DAM REHABILITATION AND IMPROVEMENT PROJECT (DRIP)
Phase II

(Funded by World Bank)

DNYANGANGA DAM

ENVIRONMENT AND SOCIAL DUE DILIGENCE REPORT
(PIC:MH09HH0267)

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ABBREVIATIONS AND ACRONYMS

AIDS	:	Acquired Immunodeficiency Syndrome
CA	:	Conservation Area
CCA	:	Culturable Command Area
COVID	:	Coronavirus Disease
CWC	:	Central Water Commission
DRIP	:	Dam Rehabilitation and Improvement Project
DSRP	:	Dam Safety Review Panel
E&S	:	Environment & Social
EAP	:	Emergency Action Plan
ESCP	:	Environmental and Social Commitment Plan
ESDD	:	Environmental and Social Due Diligence
ESF	:	Environmental and Social Framework
ESIA	:	Environmental and Social Impact Assessment
ESMF	:	Environment and Social Management Framework
ESMP	:	Environment and Social Management Plan
ESS	:	Environmental and Social Standard
ESZ	:	Eco-Sensitive Zones
GBV	:	Gender Based Violence
GCA	:	Gross Command Area
GIS	:	Geographic Information System
GRM	:	Grievance Redressal Mechanism
HIV	:	Human Immunodeficiency Virus
IA	:	Implementation Agency
IPF	:	Investment Project Financing
LMP	:	Labour Management Procedure
MCM	:	Million Cubic Meters
MDDL	:	Minimum Draw Down Level
MU	:	Million Unit
MW	:	Megawatt
MWL	:	Maximum Water Level
OHS	:	Occupational Health & Safety
PA	:	Protected Area
PDO	:	Project Development Objective
PE	:	Physical Environment
PPE	:	Personal Protective Equipment
PST	:	Project Screening Template
RD	:	Rural Development
RET	:	Rare Endangered and Threatened
RFB	:	Request for Bids
SC	:	Scheduled Castes
SCADA	:	Supervisory Control and Data Acquisition
SEA	:	Sexual Exploitation and Abuse
SEAH	:	Sexual Exploitation Abuse and Harassment
SF	:	Screening Format
SH	:	Sexual Harassment
SPMU	:	State Project Management Unit

ST	:	Scheduled Tribes
WB	:	World Bank
WCD	:	Water Conservation Department
WQ	:	Water Quality
WRD	:	Water Resources Department

EXECUTIVE SUMMARY

Dnyanganga medium Project, has proposed to undertake rehabilitation measures (structural, non-structural, instrumentation and basic facility enhancement) under the proposed Dam Rehabilitation and Improvement Project (DRIP II) with a view to increase the safety and to strengthen dam safety management.

The Environment and Social Due Diligence has been conducted for decision-making on the sub-project with a view to identify, evaluate and manage the environment and social risks and impacts in a manner consistent with the World Bank ESF. ESDD has been carried out by studying the sub-project information and proposed interventions, assessing the magnitude of E&S risk and impacts with respect to key baseline data in immediate vicinity area; and conducting preliminary stakeholder consultations. Detailed consultations with communities living downstream/vicinity of the dam, could not be held in the current circumstances due to COVID19 and these shall be held as soon as situation is conducive for holding such consultations.

Activity wise environment and social screening has been carried out to identify risks and impacts to classify the sub-project based on risk level (low, moderate or substantial and high) and recommend commensurate plans/measures to meet identified risks and impacts.

As per the ESDD exercise, risk/impacts that have been identified relate to Water Quality, Fisheries, Physical Environment, labour and SEAH/GBV. Environment risks of air, water, noise, and resource use as well as social risks of labour, civil work within the dam body and road work are low along with environment and social risk of labour camp and disposal of debris. Risk of all other activities has been identified as Low. Hence the overall risk of this sub-project Dam is categorized as low.

Dam was constructed in 1971 and surrounding area has been declared as Dnyanganga Wildlife sanctuary. No interventions are planned outside the dam area and no direct impacts envisaged on protected area, however, to eliminate the risks of indirect impact due to outside labour and transportation of man and material, risk of indirect impacts on natural habitat has been identified as moderate.

Risk of all other activities has been identified as Low. Hence the overall risk of this sub-project Dam is categorized as Moderate. OHS is a substantial risk activity and is being treated separately through OHS plan in accordance with WB ESHS guidelines. These risks are low to moderate and localised, short term and temporary in nature which can be managed with standard ESMP and guidelines.

Since risks and impacts is of low to moderate category, a standard ESMP customised to sub-project will be prepared in accordance with the ESMF. The customised ESMP will address the following:

- Gender Based Violence or SEA/SH related actions (ESS1)
- Labour Management Procedure (ESS2)
- Resource Efficiency and Pollution Prevention (ESS3)
- Community Health and Safety (ESS4)

- Bio-diversity conservation plan (ESS6)
- Stakeholders Engagement Plan (ESS10)

Overall, the proposed activities within this dam sub-project have low risks resulting in the overall sub-project to be categorized as low risk category. These risks and impacts can be effectively mitigated with effective implementation of mitigation plans by SPMU/IA, Contractors and monitoring by EMC, SPMU and CWC.

Chapter 1 INTRODUCTION

1.1 PROJECT OVERVIEW

The proposed Dam Rehabilitation and Improvement Project (DRIP II) would complement the suite of ongoing and pipeline operations supporting India's dam safety program. The project development objective (PDO) is to increase the safety of selected dams in participating States and to strengthen dam safety management in India.

Project Components include:

Component 1: Rehabilitation and Improvement of Dams and Associated Appurtenances (US$ 577.14 million);

Component 2: Dam Safety Institutional Strengthening (US$45.74 million);

Component 3: Incidental Revenue Generation for sustainable operation and maintenance of dams(US$26.84million);

Component 4: Project Management (US$68.13 million).

Component 5: Contingency Emergency Response Component (US$0 million).

The project is likely to be implemented across many states in the country. The primary beneficiaries of the project are the communities that live in dam breach flood inundation areas and the communities that depend on water, irrigation and electricity services provided by the dams that could be compromised by poor dam performance or failure. In addition to saving lives, improved dam safety will avoid potential flood damage to houses, farm areas, infrastructure (roads, bridges, other public and private infrastructure) and industrial and commercial facilities. Improved dam safety will also reduce the likelihood of service interruptions due to dam failure as well as potentially improving dam service provision, overall efficiency and storage capacity, including during drought periods.

1.2 SUB-PROJECT DESCRIPTION – DNYANGANGA DAM

Dnyanganga Medium Project, a earthen dam at confluence of Dnyanganga river in the Purna Basin, was constructed the year 1971 with main purpose of water supply & domestic supply for Khamgaon city. The Dnyanganga Dam is earthen dam with a height of 33.12 m above lowest river bed level. Length of dam is 639 m with gross storage capacity of 36.26 MCM and live storage capacity 33.93 MCM. This project is located at village Geru Matargaon in Khamgaon Taluka of Buldhana district.

The project supplies industrial/domestic water to the tune of 5.90 MCM and Irrigation supplies to 5314 ha GCA & 4249 CCA.

Salient features of the project area are reported below:

Project	**Dnyanganga Medium Project**
River	At Dnyanganga river in the Purna Basin
Lat/Long	20^0 32' 27''/ 76^0 24' 56''
GCA	5314 ha
CCA	4249 ha
Annual industrial/domestic water Supply	5.90 MCM
Hydro Power Generation	Nil
Catchment Area	194.90 sq km
Main Dam	
Type	Earthen Dam
Length	639 m
Top elevation	410.57 m
Height of dam above lowest river bed level	35.57 m
Lowest river bed level	375.00 m
Spillway	
Type of spillway gates	Ogee type ungated spillway
Length	120 m
Location of spillway	In separate vallly adjacent to HR well
Crest level	404.900 m
Number of bays	1
Discharge capacity at MWL	1808.12 cumec
Size of spillway gate	Ungated
Reservoir	
Maximum water level	408.12 m
Full Reservoir Level	404.90 m
MDDL	388.00 m
Live storage	33.93 MCM
Gross storage	36.26 MCM
Reservoir spread area	3.86 sq km
Year of start of construction	1965
Date of completion	1971
Year of first impoundment	1972

View of Dam

Proposed Interventions/ Activities and intended Outcomes

Dam Safety Review Panel (DSRP) constituted by state Government has inspected and made a review of Dnyanganga dam on 5th January, 2020 and recommended measures to improve the safety and performance of dam and associated appurtenances in a sustainable manner, and also to strengthen the dam safety institutional set-up.

The objectives of the project are to be achieved through investments for physical and technological improvement activities, managerial upgrading of dam operations, management and maintenance, with accompanying institutional reforms. The project will improve the safety and operational performance of dam and mitigate risks to ensure safety of downstream population and property. The following rehabilitation proposals as described in the PST have been formulated based on the DSRP recommendations and these proposals form the basis for preparation of present ESDD report.

DSRP Panel suggestions are as following & report is attached seperately

1) U/S side of Spillway concrete septum should be provided over total length.
2) The earthen section seemed to be strong enough and needs no remedial measures. But the downstream berm and dam section to be restored as per design.
3) There is heavy vegetation cover over the dam. Vegetation from U/S & D/S face, Toe drain needs to be cleared.
4) Masonry spillway is sufficient to carry design discharge. It is found out that designs are not done by CDO. Some signs of erosion in tail channel are observed. Hence Apron should be provided to stop erosion. Down stream cutoff wall below apron is not constructed. Leakages through foundation are observed.
5) Gates EG/SG are provided with manual operation devices hence needs mechanical arrangement with motor. Gate automation may be provided & closed room/canopy over the hoisting arrangement is proposed. EG having brass cladded rubber seal but are now in damaged condition, and should be replaced.
6) Supplying erection and commissioning of lightening arrestor system, earthing to hoist motor and electrical system, Repairs & maintenance of emergency gate 1.2x1.2 m 1no. Service gate 1.2x1.2 m 1 No. of head regulator is proposed.
7) Surface drains are chocked up & disturbed and need to be cleared and reconstructed.
8) Toe drain/L-drain/Cross drains are choke up, hence toe drain vegetation cleaning and desilting to be done.
9) Leakages observed in gate and at D/S of HR well in valley. Should be stop from finding out loose spots.
10) On dam top protection wall is not there, hence Parapet wall to the earthen embankment on both sides is proposed.
11) Revised flood given by NIH Roorkee is 85% higher & recommended to be considered for further studies.
12) As per MERI Siltation report,it shows 18% loss in capacity, Desilting must be done from the reservation.

Structural Measures

1. Dam Top Embankment
2. Repairs to Pitching
3. Providing M-10,15,20 concreting to Protection wall & curtain wall in Tail Channel & Septum on U/s of WW bar.
4. Pointing & Grouting to Stone Masonry Work in 1:2 Cement mortar
5. Providing and fixing Gauge Plate
6. Providing installing & erecting FRP v notches
7. Removing Wet Silt From Canal bed
8. Supplying erecting and commissioning Pan Evapometer
9. Supplying erecting and commissioning Automatic Rain gauge station
10. Construction of Chawki at Dam Site
11. Hydro- Mechanical Work of hoist repairs & lightning arrestor implementation

Non-structural Measures

12. Preparation of Emergency Action Plan (EAP)
13. Modification in Operation Rule Curve
14. Provision for Early Flood Warning System
15. Communication system is not available at dam site. For that wireless communication system should be installed.

Instrumentation, SCADA, Surveillance system, etc.

16. Dam Instrumentation (Geo-technical, hydro-meteorological, Seismic, Geodetic, data collection, storage, data transfer, analysis, retrieval, Operation &Maintenance etc.).
17. No instrument is available at dam site, pan evapometer, rain gauge station, lightning arrester is proposed to be installed. No seepage measuring devices, so 3-V notches and chute drains need to be provided.

Basic Facilities Enhancement

18. Approach road to the Dam is full of potholes and may cause concern during monsoon Provide proper approach to the Dam.
19. Construction of Chawki/Control Room at Dam is proposed.
20. Fencing
21. Electrical work
22. Vegetation clearance

- A review of proposed activities by World Bank experts has been carried out. It has been suggested that The Original Inflow Design Peak flood was 1808.812 cumecs. In terms of BIS 11223, the Dnyanganga Dam qualifies for PMF (Probable Maximum Flood) as the design flood. The Revised Design Flood, evaluated by CWC New Delhi works out to 2224.00 cumecs, viz, an increase of 23 %. Flood routing study has not been reportedly conducted which should be conducted to determine the revised MWL and revised Free Board and, there after, decide in consultation with CPMU / CWC whether any structural measures like provision of an upstream septum is needed or not to fulfill the "free board requirement". It shall be advisable for WRD / SPMU, DRIP-II, Maharashtra to get the needed flood routing study done on priority, preferably prior to the finalization of Bid Document, so that the provision of solid wall, if needed, can be made in the Bid Document itself.

Dam Safety Review Panel has given comprehensive recommendations covering the requisite civil & hydro-mechanical items of works exhibiting distress as well as the items relating to the basic facility

enhancement and instrumentation.

Comments for Guidance on Cutting Trees. Ideally, the earth dam top as well as the water side and the rear side slopes of the earth dam should be clear of wild bushes, jungle growth and trees to have a clear view of the dam section to identify the existence of any sink holes, seepages, settlement etc and take timely remedial actions. Importantly, trees should have not been allowed to grow on the dam top and on the side slopes in the first instance. However, now that, for whatever reason, the trees in such a large number as 1542 of girths varying from 30 cm to as much as 60 cm have actually grown, the uprooting of these trees in a single go will not be correct. Such action shall have adverse consequences.

Present ESDD is based on the activities proposed in PST, if there is any change of activities in future, ESDD will be updated accordingly.

Figures 1.1 & 1.2 provide photographs of key infrastructure proposed for rehabilitation works and also major interventions locations.

Figure 1.1 selected Photographs showing Pitching repairs, Tail channel repairs and Approach road to dam.

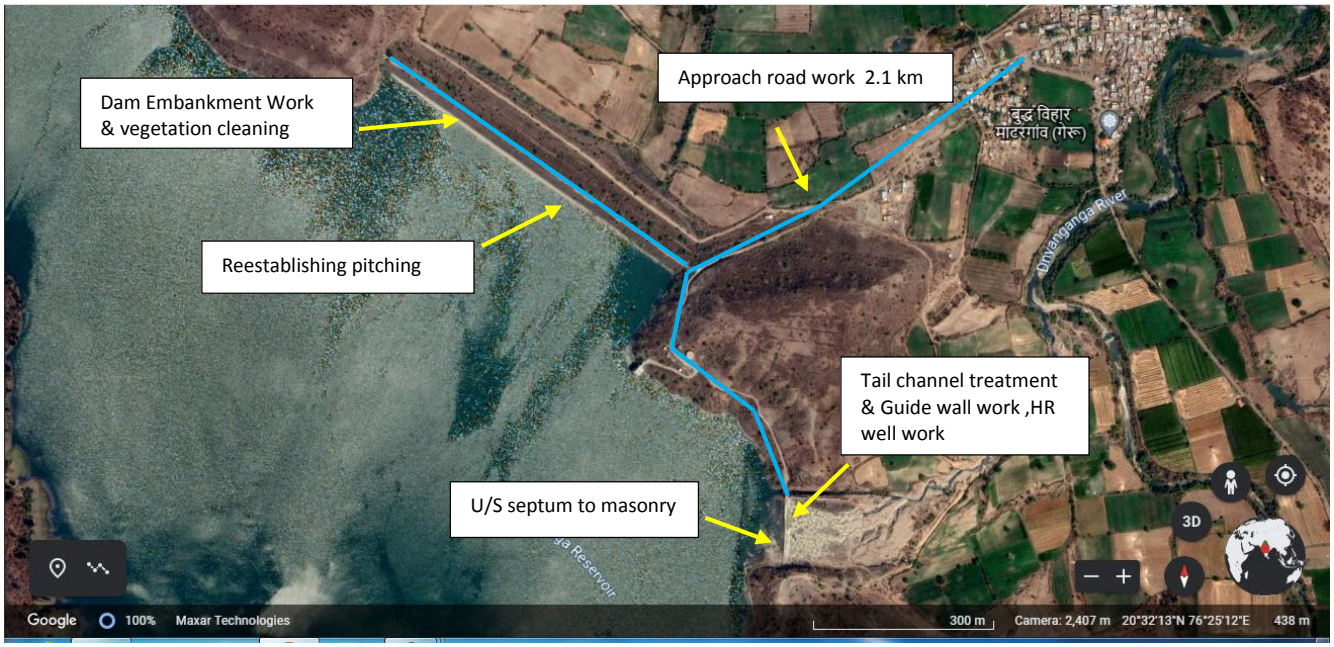


Figure 1.2: Project area Showing Major Intervention Location

1.1 IMPLEMENTATION ARRANGEMENT AND SCHEDULE

As can be seen from the list of activities proposed under dam rehabilitation project; these activities can be divided into civil works main package, other package and instrumentation. Civil work will be carried out by contractor(s) as these are labour intensive activities and would be completed over a period of 30 months. SPMU will hire contractor(s) based on national open competitive procurement using a Request for Bids (RFB) as specified in the World Bank's -Procurement Regulations for IPF Borrowers, July 2016, (Revised August 2018 Procurement Regulations), and is open to all Bidders as defined in the Procurement Regulations. Following is the overall implementation and procurement schedule:

a) Overall Phasing of Project Implementation:
Proposed Starting of implementation (MM/DD/YYYY): 01/11/2021
Proposed Ending of implementation (MM/DD/YYYY): 31/10/2023
Implementation Duration (months) (MM): 24 months

b) Timeline phasing of implementation:

Sl. No.	Description	From (month/year)	To (month/year)	Status of Procurement Process
1	Civil Works – main package	Nov-2021	Nov -2023	Under estimate stage
2	Other Packages	Nov-2021	Nov -2023	Under estimate stage
3	Procurement – instrumentation, goods, inspection vehicles	Yet to be decided		

1.2 PURPOSE OF ESDD

The overall project (DRIP II) was categorized as **Low Risk** as per the internal Environment and Social Risk Classification of the Bank. The Environment and Social Due Diligence has been conducted to use it as a tool for decision-making on the sub-project with the following specific objectives:

i. To identify, evaluate and manage the environment and social risks and impacts of the sub-project in a manner consistent with the ESSs;
ii. To adopt a mitigation hierarchy approach to the project's E&S risks i.e. a) anticipate and avoid risks and impacts; b) minimize or reduce risks and impacts to acceptable levels, if not avoidable; c) once risks and impacts have been minimized or reduced, mitigate; and (d) where significant residual impacts remain, compensate for or offset them, where technically and financially feasible;
iii. To help identify differentiated impacts on the disadvantaged or vulnerable, if any, and to identify differentiated measures to mitigate such impacts, wherever applicable;
iv. To assess the relevance and applicability of environmental and social institutions, systems, laws, regulations and procedures in the assessment, development and implementation of projects, whenever appropriate; identify gaps, if any exist, and
v. To assess borrower's existing capacity, gaps therein, and identify areas for enhanced capacity towards management of E&S risks.

vi. Based on the categorization of Environment and Social risks and impacts of the Dam sub-project, to determine whether ESIA is to be carried out using independent third-party agency or a generic ESMP customized to mitigate E&S risks and impacts will suffice.

1.3 APPROACH AND METHODOLOGY OF ESDD

The following approach has been adopted for ESDD:

i. Study sub-project information, proposed interventions, their magnitude and locations and carry out assessment of each proposed intervention to identify the magnitude of E&S risk and impacts;
ii. Review relevance and applicability of national and state legal requirements and Bank's ESF policy, standards and directives and preliminary assessment of applicability of legal requirement and ESS framework (2-8)
iii. Conduct site visit to understand baseline environment and social settings, proposed activities under the sub-project, their location and sensitivity, if any.
iv. present key baseline data essential for impact assessment in immediate vicinity area of proposed interventions from secondary sources, such as land-use, protected areas in vicinity, ascertain presence of indigenous (schedule tribe)/vulnerable people, etc.
v. Undertake institutional assessment to identify existing capacities & relevant gaps to manage E&S risks and impacts
vi. Conduct preliminary stakeholder consultations to help identify potential stakeholders; to provide information on the proposed interventions; to identify issues and concerns; and ascertain appropriate mechanisms for continued engagement
vii. Carry out activity wise environment and social screening and identify risks and impacts. Classify the sub-project based on risk level (low, moderate or substantial and high) and recommend commensurate plans/measures to meet identified risks and impacts.

Detailed consultations with communities living downstream/vicinity of the dam, could not be held in the current circumstances due to COVID and these shall held as soon as situation is conducive for holding such consultations.

Chapter 2 INSTITUTIONAL FRAMEWORK AND CAPACITY ASSESSMENT OF AI

2.1 POLICY AND LEGAL FRAMEWORK

India has well defined environmental and social regulatory framework. The regulation applicability depends on nature of work and location of work. Broadly legislation can be divided into four categories viz environmental, forests, wildlife conservation and social. The applicability analysis of regulations pertaining to all the above four categories was carried out. The applicability of World Bank ESF comprising, 10 ESSs (ESS1 to ESS10) to the proposed rehabilitation proposals and Standard specific requirements were analyzed. Further, a comparison of national environmental and social regulations versus World Bank's ESS has been carried out along with the gap analysis. Applicability of Indian regulations, World Bank's ESS along with comparison and gap analysis is discussed in ESMF.

Central Water Commission, Ministry of Jal Shakti, Government of India has prepared "Operational Procedures for Assessing and Managing Environmental Impacts in Existing Dam Projects" and is under publication as a guiding document for the dam owners to systematically address in advance the environmental safeguard requirements and have discussed in detail all applicable legal requirement. Reference has been drawn from this document as well, while carrying out applicability analysis.

Indian environmental regulation requiring environment clearance is for new dam projects specifically for the purpose of hydropower generation and/or irrigation projects and vary with generation capacity for hydropower projects and culturable command area served by irrigation projects. Forest related clearances become applicable, if new or any modification in any existing project require diversion of forest land for non-forestry purposes. Wildlife Clearance process gets triggered if the project is in proximity to protected area or activities are proposed within protected or conservation areas.

Therefore, for the proposed dam rehabilitation activities at **Dnyanganga dam**, regulatory clearances will not be applicable as per Indian regulation. Other applicable regulatory requirement is discussed in ESMF.

2.2 DESCRIPTION OF INSTITUTIONAL FRAMEWORK

The sub-project will be implemented by Water Resources Department **(Amravati Region)**, Maharashtra. The geographical area of the state is divided into 5 river basins viz. Krishna, Godavari, Tapi, Narmada and narrow basin of west flowing rivers of Konkan.

Water Resources Department **(Amravati Region)**, Maharashtra, who will be responsible for implementing the project is headed by Executive Director with Principal Secretary being the overall head of Water Resources Development.

The planning & development of irrigation facilities in the State is entrusted with Water Resources Department (WRD) and Rural Development & Water Conservation Department

(RD & WCD). WRD is entrusted with survey, planning & design, construction & management of major, medium and minor projects having Cultural Command Area (CCA) 250 ha and more. Whereas, survey, planning, construction & management etc. of minor projects below 250 ha. CCA is entrusted to RD & WCD.

WRD Maharashtra does have basic expertise in-house to address E&S issues and prepare ESDD reports for sub-projects. Further, Environment and Social activities within the scheme will be dealt by individual experts procured by SPMU. Presently, Project Director at SPMU and Executive Engineer at dam level look after these aspects.

There is a Grievance Redressal Portal of Government of Maharashtra (https://grievances.maharashtra.gov.in/en) which provides the details (contacts/email) of nodal officer and Head of Water Resources Department under Officer's contact. There is no internal complaint committee as per Sexual Harassment Act either at dam level, however, such complaints can be made to the head of the department

Executive Engineer, Buldhana Irrigation Division,Buldhana is Head of Grievance Redressal Mechanism within the department to address any kind of grievance / complaints by general public. As committed in ESCP, a Grievance Redress Mechanism (GRM) will be established and operated by the contracted agencies to address Project workers workplace concerns. SPMU will have oversight responsibility on the functioning of the GRM.

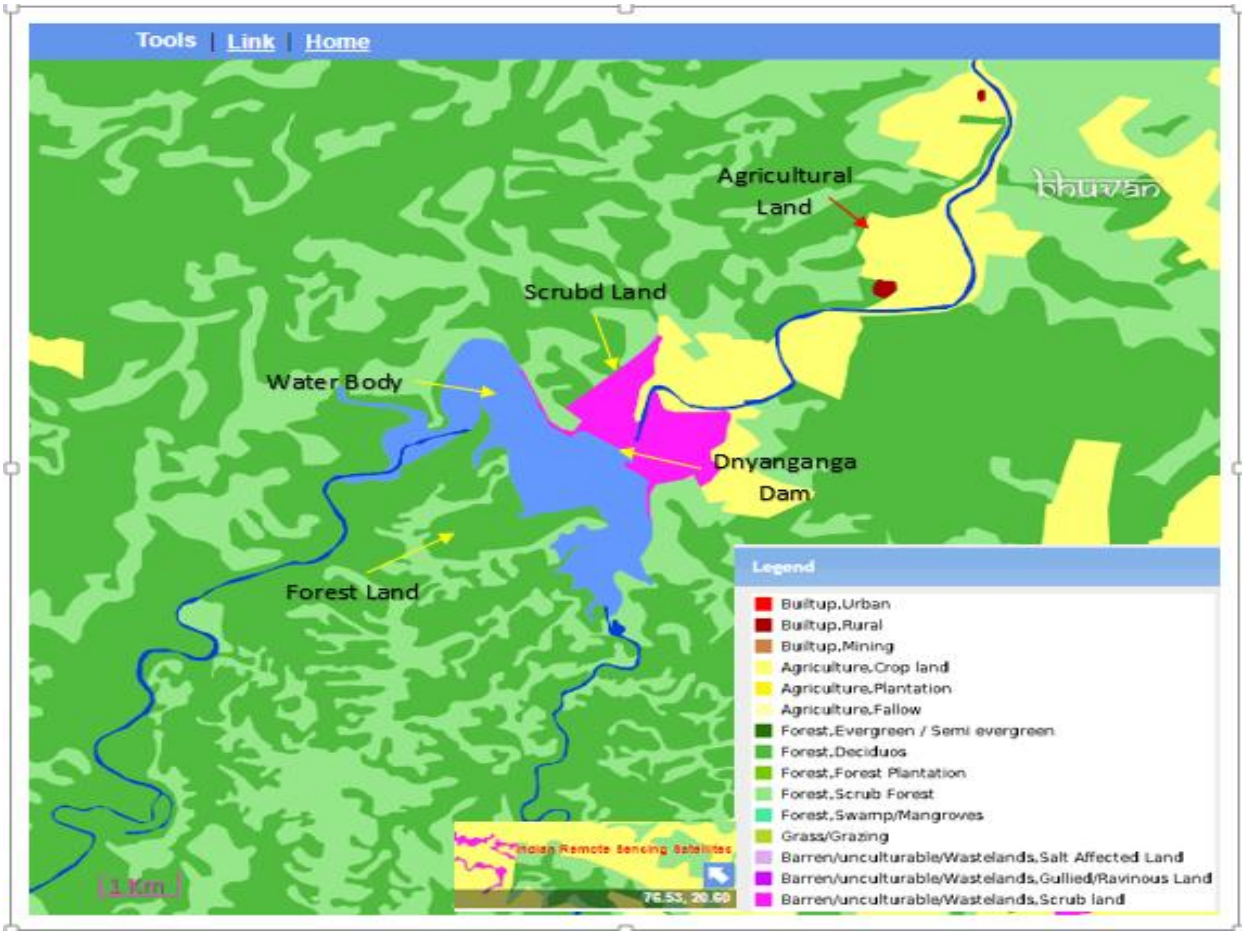
Chapter 3 ASSESSMENT OF ENVIRONMENTAL AND SOCIAL CONDITIONS

Assessment of physical, ecological and socio-economic conditions at dam site and immediate surrounding has been carried out based on secondary information and site observations; as discussed below.

3.1 PHYSICAL ENVIRONMENT

Land Use/ Land Cover

The project surrounding area land use and environmental sensitivity was analysed. Land use/ land cover map within 5 km radius of dam is presented at **Figure 3.1**. As can be seen from the map, present land use upstream of dam is waterbody (reservoir), on downstream side along both the banks there are agricultural area,and in surrounding evergreen/semi-evergreen forests land. However, as discussed under Chapter 1 about project description, the project activities will be confined to dam body only and no structural interventions are proposed beyond existing dam boundaries. Five villages are falling in 5 km radius on downstream of dam namely – Matargaon, Shridharnagar, Geru, Kherdi, Varna.



Source(Digital data on land use/land cover maps using bhuvan prepared by National Remote Sensing Centre (NRSC))

Latitude:- 20^0 32' 27'' Longitude:- 76^0 24' 56''

Figure 3.1: Land Use and Land Cover Map of 5 km radius around Dam site

Natural Hazards

Potential of natural hazards such as flooding and earthquake is significant. Spillway capacity of the project at MWL is 1808.812 cumec while the revised design flood has been worked by CWC, New Delhi is 2224 cumec which is 23 % higher approved by Chief Engineer (SP), Amravati region on dated 15/06/2020. Project falls in earthquake zone II and dam design has taken care of this aspect as well. Dam is in moderate seismic zone, however, local rehabilitation activity do not pose any risk on this count In case, of any Project natural disaster, emergency response will be as per dam's emergency management plan and district disaster management plan; contractor will be made aware of this so that he can take necessary precautions and ensure workers awareness. Zone II is the least active and Zone V is the most active.

3.2 PROTECTED AREA

Nearest Protected Area

Dnyanganga Wildlife Sanctuary of 205 km2 is in surrounding of Dnyanganga dam. Draft notification declaring Eco sensitive Zone of Dnyanganga Wildlife Sanctuary is available on MoEF & CC website and project area falls in ESZ. The location of Dnyanganga Wildlife Sanctuary in relation to Dnyanganga dam Project is shown below. The Dnyanganga Wildlife Sanctuary is situated 28 km from Buldhana and 20 km from Khamgaon town of Maharashtra. It is in Buldhana District, near the Dnyanganga River. There are two lakes within the 205 sq km sanctuary. Leopards, sloth bears, barking deer, blue bulls, spotted deer, hyenas, jungle cats and along with jackals give more attraction. About 150 species of birds are there. The ideal time to visit the sanctuary is throught the year. Wild animals are best sighted from February to May. The terrain is undulating, interspersed with hillocks having gentle slopes. Managed by the Office of Field Director- Melghat Tiger Reserve, Maharashtra Forest Department, The Sanctuary is a natural habitat for various animals and bird species of which many were seasonal that came from different parts of the country.

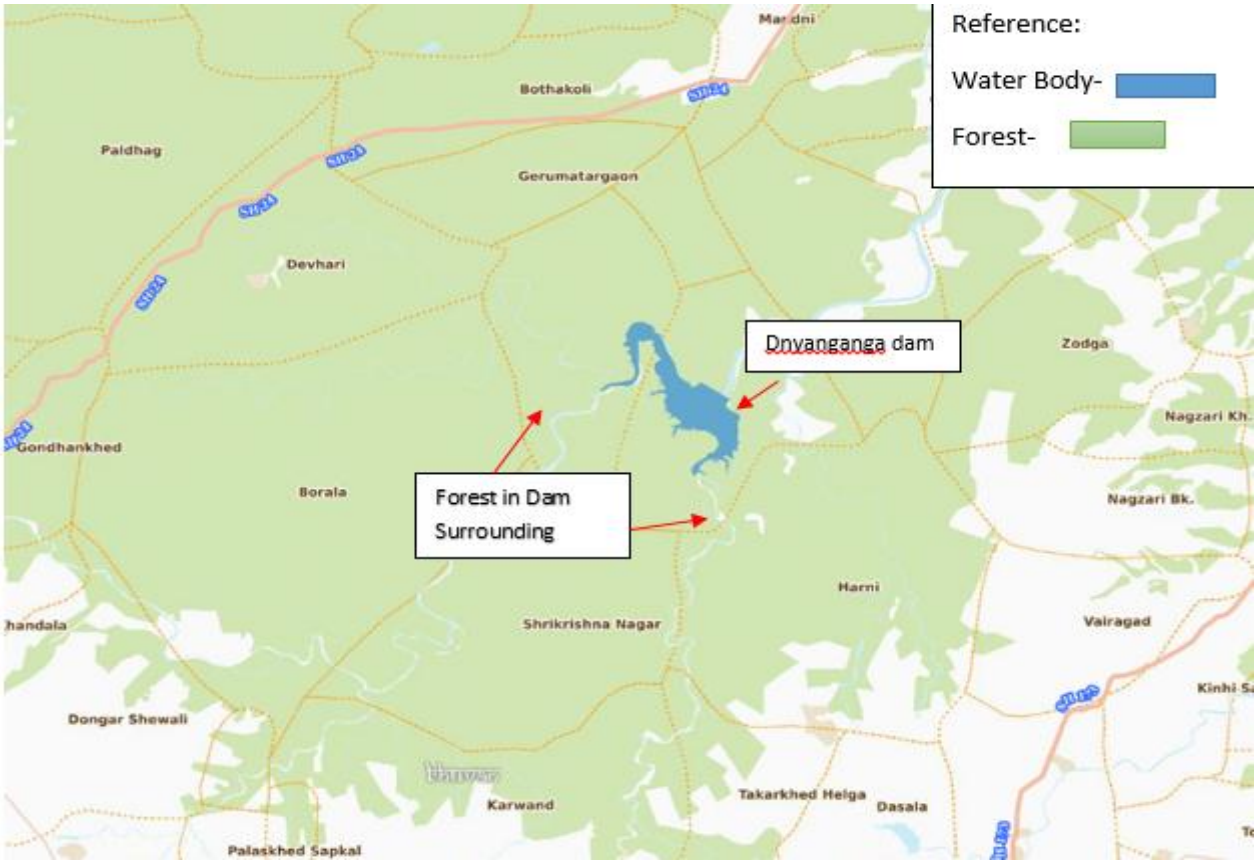


Figure 3.2: Map showing Dnyanganga Wildlife Sanctuary with Dnyanganga Dam

the rehabilitation work, although limited to dam area will be planned and executed very carefully ensuring no impact on protected flora and fauna. The dam is operational since 1974 and protected areas. Dnyanganga reservoir is an important component of the protected area habitat. Regular maintenance and operation of the dam, is being done, including the movement of man and material without any disturbance to the protected area. Keeping in view, the ecological sensitivity of the area, a Biodiversity Conservation and Management Plan shall also be prepared as part of ESMP in compliance with WB ESS6. The plan will ensure no indirect impact on the protected area especially due to outside labour, if required to be engaged for rehabilitation work. Before, start of work, details of rehabilitation work will be shared with Wildlife Warden and any permission required, will also be taken appropriately.

3.3 SOCIAL ENVIRONMENT

The Dnyanganga dam is located at village Geru Matargaon in Khamgaon Taluka (Tehsil) of district Buldhana in the state of Maharashtra. The economy of the district is primarily dependent agriculture sector. Most are engaged in Agricultural Sector and related works. The literacy rate of Buldhana district is 83.40 percent. The percentage of Scheduled Castes population in the district is 18.2 and Scheduled Tribes is 4.8. There 1444 villages of the district. The district is famous for its atmosphere.

The Buldhana district is divided into sub-divisions of Buldhana, Khamgaon, Malkapur, Mehkar, Jalgaon-Jamod, Sindhkhed-raja which are further divided into 13 tehsils. The proximity villages/urban areas i.e. villages/urban areas which fall within 5 km distance from dam on downstream side, are Matargaon, Shridharnagar, Geru, Kherdi, Varna

The brief demographic characteristic of the district is given in the table below:

No. of Households	**560089**	**Household Size**	05
Total Population	**2586258**	**Latitudes**	19.51˚ to 21.17˚ N
Male	1337560	**Longitudes**	75.57˚ to 76.59˚ E
Female	1248698	**% of urban population to rural population**	0.2122
Sex Ratio	934	**Population Density**	268/Sqkm
Literates	**2158040**	**Literacy Rate (in %)**	**83.40**
Male	1211027	Male	90.54
Female	947013	Female	75.84
Source: Census of India, 2011 (District website)			

The project area does not fall within the Schedule V[1] areas of Maharashtra. Though there are Scheduled Tribe households in the downstream areas, there are no physical interventions planned in the downstream areas except for engagement of community during EAP implementation; therefore, ESS7 will not be triggered. The ST households are mainstreamed in the area and do not possess any characteristics as outlined in ESS7.

3.4 CULTURAL ENVIRONMENT

As per list of National Monuments in Maharashtra and list of State Protected monuments in Maharashtra; there are no protected monuments in and around dam site i.e. within 10 km radius of dam site.

[1] **Scheduled Areas** are **areas** in India with a preponderance of tribal population subject to a special governance mechanism wherein the central government plays a direct role in safeguarding cultural and economic interests of **scheduled** tribes in the **Area.**

Chapter 4

ACTIVITY WISE ENVIRONMENT & SOCIAL SCREENING, RISK AND IMPACTS IDENTIFICATION

1.1 SUB-PROJECT SCREENING

The subproject screening is undertaken following a three step screening methodology as described in ESMF. Process of risk /impacts identification is done using screening process considering the proposed interventions at each dam as provided in the Project Screening Template using first screening format (SF-1). Applicable interventions are further classified based on their location i.e. within dam area or outside the dam area. Each activity is reviewed for the applicability under-sub project, location of applicable activity and likely risks and impacts. The SF-1 format is used to ascertain the types of E&S risks for each of the proposed rehabilitation activity e.g. Risk/Impact on Water Quality, Fisheries, Conservation Area, Protected Area, Ecology, Occupational Health, Physical Environment, Cultural Environment, Tribal Presence, Private Land/Assets/Encroachers/Squatters, Labor, Migrant Labor and GBV risks – each of these corresponding to the ESS 2-8.

The second format (SF-2) is used to assess the extent of risk/impact intensity for each of the identified E&S risk and is used to categorize the risk level as Low/Moderate/Substantial/High. Finally, using a third E&S risk summary format (SF-3), the risk categories for all different types of E&S risk and impacts is summarized and the highest of the risk categories is assigned as overall risk category for the given Dam sub-project. Based on the above findings, the ESDD report recommends Risk category of the Dam sub-project – whether it is Low/Moderate/Substantial/High and types of instruments that need to be prepared as part of the ESMP along with the responsibilities and timelines.

Outcome of three stage screening exercise is discussed below.

Step I Screening (using Form SF-1): Sub-Project Component, Construction Support Preparatory Intervention related vs Nature of risk/impact

Screening indicated that all project components related activities are limited to within the dam area/premises. Due to nature of these activities, likely impacts will be on physical environment in terms of air pollution, noise pollution and waste generation. None of the proposed structural interventions involve acquisition of private land and/or private assets. These activities in no way cause restriction on access to land or use of resources by local communities and there is no economic displacement envisaged due to the sub-project. Activities interfacing with water bodies – river/reservoir will have risk of spillage of construction material and debris leading to water pollution and impacts on fishes.

Pre-construction and construction stage major auxiliary or preparatory intervention are within dam area as well as beyond dam area. Deployment and haulage of heavy machinery, setting up of workshop, operation of concrete mixture and heavy pumps will be within dam area. Other activities such as labour camp and debris disposal will be beyond dam area. Transportation of material, debris disposal and labour camp are likely to generate pollution and impact on physical environment.

Project will involve project managers and supervisors, contracted workers – these would also include migrant workers as all the required labour will not be fully supplied locally for a number of reasons, such as worker unavailability and lack of technical skills and capacity. Construction contractors are expected to stay at/near dam, set up construction equipment and machinery near work location at pre-determined/approved sites. Influx of skilled migrant labour, albeit few in numbers, for construction works is likely. The labour will stay outside the dam premises, hence risk of SEA/SH is likely.

Proposed non-structural interventions include Emergency Action Plan, Early Warning System and Flood Forecasting System, etc. During implementation, project will reach out to downstream population including the disadvantaged and vulnerable persons and groups. During implementation of EAP, population in vulnerable areas under different release scenario will be identified and contacted through public consultation meetings. Communities will be made aware about the warning systems and do's and dont's during such scenarios.

Output of this screening is enclosed as **Annexure I**.

Step II Screening (using Form SF-2): All applicable activities identified as having potential risks/impacts that were identified through Step I screening, are screened for associated sub-activity and evaluated for the extent of risk. Sub-activity's Risk/Impact intensity is further categorised as Low (L), Moderate (M), Substantial (S) or High (H) based on following criteria:

Low:	Localized, temporary and negligible
Moderate:	Temporary, or short term and reversible under control
Substantial:	Medium term, covering larger impact zone, partially reversible
High:	Significant, non- reversible, long term and can only be contained/compensated

Occupational Health and safety: OHS is a substantial risk activity in almost all cases and is not being considered under screening criteria. Occupational health and safety is considered an important requirement of every project irrespective of size and type of the projects. It will be part of Contractor's ESMP.

Analysis of extent of risk/impact for sub-activities resulted in identification of most of the activities proposed as Low risk, except for following which have been assessed as having Moderate Risk/impact.

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- Treatment on u/s ww face for reducing leakages
- Construction & Improvement of approach road of Dnyanganga Dam
- Setting up of Labour Camp
- Disposal of Large amount of debris

None of the activities for this sub-project is having substantial or high risk. The outcome of Screening is enclosed as **Annexure II**. In case of GBV/SEAH, this site was assessed as Low risk.

Step III Screening (using Form SF-3): This is one of the important screening template which brings out the risks identified in the SF-2. These risks are distributed in to environmental and social risks to complete a matrix to bring out a complete scenario of risks and their classification in a matrix format. Any of the activity comes an H or S will make the sub project a high risk sub project and will undergo a detailed ESIA. Low to moderate will prepare Standard ESMP.

Based on consideration of all the above, summary of Risk/Impact in SF-3 for major sub-project activities is given at **Table 4.1 below.**

Table 4.1: Summary of Identified Risks/Impacts in Form SF 3

Project Activity	Environment Risks						Social Risks				
	Air, water, noise, land use, Soil, Resource use	Pollution downstream and upstream	General Ecology	Protected Area (Wild Life Sanctuaries, National Park and other natural habitat even if not protected)	Other RET species (flora and fauna) outside protected areas	Fish and Aquatic life within dam water body	Land	Tribal	Labour	Cultural heritage	GBV/SEAH
Civil (within Dam Boundary)	M	L	L	L	L	M	L	L	M	L	L
Hydro Mechanical	L	L	L	L	L	L	L	L	L	L	L
Instrumental SCADA, surveillance	L	L	L	L	L	L	L	L	L	L	L
Painting	L	L	L	L	L						
Road work	M	L	L	L	L	L	L	L	M	L	L
Safety measures (Siren, Lighting)	L	L	L	L	L	L	L	L	L	L	L
Major Civil Work like Additional Spill Way	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Major Hydraulic Structure (tunnelling)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Major Civil Work extending beyond Dam Area Like training Structure	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Additional activities for Tourism /Solar/Fisheries/ Water recreation enhancement	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Criteria for Risk Evaluation:

Low: Localized, temporary and Negligible

Moderate: temporary, or short term and reversible under control

Substantial: medium term, covering larger impact zone, partially reversible

High: significant, non-reversible, long term and can only be contained/compensated

Occupational Health and safety: OHS is a substantial risk activity in almost all cases and is being treated separately through OHS plan in accordance with WB ESHS guidelines and shall be applicable to all sub-projects. Hence is not being considered under screening criteria

1.2 STAKEHOLDERS CONSULTATION

In light of the COVID 19 pandemic, Government of India has announced a country wide lockdown that constrained holding of consultation meetings. Thereafter, restriction on large public gathering is still continuing. However, to ensure the participation of stakeholders in ESDD preparation and record their views, stakeholders were contacted ensuring social distancing and their views recorded. A formal consultations will be held and outcomes documented at opportune time. Two sets of questionnaires are prepared, one for each category of stakeholders – direct workers and community stakeholders. Direct workers included Engineers/staff working at dam (present or working from home) – full time or contracted and community stakeholders included local people from vicinity villages.

Stakeholder consultation was conducted as part of environmental and social due diligence, with a purpose to:

a. provide initial information to the workers and communities on the proposed project interventions and particularly the non-structural interventions, if any;
b. Help identify potential stakeholders who are involved at this stage and will be involved a later stage.
c. assess their responses in understanding the potential risks and prepare mitigation plan to address their concerns

Following is the outcome of the stakeholder consultation exercise. List of community stakeholders who participated in consultation is enclosed as **Annexure III**

A. **Interaction with Dam Engineers/Staff**

Questions	Response provided / Observations
1. Please confirm whether all proposed structural rehabilitation activities for this dam are limited to dam compound only or any activities are proposed beyond dam complex like catchment area treatment plan, stabilization of reservoir rim area, slope stabilization de-silting etc.? Please specify if any possibility of local community interference exist during the implementation of rehabilitation measures; including stakeholder's consultation meeting planned for dissemination of emergency action plans which is a non-structural measure.	*All proposed structural rehabilitation activities are limited to dam compound only.* *There will be no possibility of local community interference during the implementation of rehabilitation measures. However, there will be involvement of local community during stakeholders consultation meeting planned for dissemination of emergency action plans.*
2. is there any unsettled issues (legacy) related to displacement or resettlement, pending since time of dam construction? If yes, please give brief detail.	*All necessary compensatory measures were taken up regarding displacement or resettlement. Also, additional demands regarding resettlement are under consideration.*
3. Any unauthorized encroachers or squatters living within dam premise? If yes, are these not a threat for the dame security and dam premise, any official action taken in the past, does the state government have legalized these squatters and these have full right in the property or dam authorities.	*No issue.*
4. What is the proposed institutional arrangement to deal the Environment and Social activities within the scheme i.e. in house team of expert / hired agency or individual experts?	*Environment and Social activities within the scheme will be dealt by individual experts procured by SPMU.*
5. Who will be in charge of E&S related activities at dam site and at SPMU level?	*Individual experts will be in charge of E & S related activities at Dam site & SPMU level.*

6. How do communities contact dam officials? Is there any existing mechanism known to communities to contact dam officials (through telephone/ mobile/e-mail/official website?)	*Communities can contact dam officials through telephone, mobile and e-mail as well as by written letter in person or through Postal department.*
7. What is existing mechanism to communicate with downstream communities/public on unregulated releases of water during high flood time siren/written communication to district authority / telephone / mobile / text messages or any other mode of communication?	*Communication with downstream communities /public on unregulated releases of water during high flood time is by Mobile msg. mobile communication to district authorities as planned in Standard Operating Procedure (SOP) for emergency situation.*
8. How do you ensure that downstream Community is fully aware of the above existing mechanism?	*Every year Standard Operating procedure (SOP) is updated & shared with local authorities, District Disaster Management Cell and also visits to Downstream villages to ensure that Community is fully aware of the above existing mechanism.*
9. Are there women employees at the dam site?	*No.*
10. Is there any existing Grievance Redressal Mechanism (GRM) within the department to address any kind of grievance / complaints by general public?	*Yes. Executive Engineer, Buldhana Irrigation Division,Buldhana is Head of Grievance Redressal Mechanism within the department to address any kind of grievance / complaints by general public*
11. Details of any grievance received lately related to this new Scheme?	*No grievance received.*
12. Is dam premises a restricted area or has open access to general public?	*Restricted area for general public.*
13. Are there tribal's Living in the Surrounding area of dam Complex? Which tribes are these? please give brief detail.	*Yes. Tribal's are Living in the Surrounding area of dam. Tribes namely banjari,Thakur, and Minority communities living Surrounding to the Dam in small villages like Matargaon,Geru, Sarola,shridharnagar,Varna,konti . These people use wheat and Rice as main Food.*
14. Does the dam have any tourism/ water recreation facilities? if yes, how many approximate tourist visits annually, annual revenue generated, whether any portion of this generated, revenue is diverted to regular O&M of this dam.	*Dam don't have tourism/ water recreation facilities. Hence no generation of revenue. However, being in the vicinity of forest area large no. of (Approx. 1000- 2000) tourist visits annually to the surrounding of the dam.*
15. Do you engage any local labourers for routine dam maintenance work? If yes, what is the process of engaging these locals for work at dam, whether through Government approved contractor or hired individually?	*Local labors are engaged for routine dam maintenance through Government approved contractor.*

B. **Interaction with Local Community**

Questions	**Responses Provided / Observations**
1. How many villages are in immediate downstream vicinity?	*Matargaon & Shridharnagar are the two villages in the Immediate downstream vicinity of Dnyanganga Dam.*
2. Are they dependent on dam in any way for their livelihood?	*Drinking Water supply & Irrigation water Supply is from the downstream side of the dam.*
3. Does any of these village where displaced and rehabilitated during the construction of Dam. Is there any pending compensation issues?	*No*

4. Is there any R&R[2] affected person known to You who is currently working with dam authorities? If so, in what capacity (employee/ direct worker/ contractor)	*No.*
5. are you aware of any fishing communities living immediately downstream of dam whose livelihood are directly linked with the fishing activities of this dam?	*No.*
6. Are you aware of fishing working Seasons, Revenue earning, any access to general public for fishing, any suggestion etc.	*As per GoM policy agencies are appointed for fishing activities in the reservoir by Fishery Department.Fishing is prohibited in dam.*
7. Are you aware of local women affected in any way by dam operation?	*No.*
8. Are you aware of any early flood warning system for this dam, or any other system wherein downstream communities getting regular update during flood season for any uncontrolled release of water?	*Being Ungated dam no need of ROS & GOS. As per Set procedure in the Standard Operating Procedure (SOP) all releases are communicated to District Disaster Management Cell & Concerned Tehsil & Police station.*
9. Are you aware of any dam related incident happened in the past wherein some loss of life encountered? If yes, brief summary may be given	*No.*
10. If you have to contact the dam authorities; How will you contact, through telephone/ mobile/ e-mail/ personally?	*Through telephone/email*
11. In the past, on any occasion, did you contact Dam authorities for any specific reasons Affecting public in general? If so, how did you contact and how was the response of dam authority?	*Not required.*
12. Give your view about Dnyanganga dam, how this Dam is helping country, State, District or local Communities in meeting its objectives, any Specific concern can also be given?	*Due to Dnyanganga dam, it is possible to cultivate crops in the Rabi as well as hot weather season for local community. Dnyanganga Dam also supplies water to Khamgaon & Nandura Municipal Corporation, for drinking purpose and also supplies water to MIDC khamgaon. Generating revenue every year by irrigation, domestic & industrial supplies.*
13. (a) Are you aware of any document named Emergency Action Plan (EAP) of the dam? (b) If yes, do dam authorities conduct any annual mock drill or consultation meeting on dam site and invite all stakeholders to inform. (c) in future during stakeholder's consultation meeting, would you like to be a part of these consultation and mock drill activities to be conducted by dam authorities? (d) If yes, how to contact you, please give the corresponding address along with all details to receive the ethical communication 14. Are you a regular follower of official website of dam authorities as a general public, in case you are a contractor, do you follow various tenders notices being invited for various	*Yes.* *Every year Pre & Post Monsoon inspections are carried out by Competent authorities with Sample verifications by Dam safety Organisation.* *Yes* *1) Non- Irrigation water user- BMC, TMC, MSEDCL & Industries Representative* *2) Irrigation Water User- WUA* *3) Project Affected:-* *Mr. Chunnilal- 8263818210*

[2] R&R reference is with respect to the dam construction, which began in 1969 and continued till 2005

maintenance of this dam? 15. Any Suggestion to improve overall System by dam authorities in any way, please give in brief?	*Yes* *WWW.WRD.maharashtra.gov.in* *EAP needs to be updated, Special security measures are required during monsoon.*

4.3 DESCRIPTIVE SUMMARY OF RISKS AND IMPACTS BASED ON SCREENING

Based on the above screening analysis, potential impacts and risks from the sub-project are summarised below:

Environmental Impacts and Risks

1. Environment risks and impacts, as assessed above, for various project activities under this sub-project are categorised as Low and Moderate due to localised nature of proposed activities i.e. activities remain limited to dam area except for labour camp and muck/debris disposal.
2. Execution of civil and hydro-mechanical work will generate localised impacts on physical environment and resource use; pose risk of exposure of workers requiring personal protective equipment (PPE) use.
3. Impacts of upgradation of approach road to right side Dam Top have been identified as moderate due to nature of work and pollution potential on physical environment and social risk due to labour involvement.
4. Civil work interfaced with water body such as work on upstream face of dam, Plastering, Curtain wall shall pose risk of water pollution and impact on fish fauna. Ingredients for the preparation of mortars and grouting suspensions include cement, clay and fillers, bentonite, asphalt, additives for stability and water. Some ingredients and chemicals used in the preparation of mortars and grouting suspensions may be toxic, neurotoxic or carcinogenic, and may be irritants. Their use may have negative impacts on both humans and the environment.
5. Construction and demolition waste and muck require careful disposal at pre-identified and approved site to minimise the risk of pollution on this count.
6. No impact on general ecology is envisaged.
7. Rehabilitation work would require labour to work on various sections of dam involving working at height, working in confined spaces, working on reservoir side, etc; Further, workers will also be exposed to dust and noise and will have to handle chemicals/gases for some of the works; these will lead to occupational health and safety risks.

Social Risk and impacts

1. As the interventions are within the dam premises and on the dam structure, there shall be no adverse impacts on land and assets due to any sub-component or sub-activities
2. The dam is not located in the Schedule V area. Though are Scheduled Tribes households in the vicinity, these are mainstreamed into the overall society and do not meet the characteristics outlined in ESS 7. There will be no physical interventions.
3. Influx of migrant labour will be low as these works require only few but very skilled labour Also these workers will mostly operate from labour camps within the dam premises/proximity and hence there would be minimal interface with communities and therefore significantly lower SEAH/GBV risks.
4. Waste generation from labour colony can pollute drinking water sources of community, risk is low and can be mitigated by providing adequate sanitation facilities.

5. No impacts are envisaged on cultural heritage as works shall not be undertaken in their vicinity or result in any impact.
6. Labour related risk would include:

   - Safety issues while at work like injuries/accidents/ fatalities leading to even death, while at work; Occupational health and safety risks due to exposure of workers to unsafe conditions while working at heights, working using lifts, handling of equipment and machinery, exposure to air and noise pollution etc. will be addressed through OHS guidelines.
   - Short terms effects due to exposure to dust and noise levels, while at work
   - Long term effects on life due to exposure to chemical /hazardous wastes
   - Inadequate accommodation facilities at work force camp, including inadequate sanitation and health facilities
   - Sexual harassment at work
   - Absence or inadequate or inaccessible emergency response system for rescue of labour/workforce in situations of natural calamities.
   - Health risks of labour relating to HIV/AIDS and other sexually transmitted diseases
   - Non-payment of wages
   - Discrimination in Employment (e.g. abrupt termination of the employment, working conditions, wages or benefits etc.)
   - Unclear terms and conditions of employment
   - Discrimination and denial of equal opportunity in hiring and promotions/incentives/training opportunities
   - Denial for workers' rights to form worker's organizations, etc.
   - Absence of a grievance mechanism for labour to seek redressal of their grievances/issues

Chapter 5 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

5.1.1 Risk Classification

As per the ESDD exercise, risk/impacts that have been identified relate to Water Quality, Fisheries, Physical Environment, labour and SEAH/GBV. The summarised environmental and social risks of identified activities with level of risk is presented in previous chapter. Environment risks of air, water, noise, and resource use as well as social risks of labour, civil work within the dam body and road work are Low. Similarly, environment and social risk of labour camp and disposal of debris has been identified as Low. Risk of all other activities has been identified as Low. These risks are low to moderate and localised, short term and temporary in nature which can be managed with standard ESMP and guidelines.

Hence the overall risk of this sub-project Dam is categorized as Low. OHS is a substantial risk activity and is being treated separately through OHS plan in accordance with WB ESHS guidelines.

5.1.2 National Legislation and WB ESS Applicability Screening

The applicability analysis of GOI legal and regulatory framework indicates that while, there are various legislations which will have to be followed by the contractor for the protection of environment, occupational health and safety of workers and protection of workers and employment terms. None of Indian legislation is applicable warranting obtaining clearance prior to start of construction/improvement work.

In addition to overarching ESS1, four ESS standards are found relevant to this sub-project as per reasons given in **Table 5.1** below:

Table 5.1: WB ESF Standards applicable to the sub-project

Relevant ESS	Reasons for Applicability of the standard
ESS2: Labour and Working Conditions	Due to engagement of Direct worker, Contracted workers and Community workers (likely for EAP and other non-structural interventions) for rehabilitation work
ESS3: Resource Efficiency, Pollution Prevention and Management	Civil and hydro-mechanical work including resource consumption; requiring protection of physical environment and conservation of resources
ESS 4: Community Health and Safety	Rehabilitation work, although limited to dam complex, can increase community exposure to risk and impacts; directly or indirectly.
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural resources	Dam is located within the Dnyanganga Wildlife Sanctuary, which has also been declared as Reserve forest. As no interventions are planned outside the dam, no direct impacts have been identified on natural habitat, however, to eliminate risks of indirect impacts due to outside labour and transportation of man and material, Biodiversity Plan will be prepared.

ESS 10: Stakeholder Engagement Plan	For engagement of stakeholders in all structural and non-structural interventions e.g. Early flood Warning system, siren systems, broadcasting facilities, Emergency Action Plan etc.

5.2 RECOMMENDATIONS

5.2.1 Mitigation and Management of Risks and Impacts

Since risks and impacts are low to moderate category, a standard ESMP customised to sub-project will be prepared in accordance with the ESMF. It shall cover the following aspects:

a. SPMU shall customise the standard Environmental and Social Management plan (ESMP) that has been provided in the Environmental and Social Management Framework (ESMF) and make it part of bid document for effective adherence by contractors.

b. ESMP will provide due measures for labour management and protection of environment quality and resource conservation (during handling of resources) in line with ESF standard ESS2 and ESS3 respectively. Likewise, due attention will be given to Occupational Health and Safety of workers and community in line with the requirements of ESS4 and World Bank Group guidelines on Occupational Health and Safety (OHS). SPMU/IA shall customise the standard ESMP in line with outline provided in the ESMF and ensure its adherence by contractor. The customised ESMP will address the following:

- Gender Based Violence or SEA/SH related actions (ESS1)
- Labour Management Procedure (ESS2)
- Resource Efficiency and Pollution Prevention (ESS3)
- Community Health and Safety (ESS4)
- Bio-diversity conservation plan(ESS6)
- Stakeholders Engagement Plan (ESS10)

c. Contractor shall submit BOQ as per ESMP of the sub project.

Mitigation plans to meet requirements for relevant Standards with responsibility and stages are given in **Table 5.2** below:

Table 5.2: List of Mitigation Plans with responsibility and timelines

WB-ESS Triggered	Mitigation Instrument	Responsibility	Timelines
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	• Gender Based Violence or SEA/SH related actions	SPMU/IA	Before mobilization of contractor
ESS2: Labour and Working Conditions	• Labour Management Procedure (LMP)	SPMU/IA	Before mobilization of contractor

WB-ESS Triggered	Mitigation Instrument	Responsibility	Timelines
	including OHS management plan		
ESS3: Resource Efficiency, Pollution Prevention and Management	• Pollution Prevention and Environment Quality Management Plan (PPEQMP)	SPMU/IA	Before mobilization of contractor
ESS 4: Community Health and Safety	• Community Health and Safety Management Plan (CHSMP)	SPMU/IA	Before mobilization of contractor
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural resources	• Biodiversity Conservation Plan	SPMU/IA	Before mobilization of contractor
ESS 10: Stakeholder Engagement Plan	• Stakeholder Engagement Plan	SPMU/IA	By negotiation

ESDD and ESMP will be placed on the www.damsafety.in website as well as other accessible locations such as the office of Engineer in Charge at Dam site as well at SPMU for reference and record. These documents would be disclosed/disseminated through other appropriate means like project meetings, workshops etc. Each IA will translate these documents in their local language, if required, and will upload in their respective websites and also make available at other accessible locations

5.2.2 Institutional Management, Monitoring and Reporting

ESMP will be customized for the sub project by SPMU/IA from standard ESMP included in ESMF and shall be shared with CWC by SPMU for their review/endorsement and approval before including in the bid document.

SPMU/IA will designate Nodal Officer(s) (full time in-house engineering staff with E&S expertise) to coordinate and supervise E&S activities. They shall be at the level of Executive Engineer/ Deputy Directors and shall provide commensurate time to comply with E&S related activities. Brief TORs for these Nodal E&S officers is included in ESMF. The SPMU, in case in-house expertise not available, will hire the qualified staffs on need basis to support management of E&S risks including Environmental and Social Experts for ensuring compliance with the Bank's ESF and ESS's and ensuring that these activities shall be implemented as per the procedures.

SPMU/IA shall advise contractors about applicable legislative requirements and ensure that contractors prepare its own ESMP (C-ESMP) as outlined in ESMP for this sub-project and submit compliance reports to SPMU/IA on quarterly basis. SPMUs will share regular implementation status of ESMPs to CWC and The World Bank in line with ESMF on quarterly basis.

SPMU/IA shall establish and operationalize a grievance mechanism to receive and facilitate resolution of complaints and grievances, from the communities and other stakeholders including implementation partners. GRM works within existing legal and cultural frameworks and shall comprise project level and

respective State level redressal mechanisms. Most Project related grievances could be minor and site-specific.

EMC (Engineering and Management Consultant) for the project will have sufficient staff with skills on Environment and Social aspects. Awareness raising and capacity building on the new Environmental and Social Framework (ESF) need to be carried out for the environment and social staff engaged and this will be an area of continued focus, with a view to generate awareness at to dam level. EMC will develop formats for regular supervision and monitoring on E&S issues and undertake site visits/ inspections of the dam sites to monitor for compliance; collate and review QPRs and set up a monitoring and reporting system on E&S issues.

Overall, the proposed activities within this dam sub-project have low to moderate risks resulting in the overall sub-project to be categorized as Moderate risk category. These risks and impacts can be effectively mitigated with effective implementation of mitigation plans by SPMU/IA, Contractors and monitoring by EMC, SPMU and CWC.

Annexure - I: Form SF1

Sl. No	Project Component	Applicable (A), Not Applicable (NA)	Environment and Social Risk Associated within dam area (DI), Beyond Dam Area (DE)	Likely Nature of Risk/Impact Water Quality (WQ), Fisheries (F), Conservation area (CA), Protected Area (PA), Ecological (E), Occupational Health (OH), Physical Environment (PE), Cultural (C), Tribal presence (T), impact on private land/assets/encroachers/squatters (LA), Labour (L), GBV risks (G), (Write whichever is applicable)
1	2	3	4	5
A	**Nature of Project Component and related sub activity Related**			
1	Reservoir Desiltation	**NA**		
2	Major structural changes – Spillway construction (Improving ability to withstand higher floods including additional flood handling facilities as needed.)	**NA**		
3	Structural strengthening of dams to withstand higher earthquake loads	**NA**		
4	Structural Improvement/Repair work upstream of Dam site (interfacing dam reservoir) (like resetting of Rip-Rap, repair of training walls, treatment of Honeycombed etc.)	**A**	**DI**	**WQ, L, G, PA**
5	Structural Improvement/Repair work -Downstream of Dam site (with no interfacing with dam reservoir) (like repair of parapet walls, damage spillway crest, downstream training walls, etc.)	**A**	**DI**	**WQ, PE, L, G,PA**
6	Re-sectioning earth dams to safe, stable cross sections	**NA**		
7	Hydro-mechanical activities with interface with dam reservoir	**A**	**DI**	**WQ, L, G,PA**

8	Hydro-mechanical activities Downstream of Dam site (with no interfacing with dam reservoir)	**A**	**DI**	**L, G ,PA**
9	Instrumentation, General lighting and SCADA systems	**A**	**DI**	**L, G,PA**
10	Basic Facilities (like access road improvement, renovation of office, etc)	**A**	**DI**	**PE, L, G,PA**
11	Utility installation like standby generator, or setting up solar power systems	**NA**		
12	Painting of dam u/s or d/s or both faces	**NA**		
13	Water recreation activities	**NA**		
14	Tourism Development	**NA**		
15	Installation of Solar power/floating solar	**NA**		
16	List any other component not listed above			

Sl. No	Project Component	Applicable (A), Not Applicable (NA)	Environment and Social Risk Associated within dam area (DI), Beyond Dam Area (DE)	Likely Nature of Risk/Impact Water Quality (WQ), Fisheries (F), Conservation area (CA), Protected Area (PA), Ecological (E), Occupational Health (OH), Physical Environment (PE), Cultural (C), Tribal presence (T), impact on private land/assets/encroachers/squatters (LA), Labour (L), GBV risks (G), (Write whichever is applicable)
1	**2**	**3**	**4**	**5**
i	tion of Geo-membrane / Concrete cladding	**A**	**DI**	**WQ, L, G**
B	**Pre-construction and construction stage major auxiliary or preparatory intervention**			
1	Acquisition (diversion of forests land for non-forest purposes) of forest land	**NA**		
2	Acquisition of private land Resettlement and Rehabilitation (including physical or economic displacement/impact on livelihood;	**NA**		
3	Temporary loss of business or Damages to crops or trees or structures outside the ROW during Construction activities by Contractor			
4	Borrowing earth to meet Borrow materials requirement	**NA**		
5	Sourcing of Quarry materials	**NA**		
6	Blasting	**NA**		
7	Setting up Labour Camps (location within dam premises or outside)	**A**	**DI**	**WQ, PE, L, G,PA**
8	Heavy machinery deployment and setting up maintenance workshop	**A**	**DI**	**PE, L, G,PA**
9	Setting up Hot mix plant	**NA**		
10	Deployment of Concrete mixture and heavy pumps	**A**	**DI**	**PE, L, G,PA**
11	Temporary land acquisition	**NA**		
12	Need of Tree felling/ vegetation clearance	**A**	**DI**	**PE, L, G,PA**
13	Disposal of large amount of Debris	**A**	**DE**	**PE, L, G,PA**
14	Transport of large construction material	**A**	**DE**	**PE, L, G,PA**
15	Utility shifting	**NA**		
16	Discharge of reservoir water (lowering of reservoir water involved)	**NA**		
	List any other not listed above			

Note: Occupational Health and Safety aspects / impacts/ risks are considered important part of any dam project and this risk is separately classified. It shall be managed as per defined OH&S plans in every project irrespective of size and type of project.

Annexure – II: Form SF2

Sl. No	Applicable Sub-Project Component/ Construction preparatory Work related Sub activity (as per SF-1)	Nature of Risk (Conforming to Column 5 of SF-1) and nature of sub activity	Elaborate cause (risk) and its effect (Impact) on environment /social (Pl give brief text summary)	Risk/Impact intensity for each type of risk/impact Low (L), Moderate (M), Substantial (S), High (H)
1	**2**	**3**	**4**	**5**
A	**Project Component Related**			
1.	**Structural Strengthening/Improvement/Repair work -upstream of Dam site**			
a	Cleaning of foundation drain holes at main dam body.	**WQ, L, G,PA**	Air pollution, noise pollution, risk of reservoir water contamination ,generation of construction debris, Occupational health and safety risk due to working on upstream face of dam, labour and GBV risk	**M**
b	Cleaning of Vertical Porous Drain pipes of Wan dam	**WQ, L, G,PA**	Air pollution, noise pollution, risk of reservoir water contamination ,generation of construction debris, Occupational health and safety risk due to working on upstream face of dam, labour and GBV risk	**L**
2.	**Structural Improvement/Repair work -Downstream of Dam site (with no interfacing with dam reservoir) (like repair of parapet walls, damage spillway crest, downstream training walls, etc.)**			
a	Concreting at D/s side of dam for spillway channel treatment at 2nd EDA .	**WQ, PE, L, G,PA**	Air pollution, noise pollution, , risk of river water contamination and impact on fishes, generation of construction debris, Occupational health and safety risk due to working on upstream	**L**

Sl. No	Applicable Sub-Project Component/ Construction preparatory Work related Sub activity (as per SF-1)	Nature of Risk (Conforming to Column 5 of SF-1) and nature of sub activity	Elaborate cause (risk) and its effect (Impact) on environment /social (Pl give brief text summary)	Risk/Impact intensity for each type of risk/impact Low (L), Moderate (M), Substantial (S), High (H)
1	**2**	**3**	**4**	**5**
			face of dam, labour and GBV risk	
3.	**Hydro-mechanical activities Downstream of Dam site (with no interfacing with dam reservoir)**			
a	Repairs/ replacement of gates & hoists	**PE, L, G,PA**	Water pollution, impact on fish, Noise pollution, Occupational health and safety risk due to working at heights, waste generation from removed parts, Labour & GBV risk	**L**
b	Electrical works	**PE, L, G,PA**	Occupational health and safety risk due to electrical work, waste generation from removed parts and packing material, Labour & GBV risk	**L**
c	Safety measures like siren, Warning System - Alarm system etc.	**PE, L, G,PA**	Waste generation from removed parts and packing material, Labour & GBV risk	**L**
4.	**Instrumentation, General lighting and SCADA systems**			
a	m Instrumentation (Geo-technical, hydro-meteorological, Seismic, Geodetic, data collection, storage, data transfer, analysis, retrieval, Operation &Maintenance etc.).	**PE, L, G,PA**	Occupational health and safety risk due to electrical work, waste generation from removed parts and packing material, labour and GBV risk	**L**
5.	**sic facilities (like access road improvement, renovation of office, etc)**	**PE, L, G,PA**	Air pollution, noise pollution, construction debris, Occupational health and safety risk	**M**
B.	**Pre-construction and construction stage major auxiliary or preparatory intervention**			
1	Setting up Labour Camps (location within dam premises or outside)	**WQ, PE, G,PA,L**	Wastewater generation from domestic activities, waste generation, GBV risk within labour and involving community.	**M**

Sl. No	Applicable Sub-Project Component/ Construction preparatory Work related Sub activity (as per SF-1)	Nature of Risk (Conforming to Column 5 of SF-1) and nature of sub activity	Elaborate cause (risk) and its effect (Impact) on environment /social (Pl give brief text summary)	Risk/Impact intensity for each type of risk/impact Low (L), Moderate (M), Substantial (S), High (H)
1	**2**	**3**	**4**	**5**
2	Heavy machinery deployment and setting up maintenance workshop	**PE, L, G,PA**	Heavy machinery will be deployed for repair and maintenance of gates and hoists and for other activities - OH risk due to machine handling, waste, wastewater and air emissions from machines operations, hazardous waste generation from oil waste, Labour & GBV risk	**M**
3	Deployment of concrete mixture and heavy pumps	**PE, L, G,PA**	Concrete mixture and pumps will be deployed for road repair and other civil works and de-watering - OH risk due to machine handling, waste generation, wastewater and air emissions from operations, hazardous waste generation from oil waste, Labour & GBV risk	**L**
4.	Need of tree felling/ vegetation clearance	**PE, L, G, PA**	No such pollution and risk of river water contamination from this activity.	**L**
5.	Disposal of large amount of Debris	**PE, L, G, PA**	Debris will be generated from various repair activities - OH risk during debris handling, air and noise emissions from debris handling and transportation, water pollution risk due to debris finding its way to water body, and GBV risk due to labour involvement	**M**
6.	Transport of large construction material	**PE, L, G,PA**	Material will be transported from various vendors and suppliers to site for	**L**

Sl. No	Applicable Sub-Project Component/ Construction preparatory Work related Sub activity (as per SF-1)	Nature of Risk (Conforming to Column 5 of SF-1) and nature of sub activity	Elaborate cause (risk) and its effect (Impact) on environment /social (Pl give brief text summary)	Risk/Impact intensity for each type of risk/impact Low (L), Moderate (M), Substantial (S), High (H)
1	2	3	4	5
			civil, hydro-mechanical work and instrumentation - - OH risk during material handling, loading and unloading; ,air and noise emissions from transportation, Labour and GBV risk	

Criteria for Risk Evaluation:

Low: Localized, temporary and Negligible

Moderate: temporary, or short term and reversible under control

Substantial: medium term, covering larger impact zone, partially reversible

High: significant, non- reversible, long term and can only be contained/compensated

Occupational Health and safety: OHS is a substantial risk activity in almost all cases and is being treated separately through OHS plan in accordance with WB ESHS guidelines and shall be applicable to all sub-projects. Hence is not being considered under screening criteria

Annexure III: Stakeholder's consultation: List of Participants

Sr. No.	Name	Relation with Dam – Staff, Contractor, Worker, Full/ part Time, Local NGO…	Mobile Number	Address (At Least Village Name)
1.	Mr. Chunilal	Local Farmer	8263818210	Matargaon
2.	Mr. Manoj Bodale	Farmer in command area	9579674663	Tandulwadi
3.	Mr. Jayanta Miradwar	Contractor	7020412582	Khamgaon
4.	Mr. Nazir Shaikh	Mechanical worker	9922775332	khamgaon
5.	Representatives from- Non- Irrigation water user- BMC, TMC, MSEDCL & Industries Representative			
6.	Irrigation Water User- WUA			