PRE-FEASIBILITY REPORT

OF

EXPANSION OF TUBACHI BABALESHWARA LIFT IRRIGATION SCHEME

TO EXPAND A COMMAND AREA FROM 42,500 TO 52,700 Ha NEAR KAVATAGI VILLAGE, JAMAKHANDI TALUK, BAGALKOT DISTRICT

SCHEDULE 1(C) OF EIA NOTIFICATION, 2006, CATEGORY – A, TOTAL COST OF THE PROJECT – 3572.00 CRORES

Submitted to

THE DIRECTOR AND MEMBER SECRETARY,
RIVER VALLEY AND HYDROELECTRIC PROJECTS,
MINISTRY OF ENVIRONMENT, FORESTS AND CLIMATE CHANGE (MOEF), GOVT. OF INDIA
NEW DELHI - 110003.

Submitted by

THE CHIEF ENGINEER
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SEPTEMBER 2017

Table of Contents

1. Executive Summary

Tubachi – Babaleshwara LIS was accorded Environmental Clearance by the Ministry on 31.07.2017 to irrigate 42,500 Ha of dry land by utilizing 3.8 TMC of water from Krishna River to benefit 36 villages of Vijayapura, Bagalkot and Belagavi districts. The project doesn't involve submergence and hence no R&R. There are no national parks, Reserve forest or Wildlife sanctuaries within 10 km from the project components. The project involves diversion of 0.73 ha of forest land for which Stage-I Forest Clearance has been accorded by the Ministry on 15.06.2017.

Due to the dire demand of farmers, the command area of the project is proposed to be increased from 42,500 ha to 52,700 Ha (+10,200 ha) with an additional water allocation of 2.473 TMC of water (totaling to 6.273 TMC) to benefit 61 (+25 villages) in Bagalkot, Belagavi and Vijayapura Districts. The total cost of the project is 3572 crores (+1083.03 crores).

As per Part-B General Condition No (9), the expansion of the project requires modified Environmental Clearance to the project. The baseline data collected for the subject project is not more than 3 years old and the Environmental Public Hearing was also conducted in 2016 in the same districts. Hence, it is requesting to consider the proposal for baseline data collection in the expansion area and requesting for exemption of environmental public hearing to accord modified Environmental Clearance.

The annual average rainfall in Jamakhandi taluk is 664.70 mm, Athani Taluk is 687mm and Bijapur Taluk is 545 mm mainly these taluks lies in rain-shadow area. The farmers of the proposed command area have been deprived of irrigation facilities from Savalgi - Tungal LIS coming under Hipparagi Project and Mulwad Lift Irrigation Scheme under KBJNL (formerly Upper Krishna Project). -Therefore, to minimize the dependence on rain for agriculture, Tubachi Babaleshwara Lift Irrigation Project has been proposed by the Karnataka Neeravari Nigam Ltd, Govt. of Karnataka to provide irrigation to the drought prone villages and irrigation facility deprived areas of Jamakhandi Taluk, Athani Taluk and Bijapur Taluk. This

will provide stability to agriculture and thus improving the per capita income and standard of living of the people.

The revised administrative approval for the project has been accorded by the Govt. of Karnataka vide letter no. WRD 115 VBE 2016 Bangalore dt: 21.02.2017.

Table 1: The comparative statement of the proposal is as follows;

Sl. No.	Particulars	42,500 ha proposal	Expansion proposal to 52,700 ha	Change in the scope
1	Irrigable command area	42,500 Ha.	52,700 Ha	+ 10,200 ha
2	Peak discharge	20.03 cumecs	30.00 cumecs	+ 9.97 cumecs
3	Length of intake canal	1.30 km	2.00 km	+0.700 Km
4	No. of pumps	4 working + 1 standby	6 working + 1 standby	+2
5	Raising main			
a.	Length	28.94 km	21.84 km	
b.	No. of rows and dia	1 (1 row of 3.5 m dia)	2 (1 row of 3.5 m dia 1 row of 2.5 m dia)	+1
6	M.S. Raisin Main			
a.	Length	30.30 km	21.84 km	- 8.46 Km
b.	No. of rows and diameter	1 (1 row of 2.6 m dia)	2 (1 row 2.6 m dia 1 row of 2.55 m dia)	+1
7	No. of delivery chambers	2	3	+1
8	Canal length & Distributaries	Piped network	805.20 Km	--
9	Power requirement (MW)	9	52	+43
10	Total land requirement (ha)	105	2419	+2314
11	Total forest land required (ha)	0.73	--	--
12	B.C Ratio	1.51	1.29	--
13	Type of irrigation	Drip	Gravity flow	--
14	Submergence and R&R	Nil	Nil	Nil
15	No. of villages benefitted	36	61	+25
16	No. of districts	Bagalkot, Vijayapura and Belagavi	Bagalkot, Vijayapura and Belagavi	--
17	Total cost of the project (crores)	2488.97	3572.00	+ 1083.03

2. Introduction of the Project/ Background Information

2.1 Identification of project proponent and project.

Karnataka Neeravari Nigam Limited (KNNL) has been registered as a completely owned company under Government of Karnataka as per the provisions of The Companies Act, 1956 with effect from 9th December 1998. The Nigam aims at reviewing the planning and design aspects and monitoring the progress of the work and tracking field periodically by involving dedicated professional administrators, subject specialist and experienced engineers and other specialists in the field in order to clear bottle necks and ensure time bound progress of work. It has its Registered Office at 4th Floor, Coffee Board Building, No.1, Dr. B R Ambedkar Veedhi, Bengaluru –560 001.

2.2 Brief description of nature of the project.

Tubachi – Babaleshwara LIS was accorded Environmental Clearance by the Ministry on 31.07.2017 to irrigate 42,500 Ha of dry land by utilizing 3.8 TMC of water from Krishna River to benefit 36 villages of Vijayapura, Bagalkot and Belagavi districts. The project doesn't involve submergence and hence no R&R. There are no national parks, Reserve forest or Wildlife sanctuaries within 10 km from the project components. The project involves diversion of 0.73 ha of forest land for which Stage-I Forest Clearance has been accorded by the Ministry on 15.06.2017.

Due to the dire demand of farmers, the command area of the project is proposed to be increased from 42,500 ha to 52,700 Ha (+10,200 ha) with an additional water allocation of 2.473 TMC of water (totaling to 6.273 TMC) to benefit 61 (+25 villages) in Bagalkot, Belagavi and Vijayapura Districts.

No forest land is required for any part of the project and no submergence will be caused due to the project. However the inter-state boundary is at a distance of 3 Km from the command area boundary towards north direction. According to Environmental Impact Notification - 2006 and its subsequent amendments project falls under 'A' category.

The cultivable area in Bijapur taluk located on left flank of Don river particularly area in and around Tikota, Kanamadi, Jalageri villages are located at higher elevation and does not benefited under Irrigation facilities. Also the area between Don river and Kud Don halla i.e. areas of Honwad village in Bijapur taluk, Kajibilagi, Gothe of Bagalkot taluk and Halahalli and other villages are left out under UKP scheme as well as Hipparagi project. This area is neither covered under Savalgi-Tungal LIS coming under Hipparagi Project nor in Mulwad Lift irrigation scheme under KBJNL (formerly Upper Krishna Project). Thus there is a need to provide irrigation facilities to the above mentioned areas for the benefit and upliftment of the farmers and to mitigate the regional imbalance. The farmers who have been deprived of irrigation facilities in the said area are demanding for providing them with water for irrigation purpose. In this connection, a proposal was earlier prepared to utilize 3.8 TMC of water from Krishna River and providing irrigation through Micro Irrigation system. The command area of the present Tubachi - Babaleshwara Lift irrigation scheme as proposed under Micro Irrigation was 42,500 ha. However, the farmers have represented that instead of Micro Irrigation, flow irrigation through open canal can be considered in view of the following points.

Micro irrigation provided irrigation to particular and selected crops which will in no way help in providing irrigation to the drought prone areas as well as it will not help in raising the ground water table. Further, these areas are already facing acute shortage of drinking water.

There is no provision for providing irrigation during the Rabi season in the present system.

Even during Kharif season, the irrigation is provided only for four months. There is a demand from other farmers (not been covered under the present scope) to include their lands also for providing irrigation through the flow irrigation scheme.

Further, it is brought out that the present Mulwad Lift irrigation scheme and Hipparagi irrigation scheme located nearby have adopted flow irrigation through open canal network. It is indicated that because of implementation of these projects, the groundwater table in the area has shown a rising trend which has helped these areas to come out of the drought prone tag. In the event that the said scheme is considered as a flow irrigation scheme, there is a chance that the groundwater table will show a rising trend which can be utilized by the farmers during rabi season through tube wells/bore wells. In view of this, the farmers can

utilize the water in an optimum manner to provide irrigation during both Kharif and Rabi season. The increase in groundwater table would also help in solving the acute drinking water problems being faced by the farmers in the area.

The water requirement of 3.8 TMC was allocated considering the scheme as a Micro Irrigation scheme. However, with the changed approach of providing flow irrigation instead of Micro Irrigation, the allocated 3.8 TMC may not be sufficient to irrigate the proposed command of 52,700 Ha (raised from 42,500 Ha under Micro irrigation to the present 52,700 Ha through flow irrigation). The allocated 3.8 TMC of water is sufficient to irrigate 31,800 Ha through flow irrigation during Kharif season only. Hence, in order to meet the water requirement of 19,900 Ha, there is a requirement of additional 2.5 TMC of water. The present project considers the revised water requirement of 6.3 TMC (3.8 + 2.5 TMC) to irrigate 52,700 Ha of command in 61 villages lying in Vijayapura taluk and district, Jamakhandi taluk in Bagalkot district and Athani taluk in Belagavi district.

2.3 Need for the project and its importance to the country and or region.

The command area encompasses about 61 villages lying in Vijayapura Taluk in Vijayapura District, Jamakhandi Taluk in Bagalkot District and Athani Taluk in Belgaum District situated in the Northern region of Karnataka which are in need of irrigation facilities as well as drinking water. This region lies entirely in Krishna river basin in the Deccan Plateau of Southern India. The entire population in this region is mainly dependent on agriculture, which in turn forms the backbone of economy of the region. Food crops like Jawar, Bajra, Wheat, Grams, Sugarcane etc, are grown in this area. But due to lack of adequate and timely rainfall, the region often suffers from scarcity and periodical famine.

The annual normal rainfall in Jamakhandi, Athani and Bijapur taluk is 664.70 mm, 687mm and 545 mm respectively. These taluk lies in rain-shadow area. The soil is fertile and if irrigation facility is provided, there can be good yield of crops, which will increase the income of the farmers & consequently their living standards.

The command proposed to be provided with irrigation in the above villages is not covered under Hipparagi irrigation project and by Mulwad LIS of UKP. Thus there is a need to extend

irrigation facilities to the above mentioned areas for the benefit and uplifting of the farmers and to mitigate the regional imbalance.

In the present Tubachi Babaleshwara LIS, it is planned to irrigate this area by providing a Lift Irrigation Scheme. It is proposed to lift water near Old Kavatagi village in Jamakhandi taluk of Bagalkot Dist. It is proposed to lift water for Khariff crops only to irrigate an area of 52,700 Ha (1,30,220 Acres) utilizing 6.30 TMC of water. The intake structure is located on fore shore of Almatti Reservoir. There will be sufficient water available from 15th June to October 15th (Khariff Season). Hence no separate arrangement is required for impounding water for lifting. Water allocation for Almatti Reservoir will not be affected. The report is prepared considering the present allocation of 3.8 TMC and the additional allocation of 2.5

TMC to provide irrigation to 52,700 Ha through flow irrigation by Open canal.

2.4 Demand-Supply

Krishna River takes its birth in the Mahadev Range of Western Ghats at EL 1338.00m above M.S.L in Maharashtra. It enters Karnataka at its 304th km and passes through the state for a length of 480 km and finally falls into the Bay of Bengal near Bapatla in Andhra Pradesh. The basin area is 2.57 lakhs sq.km and that in Karnataka is 1.13 lakhs sq.km.

Krishna river basin is 2, 58, 948 Sq. Km of which Karnataka drainage area is 1,13, 272 Sq. Km, which is 43.74 % of the basin area. Main tributaries of river Krishna in Karnataka are Bhima and Don from the north, Ghataprabha, Malaprabha, Tungabhadra, Hagari and Vedavati from the south.

As assessed average annual surface water potential of the basin is 78.1 km^3 has been assessed in this basin. Out of this, 58.0 km^3 is utilizable water. Culturable area in the basin is about 2,03,000 km^2, which is 10.4% of the total Culturable area of the country.

The catchment area of river Krishna at Vijayawada gauge site is 2,51,360 Sq.km. Earlier the Yield Series was built up by considering the Flow series at Vijayawada from 1894 to 1972 as agreed to by the Party States before the Krishna Water Disputes Tribunal which determined that for the purpose of the case of the Krishna Water Dispute, the 75% dependable flow of

river Krishna upto Vijayawada is 58339.2 Mcum (2060 TMC). The yield as adopted in the KWDT-II for Almatti and Narayanapura is given the table below

Table – 2 Year wise basin yield as per KWDT-II

Sl. No.	Year	Basin Yield, TMC	Descending order	Remarks
1	1961-62	3760	4193.72	
2	1962-63	3079	3760	
3	1963-64	2757	3624.04	
4	1964-65	3397	3519.36	
5	1965-66	2074	3397	
6	1966-67	1957	3318.24	
7	1967-68	2538	3238.71	
8	1968-69	2136	3230.91	
9	1969-70	2685	3186.66	
10	1970-71	2745	3185.01	
11	1971-72	2231	3079	
12	1972-73	1511.53	2967.2	
13	1973-74	2801.89	2919.13	
14	1974-75	2654.66	2916.67	
15	1975-76	4193.72	2851.04	
16	1976-77	2595.45	2809.52	
17	1977-78	2588.82	2801.89	
18	1978-79	3519.36	2757	
19	1979-80	2724.43	2745	
20	1980-81	2809.52	2724.43	
21	1981-82	2851.04	2685	
22	1982-83	2283.37	2654.66	
23	1983-84	3185.01	2628.35	
24	1984-85	2193.63	2624.23	
25	1985-86	1839.65	2602.11	
26	1986-87	1841.81	2595.45	
27	1987-88	1649.21	2588.82	
28	1988-89	2967.2	2538	
29	1989-90	2602.11	2489.85	
30	1990-91	2919.13	2305.56	
30.55			**2293**	**65 % dependability**
31	1991-92	2916.67	2283.37	
32	1992-93	2201.96	2231	

Sl. No.	Year	Basin Yield, TMC	Descending order	Remarks
33	1993-94	2624.23	2201.96	
34	1994-95	3318.24	2193.63	
35	1995-96	1867.54	2185.69	
36	1996-97	2628.35	2136	
37	1997-98	2489.85	2074	
38	1998-99	3238.71	1957	
39	1999-00	2305.56	1934.43	
40	2000-01	2185.69	1867.54	
41	2001-02	1836.04	1841.81	
42	2002-03	1239.45	1839.65	
43	2003-04	1252.68	1836.04	
44	2004-05	1934.43	1649.21	
45	2005-06	3624.04	1511.53	
46	2006-07	3186.66	1252.68	
47	2007-08	3230.91	1239.45	

Approval to lift 2.80 TMC of water for Tubachi - Babaleshwara LIS under Pollavaram of Godavari basin scheme (23TMC), has been accorded by the honorable Government of Karnataka, vide Govt Order No: WRD 49 KBN 2009, Bangalore dated: 19-3-2012. To mitigate the sufferings of drought prone areas of Jamakhandi, Athani taluk and Bijapur taluk, to utilize water for irrigation during Kharif season only. Consequent upon the issue of award of Krishna Water Disputes Tribunal-II (KWDT-II), to utilize the allocated quantum of water in full with proper and efficient utilization, the Govt. of Karnataka has constituted the committee to review the present Master Plan of Krishna basin and prepare the Revised Master Plan to utilize the allocated water to Karnataka by Krishna Water Disputes Tribunal-I and Krishna Water Disputes Tribunal-II.

Subsequently, the committee has recommended for the additional 1.0 TMC water required for the Tubachi - Babaleshwara Lift Irrigation Scheme under revised Master Plan of Krishna Basin. Accordingly D.P.R was prepared submitted for administrative approval to create 42,500 Ha of ICA to mitigate the sufferings of drought prone areas of Jamakhandi (8 villages), Athani taluk (5 villages) and Bijapur taluk (24 villages), to utilize water for irrigation during Khariff season only. Accordingly Govt. was kind enough to accord administrative approval vide G.O WRD 52 VBE 2014 dated 19-03-2014 for Rs, 2488.97 Crores.

Still some of the areas of Yatnal, Honawad, Rampur, Babanagar, Bijjargi, Kanamadi, Tikkota, Takkalaki & Ratnapur villages in Bijapur taluk and Telsang village, Kottalagi village in Athani taluk are deprived of irrigation facilities. The area on west side is covered by ongoing lift irrigation schemes of Hipparagi project and the area on eastern side is covered by Mulwad LIS of UKP. Southern part covered under Tubachi Babaleshwara LIS. Thus there is a need to extend irrigation facilities to the above mentioned areas for the benefit and upliftment of the farmers and to mitigate the regional imbalance.

2.5 Imports vs. Indigenous production

By implementation of the proposed project improvement in crop cultivation can be achieved.

2.6. Export possibility

This project may ultimately lead to export of excess food grains.

2.7. Domestic/ Export markets.

The project produce will have favorable impact on domestic and export markets.

2.8. Employment Generation (Direct and Indirect) due to the project.

Around 300 people (50 Technical and 250 construction labourers) are expected to be employed temporarily for the construction work of intake channel, jack well cum pump house, raising main, delivery chambers and distribution network consisting of piped conveyance system with drip irrigation. During operation phase labourers will be appointed operation and maintenance of the Jackwell.

Table – 3 Reservoir water levels attained

ALMATTI - INITIAL LEVELS												
Year	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
1961-62	520.825	518.264	516.46	515.821	515.228	517.524	516.69	524.256	524.256	523.307	524.256	522.99
1962-63	520.373	517.577	515.485	514.725	514.075	514.765	514.252	524.256	524.256	524.256	524.256	522.649
1963-64	520.067	517.171	514.941	514.122	513.464	513.486	512.896	523.868	524.256	523.597	523.981	522.375
1964-65	521.156	518.746	517.111	516.534	516.1	513.238	513.662	521.167	524.256	524.256	524.256	523.204
1965-66	515.72	506.87	5506.87	506.87	506.87	515.68	515.225	524.256	524.256	522.695	521.503	519.342
1966-67	519.647	516.411	513.642	512.606	5511.709	506.87	506.672	524.256	522.448	522.852	523.883	522.114
1967-68	520.31	517.463	515.299	514.509	513.8	510.827	509.976	524.256	524.256	524.256	524.256	522.621
1968-69	517.56	512.392	506.87	506.87	506.87	513.19	512.541	518.183	518.686	520.084	522.526	520.529
1969-70	520.294	517.387	515.12	514.245	513.593	506.87	506.672	523.336	524.256	524.256	524.256	522.627
1970-71	520.217	517.267	514.947	514.029	513.379	513.193	513.679	522.69	524.256	524.256	524.256	522.576
1971-72	520.033	517.045	514.577	513.589	512.803	512.958	517.44	519.992	524.256	524.256	524.256	522.508
1972-73	506.87	506.87	506.87	506.87	506.87	512.407	511.743	519.675	517.112	516.587	516.587	510.398
1973-74	520.277	517.352	515.06	514.154	513.493	506.87	510.348	524.256	524.256	524.256	524.256	522.621
1974-75	520.403	517.576	515.409	514.577	513.962	513.51	512.923	522.726	524.256	524.256	524.256	522.688
1975-76	520.787	518.181	516.329	515.674	515.176	513.72	517.58	524.256	524.256	524.256	524.256	522.951
1976-77	518.959	515.204	511.558	509.997	508.225	514.607	520.242	524.256	524.256	516.587	523.585	521.591
1977-78	521.196	518.677	516.993	516.378	515.841	509.189	514.173	524.256	524.256	524.256	524.256	522.946
1978-79	520.81	518.167	516.313	515.614	514.9851	515.492	520.583	524.256	524.256	524.256	524.256	523.016
1979-80	521.064	518.557	516.866	516.215	515.736	514.493	516.117	521.97	524.256	524.256	524.256	523.061
1980-81	519.36	515.998	513.109	511.986	510.906	515.394	518.523	524.256	524.256	523.585	523.806	521.882
1981-82	520.322	517.544	515.532	514.853	514.206	510.267	512.531	524.055	524.256	524.256	524.256	522.603
1982-83	520.236	517.427	515.424	514.716	513.987	513.906	515.019	520.555	524.256	524.256	523.935	522.548
1983-84	519.841	516.804	514.404	513.669	513.143	512.48	514.774	524.113	524.256	524.256	524.03	522.255
1984-85	519.845	516.804	514.404	513.669	513.143	512.48	514.774	524.113	524.256	524.256	524.03	522.255
1985-86	517.631	512.456	506.87	506.87	506.87	512.43	513.708	519.387	523.945	523.06	522.817	520.655
1986-87	515.285	506.87	506.87	506.87	506.675	506.87	512.056	519.413	523.52	522.406	521.441	519.198
1987-88	506.87	506.87	506.87	506.671	506.777	506.637	506.453	513.644	508.598	506.87	506.87	506.87
1988-89	520.034	517.074	514.761	513.912	513.112	506.602	508.669	523.487	524.256	524.256	524.256	522.402

1989-90	519.261	515.737	512.521	511.315	510.356	512.344	513.873	522.433	524.256	524.256	523.864	521.873
1990-91	519.701	516.698	514.363	513.455	512.738	510.602	512.571	524.219	524.256	524.256	523.647	522.206
1991-92	519.895	517.13	515.198	514.472	513.628	512.366	519.992	524.256	524.256	524.256	524.085	522.253
1992-93	520.491	517.747	515.674	514.924	514.225	513.102	513.32	519.627	524.256	524.256	524.256	522.728
1993-94	521.797	519.94	518.904	519.796	518.88	513.848	517.749	524.256	524.256	524.256	524.256	523.281
1994-95	520.95	519.277	517.838	517.299	516.761	518.627	522.376	524.256	524.256	524.256	524.256	523.077
1995-96	520.337	517.416	515.157	514.217	513.355	516.373	516.19	520.927	521.539	523.589	524.256	522.632
1996-97	520.818	518.516	516.834	516.195	515.564	512.941	515.226	521.293	524.256	524.256	524.256	522.881
1997-98	520.574	517.988	516.248	515.612	514.91	515.495	518.062	524.256	524.256	524.256	523.825	522.5
1998-99	520.757	518.068	516.233	515.789	515.488	515.183	515.45	523.49	524.256	524.256	524.256	522.95
1999-00	521.046	518.458	516.59	515.85	515.311	515.858	520.079	524.256	524.256	524.256	524.256	523.152
2000-01	521.789	519.758	518.976	518.596	518.204	515.044	515.799	521.265	522.566	524.064	524.256	523.532
2001-02	518.2	514.843	511.872	511.129	510.409	517.828	517.985	520.389	520.636	520.383	521.689	520.744
2002-03	521.051	518.89	518.094	517.695	517.304	509.607	513.192	519.487	524.256	524.256	524.168	522.801
2003-04	520.619	518.621	517.798	517.392	516.994	516.923	518.208	521.894	523.481	523.557	523.224	522.348
2004-05	522.536	520.92	520.137	519.725	519.233	516.59	520.759	522.077	524.256	524.256	524.256	523.499
2005-06	522.64	521.548	520.94	520.59	520.281	518.873	518.9	524.256	524.256	524.256	524.256	523.567
2006-07	522.678	521.61	521.008	520.659	520.313	519.974	521.329	524.256	524.256	524.256	524.256	523.602
2007-08	522.568	521.573	520.968	520.644	520.179	519.969	521.636	524.256	524.256	524.256	524.256	523.499

Table – 4 Monthly reservoir levels arranged in descending order

Sl. NO.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	523.481	522.315	521.71	521.381	520.958	520.501	522.376	524.256	524.256	524.256	524.256	524.256
2	522.678	521.61	521.008	520.659	520.313	519.974	521.636	524.256	524.256	524.256	524.256	523.602
3	522.64	521.573	520.968	520.644	520.281	519.969	521.329	524.256	524.256	524.256	524.256	523.567
4	522.568	521.573	520.94	520.59	520.179	519.821	521.172	524.256	524.256	524.256	524.256	523.532
5	522.568	521.548	520.934	520.318	519.877	519.393	520.759	524.256	524.256	524.256	524.256	523.499
6	522.568	521.447	520.671	519.796	519.233	518.873	520.583	524.256	524.256	524.256	524.256	523.499
7	522.568	521.306	520.137	519.725	518.88	518.627	520.395	524.256	524.256	524.256	524.256	523.499
8	522.536	520.92	519.901	519.388	518.483	517.961	520.242	524.256	524.256	524.256	524.256	523.499

Sl. NO.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
9	521.797	519.94	518.976	518.953	518.204	517.828	520.079	524.256	524.256	524.256	524.256	523.499
10	521.789	519.758	518.904	518.596	518.147	517.524	519.992	524.256	524.256	524.256	524.256	523.281
11	521.196	519.277	518.094	517.695	517.304	516.923	519.22	524.256	524.256	524.256	524.256	523.204
12	521.156	518.89	517.838	517.392	516.994	516.59	518.9	524.256	524.256	524.256	524.256	523.152
13	521.064	518.746	517.798	517.299	516.761	516.373	518.523	524.256	524.256	524.256	524.256	523.077
14	521.051	518.677	517.111	516.534	516.1	515.858	518.208	524.256	524.256	524.256	524.256	523.061
15	521.046	518.621	516.993	516.378	515.841	515.68	518.062	524.256	524.256	524.256	524.256	523.016
16	520.95	518.557	516.866	516.215	515.736	515.495	517.985	524.256	524.256	524.256	524.256	522.99
17	520.825	518.516	516.834	516.195	515.564	515.492	517.749	524.256	524.256	524.256	524.256	522.985
18	520.818	518.458	516.59	515.85	515.488	515.394	517.587	524.256	524.256	524.256	524.256	522.951
19	520.81	518.264	516.46	515.821	515.311	515.183	517.58	524.256	524.256	524.256	524.256	522.95
20	520.787	518.181	516.329	515.789	515.228	515.044	517.452	524.256	524.256	524.256	524.256	522.946
21	520.757	518.167	516.313	515.674	515.176	514.765	517.44	524.256	524.256	524.256	524.256	522.881
22	520.669	518.068	516.248	515.614	514.9851	514.607	516.69	524.256	524.256	524.256	524.256	522.801
23	520.619	517.988	516.233	515.612	514.91	514.493	516.19	524.219	524.256	524.256	524.256	522.728
24	520.574	517.839	515.799	515.18	514.686	514.03	516.117	524.113	524.256	524.256	524.256	522.688
25	520.491	517.747	515.674	514.924	514.225	513.906	515.799	524.113	524.256	524.256	524.256	522.649
26	520.403	517.577	515.532	514.853	514.206	513.848	515.45	524.055	524.256	524.256	524.256	522.632
27	520.373	517.576	515.485	514.725	514.075	513.72	515.226	523.868	524.256	524.256	524.256	522.627
28	520.337	517.544	515.424	514.716	513.987	513.51	515.225	523.49	524.256	524.256	524.256	522.621
29	520.322	517.463	515.409	514.577	513.962	513.486	515.019	523.487	524.256	524.256	524.256	522.621
30	520.31	517.427	515.299	514.509	513.8	513.238	514.774	523.336	524.256	524.256	524.256	522.603
31	520.294	517.416	515.198	514.472	513.628	513.193	514.774	522.726	524.256	524.256	524.256	522.576
32	520.277	517.387	515.157	514.245	513.593	513.19	514.252	522.69	524.256	524.256	524.256	522.548
33	520.236	517.352	515.12	514.217	513.493	513.102	514.173	522.433	524.256	524.256	524.168	522.508
34	520.217	517.267	515.06	514.154	513.464	512.958	513.873	522.156	524.256	524.256	524.085	522.5
35	520.033	517.171	514.947	514.122	513.379	512.941	513.708	522.077	524.256	524.256	524.03	522.402
36	520.067	517.13	514.941	514.029	513.355	512.48	513.679	521.97	524.256	524.256	524.03	522.375
37	520.034	517.074	514.761	513.912	513.143	512.48	513.662	521.894	524.256	524.256	523.981	522.348
38	519.895	517.045	514.577	513.669	513.143	512.43	513.32	521.293	524.256	524.064	523.935	522.255

Sl. NO.	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
39	**519.845**	**516.804**	**514.404**	**513.669**	**513.112**	**512.407**	**513.192**	**521.265**	**524.256**	**523.597**	**523.883**	**522.255**
40	519.841	516.804	514.404	513.589	512.803	512.366	512.923	521.167	524.256	523.589	523.864	522.253
41	519.701	516.698	514.363	513.455	512.738	512.344	512.896	520.927	524.256	523.585	523.825	522.206
42	519.647	516.411	513.642	512.606	511.709	510.827	512.571	520.555	524.256	523.557	523.806	522.114
43	519.36	515.998	513.109	511.986	510.906	510.602	512.541	520.415	523.945	523.307	523.647	521.882
44	519.261	515.737	512.521	511.315	510.409	510.267	512.531	520.389	523.52	523.06	523.585	521.873
45	518.959	515.204	511.872	511.129	510.356	509.607	512.056	519.992	523.481	522.852	523.224	521.591
46	518.2	514.843	511.558	509.997	508.225	509.189	511.743	519.675	522.566	522.695	522.817	520.744
47	517.631	512.456	506.87	506.87	506.87	506.87	510.348	519.627	522.448	522.406	522.526	520.655
48	517.56	512.392	506.87	506.87	506.87	506.87	509.976	519.487	521.539	520.383	521.689	520.529
49	515.72	506.87	506.87	506.87	506.87	506.87	508.669	519.413	520.636	520.084	521.503	519.342
50	515.285	506.87	506.87	506.87	506.87	506.87	506.672	519.387	518.686	516.587	521.441	519.198
51	506.87	506.87	506.87	506.87	506.777	506.637	506.672	518.183	517.112	516.587	516.587	510.398
52	506.87	506.87	506.87	506.671	506.675	506.602	506.453	513.644	508.598	506.87	506.87	506.87

Note: It is noted from the table 4.3 that, at 75% dependable reservoir level in the month of June is 512.407 m and the Intake level proposed for the scheme is 510.00 m which is sufficient.

3. Project Description

3.1. Type of project including interlinked and interdependent project, if any.

Tubachi – Babaleshwara LIS was accorded Environmental Clearance by the Ministry on 31.07.2017 to irrigate 42,500 Ha of dry land by utilizing 3.8 TMC of water from Krishna River to benefit 36 villages of Vijayapura, Bagalkot and Belagavi districts. The project doesn't involve submergence and hence no R&R. There are no national parks, Reserve forest or Wildlife sanctuaries within 10 km from the project components. The project involves diversion of 0.73 ha of forest land for which Stage-I Forest Clearance has been accorded by the Ministry on 15.06.2017.

Due to the dire demand of farmers, the command area of the project is proposed to be increased from 42,500 ha to 52,700 Ha (+10,200 ha) with an additional water allocation of 2.473 TMC of water (totaling to 6.273 TMC) to benefit 61 (+25 villages) in Bagalkot, Belagavi and Vijayapura Districts.

No forest land is required for any part of the project and no submergence will be caused due to the project. However the inter-state boundary is at a distance of 3 Km from the command area boundary towards north direction. According to Environmental Impact Notification - 2006 and its subsequent amendments project falls under 'A' category./

3.2. Location (map showing general location, specific location, and project boundary & project site layout) with coordinates.

The proposed project is situated near Kavatagi village in Jamakhandi Taluk, Bagalkot District, Karnataka. Intake point of the proposed scheme is located at 16˚31'50" N 75˚25'28" E. Command area map is given as Fig 3.1

3.3. Details of alternative sites, considered and the basis of selecting the proposed site particularly the environmental considerations gone into should be highlighted.

Not applicable

3.4. Size & magnitude of operation

The scheme envisages lifting of 6.30 TMC of water from the Krishna River near Kavatagi Village, Jamakhandi Taluk and providing water to Northern side villages of Jamakhandi taluk, Eastern side villages of Athani Taluk and South Western Villages of Vijayapura lands to irrigate 52,700 ha of agricultural lands.

3.5. Project description with process details (a schematic diagram/flow chart showing the project layout, components of the project etc) should be given.

The intake canal is located on the left flank of Almatti reservoir (16˚31'50" N 75˚25'28" E) near Kavatagi village of Jamakhandi taluk, Bagalkot district. From the off take, Intake canal runs in North direction for length of 2140.0 m. At the end of Intake canal a Jack well cum pump house is proposed for housing metallic volute pumps. The jack well cum pump house is located beyond MWL of Almatti reservoir with floor level at 528.00 m.

The technical detail and canal details of the proposed scheme are furnished in Table 1 Table 2 respectively. The schematic diagram of the scheme is given as Figure 3.2

Table – 5 Technical details of the Proposed Scheme

Technical details		
1	Intake point location	Near Kavatagi village on foreshore of Almatti Reservoir
2	Length of Intake canal	2000.00 m
3	Intake level	510.00 m
4	Length of raising main DC – 1A	21,740.00 m
5	Delivery level to DC – 1A	673.50 m
6	**Static head**	**163.50 m**
	Length of raising main DC – 1	22,080.0 m
	Delivery level to DC – 1	680.00 m
7	**Static head**	**170.00 m**
	Length of gravity main from DC – 1 to DC - 2	14,760.0 m

The command area is divided into 3 major blocks so as to suit the discharge of lift head work which is already taken up for peak discharge of 20.03 cumecs and balance 9.97 cumecs with additional pumps. Accordingly, the command area is divided in to two blocks and the details are as under.

Table – 6 Block wise details of Command area

Sl. No.	Particulars	Block 1			Block 2	Total
	District	Bagalkot	Belagavi	Vijayapura	Vijayapura	
	Taluk	Jamakhandi	Athani	Vijayapura	Vijayapura	
1	Gross Command Area (GCA) in Ha	8381	4496	13555	52781	79213
2	Uncommand area in Ha (Forest land, Higher mounds)	1255	245		2408	3908
3	Culturable Command Area (CCA) in Ha	7126	4251	13555	50373	75305
4	Irrigable Command area (ICA) in Ha	4989	2976	9489	35246	52700
5	Block wise Gross Command area (GCA) in Ha	26432			52781	79213
6	Block wise Uncommand area in Ha (Forest land, Higher mounds) in Ha	1500			2408	
7	Block wise Irrigable Command area (ICA) in Ha	17454			35246	
8	Irrigable Command area (ICA) for the project in Ha	**52700**				

The intake canal is located on left flank of Almatti reservoir near Kavatagi village of Jamakhandi taluk, Bagalkot district. Intake level at the proposed Head work is 510.0 m

From the off take Intake canal runs in North direction for a length of 2140.0 m. At end of the Intake canal a Jack well cum Pump house is proposed for housing Metallic volute pumps. The jack well cum pump house is located beyond MWL of Almatti reservoir with motor floor level at 528.00m. From Jack well cum Pump house the alignment of raising main runs in North direction and runs for a length of 22,080 m and terminates at El 680.55 m. The alignment passes through Kavatagi, Tadalabagi, Gadyal and Gothe villages of Jamakhandi taluk, Bagalkot district.

From the end of raising main, Gravity main is planned to cover the command area after crossing Don river. The alignment runs in North-East direction and terminates at El. 669.80 m. Total length of Gravity main works out to 14,760.0 m. The alignment passes through Gothe village of Jamakhandi taluk, Bagalkot district crosses Don River and further passes through Tikota village limits of Vijayapura taluk & district.

Table – 7 District wise details of Command area

Sl. No.	District	Bagalkot	Belagavi	Vijayapura
	Taluk	Jamakhandi	Athani	Vijayapura
1	Gross Command Area (GCA) in Ha	8381	4496	66336

Sl. No.	District	Bagalkot	Belagavi	Vijayapura
	Taluk	**Jamakhandi**	**Athani**	**Vijayapura**
2	Uncommand area in Ha (Forest land, Higher mounds)	1255	245	2408
3	Culturable Command Area (CCA) in Ha	7126	4251	63928
4	Irrigable Command area (ICA) in Ha	4989	2976	44735
5	Irrigable Command area (ICA) for the project in Ha	**52,700.00**		

Intake Canal: Based on the Hydrology note furnished the bed level for Intake canal is proposed at 510.00 m. Previously the designed discharge of the Intake canal was considered to be 20.03 cumecs for utilizing 3.80 TMC of water. Now for revised allocation of water and for flow irrigation Peak discharge considered for design of Intake canal is 45.00 cumecs which is 1.5 times the required discharge i.e. 30.00 cumecs arrived for the scheme as per Crop Water Requirement calculations. Intake channel of 2000.0 m is proposed from foreshore of Almatti Dam to Jack well. It is proposed to provide trapezoidal channel for conveying water from source to Jack well. Details of the proposed intake channel are as follows:

Table – 8 Design details of intake channel

Sl. No.	Particulars	Reach – 1 Details	Reach – 2 Details
1	Required discharge	30.00 cumecs	30.00 cumecs
2	Designed discharge (1.5 times Qr)	45.000 cumecs	45.000 cumecs
3	Bed gradient	1 in 2000	1 in 2000
4	Bed Width	7.50 m	6.50 m
5	Full Supply Depth	2.55 m	2.55 m
6	Free Board	0.45 m	0.45 m
7	Side slope	1:01	1.5:1
9	Length	1400.0 m	600.0 m

Jackwell cum Pump house: The jack well cum pump house was designed to accommodate 4 working and 1 standby metallic volute pumps for lifting 20.03 cumecs of water having discharge 5.022 cumecs for each pump. It is proposed to provide additional 2 working pumps of 4.985 cumecs for accommodating additional discharge by extending the pump house. It is proposed to connect the standby pump to both manifolds. Rectangular RCC framed structure is proposed at end of intake channel for accommodating Metallic Volute pumps. Provision of accommodating HT board panels, starters, EOT crane are made in the jack well.

Table – 9 Design details of Jackwell cum Pump house

Sl. No.	Particulars	Details
1	Ground level at jack well location	RL 528.000 m
2	Bed level	RL 498.000 m
3	Minimum Water Level	RL 510.000 m
4	Pump floor level/ operating floor level	RL 507.570 m
5	Top of Railing	RL 541.000 m

Raising main and Gravity main: It is proposed design 1 row of raising main to carry the discharge of 20.03 cumecs to be delivered to DC-1 at El. 680.0 m and 1 row of raising main to carry the discharge of 9.97 cumecs to deliver to DC-1A at El. 673.50 m. It is proposed to provide 2 rows of pipes for carrying 20.03 cumecs for delivering to DC-2 at El. 669.80 m.

Table – 10 Design details of Raising main and Gravity main

Sl. No.	Particulars	Raising Main for DC -1A	Raising Main for DC -1	Gravity Main from DC 1 to DC 2	Gravity Main from DC 1 to DC 2
1	Length of the pipe Main (m)	21640	22080	14760	14760
2	Peak Discharge	9.97	20.03	10.86	9.17
3	Number of Rows (No)	1	1	1	1
4	Discharge for each Row (Cumecs)	9.97	8.043	10.86	9.17
5	Velocity considered (m/s)	2.1	2.1	1.95	1.85
6	Diameter of Pipe, ID (mm)	2500	3500	2675	2800
7	Thickness of Pipe (mm)	18.5	23.5	15.3	15.3
8	Coating Internal (Epoxy Lining in mm)	0.4	0.4	0.4	0.4
9	External coating (Guniting in mm)	25	25	25	25

Canal system: Beyond delivery chamber, Compendium planning is carried out on 1:50,000 scale topo sheets to identify alignment of Main canals and no of distributory blocks. Two main canals have been planned from DC-1A for irrigating the command area of Block-1. Kajibilagi West Canal is proposed on left side of DC-1A. This canal runs for a length of 21.14 Km covering an ICA of 16,040.0 Ha. Discharge at head of the canal works out to 9.143 cumecs. Total 3 Nos of Branches are proposed under Kajibilagi West Canal having total length of 54.40 Km. Kalbilagi East Canal is proposed on right side of DC-1A. This canal runs for a length of 10.17 Km covering an ICA of 1,414.0 Ha. Discharge at head of the canal

works out to 0.806 cumecs. No canals are proposed from DC-1. The water from DC-1 is directly led to DC-2 by Gravity pipe negotiating Don Valley.

Two main canals have been planned from DC-2 for irrigating the command area of Block-2. Kanmadi West Canal is proposed on left side of DC-2. This canal runs for a length of 33.68 Km covering an ICA of 13,982.0 Ha. Discharge at head of the canal works out to 7.97 cumecs. Total 5 Nos. of Branches are proposed under Kanmadi West Canal having total length of 62.18 Km. Tikota East Canal is proposed on right side of DC-2. This canal runs for a length of 25.52 Km covering an ICA of 21,264.0 Ha. Discharge at head of the canal works out to 12.121 cumecs. Total 5 Nos. of Branches are proposed under Tikota East Canal having total length of 68.11 Km.

Table - 11: Details of canal system

Sl. No.	Particulars	Length (Km)	ICA in Ha.
Main Canals			
1	Kajibilagi West Canal	21.13	16,040.00
2	Kalbilagi East Canal	10.17	1,414.00
3	Kanmadi West Canal	33.68	13,982.00
4	Tikota East Canal	25.52	21,264.00
	Total	**90.50**	**52,700.00**
Branch Canals			
5	Branch canals under Kajibilagi West Canal – 3 Nos	54.4	
6	Branch canals under Kanmadi West Canal – 5 Nos	62.18	
7	Branch canals under Tikota East Canal – 5 Nos	68.12	
	Total	**184.70**	
Distribution network (Distributaries, Minor and Laterals)			
8	Total length of distribution network for covering ICA of 52,700 Ha of ICA	530.0	
	Total length of Canal system	805.20	

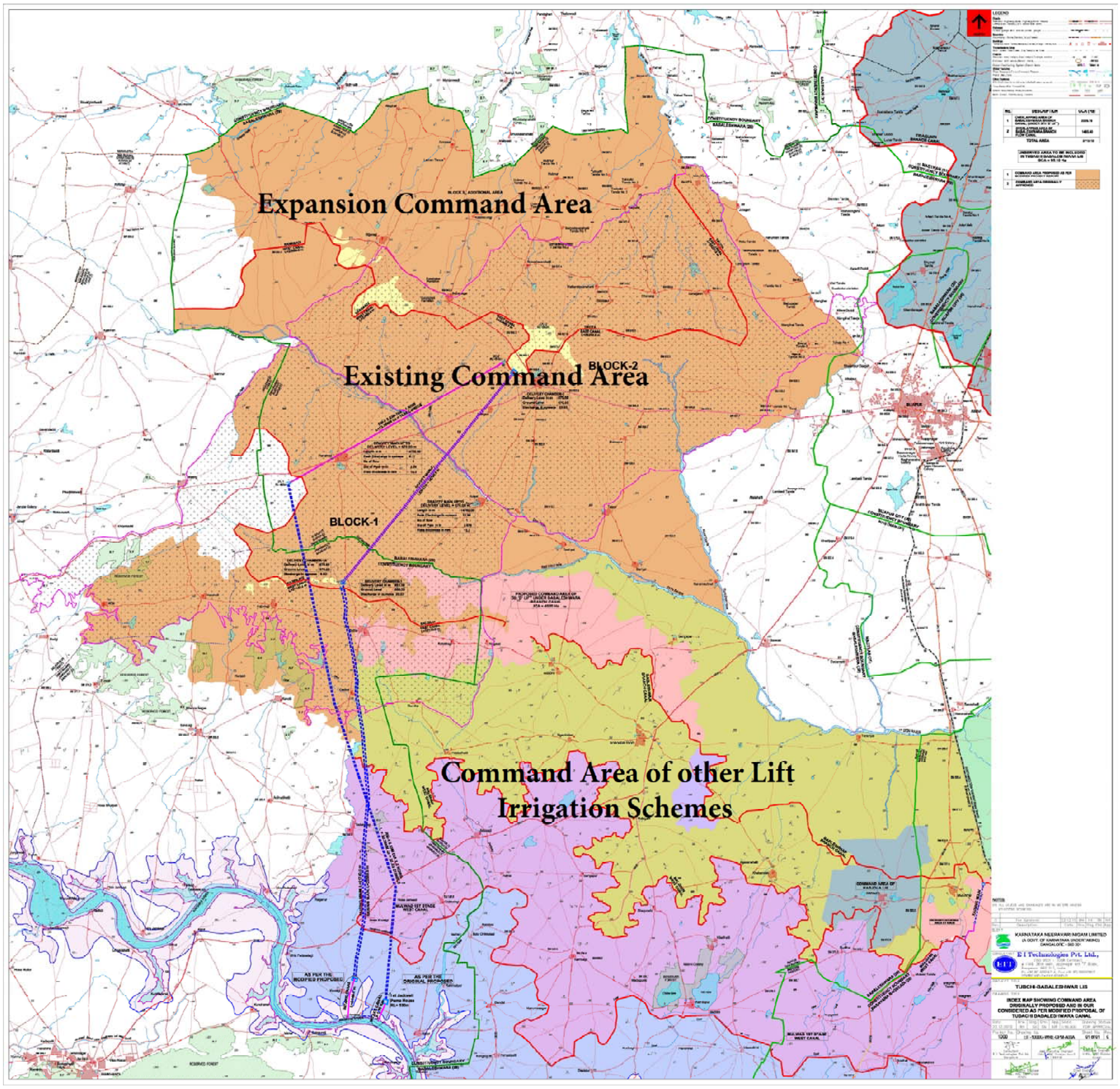


Fig.3.1 Command area map

The basic economic activity in the Stage III project area is agriculture. Uncertain rainfall and vagaries of Monsoon added with large number of marginal and poor farmers have resulted in low per capita income and poor standard of living. In the absence of other mineral resources, providing irrigation is the best strategy to provide employment opportunities to the local population, improving their per capita income and consequent improved standard of living. This will also result in optimal utilization of water and land resources of the region. Development of irrigation and increase in agricultural production will act as a catalyst for development of industries, especially of agriculture produce processing including food processing.

Table - 12: Existing cropping pattern

Sl. No.	Crops	Intensity	Area (ha)
Kharif			
1	Maize	11.50%	3636
2	Vegetables	20%	6324
3	Jawar	1.16%	367
4	Groundnut	30.98%	9796
5	Hybrid Jawar	22.91%	7244
6	Bajra	3.45%	1091
7	Pulses	10.00%	3162
Total		**100.00%**	**31620**

Table - 13: Proposed cropping pattern

Sl. No.	Crops	Intensity	Area (ha)
Kharif			
1	Hy. Maize	25	13175
2	Jowar	20	10540
3	Groundnut	15	7905
4	Sunflower	15	7905
5	Pulses	25	13175
Grand Total		100	52700

With the depth of water required for each crop in a known period, the discharge requirement and water utilization for all the crops in the period are obtained by converting the depth to volume of water consumed by multiplying the same by area under the particular crop, The total volume consumed for all the crops proposed in the period is obtained by summing up the same for all the crops. The peak discharge is determined separately by considering the peak water requirement and canals are designed accordingly.

Table - 14: Crop water requirement

Season	Crop	Crop Period	%	Area (Ha)	WR		WR	
					MCM	TMC	NIR in mm	GIR in mm
Khariff								
1	Hy. Maize	Jun- II -Oct II	25	13175	50.548	1.78	191.83	383.66
2	Jowar	Jun- II -Oct II	20	10540	38.16	1.35	181.02	362.05
3	Groundnut	Jun- II -Oct II	15	7905	25.407	0.9	160.7	321.4
4	Sunflower	Jun- II -Sep II	15	7905	23.47	0.83	148.45	296.9
5	Pulses	Jun- II -Sep I	25	13175	40.779	1.44	154.76	309.52
Grand Total			**100**	**52700**	**178.36**	**6.3**		

3.6. Raw material required along with estimated quantity, likely source, marketing area of final products, mode of transport of raw material and finished products.

Not applicable

3.7. Resource optimization/recycling and reuse envisaged in the project, if any, should be briefly outlined.

Resource Optimization / recycling and reuse is not envisaged in this project, however depending on the suitability of the soil, the excavated soil will be used for bund construction, laying of service roads as well as for green belt development. Construction site would be properly leveled. The leveling will be made mandatory for the contractor, involved in the construction.

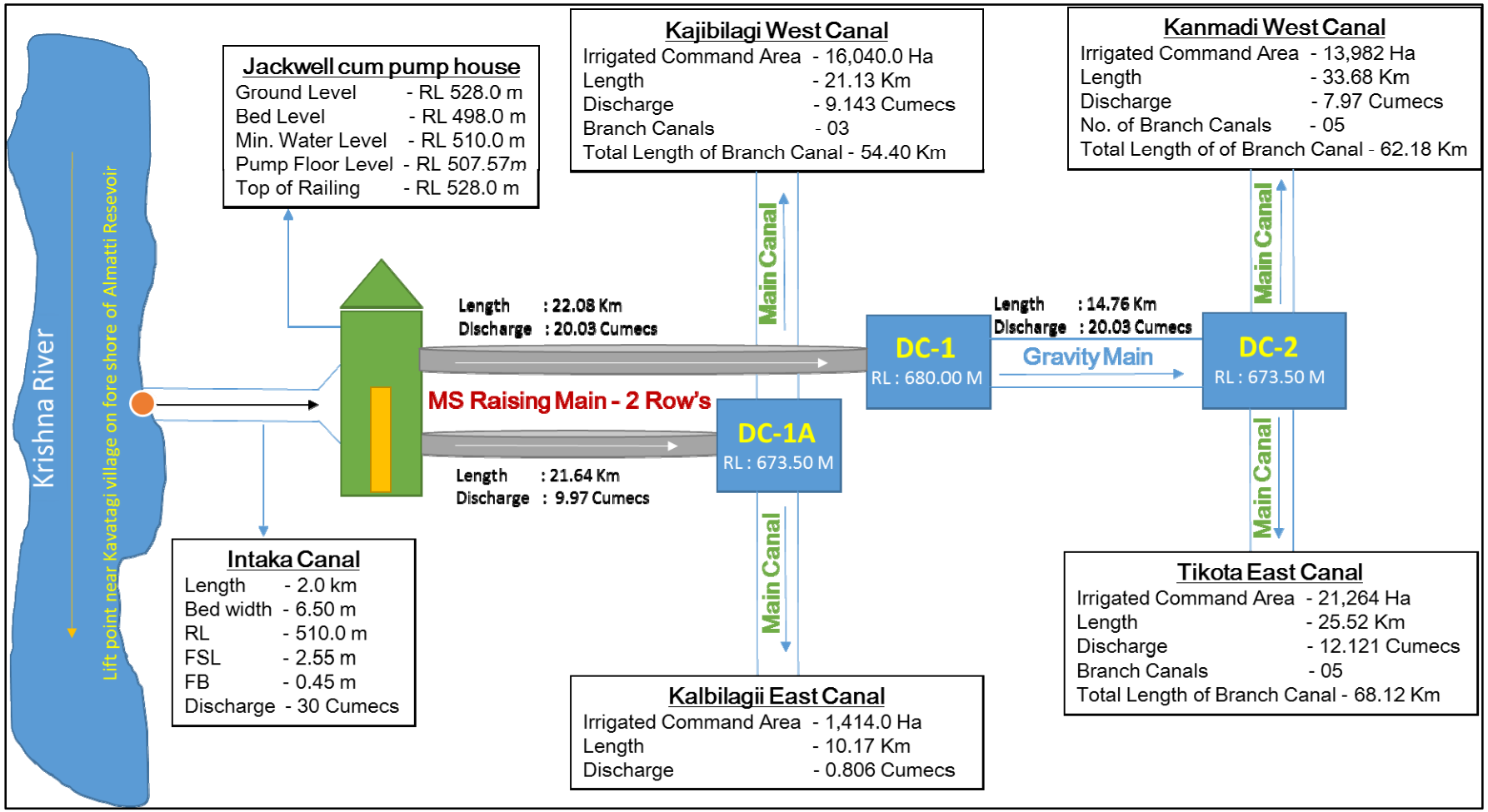


Fig.3.2 Schematic diagram

3.8. Availability of water, its source, Energy & source water requirement

It is proposed to lift 6.8 TMC from foreshore of Almatti reservoir near Kavatagi village to irrigate an area of 52,700 Ha.

3.8.1 Power Requirement

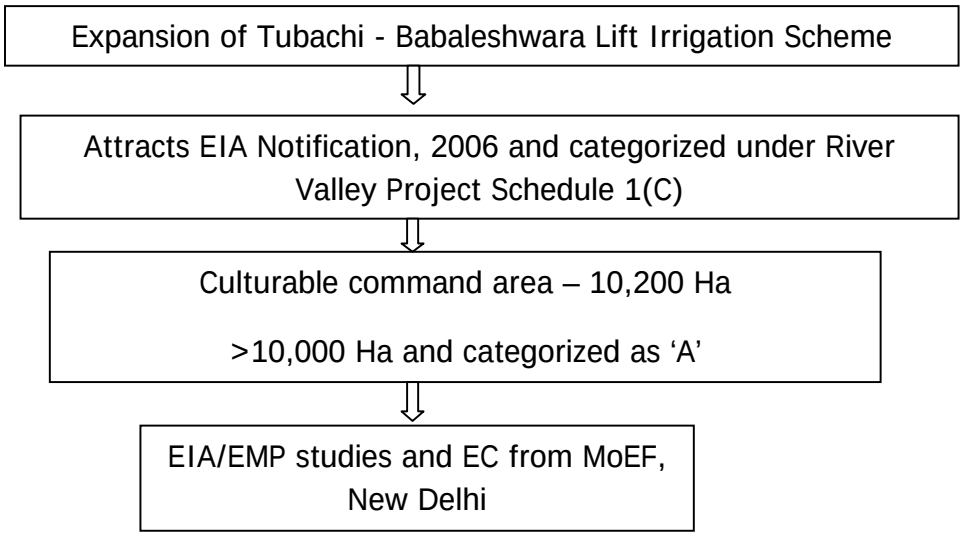
Total power requirement is 52 MVA during operation.

3.9. Quantity of wastes generated (liquid and solid) and scheme for their Management/disposal.

Sewage generated from the labour camps will be treated in septic tank and soak pits that will be designed and constructed as per IS 2470 Part-I and Part-II. Domestic solid wastes proposed to be generated from labour camps will be disposed to nearby Municipal authorities.

Total water consumption is 13.5 KLD for labor camps, wastewater generated is 80% of total water consumption i.e., 10.8 KLD. Total solid waste generated from 300 labors is 75 kg/D.

3.10. Schematic representations of the feasibility drawing which give information of EIA purpose



4. Site Analysis

4.1. Connectivity

The project site head works is approachable by state highway and is at a distance of 4.5km off Vijayapura - Belagavi SH-34. The lift point near Kavatagi village is at the distance of 13 km from Jamakhandi taluk headquarters along the state highway. Mulwad Railway Station is at 34 Km from the lift point. Nearest airport is Belagavi airport which is at 114 km from the lift point.

4.2. Land form, land use and land ownership.

The land use in the proposed project area is dry land agriculture, subject to vagaries of monsoon rain with low cropping intensity and low productivity. The major part of the population depends on agriculture with crops such as Jowar, Bajra, Wheat, Grams, and Sugarcane being cultivated in the region.

4.3. Topography (along with map)

Geographically, the district lies in the tract of the Deccan Plateau. Topography is relatively plain area with gentle to mild slopes.

4.4. Environmental Sensitivity

The proposed project do not requires forest land; there are no wildlife sanctuaries or national parks within 10 km radius.

4.5. Existing Infrastructure

Project head works is approachable State Highway 34

4.6. Soil Classification

Deep to very deep textured black soil occupy most of the Command area. These soil have poor internal drainage, crack when dry, sticky and plastic when wet. Red sandy loam soil is also found in the command area.

4.7. Climatic data from secondary sources

The proposed command area falls under Agro – Climatic zone III i.e., North Dry Zone. The catchment spreads in two agro climatic zones. The western and eastern part of the

catchment falls under hilly zone and Northern Transition zone respectively. The climate of the western part in general is characterized as humid and dry.

4.8. Social Infrastructure available

In the close proximity of the project site, educational, religious and transportation facilities are found. The habitants have a good transportation facility as these are accessible easily. There are few educational infrastructures like the Balchandr Jarakiholi Pre University College Kakamari, G H College, M G PU College Telsang and Govt. First Grade College which is nearest to project site. Overall it is clearly seen that the social infrastructure in and around the project site is of a good standard.

5. Planning

5.1. Planning concept (type of industries, facilities, transportation, etc.,) Town and Country Planning Development authority classification.

The project site head works is approachable by state highway and is at a distance of 4.5km off Vijayapura - Belagavi SH-34. There are 61 benefiting villages and the list is as follows:

Table - 15: List of benefiting villages

Sl. No.	Name of Village	Total Area	Gross Command Area (GCA)	Uncommand Area	Culturable Command Area (CCA)	Irrigable Command Area (ICA) (67% of CCA)
Taluk : Jamakandi , District : Bagalkot						
1	Kajibilagi	2457.16	2391.77	56.14	2362.77	1577.43
2	Kuragod	611.81	439.39	0	439.39	293.34
3	Kanoli	2029.15	737.59	0	737.59	492.42
4	Gadayal	1664.1	588.97	0	588.97	393.21
5	Gothe	4833.98	3454.49	32.24	3427.49	2288.25
6	Kalabilagi	1246.18	248.08	0	248.08	165.62
7	Nagaral	1088.08	101.96	0	101.96	68.07
8	Savalagi	4625.55	304.7	0	304.7	203.43
9	Tungal	5267.87	151.51	0	151.51	101.15
Total		**23823.88**	**8418.46**	**88.39**	**8362.46**	**5582.91**
Taluk : Athani , District : Belgaum						
1	Artal	1837.4	1126.27	0	1126.27	751.92
2	Halahalli	1892.71	1892.71	0	1892.71	1263.6
3	Telsang	8470.61	1434.37	0	1434.37	957.61
Total		**12200.72**	**4453.35**	**0**	**4453.35**	**2973.13**
Taluk : Vijayapura , District : Vijayapura						
1	Tajpur	4578.74	4578.74	0	4578.74	3056.84
1.1	Harnal					
2	Gonasagi	858.21	858.21	0	858.21	572.95
2.1	Lamari Tanda					
3	Tikota	8005.2	8005.2	442.97	7982.2	5329.04
3.1	Rampur					
3.2	Ratnapur					
4	Torvi	8897.1	3644.42	0	3644.42	2433.07
4.1	Kesral Tanda no.1					
4.2	Kesral Tanda no.2					

4.3	Kesral Tanda no.3					
5	Mettupujari Tanda	2513	1509.78	0	1509.78	1007.96
5.1	Ittanghihla					
5.2	Ittanghihla Tanda					
5.3	Mettupujari Tanda no 2					
5.4	Kesral Tanda no.4					
6	Malkandevanahatti	5253.26	5253.26	12.43	5224.26	3487.8
6.1	Siddapur					
6.2	Somadevarahatti					
6.3	Somadevarahatti Tanda no 1					
6.4	Somadevarahatti Tanda no 2					
7	Lonagaon	1702.91	1702.91	0	1702.91	1136.89
7.1	Dhanargi					
8	Hubnur	1996.13	1996.13	0	1996.13	1332.64
8.1	Hubnur Tanda					
8.2	Hubnur Tanda no 1					
8.3	Hubnur Tanda no 2					
9	Tajalakki	1345.38	1345.38	0	1345.38	898.19
9.1	Tajalakki Tanda no 2					
9.2	Tajalakki Tanda no 3					
10	Valu Tanda	4284.76	1694.52	0	1694.52	1131.29
10.1	Dhoklevasti					
10.2	Nattu Tanda					
10.3	Padumunayakan Tanda					
10.4	Hanuman Tanda					
11	Honawad	7958.01	7125.3	0	7125.3	4756.97
12	Kotyal	2727.71	2666.03	0	2666.03	1779.88
13	Dashyal	717.66	643.63	0	643.63	429.7
14	Danyal	1379.24	1315.99	0	1315.99	878.57
15	Kanamuchnal	848.98	772.24	0	772.24	515.56
16	Kanamadi	9676.48	7273.49	7.47	7255.49	4843.88

17	Shajnapura Dargha	8779.21	130.42	0	130.42	87.07
19	Alaginal	810.04	810.04	0	810.04	540.79
21	Lonagaon Tanda	1289.13	1289.13	0	1289.13	860.65
22	Babanagar	4964.85	4964.85	122.74	4952.85	3306.6
23	Bijjargi	5799.04	5799.04	370.92	5777.04	3856.84
24	Kallakavatagi	1330.31	1330.31	0	1330.31	888.14
25	Tajalakki Tanda	711.66	711.66	0	711.66	475.11
28	Yatnal	1988.42	805.13	0	805.13	537.52
Total		**88415.42**	**66225.79**	**956.54**	**66121.79**	**44143.96**
Grand Total		**124440**	**79097.6**	**1044.9**	**78937.6**	**52700**

5.2. Population Projection.

Influx of people will be only during construction phase, only few people will be employed for operation and maintenance of the project.

5.3. Land use planning (breakup along with green belt etc.)

No changes are intended in land use and about +10,200 Ha of agricultural land will come under this scheme.

5.4. Assessment of Infrastructure Demand (Physical & Social).

The project is proposed to be increased from 42,500 ha to 52,700 Ha (+10,200 ha) with an additional water allocation of 2.473 TMC of water (totaling to 6.273 TMC) to benefit 61 (+25 villages) in Bagalkot, Belagavi and Vijayapura Districts which in turn improves the cropping pattern and crop yield.

5.5. Amenities/facilities

Proper site services such as First Aid, Canteen / Rest Shelter, Drinking Water will be provided to the construction workers.

6. Proposed Infrastructure

6.1. Industrial Area (Processing area)

Not applicable

6.2. Residential Area (non processing area)

Not applicable

6.3. Green Belt

52,700 Ha of agricultural land will come under this scheme.

6.4. Social Infrastructure

There are few educational infrastructures like the Balchandra Jarakiholi Pre University College Kakamari, G H College, M G PU College Telsang and Govt. First Grade College, Hipparagi which is nearest to project site. Overall it is clearly seen that the social infrastructure in and around the project site is of a good standard.

6.5. Connectivity Traffic and Transportation Road/Rail/Metro/Water ways etc.,

The command area has many local roads and 3 state highways SH34, SH43 and SH12 connects the command area to other parts of the state.

6.6. Sewerage System

Sewage generated from the labour camps is proposed to be treated in Septic Tank and Soak Pits designed and constructed as per IS 2470 Part-I & Part-II.

6.7. Industrial waste management

Not Applicable

6.8. Solid waste management

Domestic solid waste will be handover to municipal authorities.

6.9. Power requirement & Supply/Source

HP Proposed at Jack well for lifting water from Jack well to MDC is 93,540 HP

Total power requirement is 52 MVA for the entire project.

7. Rehabilitation and Resettlement (R&R) Plan

7.1. Policy to be adopted (Central/State) in respect of the project affected persons including home ouster, land ouster, and landless labourers (a brief outline to be given).

The proposed project does not involve displacement of the families/houses for the project activities. The total land required for the project is 2419 Ha and the same shall be acquired as per Right to Fair Compensation and Transparency in Land Acquisition Rehabilitation and Resettlement Act (RTFC&LARR Act), 2013.

8. Project Schedule & Cost Estimation

8.1. Project Schedule

The total developmental period of the entire proposed project will be about 2 years.

8.2. Cost Estimates

The total cost estimated for the proposed project is Rs. 3572.00 Crores.

9. Analysis of proposal (Final recommendation)

9.1. Financial and social benefits with special emphasis on the benefit to the local people including tribal population, if any, in the area

A. Value of Input – Output (Before Irrigation)

Crop	Area Percentage	Area Ha	Produce (Qtls/Ha)	Rate per Qtl. (Rs)	Value of produce (Rs lakhs)	Seed Rate Input/Ha (Rs)	Seed Rate (Rs Lakhs)	Manure Rate Input/Ha (Rs)	Manure Rate (Rs Lakhs)	Hire Labour (Rs. Per Ha)	Labour & bullock Rate (Rs. Lakhs)
1	2	3	4	5	6	7	8	9	10	11	12
Maize	11.5%	3636	20.00	1450.00	1054.53	2250.00	81.82	9000.00	327.27	3000.00	109.09
Vegetables	20.0%	6324	12.00	4000.00	3035.52	1500.00	94.86	4000.00	252.96	5000.00	316.20
Jawar	1.2%	367	10.00	3900.00	143.05	300.00	1.10	3000.00	11.00	2000.00	7.34
Groundnut	31.0%	9796	15.00	5300.00	7787.72	7150.00	700.41	5000.00	489.79	3000.00	293.88
Hybrid Jawar	22.9%	7244	13.00	2700.00	2542.69	300.00	21.73	4000.00	289.77	3000.00	217.32
Bajra	3.5%	1091	10.00	1400.00	152.72	375.00	4.09	4000.00	43.64	2000.00	21.82
Pulses	10.0%	3162	12.00	5000.00	1897.20	2000.00	63.24	12000.00	379.44	6000.00	189.72
TOTAL	100%	31620.00	92.00	23750.00	16613.44	13875.00	967.25	41000.00	1793.87	24000.00	1155.36

B. Value of Input – Output (After Irrigation)

Crop	Area Percentage	Area Ha	Produce (Qtls/Ha)	Rate per Qtl. (Rs)	Value of produce (Rs lakhs)	Seed Rate Input/Ha (Rs)	Seed Rate (Rs Lakhs)	Manure Rate Input/Ha (Rs)	Manure Rate (Rs Lakhs)	Hire Labour (Rs. Per Ha)	Labour & bullock Rate (Rs. Lakhs)
1	2	3	4	5	6	7	8	9	10		11
Maize	25.00%	13175.00	60.00	1450.00	11462.25	2250.00	296.44	9000.00	1185.75	3000.00	395.25
Jawar	20.00%	10540.00	40.00	3900.00	16442.40	300.00	31.62	3000.00	316.20	2000.00	210.80
Groundnut	15.00%	7905.00	50.00	5300.00	20948.25	7150.00	565.21	5000.00	395.25	3000.00	237.15
Sunflower	15.00%	7905.00	60.00	3800.00	18023.40	5000.00	395.25	4000.00	316.20	3000.00	237.15
Pulses	25.00%	13175.00	35.00	5000.00	23056.25	2000.00	263.50	12000.00	1581.00	6000.00	790.50
TOTAL	100.00%	52700.00	245.00	19450.00	89932.55	16700.00	1552.02	33000.00	3794.40	17000.00	1870.85

C. Benefit – Cost Ratio

Figures are in Rs lakhs

A	Gross Receipts	Before Irrigation	After Irrigation
1	Gross value of farm produce	16,613.44	89,932.55
2	Dung receipts(at 30%of the fodder expenditure)	747.60	2,697.98
3	Total A : Gross Receipts(1+2)	**17,361.04**	**92,630.53**
B	**EXPENSES:**		
1	Expenditure on seeds	967.25	1,552.02
2	Expenditure on manure etc.	1,793.87	3,794.40
3	Expenditure on hired labour(human and bullock)	1,155.36	1,870.85
4	Fodder expenses(as percentage of gross value of produce)		
	(15%, 10% of item A.1)	2,492.02	8,993.26
5	Depriciation on implements (2.7% of Item A.1)	448.56	2,428.18
6	Share and cash rent (5% 3% of Item A.1)	830.67	2,697.98
7	Land Revenue (2% of Item A.1)	332.27	1,798.65
8	Total B : Expenses (1 to 7)	**8,019.99**	**23,135.33**
C	**NET VALUE OF PRODUCE**		
1	Total gross receipts(Total A.3)	17,361.04	92,630.53
2	Minus total expenses (Total B.8)	8,019.99	23,135.33
3	Net value of produc © : [1-2]	**9,341.05**	**69,495.20**
D	**ANNUAL BENEFITS:**		
1	Net value after irrigation (C:3)		69,495.20
2	Minus Net value before irrigation (C:3)		9,341.05
3	Net annual benefits (D):[1-2]		**60,154.15**
E	**ANNUAL COSTS**		
1	Interest of capital at 10% (estimated total cost of the projectx 10% (Including cost of land development @ Rs.1000/- per Ha)		**35,772.70**
2	Depreciation of the project at 1 % of the cost of the project for 100 years life of the project and at 2 % for 50 years life of the project.		5,244.17
3	Annual operation and maintenance charge at Rs 1200 per Ha of CCA		632.40
4	Maintainance of the Head works at 1% its cost		353.82
5	Depreciation of the pumping system @ 8.33 % of cost		2,115.35
6	Depreciation of the rising mains @ 3.33 % of cost		2,317.58
7	Power charges for Lift Irrigation at (Applicable for Lift Irrigation)		155.00
8	Total (E):Annual costs (1 to 7)		**46,591.02**
	BENEFITS COST RATIO = **D.3: Annual Benefits / E.8: Annual costs** = **60154.15 / 46591.02** = **1.29**		