

## **INTRODUCTION OF THE CANAL IRRIGATION AND ITS EXTENSION IN COASTAL ODISHA AS A STATISTICAL REVIEW**

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### **Extended Summary**

If railway construction will be there, not even the constructed cost will come back. Hence canals are more suitable for Orissa than railway.

*A General Administration Report on Orissa Division: 1872-1873<sup>1</sup>*

### **Reasons for the Introduction of Canal Irrigation in Coastal Orissa**

Not even a single step was taken by the colonial rulers without any ulterior motive. The construction of canals in Orissa was not an exception to this. It was one of those typical attempts by the British to project themselves as the rightful masters who placed the welfare of their subjects before anything. In other words, keeping many objectives behind the canal construction, the British tried to project themselves as a welfare government.<sup>2</sup> It is true that the great famine of Orissa in 1866 did influence such an enormous decision to go ahead with the construction of the canal in the state. However, most prominent factors behind the decision were the scope for making

profit by different ways such as taxation way and trade and commerce. However, the imperialist historians did not want to write about them.<sup>3</sup> But there are historical records available to prove the evil intentions behind whole canal irrigation project. This chapter will discuss about it reasons behind the project in detail and the whole course of canal construction over different periods.

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<sup>1</sup>General Administration Report, Orissa Division for, 1872-1873, Cuttack, 1873, p.32. (Here onwards GAROD)

<sup>2</sup> For instance see, W. J. Macpherson, *Economic Development in India under the British Crown, 1858-1947*, in A. J. Youngson (Ed.), *Economic Developments in the Long Run*, Routledge, London, 1972.

<sup>3</sup> For instance see, Vera Anstey, *The Economic Development of India*, London: Longmans, Green and Co., 1931 (second edition).

## Explicit Causes

Orissa with a long coast was subjected to natural calamities often. Drought too played a havoc inviting intermittent famine. The devastation created by the natural calamities brought the attention of the British government and that became one of the reasons behind the introduction of the new irrigation system.<sup>4</sup> The immediate provocation was the severe famine of 1866 that forced the government to look into the large scale destruction. An investigation committee was set up to look into the matter under Sir George Campbell. It found that the lack of irrigation facilities led to the situation along with other causes.<sup>5</sup> The committee suggested that the government should explore the possibilities of a construction of a canal system to mitigate the situation.<sup>6</sup> The consecutive scarcities in Puri district in 1877-78, 1885-86, 1888-89, 1897, 1908, and 1918-20,<sup>7</sup> and in Cuttack and Balasore districts incurred over many years. 1877-78, 1897, and 1901 famines touched every district and devastated the economy as a whole. Puri district witnessed droughts for longer duration as the monsoon failed repeatedly. It affected the paddy cultivation, the subsistence crop, adversely; in some places the crop failed entirely and other places the harvest was too poor. It took place in the case of mostly winter rice, while it was the mainstay of Orissa people.<sup>8</sup> Similarly, floods were yet other natural calamities that played havoc in the coastal Orissa; that too to be contained. In other words the British had to take adequate

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<sup>4</sup> Ian Stone, *Canal Irrigation in British India: Perspectives on Technological Change in a Peasant Economy*. London: Cambridge University Press, 1984, p.9.

<sup>5</sup> D.B. Mishra, *op. cit.*, p.134; Harihar Panda, *op. cit.*, p.261; Ganeswar Nayak, "The Coast Canal in Orissa During the Colonial Era", *Orissa Review*, May-June-2010, p. 66.

<sup>6</sup> B.L. Grover and S. Grover, *A New look at Modern Indian History*, S. Chand & company ltd. New Delhi, 2008, p.356.

<sup>7</sup> *BODG: Cuttack*, p. 184.

<sup>8</sup> *Ibid.*

measurers to check the heavy devastation of frequently occurred floods too.<sup>9</sup> The proposed canal irrigation project was influenced by these above said factors.

It should be noted here that Famine Commission of the Indian Government of 1898 recommended the construction of irrigation canal in Orissa and the Government took over the charge of it soon. The Indian Famine Commission of 1901, however, emphasised on the necessity of both the canal and traditional irrigation systems for the betterment of agricultural production in the State and thus address the famine situation effectively.<sup>10</sup> Its recommendations were insightful than the first commission. However, there were other decisive factors which finally led to the construction of irrigation canals in Orissa, these factors will be discussed in the following section.

### **Economic Factors**

Ian Stone argued that the main motive of the British to introduce canal irrigation system was to control the people and land of India. He said that the introduction of such canal systems was the last attempt to subdue the local people politically without much effort.<sup>11</sup> It is a fact that, from the day one of their arrival, the British followed a policy of political aggrandisement. One after another they devised steps to subjugate the people of the country whether it was through subsidiary alliance or doctrine of lapse or many such other measurers. Their intervention in the agrarian sector changed the land ownership pattern and the existing land relations. The new land revenue and taxation introduced by the British put the burden on the poor and middle peasants.<sup>12</sup>

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<sup>9</sup> *BODG: Cuttack*, p. 100 and Jadu Nath Mahapatra, *op. cit.*, p. 131.

<sup>10</sup> *Report of the Indian Famine Commission, 1901, op. cit.*, pp. 111-112.

<sup>11</sup> Ian Stone, *op. cit.*, 1984, p.9.

<sup>12</sup> Ranajit Guha, *A Rule of Property for Bengal: An Essay on the Idea of Permanent Settlement*, New Delhi: Orient Longman, 1982; Nilmani Mukherjee, *Ryotwari System in Madras 1792-1827*, Calcutta, K.L. Mukhopadhyay, 1962; Amiya Kumar Bagchi, "Land Tax, Property Rights and Peasant Insecurity in Colonial India," *The Journal of Peasant Studies*, Vol.20, No.1, October 1992, pp. 1-49; Eric Stokes, *English Utilitarians and India*, Delhi: Oxford University Press, 1992; Bipan Chandra, "Reinterpretation of Nineteenth Century Indian Economic History," *IESHR*, 5 (1) March

The canal irrigation system was yet another tool the British used to subjugate the peasantry completely.

The economic motive was the major factor behind the project. Constructing such irrigational projects was necessary to the British in expanding the commercial crops in various places of India. And this irrigation system would assure them a good return of lavish revenue in different ways like water tax and land tax. Since many canals were also used for the navigation, they also got navigational income. Along with that they also anticipated for the stability of revenue accumulation and the enhancement of taxing capacity.<sup>13</sup> Side by side the expectation for profit out of internal as well as external trade ignited them in introducing the system.<sup>14</sup> But most of the master records indicate that it was basically intended for the navigation and modern form of irrigation.<sup>15</sup>

Transport and communication between Calcutta and Cuttack was a major concern of the British. The desire to improve the communication channels – which was basic and very poor- also played role in the construction of the canal. The road that connected Cuttack and Calcutta was very unsafe due to high incidence of dacoits. The road was also very bad. Hence the transportation of various goods was much time consuming.<sup>16</sup> Canal was devoid of all these problems. The whole of Orissa canal system was devised to connect Cuttack with Calcutta along with other intentions.<sup>17</sup>

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1968, reprinted in Bipan Chandra, *Nationalism and Colonialism in Modern India*, New Delhi: Orient Longman, 1987.

<sup>13</sup> Ian Stone, *op. cit.*, 1984, p.9.

<sup>14</sup> *GAROD, 1874-1875*, p.8.

<sup>15</sup> *Report on the Administration of Bengal, 1910-1911*, Government of Bengal, Calcutta, 1912, p.XX. Report on the Administration of Bihar and Orissa, 1917-1918, Government of Bihar and Orissa, Patna, 1919, p.74 (Here after *RABO*); *BODG: Cuttack*, p. 100.

<sup>16</sup> D.B. Mishra, *op. cit.*, p.134.

<sup>17</sup> G. E. Owen, *Bihar and Orissa in 1921*, Government of Bihar and Orissa, Patna, 1922, p.64, *BODG: Cuttack*, p. 100, Jadu Nath Mahapatra, *op. cit.*, p. 131.

There is also another view regarding the construction of canals. As Orissa did not have good road and transport connections, reaching food to the people during the time of the great famine of 1866, became too difficult a task, hence the British concentrated much on this aspect.<sup>18</sup>

It was also the outlook of the British officials who were there for sometimes, that Orissa's main economy was dependent on agriculture. Along with that it had very good river system. Fertile land used to produce very good amount of food crops. Hence the British clearly understood that without much investment they could easily access a lavish amount of return through different ways, as said earlier, such as water tax, land tax, and navigational charges. It will also empower them to colonize agriculture of Orissa.

Yet another factor was that Orissa state had abundant labour; cheap labour was available for every kind of work. As per the official records it was the intention of the British behind the various construction works to give employment to the labour class.<sup>19</sup> In fact, the colonial rulers wanted to use the cheap labour available in the region for constructing the canals for their future revenues.

### **Canal Construction in Orissa**

Profit was always the priority of the British Raj as the East India Company. Wherever the possibility of profit was less the British did not go for that.<sup>20</sup> Orissa canal system project was not an exception to this. This is evident in a statement of an officer in the *General Administration Report on Orissa Division: 1872-1873*; while exploring the benefit of the construction of the canals in Orissa to the British government it said, "If

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<sup>18</sup>*The Samaj*, 14<sup>th</sup> November 2016, p.9.

<sup>19</sup>*Report on the Land Revenue Administration of the Lower Provinces for the 1907-1908*, Government of Bengal, Calcutta, 1908, p. 17.

<sup>20</sup> See for example M. A.Reddy, *op. cit.*

railway construction will be there, not even the constructed cost will come back. Hence canals are more suitable for Orissa than railway.”<sup>21</sup>

With all these above reasons, the British Government began the construction of many canals in Orissa. The canals which were used for irrigation as well as navigation purposes were (a) the Kendrapara Canal, with its extension to Jambu and two branches called the Gobri and Patamundai canals; besides these canals, another canal called the Gobri extension canal, which drew water from the Kendrapara canal by means of the Patamundai canal; (b) the High Level Canal; (c) the Taladanda canal, with its branch canal the Machgaon canal;<sup>22</sup> (d) the Orissa Coast Canal;<sup>23</sup> (e) the Jajpur Canal, and (f) the Dudhai Canal.<sup>24</sup> The canal system which was constructed in Cuttack and Balasore districts was broadly known as the Orissa Canals.<sup>25</sup> The land between the main stream of the Mahanadi and the Brahmani was irrigated by the Patamundai canal on the north, and the Kendrapara canal on the south, the Gobri canal formed a connecting link between them to the east. Both these systems drew their supply of water from the south flank of the anicut across the Birupa, which also feeds the High Level canal. The anicut of the Mahanadi used to feed the Taladanda and Machgaon canals.<sup>26</sup>

Now let us look at the process of the construction of canals in the coastal districts of colonial Orissa.

The unprecedented and devastating flood of 1855 was the immediate provocation for the British government to moot the idea. Captain Harris, the

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<sup>21</sup> GAROD, 1872-1873, p.32.

<sup>22</sup> BODG: Cuttack, p. 107.

<sup>23</sup> Ganeswar Nayak, *op. cit.*, p. 66.

<sup>24</sup> BODG: Cuttack, p. 107.

<sup>25</sup> Report of the Irrigation Rates Revision Committee, *op. cit.*, p. 06.

<sup>26</sup> BODG: Cuttack. p. 107.

responsible officer, strategized the effective effluence of the surplus water of the rivers in Orissa by constructing channels from a storage point to save the country from inundation.<sup>27</sup> The initial proposal to employ the rivers of Orissa in the field of irrigation came from General Sir Arthur Cotton of Madras Engineers.<sup>28</sup> He was sent to Orissa for a visit in 1858 for a feasibility study of the project and to give suggestions for controlling flood waters of the River Mahanadi. It was he who proposed to carry out the works of canal irrigation work, similar to the works that were taken in the deltas of the Godavari and Krishna in order to check the frequent occurrences of flood.<sup>29</sup> Sir Cotton specifically attached the importance of navigation for such a project along with irrigation facilities. He estimated that the system will have the capacity to irrigate an area of 22.50 lakhs of acres and navigation would be opened up between Orissa, Midnapur and Calcutta. According to him, the project was to cost about \$13,00,000.<sup>30</sup>

In 1860, a joint stock company on the name of the East India Irrigation and Canal Company (E.I.I.C.C.) was formed for the purpose of carrying out the canal works in Orissa.<sup>31</sup> The work of the construction of irrigation and navigation canals was entrusted under a contract in 1862 to it. The anicuts (a dam made in the course of a stream for the purpose of regulating the flow of a system of irrigation) at Jobra and Naraj were commenced in 1863 and water was first supplied for irrigation in 1865 in

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<sup>27</sup> *Report of the Irrigation Rates Revision Committee. op. cit.*, pp. 6-7.

<sup>28</sup> He was responsible for the construction of Coleroon (Cauveri) anicut in Tanjore District of Madras Presidency and later he was also responsible for the construction of Godavari (in 1853) and Kistna (in 1855) anicuts, See T. Vijay Kumar, "Irrigation Politics", *op. cit.* and "Canal Irrigation under Godavari and Kistna Anicuts during Second Half of 19<sup>th</sup> Century: Certain Disadvantages", *Itihas*, Vol. XXIII, No. 1 & 2, 1998, pp. 115-24; D.R. Gadgil, *The Industrial Evolution in India in the Recent Times*, Oxford University Press, Delhi, 1972.

<sup>29</sup> *BODG: Cuttack*, p. 104.

<sup>30</sup> *Report of the Irrigation Rates Revision Committee, op. cit.*, p. 7.

<sup>31</sup> *BODG: Cuttack*, p. 104.

Cuttack.<sup>32</sup> In 1866 a devastating famine visited Orissa. Initially the Orissa canal project began by the East India Irrigation and Canal Company (E.I.I.C.C.) from 1868.<sup>33</sup> When the company found it difficult to raise fund, as the company lost the hope of recovery because of the great famine the government of India purchased the whole of the works for the sum of Rs. 109 lakhs in 1869.<sup>34</sup> In the course of time the government took over the Orissa canals from the East Indian Irrigation Canal Company towards the end of the eighteenth century showing some kind of difficulties.<sup>35</sup> But there is also other view on the existence of the Company. After the purchase of all the works of E.I.I.C.C. by the government of India, the Company ceased to exist by 1869.<sup>36</sup> The initial estimated cost for the Orissa canal project was Rs. 3,23,15,845.<sup>37</sup> The original plan of the project was greatly modified and the plan for construction of canals in Puri and Balasore districts was abandoned later. Ultimately three canal systems were sanctioned, namely, Taladanda and Machgaon Canals serving the Mahanadi-Kathjori Doab, Pattamundai and Kendrapara Canals with Jambu and Gobri extension to serve the Mahanadi-Birupa Doab and the High Level Canals to serve the lands at the foot hills from Cuttack to Bhadrak.<sup>38</sup>

### **The Kendrapara Canal**

It was the oldest (opened in 1869) and the most important canals in Orissa.<sup>39</sup> It starts from the River Birupa at Jagatpur, just above the anicut, skirts the northern bank of the Mahanadi and its tributary River Nuana for a distance of 39 miles. It used to irrigate the area between the Mahanadi and the Gobri drainage channel. It had the

<sup>32</sup> *Report of the Irrigation Rates Revision Committee, op. cit.*, p. 7.

<sup>33</sup> G.E. Owen, *op. cit.*,

<sup>34</sup> *Report of the Irrigation Rates Revision Committee, op. cit.*, p. 7; *BODG: Cuttack*, p. 104.

<sup>35</sup> G.E. Owen, *op. cit.*,

<sup>36</sup> *BODG: Cuttack*, p. 104.

<sup>37</sup> S.L. Maddox, *Final Report on the Survey and Settlement of the Province of Orissa, 1890-1900*, Vol-1, Bengal Secretariat Press, Calcutta, 1900, p.75.

<sup>38</sup> *Report of the Irrigation Rates Revision Committee, op. cit.*, p. 7.

<sup>39</sup> J.K.Samal, *Economic History of Orissa (1866-1912)*, Mittal Publications, New Delhi, 1990, p. 166.

discharge capacity of 1,067 cubic feet per second. By 1900 it had 23 distributaries, which used to cover an area of a vast stretched land.<sup>40</sup> It used to irrigate the land between the Mahanadi and the Gobri drainage channel. It was originally constructed to advance the transport and communication between Cuttack and False point harbour.<sup>41</sup>

By 1872-73, the *Kendrapara Canal* (started in 1869) had already connected with Cuttack and it was expected to connect up to the False Point.<sup>42</sup> But in the following year expansion was in slow process because of adequate rainfall.<sup>43</sup> The Kendrapara canal's work was completed till Marsaghai by July 1876.<sup>44</sup> By the year 1912-1913, two distributary works on the Kendrapara Canal were completed.<sup>45</sup>

### **The Gobri Canal**

This canal is a branch canal of the Kendrapara canal, taking off from the 32<sup>nd</sup> mile and it runs 15 miles (total length) towards east to the Gundakia River. It was originally intended to be a distributary canal, but afterwards made a navigable one in order to facilitate communication between Cuttack and Chandbali.<sup>46</sup> Then it became the best possible route from Cuttack to Chanbali. It used to cover parganas like Tikan, Derabisi, and Chhedra. However, as far as the irrigational facilities were concerned, it had the very limited discharge capacity of 373 cubic feet persecond.<sup>47</sup>

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<sup>40</sup> S.L. Maddox. *op. cit.*, p. 23.

<sup>41</sup> *BODG: Cuttack*, pp. 108- 109.

<sup>42</sup> *GAROD, 1872-1873*, p.32.

<sup>43</sup> *GAROD, 1874-1875*, p.8.

<sup>44</sup> *GAROD, 1875-1876*, p.16.

<sup>45</sup> *RABO, 1912-1913*, p.71.

<sup>46</sup> *BODG: Cuttack*, pp. 108- 109.

<sup>47</sup> S.L. Maddox, *op, cit.*, p. 23.

By July 1876 the construction works of this canal was half finished.<sup>48</sup> By 1912-13, a permanent outlet was completed. In the same year the distributary work of the canal Gobri was completed about half by this time. And some extent extension work on the Gobri (main canal) was going on.<sup>49</sup> During the year 1915-16 some minor tributary works were over on this canal.<sup>50</sup>

### **The Patamundai Canal**

This canal was a branch canal of the Kendrapara Canal. This canal left the Kendrapara Canal just below the head works at Jagatpur and skirts the southern bank of the river Birupa down to Indipur, where it begins to turn southward, and falls into the Gobri Extension near Albha after a circuitous course of 47 miles. It was not a navigable canal. It used to command over few highly rich areas like, Sungara, Matkatnagar, and Chaudakulat.<sup>51</sup> It had discharging capacity of 885 cubic feet per second.<sup>52</sup>

This canal was extended from the Kendrapara canal from 1872-73.<sup>53</sup> By next year the process of construction became very slow. But during 1874-75 expansion was in slow process because of adequate rainfall.<sup>54</sup> By July 1876, it was half finished.<sup>55</sup> Even during 1906-07 the extension work of the Pattamundai canal's distributary was still in continuation.<sup>56</sup> By 1912-13 a permanent outlet was finished. And the distributary work of Pattamundai was completed about half by this time. In

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<sup>48</sup> GAROD, 1875-1876, p.16.

<sup>49</sup> RABO, 1912-1913, p.71.

<sup>50</sup> RABO, 1915-1916, p.69.

<sup>51</sup> S.L. Maddox, *op. cit.*, p. 23.

<sup>52</sup> BODG: *Cuttack*, p. 109.

<sup>53</sup> GAROD, 1872-1873, p.32.

<sup>54</sup> GAROD, 1874-1875, p.8.

<sup>55</sup> GAROD, 1875-1876, p.16.

<sup>56</sup> *Report of the Land Revenue Administration of the Lower Provinces for the year 1906-1907*, Government of Bengal, Calcutta, 1907, p. 18.

the same year it was seen that, some extension work on the Pattamundai Canal (main canal) was going on.<sup>57</sup> This even continued in 1915-17.<sup>58</sup>

### **The Gobri Extension Canal**

The canal was a short one, only 6 miles long and formed as a connecting link between river Gandakia and the river Brahmani at Albha. It used to draw its water partly from the Patamundai Canal and partly from the rivers and used to irrigate the pargana of Utikan. It had the capacity to discharge 648 cubic feet water per second. It was an important canal for navigation purpose also.<sup>59</sup>

### **The High Level Canal**

It was designed to provide a navigable trade route between Cuttack and Calcutta, and also to irrigate the country. It had three ranges. The construction work of Range I started from 1869-70 and in the same year it started working.<sup>60</sup> The Range I started from river Birupa and connected to the river Brahmani, a distance of 33 miles and Range II starts from the Brahmani to the Baitarani river, a distance of 12 ½ miles. The III Range was about 39 miles. It went through Cuttack and Balasore districts.<sup>61</sup> The work of Range II and Range III started in 1879-80.<sup>62</sup>

The High level canal was intended to connect with the Midnapore canal during 1872-73.<sup>63</sup> By 1874, the High level canal opened to the River Brahmani and excavation work was completed up to the River Salundee.<sup>64</sup> But during 1874-75

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<sup>57</sup> *RABO, 1912-1913*, p.71.

<sup>58</sup> *RABO, 1915-1916*, p.69.

<sup>59</sup> S.L. Maddox, *op. cit.*, p. 23.

<sup>60</sup> J.K.Samal, *op. cit.*, p. 166.

<sup>61</sup> *BODG: Cuttack*. pp. 108-109.

<sup>62</sup> J.K.Samal, *op. cit.*, p.167.

<sup>63</sup> *GAROD, 1872-1873*, p.32.

<sup>64</sup> *GAROD, 1873-1874*, p.14.

expansion was in slow process because of adequate rainfall.<sup>65</sup> During 1877-78, for the first time the third range of the High level canal was extended in Balasore district.<sup>66</sup> The extension work of the third range was still incomplete by July 1879.<sup>67</sup> The High Level Canal was extended to Bhadrak. This canal helped Orissa people (the colonialist's claim that the canal helped Orissa people) to have better transport and communication between Cuttack and Bhadrak.<sup>68</sup> Irrigation facility was available for (mainly) the southern part of Balasore district, roughly 20 miles of the High Level Canal by 1884.<sup>69</sup> By 1884-85, the third Range of the High Level Canal went only 18 miles through Bhadrak sub-division irrigating only 2872 acres of land.<sup>70</sup>

By the year 1912-1913, one minor distributary work on the High Level Canal was completed. Along with that some extension works of two distributaries on the High Level Canal were still in continuation.<sup>71</sup> Even this continued till 1915-16.<sup>72</sup>

### **The Taladanda Canal**

The construction of Taladanda Canal work started in the period 1870-71.<sup>73</sup> The Taladanda canal starts from the right bank of the river Mahanadi at Jobra and runs towards south-east direction to Fakirpara where it confluence the Machgaon branch. From there it skirts the southern bank of the river Sukpaika to Jajpur, and from Jajpur to Taladanda it flows the course of river Mahanadi. It had the discharge capacity of 1342 cubic feet per second. It used to cover over a huge area that includes Kodinda,

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<sup>65</sup> GAROD, 1874-1875, p.8.

<sup>66</sup> Annual General Administration Report, Orissa Division, for 1877-78, Cuttack, 1878, p.30. (Here onwards AGROD)

<sup>67</sup> AGROD, 1878-79, p.39.

<sup>68</sup> AGROD, 1882-83, p.56.

<sup>69</sup> AGROD, 1883-84, p.36.

<sup>70</sup> AGROD, 1884-85, p.41-42.

<sup>71</sup> RABO, 1912-1913, p.71.

<sup>72</sup> RABO, 1915-1916, p.69.

<sup>73</sup> GAROD, 1873-1874, p.14; J.K.Samal, *op. cit.*, p. 166.

Hariharpur, Jhankar, Tiran, and Kandhi.<sup>74</sup> It was designed for the purpose of irrigating the triangular tract of the state between the Mahanadi and Katjuri.<sup>75</sup> Along with that the canal was constructed generally with the prime aim of transport and communication.<sup>76</sup>

The construction work of the canal was in continuation in very slow manner during 1873-74.<sup>77</sup> But again during 1874-75 expansion was in slow process because of adequate rainfall.<sup>78</sup> The Taladanda canal was still unfinished by July 1876. It was expected to connect the canal with Paradeep, which would help them for navigation. Though it was mainly constructed for navigation still it used to command a vast stretch of land for irrigation.<sup>79</sup> The Taladanda Extension Canal work met its completion by 1894-95.<sup>80</sup> By the year 1912-1913, one distributary work was completed on the Taladanda Canal. During that year the extension work of one minor distributary on the Taladanda Canal was in progress.<sup>81</sup>

### **The Machgaon Canal**

It is a branch canal of the Taladanda Canal. The canal starts at the Taladanda canal (Birbati square) 7 miles south of Cuttack, and runs along the north bank of the Katjuri and of its Branch Alanka. It had a discharging capacity of 776 cubic feet per second. It was originally intended to extend this canal as far as Machgaon so as to run into the

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<sup>74</sup> S.L. Maddox, *op. cit.*, p. 23.

<sup>75</sup> BODG: *Cuttack*, p.109.

<sup>76</sup> GAROD, 1874-1875, p.8.

<sup>77</sup> GAROD, 1873-1874, p.14.

<sup>78</sup> GAROD, 1874-1875, p.8.

<sup>79</sup> GAROD, 1875-1876, p.16.

<sup>80</sup> AGAROD, 1894-95, p.49.

<sup>81</sup> RABO, 1912-1913, p.71.

tidal water of the Devi River, and thus establish connection with the sea, but the scheme was not carried out. It stopped at 6 miles short of Machgaon.<sup>82</sup>

The construction works of the *Machgaon* canal was going on during 1872-73.<sup>83</sup> Even during 1873-74, the construction work was going on, but very slow manner.<sup>84</sup> The canal was constructed generally with the prime aim of transport and communication. But in the very next year expansion was in slow process because of adequate rainfall.<sup>85</sup> The construction works of this canal finished up to Chatroby July 1876 and was intended to extend up to Machgaon.<sup>86</sup> In order to prevent drought, the authorities felt the importance of the extension of the Machhgaon Canal.<sup>87</sup> By the year 1912-1913, two minor distributary works on the Machgong Canal were completed. By the same year the extension work of one distributary on the Machgong Canal was incontinuation.<sup>88</sup>

### **The Coast Canal**

The construction works of the canal started in 1880-81. It mostly designed not to yield profit but to get protection from famine by improving communication between Orissa and Calcutta. Side by side it was expected as a remunerative one. The canal connected the Hoogly at Geonkhali with the river Matai at Charbatia near Bhadrak. Within Orissa only its length was 92 miles. It had four ranges. Its Range III connected the river Rasulpur in Hidgelle with the river Subarnarekha of Balasore district, with totallengthof31¼miles;RangeIVAtheriverSubarnarekhawiththeriver

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<sup>82</sup> *Ibid.* p. 110.

<sup>83</sup> *GAROD, 1872-1873*, p.32.

<sup>84</sup> *GAROD, 1873-1874*, p.14.

<sup>85</sup> *GAROD, 1874-1875*, p.8.

<sup>86</sup> *GAROD, 1875-1876*, p.16.

<sup>87</sup> *Report on the Land Revenue Administration of the Lower Provinces for the year 1907-1908*, Government of Bengal, Calcutta, 1908, p. 17.

<sup>88</sup> *RABO, 1912-1913*, p.71.

Panchapara, total length of 17 miles; Range IV B connected to the river Panchapara with Burabalanga river, a length of seven miles and Range V connected the river Burabalanga with the river Matai of Bhadrak.<sup>89</sup> Construction work was going on in full swing by 1882-83.<sup>90</sup> Ranges IVA and V were temporarily opened for traffic from 15th July to 31st December 1886. For the first time (full 92 miles) it was completely opened on 1<sup>st</sup> September 1887. With the opening of railway in Orissa its use came down. The canal was fed by tidal water. Hence it was no more useful for the people from irrigation point of view. On the other hand the high level expectation of the colonialists did not meet its point of success. The flood Advisory committee of 1928 proposed for the abandonment of the canal for which the Ranges IV A and IV B of the canal were abandoned.<sup>91</sup>

### **The Jajpur Canal**

It was the youngest canal out of the total canal system in Orissa. Its construction work started in 1890-91 and it started irrigating land 1891-92.<sup>92</sup> It originates from the point of bifurcation of the Burah and Baitarani rivers, runs 6 ½ miles in an easterly direction up to Jajpur town. It was a navigable one. And further it had the discharge capacity of 700 cubic feet per second.<sup>93</sup> However, another official document contests this and states that it had the capacity of 600 cubic feet per second only.<sup>94</sup>

A large amount of distributary work of the Jajpur Canal was done during 1894-95.<sup>95</sup> This happened because of two preceding years' low rainfall.<sup>96</sup> By the year

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<sup>89</sup> Ganeswar Nayak, *op. cit.*, p. 67.

<sup>90</sup> *AGROD*, 1882-83, p.56.

<sup>91</sup> Ganeswar Nayak, *op. cit.*, p. 67-69.

<sup>92</sup> J.K.Samal, *op. cit.*, p. 167.

<sup>93</sup> S.L. Maddox, *op. cit.*, p. 23.

<sup>94</sup> *BODG: Cuttack*, p. 108.

<sup>95</sup> *AGAROD*, 1894-95, p. 49.

<sup>96</sup> *Ibid.*

1912-1913, extension work of one minor distributary on the Jajpur Canal was in progress.<sup>97</sup> Some minor distributary works were over by 1915-16.<sup>98</sup>

### **The Dudhai Canal**

It was a channel in the name of the Dudhai Canal. It started from the Brahmani weir. It had been completed for 36 miles out of the sanctioned length of 46 miles. It was intended to irrigate about 12,000 acres of land in the area between the river Brahmani and the river Kharsua. But this channel had proved failure and had been abandoned in 1930.<sup>99</sup>

From the above narrative it is obvious claim that with the intention of maximizing revenue the British started canal construction. Flood and rainfall always mattered for the progress of the construction of canal. After 1897-98, the process became little slow. All the canals confined only to Balasore and Cuttack district whereas, Puri was out of the canal system.

### **Extension of various Canals**

By 1884 the total lengths of different canals were as follows:

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<sup>97</sup>*RABO, 1912-1913*, p.71.

<sup>98</sup>*RABO, 1915-1916*, p.69.

<sup>99</sup>*BODG: Cuttack*, p. 105

Table 2.1: Lengths of Different Canals by 1884

Canal name	Length (in miles)
Kendrapara and Gobri	54
High Level	64
Kendrapara Extension	15
Taladanda	27
Machgaon	19
Patamoondi	47
<b>Total</b>	<b>226</b>

Source: *Annual General report, Orissa division, for 1883-84*, Cuttack, 1884, p.36.

By 1890-91, there were total 177 miles of canal for irrigation and navigation and 75 miles are only for irrigation.<sup>100</sup> By the year 1915-1916 the total length of Orissa main canals was 223  $\frac{3}{4}$  miles, total branch canals was 103 miles.<sup>101</sup> But the total length of main canals and branch canals showed no change till 1917-18.<sup>102</sup> In 1919-20 year the total lengths of main canal showed little change. Including a little addition the total length reached to 224  $\frac{1}{4}$  miles which was stagnant from 1915-1916.<sup>103</sup> During 1920-1921, no important work was undertaken due to unusual floods in August 1920. Attention was paid only on maintenance.<sup>104</sup> All thenine canals in Orissa circle were closed for an aggregate of 448 days for repairs.<sup>105</sup> However, by 1922, the total length of Orissa Canals including both main and branch canals was 327  $\frac{1}{2}$  miles of which the total navigable canal was 205  $\frac{1}{2}$  miles.<sup>106</sup> Under Orissa coastcanalthelengthofbothmainandbranchcanalsfornavigationonlywas95 $\frac{1}{2}$

<sup>100</sup>*Report on the Administration of Bengal, 1890-91, op. cit.*, p.24.

<sup>101</sup>*RABO, 1915-1916*, p.67.

<sup>102</sup>*RABO, 1917-18*, p.73.

<sup>103</sup>*RABO, 1919-1920*, p.62.

<sup>104</sup>*RABO, 1920-1921*, p.26.

<sup>105</sup>*Ibid*, p. 27.

<sup>106</sup>*Bihar and Orissa first Decennial Review, 1912-1922*, Government of Bihar and Orissa, Patna, 1923, p.2.

miles.<sup>107</sup> Around 1927-28, it was seen that the Orissa canal system scarcely pay their working expenses.<sup>108</sup> It seems, the process of canal extension was stagnant. Followed by the next year 1929-30, there was no extra addition in the process of canal extension due to normal and satisfactory rainfall.<sup>109</sup> However, the Orissa canal system included 268 miles of main canals by 1932.<sup>110</sup> On the other hand 199 miles of main canal was opened for irrigation and navigation whereas 75 miles of main canal was specifically devoted for irrigation by the end of financial year 1938-39.<sup>111</sup> The process of canal construction activity in 1930s was very slow. The total trend of canal construction was:

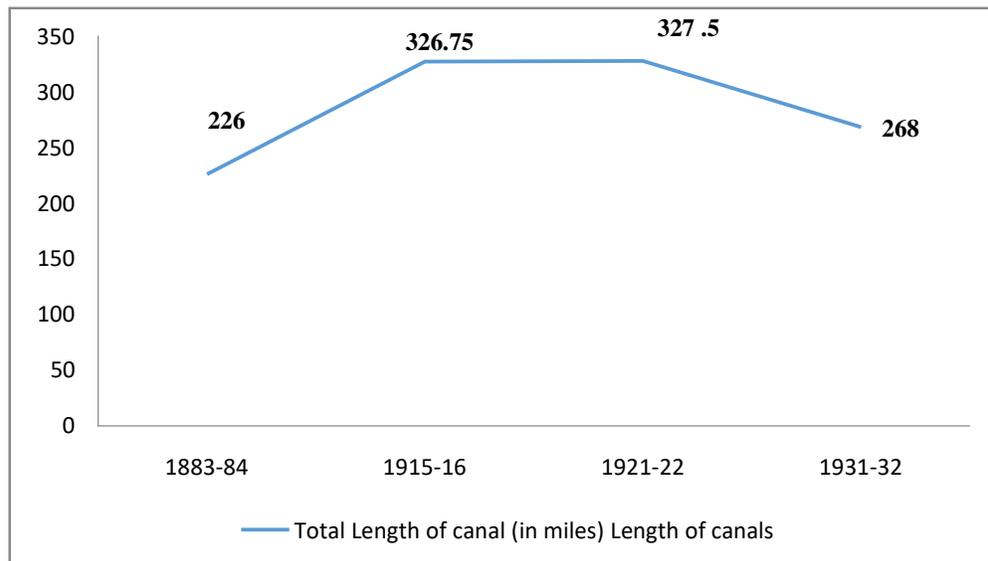


Fig 2.1: Total Lengths of Canals (in miles)

Source: *Annual General report, Orissa division, for 1883-84*, Cuttack, 1884, p.36; *RABO, 1915-1916*, p.67; *Bihar and Orissa first Decennial Review, 1912-1922*, Government of Bihar and Orissa, Patna, 1923, p.2; *BODG: Cuttack*, p. 105

<sup>107</sup> *Ibid.*

<sup>108</sup> *Bihar and Orissa in 1927-28*, Government of Bihar and Orissa, Patna, 1929, p.83.

<sup>109</sup> *Bihar and Orissa in 1929-30*, Government of Bihar and Orissa, Patna, 1931, p.93.

<sup>110</sup> *BODG: Cuttack*, p. 105.

<sup>111</sup> *Jadu Nath Mahapatra, op. cit.*, p. 131.

Till 1921-22 the extension of canals continued. But only after ten years interval the total lengths of the canal came down to some extent. It was so because of the abandonment of Range IV A and Range IV B of the Coast Canal in 1928 which were about 24 miles<sup>112</sup> and the complete abandonment of Dudhai Canal in November 1930, which was about 36 miles.<sup>113</sup> But after 1940, the construction works stopped owing to the beginning of the Second World War, which was evident indirectly from the amount kept for the canal irrigated area during the 1940s as there was no substantial increase.

Most of the canals profited much to Cuttack and Balasore district. In Puri there was no regular irrigation works. For the first time, attention was paid on the irrigation facilities of Puri district with the help of the Khas Mahal Improvement Fund from 1885-86.<sup>114</sup> Also some minor irrigation works were executed from Estates Improvement Fund.<sup>115</sup> Later on the irrigation development programme was broadened and the finance came from three sources- the Miscellaneous Improvement Fund, Khas Mahal Fund and Agricultural Improvement Fund from 1887-88.<sup>116</sup> Only towards the independence of India, Puri district was connected with canals, which can be seen from the *Season and Crop Report* that it irrigated around 10,000 acres of land in 1945-46.<sup>117</sup>

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<sup>112</sup> Ganeswar Nayak, *op. cit.*, p. 69.

<sup>113</sup> *BODG: Cuttack*, p. 105.

<sup>114</sup> *AGAROD, 1885-86*, p.44.

<sup>115</sup> *AGAROD, 1886-87*, p.42.

<sup>116</sup> *AGAROD, 1887-88*, p.35

<sup>117</sup> *SCRO, 1945-46*, pp. 6-7.

## Construction of Distributary Canals

By 1890-91, there were 764  $\frac{3}{4}$  miles of distributaries and village channels.<sup>118</sup> The extension works of some minor distributaries were still going on during the year 1906-1907.<sup>119</sup> During 1907-1908, several minor distributaries were constructed. In order to prevent drought, the authorities felt the importance of the extension of the Machhgaon Canal. The Balasore flood of 1906-1907 compelled the government to think of other plans. For which a new proposal of the construction of irrigation canal from Baitarani and Anandapur through Agarpara across the River Salandi to River Kansbans. Similarly, construction of a canal from Bhadrak to Salandi with sluice gates at its junction was also proposed along with a channel from Salandi to Mutrigarh through Hiraghai and Khria Bundh to Duppa.<sup>120</sup> The Public Works Department was thinking of a scheme for the extensive irrigation works in Puri district.<sup>121</sup> The extension works in Cuttack was still in continuation till 1908-1909.<sup>122</sup>

By the year 1912-13, nearly 20.29 miles of distributaries and minor channels were added chiefly on the Taladanada, Machgong and Kendrapara Canals.<sup>123</sup> By 1915-16 total distributaries were 1,287 miles against of 13 miles less in 1914-15. The total length of the total distributary included 13 miles additional distributary during the year 1915-16.<sup>124</sup> As for the distributaries, owing to the reasonable rainfall, the total distributaries went upto 1292 miles during 1917-1918, whereas it was 1,291 in

<sup>118</sup> *Report on the Administration of Bengal, 1890-91. op. cit., p.24.*

<sup>119</sup> *Report of the Land Revenue Administration of the Lower Provinces for the year 1906-1907, The Bengal Secretariat Book Depot, Calcutta, 1907, p. 18.*

<sup>120</sup> *Report on the Land Revenue Administration of the Lower Provinces for the year 1907-1908, Government of Bengal, Calcutta, 1908, p. 17.*

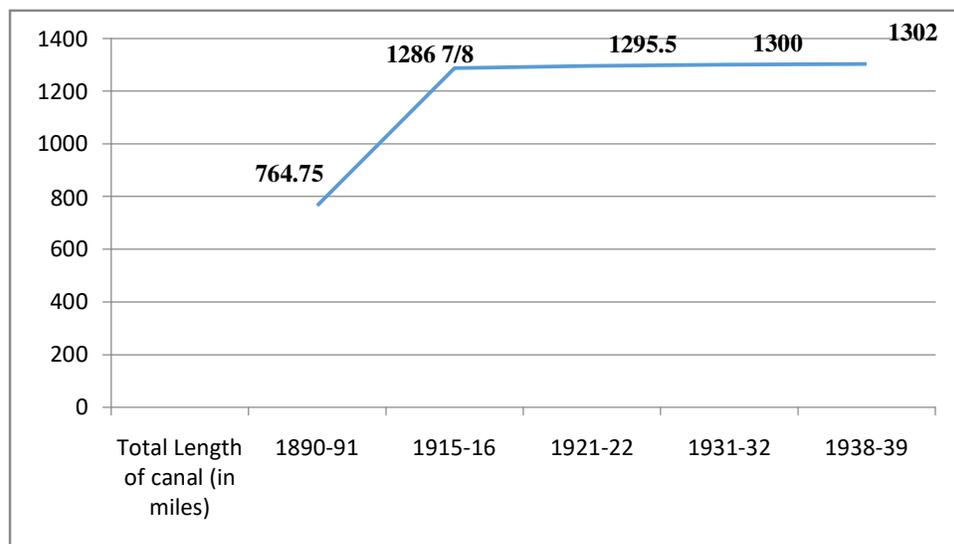
<sup>121</sup> *Ibid.*

<sup>122</sup> *Report on the Land Revenue Administration of the Lower Provinces for the year 1908-1909, Government of Bengal, Calcutta, 1909, p. 14.*

<sup>123</sup> *Report on the Administration of Bihar and Orissa, 1912-1913, Government of Bihar and Orissa, Patna, 1914, p.71.*

<sup>124</sup> *RABO, 1915-1916, p.67.*

1916-1917. During the year 1917-1918 there was only an addition of 5/8<sup>th</sup> mile of minor distributaries.<sup>125</sup> During 1918-1919, the total length reached to 1,293 miles, which included an additional of 2 miles of distributaries.<sup>126</sup> Simultaneously the construction of a minor distributary at Solanpur was going on from the High Level Canal Range III during that year.<sup>127</sup> The earth work of that distributary was about to complete. The next year in 1919-1920, only over a mile of distributary was added.<sup>128</sup> Including the additional one the total length of distributary reached to 1,294 miles against the last year length 1,293 miles.<sup>129</sup> By 1922, the total length of distributary channels was 1295 ½ miles.<sup>130</sup> By 1932, there were 1,300 miles of distributaries including minor or village channels.<sup>131</sup> But the total length of distributaries reached to only 1302 miles by 1938-39.<sup>132</sup>



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