legal status only in 1904, when the Baroda state passed the Co-operative Credit Societies Act in December 1904 based on the similar act passed by the government of India. The first "Co- operative Credit Societies Act, 1904" in British India was passed with a view to encourage thrift, eradicate rural indebtedness and provide credit to the needy and weaker sections of the society in rural areas. The enactment of this act gave the real impetus to the movement, as the first urban co-operative credit society was registered in Kanjeevaram town in the then Madras Province in October 1904. [280] This act later widened the scope of co-operative enterprises in India.

The Co-operative Credit Societies Act of Baroda state was passed with a view to provide easy and cheap credit to the agriculturists. In the very year of its introduction, twenty four societies were established. In 1906, a Registrar for Co-operative Society was appointed.[281] The fundamental basis of co-operation was thrift and self-reliance. The co-operative societies supplied credit at a cheaper rate but they supplied it under certain restrictions. The loan had to be

[278]Nene V P, (1939), *Pragatipanthe Vadodara*(Gujarati), Nene V. P., Vadodara, 171
[279] Rana, R. D. 2011, 17
[280] Ibid, 2011, 18
[281] Parikh R G, 217

used for the productive purpose mentioned in the loan application and had to be repaid punctually. The principal functions of rural credit societies were to meet the needs of their members for supplementary personal credit or working capital; to promote thrift amongst the rural population by receiving their savings and paying interest; and to act in general as village bankers.[282] However the Act of 1904 provided for the organization of credit societies only. There was a need of adding to the spirit of co-operation a provision of carrying non-credit activities along with the credit ones. A small and struggling farmer could not be helped by mere provision of cheap and abundant capital. Thus the act was amended in the year 1912 providing for the higher finances of the movement and for the organization of the non-credit activities. Further changes were brought not in the fundamentals of the co-operative movement but they provided for the classification of the societies for the creation of provident funds, and for the attachment of members' property before awards by revenue process. This Co-Operative Society's Act was passed in 1927. [283] It also enlarged the Registrar's powers.

Later to give further encouragement to co-operative movement the Central co-operative banking institutions in the State were established. The Central banks were of two types: mixed and pure: namely Central banks and Banking unions. The Central bank was a co-operative society having societies as well as individuals as members. Its object was to facilitate the financing of the society which were affiliated to it. The profit of its business was generally divisible and the dividends were declared every year. Liability was limited to the value of a share or some multiple of it. The Baroda District Co-operative Bank was started at the end of the year 1912 with the intention of financing Co-operative Societies registered in the Baroda District, but provision was made to extend its operations to the other districts of the state.[284] In the year 1921 the Central Co-Operative Bank satisfied the demands of the societies affiliated to it, having financed them to the extent of nearly Rs. 80,000/- while it had deposits to the extent of about Rs. 4,41,000/- as against 4,12,000/- in the previous year.[285] The other central banks that were established other than Baroda, were Mehsana, Petlad and Damnagar. The area of operation of these banks was wide.

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[282] *Report of Baroda Banking Inquiry Committee* 1929-30, 73
[283] BSA *HPO,*Section No.316, Gen. Daft.163, File.No.12-A, 385
[284] *Baroda Administration Report*, 1912-13, 70
[285] BSA *HPO*, Section No. 316, Gen.Daft. No.163, File No. 12-A, 145

The banking union on the other hand had only societies as its members. A few shares were reserved for the founders and were issued to local leaders who were likely to help the union in its early stage. They were redeemable in course of time. The object of the institution was to finance societies which were its members. The area of its operation was necessarily small as compared with that of the central bank. The Navsari Union served six *talukas* while the Kodinar Union served only one *taluka*.[286] Apart from the financing of the constituent societies and their supervision it had succeeded in popularizing many agricultural improvements such as the introduction of iron cane-crusher, Poona furnaces and pans, iron-ploughs and improved seeds. It had also helped the members of the societies in the profitable disposal of their crops and in the purchase of their domestic requirements.[287] The Taluka Banking Union was also the efficient institute in the organisation of co-operative banking. It served the triple requirements of the *taluka*: financed the societies; supervised their working; and helped in the training of men for co-operative work and assisted in the propagation of the principle of co-operation. The Banking Inquiry Committee of 1929-30 had made recommendation of founding unions at possible *taluka* centres. Along with these central institutions even the Agricultural Banks were financing to the co-operative societies in their own *taluka*.[288]

An important development in the Co-operative movement was the expansion of movement as an inclusive one. Before 1912 the organization of only credit societies was allowed but with the Act of 1912 the societies were permitted to be set up and enable cooperation to be tried on comprehensive basis. This act made the societies the commercial entities than being just the financial institutions. The societies took other form of co-operation as a part of their work some societies sold their produce, purchased their domestics and farm requirements such as gull, *kos*, seeds, improved implements etc., in common. These activities tended to consolidate the working of the societies, and therefore, every encouragement was given to them. The co-operative societies were thus organized for all economic purpose.[289] This saw an all sided and rapid growth of the co-operative movement in the state. By March 1921, the number of societies had increased from seventy nine in the year 1911 to five hundred and nine and the total membership

[286] *Report of Baroda Banking Inquiry Committee* 1929-30, 83
[287] Ibid.,
[288] Ibid.,
[289] *Baroda Administration Report* 1912-13, 73

had risen to 17590.[290] During the same period, the total working capital rose from Rs. 26, 567 to Rs. 25, 70,790. The average membership per society came to 34.5 and working capital per society came to Rs. 3207, it was Rs. 103/- per member. The usual rate of interest charged by these societies was 9¾ %.[291] By the year 1921, about thirty seven non-credit societies had sprung up. At the end of the year1929 there were hundred and eighteen non-credit societies consisting of nineteen cotton sale societies, nineteen consolidation societies, two pump irrigation societies, twenty two supply societies, three urban stores, twenty nine milch-cattle societies, five cattle-breeding societies, five milk supply societies, three seeds supply societies, one village water works, seven fodder and grain storage societies, two better living societies, and one institute. [292] Among the non-credit institutions were also found purchase and sale societies, production societies, insurance institutions etc. The non-credit work was carried on both by the credit institutions and non-credit institutions. The credit societies also sometimes played a role of the agency for the supply of agricultural requirement to its members in the absence of a special supply society in the locality. For instance, the Central Banks undertook the business of joint-purchase of the needs of and sale of the produce of agriculturists, while the agricultural credit societies helped the introduction of better kind of seeds, new varieties of crops and increased use of artificial manure.[293] The non-credit societies made sale, purchase and supply of goods easy and reliable. It weakened the role of the mediators, who were fetching all the gains in a deal. The rates of the produce and products were decided by the societies, which usually were fair and favourable for the agriculturists.

To minimize subdivision of land was serious question for the state government. The government thought of the adoption of a policy to arrest subdivision of land beyond specific limits and appointed a Committee in the year 1922 to advise Government. One of the important moves was taken, on the recommendation of the Committee, of adjoining the Co.-operative movement in the direction of the consolidation of scattered holdings by the process of voluntary exchange through Co.-Operative Societies. [294] There were about seventy one consolidating

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[290] BSA, *HPO,* Section No-316, Gen. Daft. No-163, File No.12-A, 183, Report on Material and Moral Progress of Baroda, 1923

[291] Shah, M. H., 150, Op. Cit

[292] *Report of Baroda Banking Inquiry Committee* ,1929-30, 90

[293] Shah M H,164

[294] BSA, *HPO*, Section No.316, Gen. Daft. 163, File No.12-A, 229

societies in the year 1940. Many special provisions were given to such co-operative societies. For example, changes were allowed to be made in the original *sanad* for the exchange of *barakhali* land with the government land or *chakariyat* land i.e. land given for service; special provision was given while exchanging *chakariyat* land for government land; exemption from all related fees was given; exemption from stamp duty for the exchange was given; and the members of the society need not go to the registration office if the cases of consolidation were more, the officer remained present at the said spot. [295] The cultivation of small and scattered farms was difficult. A proper watch of crops in such fields was impracticable; consequently there was a fear of petty theft and damage by stray cattle. Thus the consolidation of small and scattered land through co-operative was proving beneficial to remedy the problems to an extent.

The Co-operative movement was not limited to the formation of agricultural co-operative societies but non-agricultural societies also were mushrooming. There were two hundred and sixty three non-agricultural societies in the year1940. The principal types of these societies were Urban Banks, Government Servants' societies, Student's stores and Backward Class societies comprising societies for weavers, tanners and sweepers. The other societies include flood relief, insurance, electric supply and house-building societies. Small urban co-operative banks strengthened properly by Government assistance were financing the small scales industries. The Vaso Co-operative Bank and Anyonya Co-operative Society of Baroda were giving small loans to clients including traders, artisan, contractors, and men similarly placed and not to industries.[296] There also were societies formed for the development of socially deprived classes and thence to meet the financial and other needs of the members. One such society was Antyaja Co-operative Society. Through this society the debt of about two hundred and twenty four members amounting to about Rs. 19,125 was paid.[297] The non-agricultural societies possessed in the 1940 a membership of 26,679 which comes to an average of one hundred three members per society. The share and working capitals of these societies amounted to Rs. 6, 76,777 and Rs. 44, 47,007 respectively. Reserve and other funds totaled to Rs. 2,80,588.[298]

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[295] Nene V P, 172, Op. Cit
[296] *Report of Baroda Banking Inquiry Committee* 1929-30, 230
[297] Nene V P, 174
[298] Shah M H, 167 Op. Cit

The success of the movement was owing to the involvement of both the state government and public. The government had provided finance to many societies at low rate of interests. Special provisions were given to the co-operative societies like free registration of societies; free inspection of the societies; exemption from other charges like income tax, stamp duty, registration fees, court fees, etc., free transaction from one treasury to another; low rate of interest on Government loans; permission to invest funds of *panchayats* and municipalities into societies and many such amenities were given.[299] Enthusiasm on the part of public was also a key to success of the movement. Volunteers were giving service to give encouragement to the movement and to make people aware of the benefits of co-operation. Some of the retired officers of the state too joined the Co-operative Movement. The beginning of Co-operative Societies Conferences was made in 1934.[300] A Co-operative Education Association was started. Half the expense of the association was borne by the Government. The Association held classes to educating presidents and members of the co-operative societies. It published a monthly called *'Gram Jeevan'* (village life) and journals which educated the people about co-operation.[301] As a result of the efforts both of the Government and the governed the movement proved beneficial. By the year 1940 there were ten central financing institutions (including three banking unions), two land mortgage banks, two supervising unions, 1026 agricultural societies and two hundred and sixty three non-agricultural societies, thus making a total of 1303 co-operative institutions in the State. These institutions had a total membership of 67,953 persons which gave 52.1% average membership per society. The working capital of these institutions was Rs. 1, 09, 80,974. It was estimated that the movement directly affected 12% of the population, the agricultural societies affecting about 6% of the village population and non-agricultural about 14% percent of the urban population.[302] This shows that the co-operative societies, credit or non-credit and agricultural or non-agricultural had contributed to the better the condition of the people.

The above section reveals that the modernization in the field of finance and commerce changed the economic mapping of the Baroda state. The banks and the co-operative societies played a significant role in the economic development or rather inclusive development of state.

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[299] Nene V P, 175, Op. Cit
[300] Sharma, Bansidhar, (2013). *Maharaja Sayajirao Gaekwad (III)*, Bank of Baroda, Mumbai, 52
[301] Nene V P, 175
[302] Shah M H, 162

These modern institutions were responsible for stimulating the State economy and putting it on a strong footing. The wise governance of Sayajirao-III was given equal credit for the economic growth. The Baroda government during the time of the Maharaja had never incurred any debt and had always followed the policy of arranging a balanced budget, saving about Rs. 30 lakhs a year. These savings were used on the capital works. Most of the investments were in the government of India securities, in the shares of railways or in the shares and debentures of the joint-stock companies.[303] No doubt government had made policies to advance loans at low interest rate according to necessities but Sayajirao-III never wanted his people to be catered liberally but to obtain self-reliantly. The establishment of Bank of Baroda and even the passing of the co-operative societies' Act were the results of this notion of his. The *sahukars* and some leading men came forward to assist government to establish the Bank of Baroda whereas the co-operative movement completely demanded people's participation. Apart from this, as can be discerned from above other sources were explored for getting finance for agriculture and industry. For agriculture the financial source, other than agricultural banks and co-operative societies, were the money-lenders and the *tagavi* advances from the state governments, although the state tried its best to control the moneylenders. So far as the industries were concerned, the government sanctioned loans alongside the moneylenders. The moneylenders especially extended loan to the small scale industries and cottage industries. Share capital, debentures and fixed deposit at interest from the investing public etc. for large scale industries.

[303] *Report of Baroda Banking Inquiry Committee,* 1929-30, 38