Annexure-B

PROJECT SUMMARY

Sl No.	Description
1	**Project identification**
1.1	*Title of the project/scheme:-* **Maharashtra Climate & Floods, Draught & Resilience Improvement project**
1.2	*Name of the executing agency (Ministry/ Department/ Autonomous Body/ Central PSE)* - **Water resources department Government of Maharashtra.**
1.3	*Proposed duration of the project* – **Three Years (after approval)**
1.4	*Total cost of the project over the proposed duration*– Rs. **3200.00 Crore**
2	**Project Status**
2.1	*Please indicate which category the project belongs to:* (a) *New scheme*- Project is categorized under New Scheme (b) *ERM* - N.A.
2.2	*If project pertains to category 2.1 (b), please summaries the benefits already accrued and expenditure already incurred along with an independent evaluation of the past performance of the project scheme-* Not Applicable
3	**Justification for the project**
3.1	*The justification for taking up/ continuing the project or scheme may be provided –* Floods have been recurrent Phenomenon which bring devastation to settlement, Misery to human lives & Losses to infrastructures & public utility, such recurrent Phenomenon occurred during 2005, 2019 & 2021 in Krishna basin in Maharashtra. Due to such flood events Sangli & Kolhapur districts of Maharashtra suffered heavily disturbing livelihood of human & animal. During the month of July& August 2019, 2021 Sangli & Kolhapur district in Krishna sub-basin experienced extreme floods for long durations. Heavy losses to life, property & crops etc. have been reported. Different opinions at various levels were put forth concerning these flood events. Sangli & Kolhapur districts faced heavy flood situation in past also & floods of 2005 & 2006 were note worthy.

Sl No.	Description
	However, 2019 flood event was comparatively much more severe which lasted more than a week & losses experienced were also on higher scale. The expert study committee had been formed to find out the reasons behind the flood situations to find in Bhima & Krishna valley in the year 2019. Committee studied different aspects of this flood events on minute levels & submitted their detailed study report. The key observation of reports are as follows:- 1. Due to climate change vulnerability of water resources sector in Maharashtra causing uneven distribution, intensity concentration & duration of rainfall in Krishna basin 2. It is observed that the flood affected districts of Satara, Sangli & Kolhapur continuously received excess to large excess rainfall in dam catchment & free catchment. Average annual rainfall was about 6 times the normal rain fall in all dam catchment and also within free catchment D/s of dams bringing abnormal flood situation to downstream areas. 3. By study of topographical features of Krishna sub- basin including its tributaries of Maharashtra it was found that the river Krishna has flatter bed slopes & many meanders. This typical topographical setup plays major role in slowing down the flood & dissipation beyond Sangli city. It was found that, in this reach of river, while there is drastic reduction in the velocities of the flow, the back water effects of various confluences of its own tributaries further aggravate the problem. 4. Bhogawati, Kumbhi, Dhamni, Kasari, Tulshi are the main rivers that drain into Panchaganga. Panchaganga comprises of these five rivers. These rivers originate in Sahyadri ranges having very high intensity rainfall about 5000 mm – 7000 mm average annual rainfall. Also in the free catchment downstream of the dams constructed on these rivers there is an annual rainfall 4375 to 1000 mm average. The water from free catchment drains through these rivers at high velocity due to steep river bed slope. At the confluence Prayag Chikhali, from where Panchaganga starts, the river bed slope is about 1: 8000 which causes the reduction in flood water velocity.

Sl No.	Description
	Panchaganga eventually meets at the Nrusinhwadi to Krishna river in perpendicular direction. The slope of river Panchaganga is very gentle. which causes meanders. When, at the confluence of Panchaganga river and Krishna river, there is flood situation in Krishna river and river carries huge flood water, the flood water flows from Panchaganga river doesn't pass to Krishna river as flow in the Krishna river opposes the flow of flood from Panchaganga which meets at confluence perpendicularly which eventually cause the flood water occumulating in the river Panchaganga. This causes to slow down the velocity of Panchaganga floods and eventually flood discharge cannot pass. This process builts up the flood levels from Shirol upto Chikhali in Panchaganga river and also its tributories Bhogawati, Kumbhi, Kasari, Tulshi. 5. Due to large encroachment in flood plains & reduction in flood discharge capacity due to many structures built across river, effects increasing the flood levels & stagnation of water for prolonged period. 6. Poor land drainage system within city areas & it's poor maintenance leads to stagnation of floods in every part of the city. 7. Due to sudden change in river bed slope & stagnation of floods for prolonged periods causing sedimentation in river courses which results in rising in the river bed levels thereby raising the flood levels & extending inundation areas. 8. Lack of flood absorption capacities in reservoir planning of existing dam resulting in unable for flood mitigation. 9. Increase in mean temperature from 1.2 to 1.6 Degree Centigrade in 2030s. Also rainfall is also projected to increase during the same period with more rainfall projected as we progress from 2030 to 2050 to 2070. But it will be highly variable spatially. All these reasons collectively results into frequent Occurrences of flood & increase in its vulnerability. To tackle such devastating flood events detail project for flood mitigation & resilience is necessary to carry out on larger scale.

Sl No.	Description
	Thus detailed "Maharashtra Climate & Floods, Draught & Resilience Improvement project" proposed for flood management & disaster mitigation, which induces long term sustainable solution for flood situation in Krishna basin.
3.2	*The alternatives that have been considered before firming up the design of the project may be stated. (This should also include alternate modes of project delivery, e.g. internal funding /sourcing from own resources etc. that have been considered).* - Not Applicable
3.3	*Please state whether the project proposal has objectives and coverage which overlap with projects/ schemes being implemented by the same or another agency (Ministry/ Department/ State government). In cases of overlap, please state why the project scheme needs to be considered as a separate stand alone effort*. - As this project proposed under new scheme there is no overlap of objective or coverage of other project.
4	**Project Objectives and Targets**
4.1	*The objectives of the project may be mentioned. These objectives should flow from the project justification*. - The overarching objectives of the project are to : 1.Strengthen the institutional capacities for adaptive planning and mainstreaming flood and multi-hazard mitigation and management, to reduce the impacts of Climate change (CC) & build resilience to futures disasters. 2.Establish knowledge base & systems for informed decision-making based on scientific evidence for planning and investments for management of drought and flood management in Krishna and Bhima river basins. Phase – 1 • Institutional reforms & strengthening MSDMA • Disaster Risk Assessments & other studies • Preparation of DPRs with CCP of long-term investments for improved WRM • flood & drought management • Critical investments for flood management in hotspots of Krishna and Bhima basins

<table>
<tr><th>Sl No.</th><th>Description</th></tr>
<tr><td></td><td>

Capacity building of human resources, Equipment, software & system for operationalizing flood forecasting
EWS, DSS platform to strengthen planning & mitigation
Emergency Operation Centers, State level control room, & related systems.

Phase – 2

Implementation of long-term investments for flood mitigation
Updation of DRR system.

</td></tr>
<tr><td>4.2</td><td>The expected date of project / scheme completion may be stated. This should be realistic and supported with a chart indicating timelines for the important activities, with a critical path analysis, identifying the main constraints. -
These elements are identified now and the approximate calendar will be as under.
<table>
<tr><th colspan="3">Calendar</th></tr>
<tr><th>Activity</th><th>Period involved</th><th>Cumulative</th></tr>
<tr><td>Surveying, investigations & Model Study</td><td>6 months</td><td>6 months</td></tr>
<tr><td>Confirmation of the logical conclusion, designs drawings and DPR.</td><td>6 Months</td><td>12 months</td></tr>
<tr><td>Floating tenders and appointing agencies</td><td>3 months.</td><td>15 months</td></tr>
<tr><td>Actual execution of works and completion.</td><td>21 months.</td><td>36 months</td></tr>
</table>
</td></tr>
<tr><td>4.3</td><td>The specific targets proposed to be achieved of the project/ scheme may be mentioned. These targets should be necessary measurable. These should also be monitor-able, against baseline data. The baseline may be indicated. –

Installation of real time data acquisition system (RTDAS) for flood forecasting in Krishna basin so that early intimation of flood will reduce casualty risk & physical damages. So that forecasting of flood in Sangli & Kolhapur will be possible & preparedness for flood situation is possible in time. To strengthen the capacity of IMD (Indian Met. Dept.)
Integrated reservoir operation throughout Krishna basin.

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Sl No.	Description
	3. Regulation of natural nallahs, tributaries within urban areas for proper drainage of storm water. To clean and clear the natural rivers, tributaries, streams and to restore, protect & channelize them to have free drainage of floods. To carry out de-silting and straightening of meanders wherever necessary, after ascertaining it with model studies. To clean & clear the city drainage system. 4. To restore the local tanks & lakes and to connect them to natural streams for proper drainage of floods. 5. Widening / sectioning, removing silt of river & main tributaries to improve flows carrying capacity of river & reduce flood water stagnation period, study of river confluences and model studies. To study the hydraulics of floods particularly at river confluence and to suggest design and execute the corrective measures using model analysis study. 6. Hydraulic study of major bridges, causeways hydraulic structures to study the obstacles in natural Flow of river. So that such obstacles can be removed to continue free flow of river. To check the designs & impact of existing bridges, barrages in rivers & to take corrective measures or repairs in the structure wherever required. To modify the structures to minimize the obstruction in river flow. 7. To restore discharge carrying capacity of river by raising the banks of river (reducing inundation areas) & by removing meandering of river & straitening it. 8. Inter basin diversion / Transfer of flood water to reduce flood effect in tributaries having excess precipitation. 9. Revising existing flood lines with respect to recent occurred flood events to prevent encroachment in flood Plains & to control illegal construction. 10. Appointing experts to handle flood situation properly. 11. Installation of advance flood monitoring instrument & preparing maps of affecting areas.

Sl No.	Description
5	**Project design**
5.1	*Briefly explain the project Design. This should include all components of the project. The topic is discussed component wise-* To find out the causes of flood situation in Bhima and Krishna valleys in 2005, 2019 and 2021 and to prepare future solutions and planning. This committee has submitted detailed remedial report for flood mitigation. Thus this project is designed and proposed on recommendations of appointed study committee. The following is a proposal of possible cost for preparation of concept, estimates and maps for preparation of project report of flood relief works. **Remedial plan for flood situation in Krishna sub basin of Sangli & Kolhapur District.** **(I) Sangli District :** **A) Survey & Model Studies :** The project needs a detailed survey report and model studies to arrive on a technically suitable solution and design. The probable cost of this component is expected to be 5.00 crores. **B) Flood control works :** Total cost of Rs. 875.00 Crores is expected for implementation of project in Sangli District as follows. **1) Deepening the river by removing silt from the river bed :-** Floods of 2005, 2006, 2019 and 2021 caused large-scale collapse of river banks; degraded soil, silt deposited in riverbeds which was carried with flood water. Therefore, the river level has increased by about 2 to 3 meters. Therefore, the carrying capacity of the river has decreased. It is necessary to remove the silt from the river and deepen the river bed. It is also necessary to dump the accumulated silt 10 km away from the river. Between Tembhu (Karad) and K.T.Weir Rajapur (Kolhapur) the length of the Krishna River is about 150 km with an estimated silt volume of 510 lakh cubic meters. Probable cost of this component is Rs. 150.00 crores.

Sl No.	Description
	2) Removal of K. T. Weir Sangli and Construction of Barrage at Mhaishal on Krishna River :- For Sangli city being down stream of Irwin Bridge; Water is being supplied through K.T.Weir Sangli. Therefore, if the existing K.T. Weir Sangli is dismantled, the obstruction in the river flow will be removed. Water is supplied to the drought-prone areas of Miraj, Jat, Kavthe Mahankal taluka through Lift Irrigation Scheme at Mhaisal Barrage by releasing water from Warna Dam. The storage capacity and height of the Mhaishal K.T. weir project is limited. Since there is unavailability of high capacity of K.T. Weir on downstream of Mhaishal K T weir, if the pumps of Mhaishal LIS stops working due to some technical reasons all water flows toward Karnataka because of low capacity of K. T. weir Mhaishal. Hence to control water from river this new work of Barrage is proposed. Due to the proposed barrage, K. T. Weir Sangli and K. T. Weir Mhaishal will be removed. Hence removal of obstruction in river will help in controlling flood more effectively. Mhaishal Barrage has 16 gates of size 12.00 x 7.80 M. 5 gates of size 12.00 x 7.00 M. and 2 gates of size 04.75 x 7.00 M. and design discharge is 9327.00 cum/sec. capacity of barrage is 1004.96 Mcft. Probable cost of this component is Rs. 199.20 crores. **3) Permanent resettlement of flood affected families between Tembhu (Karad) to K.T.Weir Rajapur (Kolhapur) :-** From Tembhu Barrage (Karad), to Sangli city on banks of Krishna river within flood zone. There are a total of 2500 such families in flood zone area. This information regarding the number of families migrating has been made available from Sangli, Miraj, Kupwad Municipal Corporation, Kolhapur Municipal Corporation and Karad Municipality. Probable cost of this component is Rs. 200.00 crores. **4) Land acquisition required for Re-sectioning :-** Re-sectioning is proposed within 150 km stretch of the river. Approximately 500 hectares of land has to be acquired on both banks. Probable cost of this component is Rs. 70.00 crores.

Sl No.	Description
	5) Re-sectioning of River banks & its strengthening :- Due to the floods of 2005, 2006, 2019 and 2021, a large portion of river banks have collapsed in the river. A large portion of cultivable land of the farmers on the banks of the river has been eroded, washed away. These existing river banks need protection and strengthening. This will increase water carrying capacity of the river. It is necessary to provide measures like planting grass (Turfing) on the slope, gabbion type stone pitching in certain areas.This will stop further erosion and damages of the river banks between Tembhu Barrage (Karad) to K. T. Weir at Rajapur on Krishna river. Probable cost of this component is Rs. 250.00 crores. **6) Obtaining the approval of Environment Department -** Removal of silt from the river bed, sectioning of the bank and taking measures to stop the pollution of the river bank. To carry out the works of, it is necessary to take the environmental approval of the Central Government. Probable cost of this component is Rs. 5.80 crores. **(II)Kolhapur District :** **A) Survey & Model Studies :** The project needs a detailed survey report and model studies to arrive on a technically suitable solution and design. The probable cost of this component is expected to be 5.00 crores. **B) Flood control measures :** Total cost of Rs. 795.00 Crores is expected for implementation of project in Kolhapur District as follows. **1. Remodelling of spillway gates of Radhanagari dam :-** This old dam is having fully automatic gates. Hence it couldn't play role in ROS for flood regulation, it absorbs initial heavy flood to the extent of its FRL capacity of 236 Mm^3 (8.36 TMC). It has 109 Sq Km catchment area. Spillway capacity of 7 Automatic gates is 283 cumecs (10000 cusecs). In addition, through 3 old service gates, around 678 cumecs (24,000 cusecs) maximum discharge can be passed. But

Sl No.	Description
	these 3 service gates need repairs. Powerhouse release is 40 cumecs (1400 cusecs). It is proposed to remodel the spillway of Radhanagari dam for this work. Automatic gates are proposed to be replaced by 4 radial gates. Also 3 service gates are to be repaired for their operation in floods. Probable cost of this component is Rs. 85.00 crores. **2. Bringing the cross section of the river in a good condition, removing the bottom silt from the river bed and giving proper slope to the stream :-** During flood of 2005, 2006, 2019 & 2021 there is major damage occurred to the Panchaganga river banks. It is considered to remove debris and resectioning of the river near Kolhapur city. Altering the confluences- The confluence will be designed to make it maximum tangential duly studying the situation prevailing, local obstacles etc. the section will be designed suiting the worst combination of floods possible in the tributary Panchaganga and Krishna. Confluence of Panchaganga & Krishna is at Nrusihwadi, Confluence of Bhogawati and Kasari is at Prayag Chikhali which is origin of Panchaganga river. Confluence of Kumbhi, Bhogawati at Bahireshwar and Confluence of Tulshi & Bhogawati at Beedshed. The topographic situation may attract a river guiding structure, such structure if required will be designed duly studying the geology for foundation availability, hydrology and other factors such as availability of material etc. Probable cost of this component is Rs. 80.00 crores. **3. Rajaram Bandhara and Surve Bandhara near Kolhapur city :-** There are 9 K.T.weir's constructed along the 81 Km length of Panchaganga river. They are at Shinganapur (KMC, Kolhapur), Rajaram, Surve, Rukadi, Rui, Ichalkaranji (KMC), Terwad, Shirol and Kurundwad. In floods these barrages/K.T.Weirs become obstacles for the flow of water in the river. Hence it is proposed to construct balloon type Bandhara at Rajaram Bandhara and Surve Bandhara. Probable cost of this component is Rs. 200.00 crores.

Sl No.	Description
	4. Bhogavati Dudhganga Tunnel :- Discharging capacity of automatic spillway gates of Radhanagari dam is 10000 cusecs. This discharge passes through Bhogavati – Panchaganga river. Which is the major part of flood. Study regarding diversion of this discharge from Bhogavati river to Dudhganga river is carried out. This study is carried out on the basis of Google earth data. It is observed that if 4 Km length of tunnel is prepared along with 2.3 Km of tail channel this diversion tunnel is possible. It is proposed that on the downstream of Radhanagari dam near village Karanjfen, Tal. Radhanagari. Reduced Level of Bhogavati river is 557.00 m. and on Dudhganga near village Nartawade, Tal. Radhanagari, it is 547.00 m. which shows that there is 10 m. drop in 6.3 Km. length. It is observed that 15 m. diameter tunnel can divert 10000 cusecs of water from Bhogavati to Dudhganga river during flood situation. It will reduce flood water level in Kolhapur and adjoining area. Probable cost of this component is Rs. 260.00 crores. This water transfer is within K-1 Sub basin and do not violet any orders/award of KWDT-I & II. **5. Removal of obstructions to flow in the river channel :-** It is observed that there are too many obstructions for the flow in Panchganga river reach. There are many bridges constructed across the river. And approach roads for these bridges are prepared by earthwork. Because of this there are bottlenecks. which reduce carrying capacity as well as velocity of flood discharge. These design of bridges are to be checked hydraulically and modified as necessary. Probable cost of this component is Rs. 115.00 crores. **6. Land acquisition: -** For the above measures there will be need of land acquisition. Such land acquisition will be decided after model study and detailed design. Probable cost of this component is Rs. 50.00 crores. **7. Obtain environmental approval: -** As this project is regarding river flood mitigation, while taking into consideration the aspects of the river it is required to take permissions for removing debris and resectioning of river from Department of Envoirnment. Probable cost of this component is Rs. 5.00 crores.

Sl No.	Description
5.2	*In case the project or scheme is location specific, please state the basis for selection of such location*:- The project is proposed in Krishna sub basin as frequent flood events occurred in recent years. The main affected area is rural & urban area like Sangli, Kolhapur, Ichalkaranji, Miraj, Shirol. So project is framed specifically for this area.
5.3	*Whether any inter-state/inter-national aspects of water sharing / treaties /agreement / tribunal awards are involved ? If yes, details thereof project wise may be furnished. –* This flood prone area is within K-1 sub basin of Krishna river basin. Project invisages for flood mitigation, without transfer of water to another sub basin. Moreover this flood mitigation project does not involve any new water utilization. Project do not propose any irrigation/drinking water supply scheme. Hence this project neither attracts provision of KWDT-1 & II award nor it violate any order of tribunal.
5.4	*If the project involves creation/ modification of structural and engineering assets or change in land use plans, land acquisition, the same should be assessed. A self-certification in this regard may be enclosed*.- 1. There is need of land acquisition of Bhogavati Dudhganga tunnel. Provision for the land acquisition is made in the cost estimate. There is need of land acquisition for river confluence/ meander/ embankments/ re-sectioning for Krishna and Panchaganga rivers. 2. The component of River Training works will involve land acquisition to some extent. After approval of this project land acquisition procedure will be initiated as per law. The necessary certificates will be issued after assessment on fields.
5.5	*In case of beneficiary oriented project/ scheme, the mechanism for identification of the beneficiary and the linkage of beneficiary identification –* Not applicable.
5.6	*Wherever possible, the mode of delivery should involve the Water User Association (WUA) / farmers body. If exceptions are to be made, the reasons may be explained-* Not applicable.

Sl No.	Description
5.7	*In case the project involves land acquisition or environmental clearances, the specific requirements and the status in this regard may be indicated*.- The component of River Training will involve land acquisition, and environmental clearances to some extent as it falls under bio diversity zone. Proposal has already submitted to National Board of Wild Life in 2016. It's in process of compliance of remarks of NBWL New Delhi.
5.8	*The legacy arrangements after the scheduled project duration may be mentioned. In case the project creates assets, arrangements for their maintenance and upkeep may be stated. (For example the project assets may be taken over and maintained by the State Government/ PRIs;WUA).*- Project will be executed through Maharashtra Krishna Valley Development Corporation & assets / arrangement will be maintained by Corporation under State WRD.
5.9	*Whether the guidelines of Bureau of Energy Efficiency and other related guidelines for energy efficient operations etc. have been considered / complied with*. - Not Applicable.
5.10	*Whether the project is secured against natural/ man-made disasters like floods, cyclones, earthquakes, tsunamis etc*.- The Project itself is intended to forecast, monitor the floods and flood mitigation measures. Assets / arrangements created from this project will be insured against natural / man made disaster / act of God by following due process.
6	**Project/Scheme cost**
6.1	Please provide the project cost estimate for its scheduled duration along with a break-up of year-wise, component-wise expenses segregated into non-recurring and recurring expenses. It may also be indicated whether land is needed, if so whether which agency is providing for it, and in case the cost of land is to be booked to the project, whether it has been included in the estimates. –

Sl No.	Description

A) Component wise breakup of project cost

Maharashtra Resilience Development Programme (MRDP)-World Bank

Component-1	**Institutional and Capacity Development**	
	Component 1.1 : Institutional policies/capacity enhancement (US$ 2 million)	Rs. 16 Cr
	Component 1.2 : Capacity Development (US$ 5 million)	Rs. 40 Cr
	Component 1.3 : Technical Assistance to Strengthen Climate Adaptation measures (US$ 13 million)	Rs. 104 Cr
	Total Component -1 (US$ 20 million)	**Rs. 160 Cr**
Component-2	**Flood Management and Disaster Mitigation**	
	Component 2.1 : Flood control and Remedial Measures in Sangli District (US$ 110 million)	Rs. 880 Cr
	Component 2.2 : Flood control and Remedial Measures in Kolhapur District (US$ 100 million)	Rs. 800 Cr
	Component 2.3 : Other Risk, Flood Management works in other area (US$ 75 million)	Rs. 600 Cr
	Component 2.4 : Landslides, Earthquake, lightening mitigation measures (US$ 50 million)	Rs. 400 Cr
	Component 2.5 : Improving resilience of Cultural Heritage sites (US$ 5 million)	Rs. 40 Cr
	Total Component -2 (US$ 340 million)	**Rs. 2720 Cr**
Component-3	**Improving emergency response capacity**	
	Component 3.1 : Early Warning Dissemination Systems (US$ 15 million)	Rs. 120 Cr
	Component 3.2 : Instrumentation System for Disaster Management (US$ 20 million)	Rs. 160 Cr
	Total Component -3 (US$ 35 million)	**Rs. 280 Cr**
Component-4	**Project Management (US$ 5 million)**	Rs. 40 Cr
	Total Component -4 (US$ 5 million)	**Rs. 40 Cr**
	Total MRDP (US$ 400 million)	**Rs. 3200 Cr**

Sl No.	Description
	Breakup of Civil works.

Sr. No.	Remedial Measures	Estimated Cost (In Cr.)
	Sangli District	
A.	**Approximate cost incurred in preparation of concept, estimates and maps for preparation of project report of flood control works**	
1	To carry out a detailed survey of the river Krishna From Karad To K.T. Weir Rajapur (158 km).	3.30
2	Preparation of design by doing hydraulic study (by external agency).	1.06
3	Preparation of project reports, detailed concepts, estimates, and maps of flood mitigation works and providing necessary information in public domain	0.64
	Total A (Survey & model studies)	**5.00**
B	**Probable cost of taking measures for straightening / deepening and bank protection of river Krishna from Tembhu Barrage to K. T. Weir Rajapur (Kolhapur)**	
1	Deepening the river by removing silt from the river bed.	150.00
2	Removal of K. T. Weir Sangli and Construction of Barrage at Mhaishal on Krishna River.	199.20
3	Permanent resettlement of flood affected families between Tembhu (Karad) to K.T.Weir Rajapur (Kolhapur)	200.00
4	Land acquisition required for Re-sectioning	70.00
5	Re-sectioning of River banks & its strengthening.	250.00
6	Obtaining the approval of Environment Department	5.80
	Total	**875.00**
	Total of Sangli District	**880.00**

Sl No.	Description

Sr. No.	Remedial Measures	Estimated Cost (In Cr.)
	Kolhapur District	
A	**Probable cost incurred for preparation of concept**	
1	The work of surveying, designing and planning for river cross section, restoration, desilting of river.	2.00
2	Construction of barrage instead of Rajaram and Surve K.T.Weir in two places. Survey works only.	1.00
3	Surveying, conceptualization and planning of Bhogavati Dudhganga tunnel work	0.50
4	Removal of obstructions to flow in the riverbed	1.50
	Total A**(Survey & Model studies)**	**5.00**
B	**Probable cost of taking flood control measures in Kolhapur District.**	
1	Remodelling of spillway gates of Radhanagari dam	85.00
2	Bringing the cross section of the river in a good condition, removing the bottom silt from the river bed and giving proper slope to the stream	80.00
3	Rajaram and Surve K.T.Weirs modification.	200.00
4	Bhogavati Dudhganga Tunnel	260.00
5	Removal of obstructions to flow in the riverbed	115.00
6	Land acquisition	50.00
7	Obtain environmental approval	5.00
	Total	**795.00**
	Total of Kolhapur District	**800.00**
	Total Kolhapur & Sangli District	**1680.00**

Sl No.	Description

B) Yearwise breakup of Non Recurring expenses.

Item	Year wise breakup (Rs. In Cr.)			
	Total cost	**Year-1**	**Year-2**	**Year-3**
Component-1				
Institutional and Capacity Development				
Component 1.1 : Institutional policies/capacity enhancement (US$ 2 million)	16 .00	10.00	3.00	3.00
Component 1.2 : Capacity Development (US$ 5 million)	40.00	10.00	15.00	15.00
Component 1.3 : Technical Assistance to Strengthen Climate Adaptation measures (US$ 13 million)	104.00	50.00	30.00	24.00
Total Component -1 (US$ 20 million)	**160.00**	**70.00**	**48.00**	**42.00**
Component-2				
Flood Management and Disaster Mitigation				
Component 2.1 : Flood control and Remedial Measures in Sangli District (US$ 110 million)	880.00	80.00	600.00	200.00
Component 2.2 : Flood control and Remedial Measures in Kolhapur District (US$ 100 million)	800.00	100.00	600.00	100.00
Component 2.3 : Other Risk, Flood Management works in other area (US$ 75 million)	600.00	100.00	400.00	100.00
Component 2.4 : Landslides, Earthquake, lightening mitigation measures (US$ 50 million)	400.00	100.00	200.00	100.00
Component 2.5 : Improving resilience of Cultural Heritage sites (US$ 5 million)	40.00	10.00	20.00	10.00
Total Component -2 (US$ 340 million)	**2720.00**	**390.00**	**1820.00**	**510.00**

Sl No.	Description

Item	Year wise breakup (Rs. In Cr.)			
	Total cost	**Year-1**	**Year-2**	**Year-3**
Component-3				
Improving emergency response capacity				
Component 3.1 : Early Warning Dissemination Systems (US$ 15 million)	120.00	70.00	50.00	0.00
Component 3.2 : Instrumentation System for Disaster Management (US$ 20 million)	160.00	100.00	60.00	0.00
Total Component -3 (US$ 35 million)	**280.00**	**170.00**	**110.00**	**0.00**
Component-4				
Project Management (US$ 5 million)	40.00	20.00	10.00	10.00
Total Component -4 (US$ 5 million)	**40.00**	**20.00**	**10.00**	**10.00**
Total MRDP (US$ 400 million)	**3200.00**	**650.00**	**1988.00**	**562.00**

C) Component wise Pvt. Land Required :-

Component	Pvt. Land Required (Ha.)	Land cost.(Crore)
Component -1	0	0 .00
Component -2	1130	120.00
Component -3	0	0.00
Component -4	0	0.00

Private land required will be acquired by Water Resources Department to Collector of District (Sangli & Kolhapur). No forest land is required. Cost of acquisition of land is included in the cost estimates.

Sl No.	Description
6.2	*Estimated expenditure on project administration (including expenses on consultants, etc.) may be separately indicated.* - The expenditure of establishment and project management are included in the estimated cost of project management (40 Cr). The cost of consultant and project management is 1.25% of total project cost. Project administration cost will be beared by Govt. of Maharashtra as it is to be carried out by State administrative machinery.
6.3	*The basis of these cost estimates along with the reference dates for normative costing may be provided. The firmness of the estimate may be indicated along with the cost components that can vary, the factors that could cause the variation and the extent of the expected variation.* - The estimates are framed on current schedule of rates i.e. (price level 2022-23). After detail survey work and model studies estimates & designs will be reframed. There may be variation in the cost of the project components as per final design & drawings. However it may not very more than 10% of preliminary estimated cost of Rs. 3200.00 Cr.
6.4	*In case the project/ scheme involves payout of subsidy, the year wise expected out go, up to the last year of payout, may be indicated.* - Not Applicable.
6.5	*In case the project/ scheme intends to create capital assets, employ specialized manpower or involves other activities that necessitate a Recurring Cost of Capital Expenditure (RCCE) (e.g., maintenance and upkeep costs of assets, salary costs of manpower, etc.) over the lifetime of the asset, such expenditures, on an annual basis, may be indicated in the project proposal* - The assets will be operated & maintained by Water Resources Department Govt. of Maharashtra, from their own source.
6.6	*It may also be stated whether the agency which would be assigned this legacy responsibility has been consulted and has agreed to bear the continuing recurring expenditure. (e.g., the State governments may need to incur the maintenance and upkeep costs of assets created)-* Yes. The State Government will be responsible for operation & maintenance of project and agrees to bear such costs.

<table>
<tr><th>Sl No.</th><th>Description</th></tr>
<tr><td>6.7</td><td>The cost towards salary/ fees/ emoluments of the project human resources as being proposed should be indicated (procedure for seeking approval of the human resource requirements is however detailed at para-7 below-

This project will be carried out by existing administrative man power of State Govt. Water Resources Department, Govt. of Maharashtra has enough technical man power to execute the project. Hence there will be no extra burdon on project cost by salary/fees/emoluments.</td></tr>
<tr><td>6.8</td><td>The component of the costs mentioned at 6.1-6.7, that will be shared by the State Governments may be indicated. -

The funding for project construction & implementation is required by World Bank. The project assets shall be operated & maintained by State Government.
<table>
<tr><td rowspan="4">Counterpart funding by the Centre or State or both (specify %)</td><td>Central Sector (min 50%)</td><td>70% (Technical Assistance)</td></tr>
<tr><td>State Sector (min 30%) for General Category</td><td>30-%</td></tr>
<tr><td>State Sector (min 20%) for Special Category</td><td>--</td></tr>
<tr><td>Other</td><td>--</td></tr>
</table>
</td></tr>
<tr><td>6.9</td><td>Components of total estimated cost (in Rs. Crore) at latest Price Level (Year 2023)

Rs. 3200.00 Crore</td></tr>
<tr><td>6.10</td><td>Total bilateral assistance proposed (specify both in Rupees and donor currency) Additional technical cooperation component, if any and activities proposed to be implemented through technical cooperation. -

World bank assistance Rs. 2240.00 Crores (US $ 280 millions) – 70%
State Government share Rs. 960.00 Crores (US $ 120 millions) – 30%</td></tr>
</table>

Sl No.	Description
7	**Project - Human Resources**
7.1	*Please indicate whether the nodal officer directly in charge of the project has been identified. Details about his status, past experience in executing similar projects and balance tenure left for steering the project may also be mentioned*. - The Chief Engineer (WR), Water Resource Department, Pune will act as Nodal officer for this project. It's permanent post under WRD with vast jurisdiction in Krishna Valley for execution & management of project.
7.2	*Whether any posts (permanent or temporary) are intended to be created?* - No. The project will be implemented with the help of existing permanent staff available with Water Resources Department, Govt. of Maharashtra.
7.3	*In case outsourcing of services or hiring of consultants is intended, brief details of the same may be indicated. It may also be certified that the relevant GFR provisions will be followed which engaging the agency/ consultant*. - The outsourcing of services of consultants will be needed for, A) Altering the confluences- detail survey and geological investigations designs and preparation of simulated models will require outsourcing. B) The bathymetric survey and its output also preparation of designs framing estimates and procuring sanctions will require assistance. C) The study of tail river, augmentation of discharge also preparation of designs framing estimates and procuring sanctions will require assistance. D) Monitoring the project implementation. It is certified that Relevant GFR provisions will be followed while engaging consultant.
7.4	*In case additional manpower requirement, please indicate the phased requirement over the project timeline (i.e. year-wise break-up of the manpower requirement)*- Existing manpower & organizational structure is sufficient to carry out project within timeline.

Sl No.	Description
8	**Project financing**
8.1	*The name of External Funding Agency for the project may be indicated. Share of State Government may be indicated, how the state share will be financed. -* 30% share State Govt. and 70% share World Bank assistance is proposed for this project.
8.2	*The availability of funds in the budget of the present year and the requirements projected may be mentioned. In case of any deviations, please indicate how the gap will be addressed. Please enclose debt sustainability certificate. -* The funds from State Govt. will be made available in State Budget after approval of the project.
9	**Project viability**
9.1	*In case of projects which have identified stream of financial returns, the financial internal rate of return may be calculated.-* Not applicable.
9.2	*In case of projects where financial returns are not readily quantifiable (typically social development projects), the economic rate of return may be estimated. -* Not applicable.
9.3	*Cost per hectare* Not applicable.
9.4	*Benefit-Cost Ratio* Not applicable.

Sl No.	Description
10	**Project implementation and monitoring**
10.1	*The administrative structure for implementing the project may be stated. In case new structures/ entities etc. is by and large to be avoided. In case new structures are intended to be created for administering the scheme, the details of such structures and specific justification for the same may be provided. Such new structure should be proposed only it is has been established after due analysis, that existing structures cannot be levered for the proposed/additional work. -* The project will be implemented through current existing administrative structure. 1) Assistant Chief Secretory 2) Secretory (CADA) 3) Executive Director (MKVDC, Pune) 4) Chief Engineer (WRD,Pune) 5) Superintending Engineer (Sangli, Kolhapur) 6) Executive Engineer (Sangli, Kolhapur)
10.2	*Mode of implementation: Department/Contract/Turnkey Contract/EPC/PPP etc. with justification -* EPC
10.3	*The monitoring framework for the project/ scheme may be indicated. The arrangement for audit of the project may also be stated. -* 1) Concerned, Superintending Engineer, Deputy Engineer, & Junior Engineer for construction. 2) Quality control wing for technical aspects of quality control 3) Accountant General, Mumbai for Audit of expenditure.
11	**Project/Scheme sensitivities**
11.1	*Any foreseeable constraints/ uncertainties which can affect the technical design, costing and implementation of the project may be indicated. -* The project will be carried out after detailed design & technical sanctions; Hence the exact cost of project will be finalized after such detailings.

Sl No.	Description
11.2	*The likely impact of these constraints/ uncertainties on the project parameters may be stated. In particular, the sensitivity of the project cost, project schedule and project viability towards the possible constraints/ uncertainties may be mentioned.-* Technical details project components, cost of project components will be cleared after detail survey work, & model studies, designs & technical sanctions. However conceptually project is technically viable. Cost estimates may vary within + - 10%.
12	**Project period**
12.1	*The expected date of project start & completion may be stated. This should be realistic and supported with PERT chart of the important activities, with a critical path analysis, identifying the main constraints. -* The project will be started after approval & funding of World Bank. The project period will be 3 years. The expected time line for each component is as mentioned in point 4.2. After approved of scheme, while project DPR detail PERT/CPM chart will be prepared.
12.2	*The project closure date should be also indicated beyond which further support/disbursal of funds will not be required. -* Project closure date will be March 2027.
12.3	*A time line for the project deliverables (i.e. measurable deliverables phased year wise) may be included. -* Will be finalized While projects DPR.
13	**ERM proposals**
13.1	*Details of physical state of assets and history of earlier major maintenance expenditure incurred so far may be given -* Not Applicable.
13.2	*Date of completion of works/assets, justification for going for external funding. Whether all the options for domestic funding explored and exhausted may be elaborated -* Not Applicable.

Sl No.	Description
13.3	*Details of works proposed to be taken up.* Not Applicable.
13.4	*Break up of works may also include following* (a) Price Escalation (b) Foreign Exchange variation (c) Statutory levies (d) Change in Scope (e) Addition/deletion Not Applicable.
13.5	*Justification of 13.4* Not Applicable.
14	**Statutory Clearances**
14.1	*Details of statutory clearances required for implementations of the project-* Project needs clearance from 1. Environmental clearance as de-siltation and re-sectioning of Panchaganga and Krishna river is involved in the project. The proposal for environment clearance will be initiated after getting preliminary approval to the project. 2. For the work of re-modelling of spillway gates of Radhangari dam. It is needed to get approval from National Board of Wild Life. The proposal for NBWL clearance is initiated by department in 2015 & is under compliance. 3.No forest land is involved in project.
14.2	*Statutory clearances obtained* **No.**
15	*Details of previous phase(s), if any. Whether any impact assessment has been made for previous phase?* **No.**

Sl No.	Description
16	*Recommendation of State Finance Department-* Dy. Chief Minister (Finance) has approved PPR vide letter dt. 12/5/2023 & State Finance Department has forwarded the proposed to DEA, G.I.

*For agglomerated projects, all the details mentioned above may be submitted for overall as well as each major and medium sub-project with the main features of umbrella projects.