



**Government of Maharashtra
Water Resources Department**

**Annual Consolidated Health Status Report
of Identified Large Dams In
Nagpur Region (Year 2019-20)**



Totladoh Dam

**Superintending Engineering
Dam Safety Organization,
CDO Building, Dindori Road, Nashik-4**

**Superintending Engineer
Dam Safety Organisation
Dindori Road, Nashik-422004.
Phone (Off.): 0253 – 2530030.
Fax: 0253 – 2530030.
E-mail: se.damsafety@gmail.com
Website: www.mahadso.org**



**महाराष्ट्र शासन
जलसंपदा विभाग**

**GOVERNMENT OF MAHARASHTRA
WATER RESOURCES
DEPARTMENT**

**अधीक्षक अभियंता,
धरण सुरक्षितता संघटना,
दिंडोरी मार्ग, नाशिक - ४२२ ००४.
दूरध्वनी (ऑ.): ०२५३ - २५३००३०
फॅक्स : ०२५३ - २५३००३०.
ई-मेल : se.damsafety@gmail.com
वेबसाईट : www.mahadso.org**

जा.क्र./धसुविक्र.२/नागपुर प्रदेश/धरण स्थिती अहवाल २०१९-२०/९५८/२०२० दिनांक : ११/०५/२०२०

प्रति,

- १) मुख्य अभियंता, जलसंपदा विभाग,
सिंचनभवन, नागपुर - ४४४००१
- २) मुख्य अभियंता, जलसंपदा विभाग,
गोसीखुर्द, नागपुर - ४४४००१

विषय :- नागपुर विभागातील पुर्ण झालेल्या मोठ्या धरणांचा पावसाळा पूर्व - उत्तर २०१९ धरण स्थिती अहवाल
संदर्भ :- महाराष्ट्र शासनाचे इंग्रजी पत्र क्र.पा.वि.१०७७/२४०२/१८६७/२ दिनांक १९.१.८२

संदर्भित शासन पत्रानुसार आपले अधिनस्त अधीक्षक अभियंता व कार्यकारी अभियंत्याकडून ह्या कार्यालयात प्राप्त झालेल्या नागपुर विभागातील पावसाळा पूर्व व उत्तर २०१९ धरण निरीक्षण अहवालांची छाननी करून तसेच धरण सुरक्षितता संघटनेकडून करण्यात आलेल्या Test Inspection नुसार धरण स्थिती अहवाल तयार करण्यात आलेला आहे.

धरण स्थिती अहवालावरून असे निदर्शनास येते की ; नागपुर विभागातील वर्ग-१ व वर्ग-२ च्या धरणांमध्ये संवर्ग-१ च्या त्रुटी आढळून आल्या नाहीत. मात्र वर्ग -१ मधील २० पैकी १० धरणांमध्ये (५० %) आणि वर्ग - २ मधील ६० पैकी १४ धरणांमध्ये (२१ %) संवर्ग-२ च्या त्रुटी आढळून आल्या आहेत.

धरण सुरक्षिततेसंबंधी क्षेत्रिय स्तरावर उदासिनता दिसून येते. धरणस्थिती अहवाल २०१८-१९ मध्ये वर्ग-२ च्या त्रुटी आढळून आलेल्या धरणांचे बाबतीत Action Taken Report मार्च २०२० अखेर पर्यंत प्राप्त झालेत. प्राप्त अहवालांची तपासणी केल्यावर दिसून येते की, HSR २०१८-१९ मध्ये २२ प्रकल्पांवर ५६ वर्ग - २ च्या त्रुटी आढळून आल्या होत्या. त्यापैकी फक्त ११ प्रकल्पांवरील वर्ग-२ च्या काही त्रुटीबाबत कार्यवाही प्रस्तावित केल्याचे दिसून येते. वरीलप्रमाणे वर्ग - २ च्या त्रुटी निराकरणात दुर्लक्ष झाल्याने महाराष्ट्राला तिवरे धरण फुटीस सामोरे जावे लागले. भविष्यात याची पुनरावृत्ती होवु नये म्हणुन धरण सुरक्षिततेसाठी Dam Safety - Action Taken Reports बाबत प्रादेशिक कार्यालयात वेळोवेळी होणा-या होणा-या मासिक बैठकीत हा विषय अंतर्भुत करून निदान त्रैमासिक आढावा घेतला जावा ही विनंती. दोष व त्रुटी बघल त्वरीत कार्यवाही करून सदर त्रुटीचे निवारण करण्यात यावे आणि अनुपालन / पुर्तता अहवाल या कार्यालयास त्वरीत पाठविण्याबाबत संबंधित अधीक्षक अभियंता यांना आपले स्तरावरून सुचना देणेस विनंती आहे.

धरण निरीक्षण अहवाल क्षेत्रिय अधिका-यांकडून प्राप्त होण्यास सर्वसाधारणपणे दिरंगाई होते. त्यामुळे या संघटनेस धरण स्थिती अहवाल तयार करण्यात विलंब तागतो. तरी कृपया यापुढे धरणांचे निरीक्षण अहवाल विहीत नमुन्यात व विहीत कालावधीत या संघटनेस पाठविण्याविषयी क्षेत्रिय अधिका-यांना आपले स्तरावर सुचना निर्गमित व्हाव्यात ही विनंती. धरण स्थिती अहवाल सर्व संबंधित मंडळ व विभागीय मंडळ व विभागीय कार्यालयांना ई- मेल व्दारे पाठविण्यात येत आहे.

सहपत्र : धरण स्थिती अहवालाची प्रत.

(य. का. भदोणे) 11/05/2020

अधीक्षक अभियंता,
धरण सुरक्षितता संघटना, नाशिक - ०४

प्रत - मा. सचिव (जसंव्य व लाक्षेवि, जलसंपदा विभाग, मंत्रालय, मुंबई-३२ यांना अहवालासह माहितीस्तव सविनय सादर.

प्रत - मा. महासंचालक, संकल्पन, ,प्रशिक्षण,जलविज्ञान, संशोधन, सुरक्षितता , (मेरी) नाशिक यांना अहवालासह माहितीकरीता सविनय सादर.

प्रत - मा. कार्यकारी संचालक, विदर्भ पाटबंधारे विकास महामंडळ, नागपूर यांना अहवालासह माहितीकरीता सविनय सादर.

प्रत - मा.मुख्य अभियंता, नियोजन व जलविज्ञान, जलविज्ञान प्रकल्प, नाशिक यांना अहवालासह माहितीस्तव सविनय सादर.

प्रत - मा.मुख्य अभियंता, यांत्रिकी (जलसंपदा विभाग), नाशिक यांना अहवालासह माहितीस्तव सविनय सादर.

प्रत - आयुक्त, नागपूर महानगर पालिका, नागपूर, यांना अहवालासह सविनय सादर.

प्रत - उप मुख्य अभियंता (स्थापत्य) स्थापत्य बांधकाम मंडळ, महाराष्ट्र राज्य विद्युत मंडळ, दुर्गापूर (चंद्रपूर) यांना अहवालासह सस्नेह अग्रेषित.

प्रत -

१. अधीक्षक अभियंता, नागपूर पाटबंधारे मंडळ, नागपूर
 २. अधीक्षक अभियंता व प्रशासक, लाभक्षेत्र विकास प्राधिकरण, नागपूर
 ३. अधीक्षक अभियंता, चंद्रपूर पाटबंधारे प्रकल्प मंडळ, चंद्रपूर
 ४. अधीक्षक अभियंता, गोसीखुर्द उपसा सिंचन मंडळ, अंबाडी (भंडारा)
 ५. अधीक्षक अभियंता, गोसीखुर्द प्रकल्प मंडळ, नागपूर
 ६. अधीक्षक अभियंता, यांत्रिकी मंडळ, नाशिक.
- यांना माहितीसाठी व पुढील योग्य त्या कार्यवाहीसाठी अहवालासह सस्नेह अग्रेषित**
- २/ कृपया वरील अहवालाची प्रत मिळाल्याची पोहोच या कार्यालयास पाठवावी ही विनंती.

प्रत -

१. कार्यकारी अभियंता, नागपूर पाटबंधारे विभाग,(दक्षिण),अजनी, नागपूर
२. कार्यकारी अभियंता, नागपूर पाटबंधारे विभाग, नागपूर
३. कार्यकारी अभियंता, नागपूर पाटबंधारे विभाग (उत्तर), प्लॉट नं.१३,सिव्हिल लाईन्स, नागपूर-१
४. प्रकल्प अधिकारी, भू व जलव्यवस्थापन पथदर्शी प्रकल्प, नागपूर
५. कार्यकारी अभियंता, बाघ ईटीयाडोह पाटबंधारे विभाग, गोंदिया
६. कार्यकारी अभियंता, गोंदिया पाटबंधारे विभाग, गोंदिया
७. कार्यकारी अभियंता, मध्यम प्रकल्प विभाग, गोंदिया
८. कार्यकारी अभियंता, निम्न वेणा प्रकल्प विभाग, वर्धा
९. कार्यकारी अभियंता, वर्धा पाटबंधारे विभाग, वर्धा
१०. कार्यकारी अभियंता, लघू पाटबंधारे विभाग, वर्धा
११. कार्यकारी अभियंता, लघू पाटबंधारे विभाग, भंडारा
१२. कार्यकारी अभियंता, चंद्रपूर पाटबंधारे विभाग, चंद्रपूर
१३. कार्यकारी अभियंता, चंद्रपूर मध्यम प्रकल्प विभाग क्र.१, चंद्रपूर
१४. कार्यकारी अभियंता (स्थापत्य) स्थापत्य बांधकाम विभाग क्र.३, म.रा.वि.म. दुर्गापूर (चंद्रपूर)

दोष व त्रुटी बद्दल त्वरीत कार्यवाही करुन अनुपालन / पुर्तता अहवाल या कार्यालयास त्वरित पाठवावा ही विनंती

२/- सदर अहवालाची प्रत ई-मेल व्दारे पाठविण्यात आलेली आहे.

प्रत - १) कार्यकारी अभियंता, धरण सुरक्षा विभाग क्र .३, नाशिक ४

२/- यांना ग्रंथालयात संग्रहासाठी.

२) कार्यकारी अभियंता, धरण सुरक्षा विभाग क्र.१, नाशिक ४

प्रत- ग्रंथालय, मध्यवर्ती संकल्पचित्र संघटना, नाशिक यांना अहवालाच्या प्रतीसह माहितीसाठी

FOREWORD

Final

1. "The Annual Health Status Report of Identified Large Dams i.e. Large Dams Class-I and Large Dams Class-II in Nagpur Region for the Year 2019-20 is prepared, based on the Inspection Reports (Pre and Post Monsoon 2019) received from field officers and the test inspections carried out by this Organisation during year 2019-20. The period of the report is from April 2019 to March 2020

2. This Report comprises of following parts, as per guidelines received from Dam Safety Monitoring Unit of Central Water Commission, New Delhi vide letter No. 3/19/NCDS/HS/DSM/2001 dt. 28/8/2002.

Part-I : Action Taken Report on the Health Status Report 2018 On deficiencies classified under Category I & II.

Part-II : Annual Consolidated Health Status Report prepared for the year 2019-20 as described above for identified Large Dam Class-I and Dam Class-II on the basis of deficiencies classified under Category No. 1, 2 & 3.

Part-III : Annual Report of Performance of Dam Instruments installed on identified Large dams.

Part-IV : Annual Report of Performance of Meteorological Instruments installed on Large Dams.

Part-V : Status of NCDS Documents submitted to D.S.O of Class-I Dams in Nagpur Region.

Part-VI : Data filling status on DHARMA Portal.

Part-VII : Annual Report of Inspections done by Mechanical Organisation. Deficiency Category-I & II from Health Status Report made available by Mechanical.

3. This report provides condensed summary of dam deficiencies noticed during inspection carried out by field officer and dam safety organisation in the year 2019. Field officer / owners of dams are requested to remove deficiencies to achieve dam safety aspects and send compliance report earliest.

4. Inspecting officers are requested to follow the suggestion given in Annexure – 1 while carrying out forthcoming Pre/Post Monsoon inspections of dams. In Annexure – 1 general information viz. Time schedule of inspection, classification of dams, inspection authorities, Preparation of AHSR for class-I & class-II dams, NRLD register updation, categorization and standardization of deficiencies, monitoring of deficiency removal program is given, which will be helpful to field officers.

5. As Health Status Report of Large Dams of Class I & II is prepared by Dam Safety Organization, it is suggested to carry out inspections of Class-III dams and small dams by competent field officers and to prepare the Health Status Report of these dams at the Regional Level & forward it to DSO. This has been also persued through letters, but the response from field officers is not encouraging. So special attention needs to be paid by field Chief Engineers in this regard.

6. This report covers Dam Health Status of 80 Class-I & II dams owned by WRD and also covers all private dams inspected by DSO twice in the year.

7. In Nagpur region 19 Class-I & 58 Class-II dams of Government & 1 Class I & 2 Class-II private dams are in existence. Pre & post monsoon inspection reports of all the dams have been received. & scrutinised for preparation of HSR.

8. Director General, MERI, Nashik has issued technical circular in 2006 (No.5325 of 2006 dated 15/12/2006) regarding guide lines for periodical inspections of spillway gates by the mechanical Organisation information regarding no. of deficiencies observed during the inspections carried out by Mechanical Organisation are also incorporated in this Health Status Report.

Statement showing total numbers of dams having deficiencies

| Sr. No | Dam owner | Year | Number of dams | | | | | | | | |
|-------------|-----------|------|----------------|----------|-------|----------------------------------|--------|---------|-----------------------------------|--------|---------|
| | | | Class -I | Class II | Total | Class I dams having Deficiencies | | | Class II dams having Deficiencies | | |
| | | | | | | Cat-I | Cat-II | Cat-III | Cat-I | Cat-II | Cat-III |
| 1 | W.R.D | 2018 | 19 | 58 | 77 | 00 | 10 | 19 | 00 | 09 | 58 |
| | | 2019 | 19 | 58 | 77 | 00 | 09 | 19 | 00 | 12 | 58 |
| 2 | Private | | | | | | | | | | |
| | CTPS | 2018 | 01 | 00 | 01 | 00 | 01 | 01 | 00 | 00 | 00 |
| | | 2019 | 01 | 00 | 01 | 00 | 01 | 01 | 00 | 00 | 00 |
| | NMC | 2018 | 00 | 02 | 02 | 00 | 00 | 00 | 00 | 02 | 00 |
| | | 2019 | 00 | 02 | 02 | 00 | 00 | 00 | 00 | 02 | 00 |
| Grand Total | | 2018 | 20 | 60 | 80 | 00 | 11 | 20 | 00 | 11 | 58 |
| | | 2019 | 20 | 60 | 80 | 00 | 10 | 20 | 00 | 14 | 58 |

Statement showing total number of deficiencies

| Sr. No | Dam owner | Year | Number of Deficiencies | | | | | | | | |
|-------------|-----------|------|------------------------|------------|-------|--------------|-----------|-------|---------------|------------|-------|
| | | | Category –I | | | Category –II | | | Category -III | | |
| | | | Class - I | Class - II | Total | Class - I | Class- II | Total | Class- I | Class - II | Total |
| 1 | W.R.D | 2018 | 00 | 00 | 00 | 25 | 24 | 49 | 118 | 200 | 318 |
| | | 2019 | 00 | 00 | 00 | 25 | 25 | 50 | 118 | 207 | 325 |
| 2 | Private | | | | | | | | | | |
| | CTPS | 2018 | 00 | 00 | 00 | 03 | 00 | 03 | 09 | 00 | 15 |
| | | 2019 | 00 | 00 | 00 | 03 | 00 | 03 | 09 | 00 | 15 |
| | NMC | 2018 | 00 | 00 | 00 | 00 | 07 | 07 | 00 | 06 | 06 |
| | | 2019 | 00 | 00 | 00 | 00 | 07 | 07 | 00 | 06 | 06 |
| Grand Total | | 2018 | 00 | 00 | 00 | 28 | 31 | 59 | 127 | 206 | 339 |
| | | 2019 | 00 | 00 | 00 | 28 | 32 | 60 | 127 | 213 | 346 |

**Statement showing total number of deficiencies in gated dams
(As per data from Mechanical Organization)**

| Sr. No. | Dam Owner | Year | Number of Gated Dams | | | No. of dams inspected | | Number of Deficiencies | | | | | | | | |
|-------------|-----------|------|----------------------|-------|-------|-----------------------|-------|------------------------|-------|-------|-------------|-------|-----|--------------|-------|-------|
| | | | | | | | | Category-I | | | Category-II | | | Category-III | | |
| | | | CI I | CI II | Total | CI I | CI II | CI I | CI II | Total | CI I | CI II | Ttl | CI I | CI II | Total |
| 1 | WRD | 2018 | 13 | 00 | 13 | 13 | 00 | 00 | 00 | 00 | 127 | 00 | 127 | 00 | 00 | 00 |
| | | 2019 | 13 | 00 | 13 | 13 | 00 | 00 | 00 | 00 | 36 | 00 | 36 | 1032 | 00 | 1032 |
| 2 | Private | | | | | | | | | | | | | | | |
| | CTPS | 2018 | 01 | 00 | 01 | 01 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 | 00 |
| | | 2019 | 01 | 00 | 01 | 01 | 00 | 00 | 00 | 00 | 00 | 02 | 02 | 43 | 00 | 43 |
| Grand Total | | 2018 | 14 | 00 | 14 | 00 | 00 | 00 | 00 | 00 | 127 | 00 | 129 | 00 | 00 | 00 |
| | | 2019 | 14 | 00 | 14 | 00 | 00 | 00 | 00 | 00 | 36 | 02 | 38 | 1075 | 00 | 1075 |


9. Observations / Findings in HSR-2019

- 9.1 It is seen that in Nagpur Region, there is no dam having Category-I deficiency. It is observed that 27 Class-I & II dams (33.75 %) are having major deficiencies of Category- 2.
- 9.2 As per HSR 2018, in 22 dams (Class-I & II dams), 56 numbers of deficiencies were observed. Field officers sent all action taken reports but after scrutiny it is observed that, only in 11 dams some deficiencies were attended by field officers, others are pending with them. (Details are given in table no 1.1)
- 9.3 Regarding deficiencies in Mechanical components (Gates & Hoists etc.) 14 dams have been noticed with Category- 2 deficiencies and need attention of the project authorities.
- 9.4 The deficiencies shown in the present report are based on the pre/ post monsoon inspections of the dams carried out by the field officers and reports of them received by this organisation. As such, the deficiencies and action taken thereof is the sole responsibility of the field officers.
10. Being the dam owner, safety of the dam is the prime responsibility of the concerned field Executive Engineer. In order to ensure safety of dam/dams in his jurisdiction, he shall initiate the procedures for removal of deficiencies noticed in the pre-post monsoon inspection as well as pointed out in this HSR. Higher authorities shall accord timely sanction to works required for deficiency removal. Executive Director of the corporation are requested to make required funds available to the deficiency removal and monitor the progress periodically. This will help in keeping the dam safe.

I hope this report will serve desired expectations expressed by Dam Safety Monitoring Directorate of C.W.C.New Delhi. Any error, discrepancies omissions if any may please kindly by brought to the notice of this Organisation, so that it can be taken into consideration in the next report.

The efforts taken by the Superintending Engineer, Dam Safety Organisation, Nashik and his staff, for completion of this report are highly appreciated.

Place: Nashik-4
Date: 08/ 05 / 2020


(A.P.Kohirkar)
Director General
Design, Training, Hydrology.
Research and Safety,
MERI, Nashik-4.

INDEX

| Sr. No. | Subject | Page No. |
|-------------|--|----------|
| | | 1 |
| | Part-1 : Action Taken Report on Annual Health status Report 2018 of Identified Large Dams - Nagpur Region | |
| 1.0 | General | |
| 1.1 | Action Taken Report on Deficiencies of Large Dams Class I | 1 |
| 1.1.1 | Action Taken Report on Deficiency Category-1 of Large Dams Class I | 1 |
| 1.1.2 | Action Taken Report on Deficiency Category-2 of Large Dams Class I | 1 |
| 1.2 | Action Taken Report on Deficiencies of Large Dams Class II | 1 |
| 1.2.1 | Action Taken Report on Deficiency Category-1 of Large Dams Class II | 1 |
| 1.2.2 | Action Taken Report on Deficiency Category-2 of Large Dams Class II | 1 |
| 1.3 | Action Taken Report on Deficiencies of Private Large Dams | 2 |
| 1.3.1 | Action Taken Report on Deficiency Category-1 of Private dams Class I | 2 |
| 1.3.2 | Action Taken Report on Deficiency Category-2 of Private dams Class I | 2 |
| 1.3.3 | Action Taken Report on Deficiency Category-1 of Private dams Class II | 2 |
| 1.3.4 | Action Taken Report on Deficiency Category-2 of Private dams Class II | 2 |
| Table -1.1 | Statement showing the position of compliance of deficiencies identified in HSR-2017 | 3 |
| Table-1.2 | List of dams whose deficiencies compliance report not received from field officers | 4 |
| Table-1.3 | Action Taken Report on Deficiency Category-1 of Large Dams Class I | 5 |
| Table-1.4 | Action Taken Report on Deficiency Category-2 of Large Dams Class I | 6 |
| Table- 1.5 | Action Taken Report on Deficiency Category-1 of Large Dams Class II | 13 |
| Table - 1.6 | Action Taken Report on Deficiency Category-2 of Large Dams Class II | 14 |
| Table - 1.7 | Action Taken Report on Deficiency Category-1 of Private dams Class I | 20 |
| Table - 1.8 | Action Taken Report on Deficiency Category-2 of Private dams Class I | 21 |
| Table - 1.9 | Action Taken Report on Deficiency Category-1 of Private dams Class II | 22 |
| Table -1.10 | Action Taken Report on Deficiency Category-2 of Private dams Class II | 23 |

| Sr. No. | Subject | Page No. |
|---------|--|----------|
| 2.0 | Part- 2: Annual Health Status Report of Identified Large Dams based on Pre & Post Monsoon 2019 inspection reports | 24 |
| 2.1 | General | 24 |
| 2.2 | Inspection of Dam | |
| | 2.2.1 Dams inspected by field officers | 25 |
| | 2.2.2 Dams inspected by DSO | 25 |
| 2.3 | Overall health status of large dams | 25 |
| 2.4 | Health status report of Class-I dams | 25 |
| | 2.4.1 Health status report of Class-I dams with Category-1 deficiency | 25 |
| | 2.4.2 Health status report of Class-I dams with Category-2 deficiency | 25 |
| | 2.4.3 Health status report of Class-I dams with Category-3 or NIL deficiency | 25 |
| 2.5 | Health status report of Class-II dams | 25 |
| | 2.5.1 Health status report of Class--II dams with Category-1 deficiency | 25 |
| | 2.5.2 Health status report of Class-II dams with Category-2 deficiency | 25 |
| | 2.5.3 Health status report of Class-II dams with Category-3 or NIL deficiency | 25 |
| 2.6 | Health status report of Class-III dams | 26 |
| | 2.6.1 Criteria of Inspection of Class-III dams | 26 |
| | 2.6.2 District wise and class wise break up of dams | 26 |
| 2.7 | Health status report of Private Class-I dams | 26 |
| | 2.7.1 Health status report of Private Class-I dams with Category-1 deficiency | 26 |
| | 2.7.2 Health status report of Private Class-I dams with Category-2 deficiency | 26 |
| | 2.7.3 Health status report of Private Class-I dams with Category-3 deficiency | 26 |
| 2.8 | Health status report of Private Class-II dams | 26 |
| | 2.8.1 Health status report of Private Class-II dams with Category-1 deficiency | 26 |
| | 2.8.2 Health status report of Private Class-II dams with Category-2 deficiency | 26 |
| | 2.8.3 Health status report of Private Class-II dams with Category-3 deficiency | 26 |
| 2.9 | Observations | 27 |
| | Table 2.1 Status of receipt of Pre/Post monsoon inspection reports | 28 |
| | Table 2.2 List of dams for which inspection reports not received | 29 |
| | Table 2.3 List of dams inspected by DSO | 30 |
| | Table 2.4 Circle wise no. of large dams where deficiencies are noticed | 31 |
| | Table 2.5 Dam wise number of category-II deficiencies noticed. | 32 |
| | Table 2.6 Dam wise Health status report of class-I dams with category-1 deficiencies | 34 |

| Sr. No. | Subject | Page No |
|------------|---|---------|
| | Table 2.7 Dam wise Health status report of class-I dams with category-2 deficiencies | 35 |
| | Table 2.8 Dam wise Health status report of class-I dams with category-3 deficiencies | 41 |
| | Table 2.9 Dam wise Health status report of class-II dams with category-1 deficiencies | 44 |
| | Table 2.10 Dam wise Health status report of class-II dams with category-2 deficiencies | 45 |
| | Table 2.11 Dam wise Health status report of class-II dams with category-3 deficiencies | 51 |
| | Table 2.12 Dam wise Health status report of Private class-I dams with category-1 deficiencies | 56 |
| | Table 2.13 Dam wise Health status report of Private class-I dams with category-2 deficiencies | 57 |
| | Table 2.14 Dam wise Health status report of Private class-I dams with category-3 deficiencies | 58 |
| | Table 2.15 Dam wise Health status report of Private class-II dams with category-1 deficiencies | 59 |
| | Table 2.16 Dam wise Health status report of Private class-II dams with category-2 deficiencies | 60 |
| | Table 2.17 Dam wise Health status report of Private class-II dams with category-3 deficiencies | 61 |
| | Table 2.18 Significant Category 2 deficiencies wise list of Class-I dams | 62 |
| | Table 2.19 Significant Category 2 deficiencies wise list of Class-II dams | 63 |
| | Chart – 1 District wise and class wise dams in the region | 64 |
| | Chart - 2 Significant category – II deficiencies in Class – I dams. | 65 |
| | Chart- 3 Significant category – II deficiencies in Class – II dams | 66 |
| | Annexure-1 - General information for dam safety inspection. | 67 |
| | Annexure-2 - Standardized deficiencies | 72 |
| | Annexure- 3 - Photographs of dams during D.S.O. inspection. | 76 |
| | Part-3 : Annual performance report of instruments installed on large dams | 77 |
| 3.1 | General | |
| 3.2 | Instrumentation in earthen dams | 77 |
| 3.3 | Instrumentation in concrete / masonry dams | 78 |
| 3.5 | Observations | 79 |
| | Table -3.1 Damwise status of dam instruments installed on large dams | 80 |
| | Table-3.2 Mortality status of instruments installed on large dams | 81 |
| | Table-3.3 Comparative statements for status of instruments in dams | 82 |
| | Part-4 : Annual performance report of meteorological instruments installed on dams | 83 |
| 4.1 | General | |

| Sr. No. | Subject | Page No |
|----------------|--|----------------|
| 4.2 | Observations | 83 |
| | Table - 4.1 Damwise status of meteorological instruments installed on dams | 84 |
| | Table- 4.2 Mortality status of meteorological instruments installed on dams | 88 |
| | Part-5: Status of NCDS documents submitted to DSO (including private Dams) of category I Dams | 89 |
| | Table-5.1 Position of preparation of Emergency Action Plan (EAP) | 91 |
| | Table-5.2 Dam Wise Position of EAP, ROS,GOS Documents(Class -1 Dams) | 92 |
| | Table-5.3 Damwise position of Other NCDS Documents (Class-I Dams) | 95 |
| | Table-5.4 Position of preparation of Other NCDS Documents | 96 |
| 6.0 | Part-6 : Data Filling Status on DHARMA Portal | 99 |
| | Table-6.1 Dharma Status | 100 |
| | Part- 6: Status report of various gated dams in the region (including private dams) | 101 |
| 6.1 | General | 101 |
| 6.2 | Overall health status of gated dams | 101 |
| | Table 6.1 - Statement showing list of dam wise deficiencies of gated dams | 102 |

**Annual Consolidated Health Status Report
Of Identified Large Dams In
Nagpur Region**

PART – 1

**Action Taken Report on Annual Health
Status Report of Identified Large Dam for
Year 2018-19**

PART – 1: Action Taken Report on Annual Health status Report 2018-19 of Identified Large Dams – Nagpur Region

1.0 General

The Annual Health Status Report of Nagpur Region for the year 2018 was prepared, submitted and circulated to all field officers and same was submitted to Government of Maharashtra vide letter No. DSO/DSD-2/ Nagpur/ Health Status Report - 2018-19/238/2020 Dated- 31/05/2019 by Dam Safety Organisation. Field officers were requested to carry out remedial measures to remove major deficiencies pointed out in HSR and send action taken report to DSO.

In most of the cases response received from field officers regarding information of initiation of administrative procedures viz. estimate preparation, reference to design organization or Mechanical organization. In some cases, even though remedial measures are taken no reports are sent to DSO. In such situation, the ATR part of this HSR doesn't give correct picture. Hence, it is necessary that ATR be sent to DSO only after careful scrutiny at the level of Chief Engineer. The agency wise no of dams having major deficiencies as per HSR 2018 and status of compliance is given in Table 1.1

In Nagpur region there are 80 (Class-I 20 & Class-II 60) large dams. out of these dams, 22 (Class-I 11& Class-II 11) dams have major deficiencies. Action taken reports of 11 dams are not received from field officers. Agencywise list of these no dams is given in Table 1.2

1.1 Action Taken Report on Deficiencies of Large Dams Class I

1.1.1 Action Taken Report on Deficiency Category-1 of Large Dams Class I

No such dams under this category is reported. (Table 1.3)

1.1.2 Action Taken Report on Deficiency Category-2 of Large Dams Class I

There is only 10 dam reported under this category. Agencywise list of dams is given in Table 1.4

1.2 Action Taken Report on Deficiencies of Large Dams Class II

1.2.1 Action Taken Report on Deficiency Category-1 of Large Dams Class II

No such dams under this category is reported. (Table 1.5)

1.2.2 Action Taken Report on Deficiency Category-2 of Large Dams Class II

There is only 9 dam reported under this category. Agencywise list of dams is given in Table 1.6

1.3 Action Taken Report on Deficiencies of Private Large Dams

In Nagpur region, there are 03 private dams. All these dams are classified as 1 class I & 2 Class-II dam.

1.3.1 Action Taken Report on Deficiency Category-1 of Private dams Class I

No such dams under this category is reported. (Table 1.7)

1.3.2 Action Taken Report on Deficiency Category-2 of Private dams Class I

There is only 01 dam reported under this category. Agencywise list of dams is given in (Table 1.8)

1.3.3 Action Taken Report on Deficiency Category-1 of Private dams Class II

No such dams under this category is reported. (Table 1.9)

1.3.4 Action Taken Report on Deficiency Category-2 of Private dams Class II

There is only 02 dam reported under this category. Agencywise list of dams is given in Table 1.10

Part- 2 of this report gives the details of Annual Health Status Report of identified large dams based on Pre & Post monsoon - 2019 inspection reports.

Table - 1.1

Statement showing the position of compliance of Deficiencies Identified in Health Status Report (2018-19)

| Sr. No | Agency | Major deficiencies reported in Large Dams | | | Status of Deficiencies removal as per compliance report received in DSO | | | | | | | | | | | |
|------------------------------------|-----------------------|---|-----------|-----------|---|----------|----------|-----------------------------|----------|----------|---------------------------------|----------|-----------|---------------------------------------|----------|----------|
| | | | | | Physically fully completed | | | Physically partly completed | | | Administrative action initiated | | | Compliance report not received in DSO | | |
| | | Class-I | Class-II | Total | Class-I | Class-II | Total | Class-I | Class-II | Total | Class-I | Class-II | Total | Class-I | Class-II | Total |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| [A] C.E (S.P.),W.R, Nagpur | | | | | | | | | | | | | | | | |
| (1) | CIPC, Chadrapur | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| (2) | C.A.D.A.Nagpur | 6 | 8 | 14 | 0 | 1 | 1 | 4 | 2 | 6 | 2 | 5 | 7 | 0 | 0 | 0 |
| (3) | BIC, Bhandara | 3 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 |
| [B] C.E Goshi khurd, Nagpur | | | | | | | | | | | | | | | | |
| (1) | N.I.C.Nagpur | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Govt.Total | | 10 | 9 | 19 | 0 | 2 | 2 | 7 | 2 | 9 | 3 | 5 | 8 | 0 | 0 | 0 |
| Private | | | | | | | | | | | | | | | | |
| (1) | N.M.C.Nagpur | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 |
| (2) | CE, CSTPS, Chandrapur | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| Private Total | | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 0 | 0 | 0 |
| Grand Total | | 11 | 11 | 22 | 0 | 2 | 2 | 7 | 2 | 9 | 4 | 7 | 11 | 0 | 0 | 0 |

Table - 1.2

List of dams whose deficiencies compliance report not received from field officers

| Sr. No . | Class –I | | | Class -II | | |
|--|---------------|---------------------------------|------------------------|--|------------------------------|---------------------|
| | Circle Office | Compliance report awaited | Total no of dams | Division Office | Compliance report awaited | Total no of dams |
| Govt. Dams [A] Chief Engineer (W.R.) Nagpur | | | | Govt. Dams [A] Chief Engineer (W.R.) Nagpur | | |
| 1 | 2 | 3 | | 4 | 5 | 6 |
| No such dam in list | | | | | | |

Table 1.3

Action Taken Report on Deficiency Category-1 of Large Dams Class I

| Sr.No. | Name of Dam | Date of Inspection | Main component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implimentati on Status |
|---|--------------------|---------------------------|------------------------------|---|------------------------------------|-------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <p>----- No Such Dams under this category is reported -----</p> | | | | | | |

Table 1.4

Action Taken Report on Deficiency Category-2 of Large Dams Class- I

[illegible]

| Sr. No | Dam Features | Date of Inspection | Main component of Dam | Observations / Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|--------|---|--|---|--|---|--|
| 2. | Name :-Lower Wenna (Wadgaon) Dist. Nagpur Year of Completion: 1997 Location Longitude: 79° 07' 00" Latitude: 20° 43' 45" Height: 23.65 m Gross capacity: 152.6 Mm³ Spillway capacity: 9613 m³/sec (Gated) Sr. No. in National Register Large Dams (July 2002) : 1353 | 18/05/2018 30/11/2018 | Masonry Dam E.D.A. | 1) Relief well not functioning. (A5) 2) Considerable seepage and leaching is observed through body of dam. (A11) 3) Leakage through pier of radial gates. (A15) 4).Erosion in tail channel from RD 80 to 210 m & 435 to 810 m.(A7) 5) Weep holes not functioning due to chock up (A 9) | Surging if necessary be done. Leaching material getting accumulated to be scraped off frequently. Leached material to be collected yearly, monolithwise and record of quantity and weight to be maintained. Leaching material to be tested from MERI, Nasik. Necessary repairs should be done. Extent of erosion should be ascertained and monitored every year by mapping. If the problem of erosion is moving upstream and serious and for geological investigation the problem shall be referred to respective organization for undertaking investigations and studies for evolving suitable solution to the problem. Weep holes shall be cleared. | Rectification work will be carried out in DRIP II Programme. As per instructions record is maintained. Repairs are carried out. Rectification work will be carried out in DRIP II Programme. Rectification work will be carried out in DRIP II . |

| Sr. No | Dam Features | Date of Inspection | Main component of Dam | Observations / Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|---------------------------------|--|--|--|---|---|---|
| EE Pench Irr. Dn. Nagpur | | | | | | |
| 3 | Name :-Kamti Khairy Dist :- Nagpur Year of Completion: 1976 Location Longitude: 79° 11' 30" Latitude: 21° 27' 15" Height: 32 m Gross capacity: 220 Mm³ Spillway capacity: 12000 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 573 | 25/04/2018 15/02/2019 | Earthen Dam Spillway Gates Gallary Outlet Gates | 1)Relief wells not functioning.(A5) 2) Full lengths of chain or wire rope of hoist is not in sound condition and free from broken strands. .(A18) 3) Foundation drain holes choked.(A9) 4) Stem rods for lifting gates are bent. | Necessary repairs should be done. Necessary repairs and replacements shall be done. Foundation drain holes shall be cleaned. Necessary repairs should be done. | Estimate proposed in revised work plan 701-Pench Project M&R. Mechanical organisation to carryout the necessary repairs. Tender process completed. Tender process completed. |
| 4 | Name :-Totaladoh Dist :- Nagpur Year of Completion: 1989 Location Longitude: 79° 14' 00" Latitude: 21° 39' 30" Height: 74.5 m Gross capacity: 1241 Mm³ Spillway capacity: 12072 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 1212 | 25/04/2018 23/03/2019 | Masonry dam River Outlet | 1) Porous pipes are choked. (A9) 2) Leakage through gate (40 to 50 lps per gate). (A4) | Porous pipes shall be cleaned immediately. All leakages need to be attended in time. Causes of leakages should be investigated & treated accordingly. | Porous drains repairs completed and is working condition. River Sluice gate has been replaced by Mechanical Division and is under observation for ant leakage. |

| Sr. No | Dam Features | Date of Inspection | Main component of Dam | Observations / Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|---------------------------------|---|--|--|---|---|---|
| 5 | Name :-Ramtek Dist :- Nagpur Year of Completion: 1913 Location Longitude: 79° 20' 25" Latitude: 21° 20' 25" Height: 22.20 m Gross capacity: 105.00 Mm³ Spillway capacity: 514.26 m³/sec (UnGated) Sr. No. in National Register of Large Dams (July 2002) : 33 | 25/04/2018 13/12/2018 | Outlet Earthen Dam | 1) Stem rod is bent up& Rubber is damaged. (B5) 2) Conduit is not structurally sound and reasonably leakageproof. (A6) 3)Seepage noticed around the conduit. (A6) | Necessary repairs should be done in consultation with Mech. Organisation. Necessary repairs should be done. Necessary repairs should be done. | Repair works has been conveyed to Mechanical Organisation for necessary action. Conduit structure is under observation. At present no seepage observed. Conduit structure is under observation. At present no seepage observed. |
| EE N.I.D. (south) Nagpur | | | | | | |
| 6 | Name :-Kolar Dist :- Nagpur Year of Completion: 1984 Location Longitude: 78° 48' 46" Latitude: 21° 24' 00" Height: 30.16 m Gross capacity: 35.38 Mm³ Spillway capacity: 1598 m³/sec. (Ungated) Sr. No. in National Register of Large Dams (July 2002) : 1040 | 18/05/2018 2/11/2018 | Earthen Dam Masonry Dam | 1).Considerable leakage & leaching is observed through the body of dam. (A12) 2) Standing pool of water observed at D/S near gorge portion. | Leaching material getting accumulated to be scraped off frequently. Leached material to be collected yearly monolithwise and weighed & record of quantity and weight to be maintained. Leaching material to be tested from MERI, Nasik. Necessary action should be done. | In this Financial year work proposed. Strengthening of waste weir is proposed in the year 2020-2021 |

| Sr. No | Dam Features | Date of Inspection | Main component of Dam | Observations / Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|--|---|--------------------|-----------------------|---|---|---|
| II) Superintending Engineer B.I.C. Bhandara EE Bagh Itiadh Dn. Gondia | | | | | | |
| 7. | Name :-Sirpur Dist :- Gondia Year of Completion: 1969 Location Longitude: 80° 27' 00" Latitude: 21° 03' 20" Height: 24.69 m Gross capacity: 203.85 Mm³ Spillway capacity: 3633 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 227 | 02/06/2018 | Masonry Dam | 1) Considerable leaching from the seepage water and deposition of lime near seepage exit spots. (A12) | Leaching material getting accumulated to be scraped off frequently. Leached material to be collected yearly monolithwise and weighed & record of quantity and weight to be maintained. Leaching material to be tested from MERI, Nasik. | Leaching material sample collected & send to material testing Lab Nashik. The detailed reports are yet to be recieved from Nasik. |
| | | 30/01/2019 | End Weir | 2)Scouring noticed on immediate D/S of end weir. (A17) | Extent of erosion should be ascertained and monitored every year. The damaged portion should be repaired urgently. | The repairs to scouring on D/s of end weir is included in the proposal of Special Repairs AA for Dams in Bagh Project for Rs. 4.207 Cr. |
| | | 7/3/2019 | | Same as above | | |
| 8. | Name :-Kalisarar Dist :- Gondia Year of Completion: 19880 Location Longitude: 78° 27' 00 Latitude: 21° 10' 30 Height: 25.52m Gross capacity: 30.46 Mm ³ Spillway capacity: 1402.00 m ³ /sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 1174 | 02/06/2018 | E.D.A. | 1).Reinforcement exposed of gate No.1 & 4 (B8) | Reinforcement should be embedded with proper grade of concrete. | The repair work proposed in the current year 2019-20 planning and will be get done by WRD department |
| | | 30/01/2019 | | | | |
| | | 7/3/2019 | | Same as above | | |

| Sr. No | Dam Features | Date of Inspection | Main component of Dam | Observations / Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|--------|--|--|---|--|--|--|
| 9. | Name :-Pujaritola Dist :- Gondia Year of Completion: 1970 Location Longitude: 80° 27 ' 00" Latitude: 21° 14 ' 20" Height: 19.20 m Gross capacity: 65.11 Mm³ Spillway capacity: 42.46 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 222 | 02/06/2018 30/01/2019 | Spillway gate End weir | 1).Rubber seal of gate no 5,6,7 & 10 need to be replaced. (B12) 2).Scouring observed on D/S of end weir in foundation.(A17) | Rubber seal shall be replaced. Extent of erosion should be ascertained and monitored every year. The damaged portion should be repaired urgently. | Rubber seal of gate no. 5, 6, 7 & 10 replacement is in process by the Mechanical Division. Opinion and solutions for diversion/ rectification in D/s flow condition for non scoring is required to study in consultation with CDO nasik. The matter is brought to the notice of C.E. WRD at the time of Dam visit & the proposal for the same is submitted to the higher officials as per the directives issued. |

| Sr. No | Dam Features | Date of Inspection | Main component of Dam | Observations / Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|---|--|--|-----------------------|---|-----------------------------------|--|
| Chief Engineer, Gosikhurd Project, Nagpur iii) Superintending Engineer N.I.C. Nagpur EE Lower Wardha Pro. Dn. Wardha | | | | | | |
| 10 | Name :-Lower Wardha Dist :- Wardha Year of Completion: 2009 Location Longitude:78° 15'30" Latitude: 21° 52' 30" Height: 29.60 m Gross capacity: 253.34 Mm ³ Spillway capacity: 22596.32 m ³ /sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : MH09MH1811 | 17/05/2018 24/12/2018 | Earthen Dam | 1) Drains are not in regular section at some places. (B2) | Necessary repairs should be done. | Toe-drain repairs work is completed upto RD 1235 m. vide agreement No. B1/24/DL/2018-19 and estimate for remaining toe-drain repairs works are to be done upto 15/02/2020. After sanctioned estimate work to be completed upto June-2020. |

Table 1.5

Action Taken Report on Deficiency Category-1 of Large Dams Class II

| Sr.No | Name of Dam | Date of Inspection | Main Component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|---|--------------------|---------------------------|------------------------------|---|------------------------------------|------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <p>----- No Such Dams under this category is reported -----</p> | | | | | | |

Table 1.6

Action Taken Report on Deficiency Category-2 of Large Dams Class II

| Sr. No | Name of Dam | Date of Inspection | Main Component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|---|---|----------------------------|------------------------------|---|--|--------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Chief Engineer, Water Resources Department, Nagpur I) Superintending Engineer& Administrator Cada, Nagpur. Executive Engineer, Nagpur Irrigation Division, North | | | | | | |
| 1. | Name:-Khumari nalla (Kalmeshwar) Date of completion :- 1993 Location : - Longitude :- 78° 15' 30" Latitude :- 21° 18' 45" Height :- 15. 60 m. Gross capacity :- 5.1058 Mm³ Design Spillway capacity 478.9 cumecs (Ungated) Sr. No. in National register oflarge Dams July 2009 :- MH09MH1312 | 4.5.2018 27.10.2018 | E/dam | 1).Dam top is not in proper level. .(B1) 2) Stem rod is bend. (B5) | Dam section to be brought to correct design section and level by adding earthwork duly compacted properly. Necessary repairs should be done | Necessary works are completed. |

| Sr. No | Name of Dam | Date of Inspection | Main Component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|---|--|-----------------------------|--|--|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | Name:- Nagalwadi (Nagpur) Date of completion :- 1978 Location :- Longitude :- 79° 02' 00" Latitude :- 21° 34' 00" Height :- 16.37 m. Gross capacity :- 2.679 Mm³ Design Spillway capacity 08.84 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- MH09MH0688 | 6.5.2018 20.10.2018 | E/dam W .W .Bar & Tail channel | 1) .Embankment is settled and section of dam is not as per design. (B1) 2).Scouring noticed on d/s of w.w.bar. .(A14) 3) Surface of gates detrioted. .(B11) 4) Retrogression at 1200m. (A7) | Embankment to be brought to correct design section and level by adding earthwork duly compacted properly. Embankment to be brought to design section by adding earthwork duly compacted properly below pitching. Proper remedial measure be taken & scouring be monitored. Necessary repairs be done Proper remedial measure be taken | Resectioning & strengthing of dam section will be completed in the year 2020 Agency for the said work have been fixed by division & scouring on D/S of w.w. bar gate repairs works & work to prevent Retrogression at 1200 all these works will be completed in year 2020 |
| Executive Engineer, Nagpur Irrigation Division (South), Nagpur | | | | | | |
| 3. | Name:- Makardhokada (Nagpur) Date of completion :- 1978 Location :- Longitude :- 78° 56' 45" Latitude :- 20° 32' 12" Height :- 18.80 m. Gross capacity :- 21.35 Mm³ Design Spillway capacity 929 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- MH09MH0718 | 16.5.2018 24.12.2018 | E/ Dam Outlet W.W Bar & Tail channel | 1) Standing pool of water in gorge portion of nalla.(A2) 2) E.G. not in working condition. .(B5) 3) Some EDA concrete portion & divide wall damaged. .(A14) | The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained Necessary repairs be done Damaged portion of EDA to be repaired by concrete filling suitably. | The work will be carried out through annual repairs (AR works) Necessary repairs will be done through Mechanical division. The work will be rectified through Special repairs. |

| Sr. No | Name of Dam | Date of Inspection | Main Component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|--------|---|----------------------------------|---|---|---|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | <p>Name:-Nishanghat (Nagpur)</p> <p>Date of completion :-1985</p> <p>Location : -</p> <p>Longitude :- 79° 06' 26"</p> <p>Latitude :- 20° 48' 20"</p> <p>Height :- 16.16 m.</p> <p>Gross capacity :-2. 471 Mm³</p> <p>Design Spillway capacity 159.10 cumecs (Ungated)</p> <p>Sr. No. in National register of large Dams July 2009 :- :MH09MH1074</p> | <p>31.5.2018</p> <p>3.1.2017</p> | <p>E/ Dam</p> <p>W.W Bar & Tail channel</p> | <p>1) Standing pool of water in gorge portion of nalla.(A2)</p> <p>2) Earth embankment not as per design section. D/S slope settled from RD 210 to 390m. .(B1)</p> <p>3) Heavy scouring in waste weir Tail channel from 0 to 510 m.(A7)</p> | <p>The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained</p> <p>Dam section to be brought to correct design section and level by adding earthwork duly compacted properly.</p> <p>Proper remedial measure be taken & scouring be monitored.</p> | <p>All repairs suggested are proposed under Special Repairs to Nishnaghat Dam & Canal works.</p> |

| Sr. No | Name of Dam | Date of Inspection | Main Component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|--------|---|--------------------------------------|--|---|---|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | <p>Name:-Pandharabodi (Nagpur) Date of completion :-1967 Location : - Longitude :- 79° 17' 00" Latitude :- 20° 49' 45" Height :- 15. 24 m. Gross capacity :-13. 86 Mm³ Design Spillway capacity 432 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :-MH09MH0147</p> | <p>31.5.2018 24.12.2018</p> | <p>E / dam Outlet W.W.Bar & Tail channel</p> | <p>1)There is standing pool of water on d/s of dam in gorge portion. (A2) 2) Rubber seal damaged & needs replacement.(B12) 3)Major retrogression is noticed at 50 m. from spillway.bar. (A7)</p> | <p>The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained. Necessary repairs should be done If retrogression is moving closer to the EDA of spillway or waste weir bar, protective measures, shall be undertaken to prevent progressive damage. Extent of retrogression should be ascertained and monitors every year by mapping. If the problem of retrogression is moving upstream and serious and for geological investigation the problem shall be referred to respective organisation for undertaking investigations and studies for evolving suitable solution to the problem.</p> | <p>Necessary works proposed under annual repairs (AR) works. Work proposed to mechanical repairs. Detailed survey is carried out. Estimate under preparation. Work will be proposed under special repairs.</p> |

| Sr. No | Name of Dam | Date of Inspection | Main Component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|--------|--|--|---|---|---|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | <p>Name:-Saikinalla (Nagpur) Date of completion :- 1994 Location :- Longitude :-79° 12' 00" Latitude :- 20° 51' 00" Height :- 14. 65 m. Gross capacity :-8.990 Mm³ Design Spillway capacity :- 728 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- :MH09LH1334</p> | <p>16.5.2018 24.12.2018 19/3/2019</p> | <p>E / dam Outlet</p> | <p>1) Standing pool of water on d/s in gorge portion. (A2) 2) Less top width observed. (B1) 3) E.G. not in working condition .(B5) Same as Above</p> | <p>The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained. To be brought to design width . Necessary repairs be done</p> | <p>Necessary works proposed under annual repairs (AR) works</p> |
| 7. | <p>Name – Salaimendha (Nagpur) Date of completion 1972 Location : Longitude : 78°52'00" Latitude :- 20°02'00" Height :- 20.57 m. Gross capacity :- 2.23 Mm³ Design Spillway capacity 200 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 : MH09MH0277</p> | <p>29/5/2018 12/12/2018</p> | <p>WW Bar &TC</p> | <p>1)Seepage through spillway is observed & need urgently repair.(A15) 2) EDA is not in good condition, leakage is observed through the foundation of cushioning tank needs repairing works. (A14)</p> | <p>Proper remedial measure be taken. Necessary repairs be done</p> | <p>Work done as per requirement. Proper remedial measures have been taken.</p> |

| Sr. No | Name of Dam | Date of Inspection | Main Component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|--|--|--|---|---|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Executive Engineer , Wardha Irrigation Division , Wardha | | | | | | |
| 8. | Name:- Parsodi (Wardha) Date of completion :- 1982 Location : - Longitude :- 78° 26' 00" Latitude :- 21° 13' 00" Height :- 20.05 m. Gross capacity :- 1.13 Mm³ Design Spillway capacity 80.71 cumecs Ungated Sr. No. in National register of large Dams July 2009:- MH09MH09 | 22/6/2018 2/1/2019 | E / dam Outlet | 1).Minor undulation & settlement of embankment is observed also less top width. (B3) 2) Outlet well not in operation. (A6) | Section to be brought to correct design section and level by adding earthwork duly compacted properly. Proper repairs be carried out. | As per Work order b1/ 26 /DI/ WID/2018-19 Date 18/04/2019 work is completed. Parsodi project irrigation is done because Parsodi project command area is under kar command area. |
| II) Superintending Engineer , Chandrapur Irrigation Project Circle, Chandrapur Executive Engineer ,Chandrapur Medium Project Division No.1,Chandrapur | | | | | | |
| 9 | .Name:- Dongargaon (C'pur) Date of completion :- 2000 Location : - Longitude :- 79° 34' 00" Latitude :- 19° 36' 00" Height :- 19.88 m. Gross capacity :- 14.178 Mm³ Design Spillway capacity :840 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- MH09MH1549 | 3.05.2018 3.12.2018 18/03/2019 | E/dam | 1) Settlement of embankment between chainage 240-630m & pitching in some portion. Section of dam not as per design section. u/s slope shows concavity. (B3) 2) Settlement of pitching. (B3) 3) Water ponding on D/S side at RD.270m. (A2) | Section to be brought to correct design section and level by adding earthwork duly compacted properly. Section to be brought to correct design section and level by adding earthwork duly compacted properly. The d/s area at least up to above 200m. from toe shall be free from stagnation & the area should be well drained | Rectification work as per approved design section and level of dam completed by March 2019. Dam section is rectified to correct deign section with u/s side pitching by march 2019. One new Cross drain constructed of RD 270m & no water ponding on D/S side of Dam observed D/S area is well drained free from water stagnation |

Table 1.7

Action Taken Report on Deficiency Category-1 of Private dams Class I

| Sr.No. | Name of Dam | Date of Inspection | Main component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implimentation Status |
|---|--------------------|---------------------------|------------------------------|---|------------------------------------|------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <p>----- No Such Dams under this category is reported -----</p> | | | | | | |

Table 1.8

Action Taken Report on Deficiency Category-2 of Private dams Class I

| Sr.No. | Name of Dam | Date of Inspection | Main component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implementation Status |
|--------|---|--|-----------------------|---|--|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Erai (Dist:Chandrapur) Year of Completion: 1985 Location Longitude: 79 ° 15'30 '' Latitude: 20° 06' 00'' Height: 26.93 m Gross capacity: 226 Mm ³ Spillway capacity: 2610 m ³ /sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : MH09HH1010 | 28/03/2018 24/10/2018 | Masonry Dam | 1) Emergency gate hoisting structure deteriorated. (A18) 2) Uplift pressure cell, plumb bob not in working condition (B9) 3) Some portion of gallery is inaccessible due to plumb bob instrument covered with steel grill placed in gallery instead of plumb bob chamber (A8) | Necessary repairs shall be done immediately Necessary repairs shall be done immediately It should be removed immediately | Administrative process |

Table 1.9

Action Taken Report on Deficiency Category-1 of Private dams Class II

| Sr.No. | Name of Dam | Date of Inspection | Main component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested | Implimentation Status |
|--|--------------------|---------------------------|------------------------------|---|------------------------------------|------------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <p align="center">----- No Such Dams under this category is reported -----</p> | | | | | | |

Table 1.10

Action Taken Report on Deficiency Category-2 of Private dams Class II

| Sr. No | Dam Features | Date of Inspection | Main component of Dam | Observations / Significant Deficiencies Noticed | Remedial Measures Suggested | Implimentation Status |
|---|---|------------------------------|---|---|---|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| [A] Nagpur Municipal Corporation, Nagpur | | | | | | |
| 1 | Name:- Gorewada (Nagpur) Date of completion :- 1911 Location :- Longitude :- 79° 03' 00" Latitude :- 20° 15' 00" Height :- 17.42 m. Gross capacity :- 8.84 Mm³ Design Spillway capacity : 685.76 cumecs (Gated) Sr. No. in National register oflarge Dams July 2009 :- MH09MH0029 | 14/03/2018 18/12/2018 | Earthen dam W.W. bar Tail channel | 1).Dam seems to be under section at some places. (B1) 2) Seepage water is found near D/S toe of dam. (A11) | Dam section to be brought to correct design section and level by adding earthwork duly compacted properly. Necessary repairs be done | Administrative process |
| 2 | Name:- Ambazari (Nagpur) Date of completion :- 1870 Location :- Longitude :- Latitude :- Height :- 15.60 m. Gross capacity :- 8.37 Mm³ Design Spillway capacity :- . cumecs (Ungated) Sr. No. in National register oflarge Dams July 2009 :- MH09LH0006 | 18/12/2018 | Earthen Dam W.W. bar Tail channel | 1).Poor crest profile & depression observed. (B3) 2). Slopes of dam is not observed as per design section. (B1) 3) Big Trees observed on U/S & D/S slope of Dam. (B13) 4) There is leakage on left side of bar. 5) Monumental structure is constructed immediately D/S of W.W. bar in tail channel. | Cracked portion should be excavated in the form of trench up to bottom of cracks and trench field by well compacted with proper grade (zone) of soil. Section to be brought to correct design section and level by adding earthwork duly compacted properly. All Trees must be removed . Necessary repairs be done Water way for passing flood in tail channel should be clear. | Administrative process |

**Annual Consolidated Health Status Report
of Identified Large Dams In
Nagpur Region**

PART – 2

**Annual Health Status Report of Identified Large Dams
Based on
Pre & Post Monsoon 2019 Inspection Reports
(Year 2019-2020)**

PART – 2 : Annual Health Status Report of Identified Large Dams Based on Pre & Post Monsoon 2019 Inspection Reports

2.1 General

The Government of Maharashtra has issued instructions for pre and post monsoon inspection of the dams. Dam Safety Organisation, Nashik has issued guidelines regarding questionnaire for inspecting dams by field officers vide letter (Marathi) DSO/DSD-III/128/47/dated 19-1-1998 and also conveyed discrepancies, errors & omissions noticed after the scrutiny of inspections reports time to time. It is again requested to issue orders to field officers to perform careful inspection according to the guidelines for proper monitoring of safety of dams.

The important information like time schedule of inspection, classification of dams, competent authority of dam inspection, preparation of health status report, categorization of deficiencies, monitoring of deficiency removal programme, standard procedure for confirmation and removal of category – I deficiency and suggestions for inspection by field officers are given vide Annexure – 1.

Considering the various deficiencies observed over dams of Maharashtra over last few years , Dams Safety Organisation have Standardized the categorywise deficiencies and these are given vide Annexure – 2.

2.2 Inspections of dam.

A systematic approach & working methodology is very essential to monitor the safety aspects of the dams. Maharashtra which is one of the pioneer states has established an elaborate set up for effective monitoring of dams. The periodical inspections of dams are completed by concerned field officers and the inspection reports are sent to Dam Safety Organisation for further action.

Dam Safety Organisation, Nashik carries out scrutiny of the inspection reports received from field officers for class-I & II dams, significant & serious deficiencies observed during scrutiny are immediately intimated to field officers to carry out remedial measures. To keep a check on the inspections carried out at field level, Test inspections are carried out by Dam Safety Organisation as a third party inspection. The annual Dam inspection program of Dam safety organisation is prepared and is sanctioned by Director General, (D.T.H.R.S.) M.E.R.I., Nashik. In Maharashtra, there are about 52 private dams owned by Tata Power, Sahara India Pvt.Ltd.etc. and by Urban Local bodies and Power generation companies. Dam Safety Organisation carries out pre and post monsoon inspections of private dams on consultancy basis.

For Nagpur region following officers were inspected dams and taken efforts to prepare this report.

- 1) Shri. Y.K. Bhadane, Superintending Engineer
- 2) Shri. N.K. Tayade, Executive Engineer
- 3) Shri. S.B. Kumavat, Sub Divisional Officer
- 5) Shri. Chetan Ahire , Junior Scientific Assistance
- 4) Shri. L.I. Dudhal, Junior Engineer

2.2.1 Dam inspection by field officers

There are 19 no. of Class - I Govt. Dams (18 Dams & 1 Barrage) and 58 nos. of Class - II dams in Nagpur region. Out of these 19 Class-I and 58 Class- II Dams inspection reports were received as per schedule. All 77 nos of Dams have been incorporated in this status report. The circle office wise breakup of dams and status of inspection report received is given in Table 2.1. List of dams of which inspection report were not received in DSO from field officers is given in table no. 2.2.

2.2.2 Dam Inspection by Dam Safety Organisation.

As per Annual inspection programme, DSO has inspected 06 nos. Class-I dams, 18 nos. of Class-II dams and 01 nos. of Class -III dams. Also the Pre & Post Monsoon Inspection of 01 no of Private Class-I dam and 02 no. of Private Class-II dam was carried out. List of dams inspected is given in Table 2.3 and the photographs of some of inspections by Dam Safety Organisation are appended as Annexure – 3

2.3 Overall health status of large dams

Circlewise number of large dams in Nagpur region where deficiencies are noticed are summarized and given in table no.-2.4. Damwise number of category – II deficiencies noticed are given in table no 2.5. Over all there are 80 nos of dams including private dams and there are 24 dams where category – II deficiencies are noticed. Agencywise, damwise and categorywise detailed status is given in next sections.

2.4 Health status report of Class-I dams

2.4.1 Health status report of Class-I dams with Category-1 deficiency.

Out of 19 dams Nil dams are reported under this category. Details of Class-I dams with category 1 deficiency are given in table 2.6

2.4.2 Health status report of Class-I dams with Category-2 deficiency.

Out of 19 dams, 9 dams have been identified category- 2 deficiencies.

Details of class – I dams, with category – 2 deficiencies are given in table 2.7.

2.4.3 Health status report of Class-I dams with Category-3 or NIL deficiency.

Out of 19 dams, 10 dams have been identified category- 3 deficiencies Details of class-I dams with category – 3 or Nil deficiency are given in table 2.8.

2.5 Health status report of Class-II dams

2.5.1 Health status report of Class-II dams with Category-1 deficiency.

Out of 58 dams Nil dams are reported under this category. Details of class-II dams, with category – 1 deficiencies are given in table 2.9.

2.5.2 Health status report of Class-II dams with Category-2 deficiency.

Out of 58 dams, 12 dams have been identified category- 2 deficiencies.

Details of class – II dams, with category – 2 deficiencies are given in table 2.10.

2.5.3 Health status report of Class-II dams with Category-3 or NIL deficiency.

Out of 58 dams, 43 dams have been identified category- 3 deficiencies and 3 dams having NIL deficiencies. Details of class – II dams, with category – 3 or Nil deficiencies are given in table 2.11.

2.6 Health status report of Class-III dams

2.6.1 Criteria of Inspection of Class –III dams.

The Govt. of Maharashtra has restricted the scope of DSO in monitoring safety aspects to the extent of identified large dams .i.e. Class-I and Class-II dams only in view of large no. of dams and limited staff of DSO. The safety monitoring of other large dams (Class-III) including preparation of HSR rests with the respective regional Chief Engineers.

Hence every year for Class III dams, based on inspection report, HSR of Class – III dams need to be prepared by respective Chief Engineer and sent it to Dam Safety Organisation for record.

2.6.2 District wise and class wise break up of number of dams

Class wise Number of dams in each district are given as below..

| District | Large Dam Class- I | Large Dam Class- II | Large Dam Class- III | Grand Total |
|--------------------|-------------------------------|--------------------------------|---------------------------------|------------------------|
| WARDHA | 4 | 13 | 08 | 25 |
| NAGPUR | 7 | 22 | 34 | 63 |
| BHANDARA | 1 | 03 | 12 | 16 |
| GONDIA | 4 | 12 | 05 | 21 |
| CHANDRAPUR | 2 | 08 | 13 | 23 |
| GADCHIROLI | 1 | 00 | 06 | 07 |
| TOTAL | 19 | 58 | 78 | 155 |
| PRIVATE | 01 | 02 | 00 | 03 |
| GRAND TOTAL | 20 | 60 | 78 | 158 |

Graphical representation of district wise and class wise dams in the region is given vide Chart No.1

2.7 Health status report of Private Class-I dams

2.7.1 Health status report of Private Class-I dams with Category-1 deficiency.

Details of class-I Private dams with category 1 deficiency given in Table 2.12.

2.7.2 Health status report of Private Class-I dams with Category-2 deficiency.

There is only one class – I private dam in region and reported under this category

Details of class-I Private dams with category 2 deficiency given in Table 2.13.

2.7.3 Health status report of Private Class-I dams with Category-3 deficiency.

Details of class-I Private dams with category 3 deficiency given in Table 2.14.

2.8 Health status report of Private Class-II dams

2.8.1 Health status report of Private Class-II dams with Category-1 deficiency.

Details of class-II Private dams with category 1 deficiency given in Table 2.15.

2.8.2 Health status report of Private Class-II dams with Category-2 deficiency.

There are 02 private Class – II dams in region and both are reported under this category

Details of class- II Private dams with category 2 deficiency given in Table 2.16.

2.8.3 Health status report of Private Class-II dams with Category-3 deficiency.

Details of class- II Private dams with category 3 deficiency given in Table 2.17.

2.9 Observations

Significant category I & II Deficiency wise list of dams for Class-I & Class-II dams is given in Table 2.18 and in Table 2.19 respectively. Also graphical representation of significant category I & II deficiencies observed for Class-I & II dams are shown in chart 2 & chart -3 respectively.

2.9.1 Top five major deficiencies found in Class-I dams in Nagpur region are as follows –

1. **A 9:** Foundation drains / holes/ porous pipes/choked/ no seepage through foundation drain holes. (03 Dams)
2. **A 17 :** End weir not in good condition / scouring noticed on immediate D/S. (02 Dams)
3. **A 18:** Wire ropes of hoist not in good condition/hoisting structure damaged/cracked. (02 Dam)
4. **A 12:** Excessive considerable leaching from seepage water. (02 Dams)
5. **A 7 :** Retrogression /scouring in tail channel. (02 Dams)

2.9.2 Likewise top five major deficiencies found in Class-II dams are –

1. **A 2:** Standing pool / Ponding / Water Logging / Slushy condition on D/S of Dam (07 Dam)
2. **B 1** Dam section is not as per design. (06 Dam)
3. **A 7:** Retrogression /scouring in tail channel. (03 Dam)
4. **A 14:** EDA / Stilling basin damaged/Hydraulic performance not good. (03 Dam)
5. **B 5:** Outlet gates not functioning properly. Stem rod is bent(Service gate/Emergency gate/Stop log gate/sluice gate) (03 Dam)

Table 2.1

Status of receipt of Pre / Post monsoon inspection reports (Pre & Post monsoon 2019)

| Sr. No | Name of Office | Total dams | | | Both Pre & Post IR received | | | Either Pre or Post IR received | | | Pre & Post both IR not received | | |
|--------|-------------------------------------|------------|-----------|-------|-----------------------------|-----------|-------|--------------------------------|----------|-------|---------------------------------|---------|-------|
| | | Class -I | Class -II | Total | Class -I | Class -II | Total | Class-I | Class-II | Total | Class-I | Clas-II | Total |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| | [1] CE,WR, Nagpur | | | | | | | | | | | | |
| 1 | SE,CIPC Chandrapur | 03 | 08 | 11 | 03 | 08 | 11 | 00 | 00 | 00 | 00 | 00 | 00 |
| | | | | | | | | 00 | 00 | | | | |
| 2 | SE,CADA Nagpur | 09 | 37 | 46 | 09 | 37 | 46 | 00 | 00 | 00 | 00 | 00 | 00 |
| | | | | | | | | 00 | 00 | | | | |
| 3 | B.I.C. Bhandara | 04 | 11 | 15 | 04 | 11 | 15 | 00 | 00 | 00 | 00 | 00 | 00 |
| | | | | | | | | 00 | 00 | | | | |
| | [2] CE, Gosikhurd, Nagpur. | | | | | | | | | | | | |
| 4 | SE,NIC Nagpur | 01 | 02 | 03 | 01 | 02 | 03 | 00 | 00 | 00 | 00 | 00 | 00 |
| | | | | | | | | 00 | 00 | | | | |
| 5 | SE,Gosi khurd Project Circle,Nagpur | 01 | 00 | 01 | 01 | 00 | 01 | 00 | 00 | 00 | 00 | 00 | 00 |
| | | | | | | | | 00 | 00 | | | | |
| 6 | SE, GLIC, Ambadi | 01 | 00 | 01 | 01 | 00 | 01 | 00 | 00 | 00 | 00 | 00 | 00 |
| | | | | | | | | 00 | 00 | | | | |
| | PRIVATE DAMS | | | | | | | | | | | | |
| 7 | C.E. CSTPS, Chandrapur | 01 | 00 | 01 | 01 | 00 | 01 | 00 | 00 | 00 | 00 | 00 | 00 |
| | | | | | | | | 00 | 00 | | | | |
| 8 | Commissioner NMC, Nagpur | 00 | 02 | 02 | 00 | 02 | 02 | 00 | 00 | 00 | | | |
| | | | | | | | | 00 | 00 | | | | |
| | Grand Total | 20 | 60 | 80 | 20 | 60 | 80 | 00 | 00 | 00 | 00 | 00 | 00 |

Table 2.2**List of Dams of which Inspection Reports were not received**

| Sr. No | Name of Office | Name of Dam of which inspection reports not received | | | | | |
|--------------------|-----------------------|---|-----------------|------------------------------------|-----------------|--------------------------|-----------------|
| | | Both for Pre & Post-2019 | | Either for Pre or Post-2019 | | | |
| | | | | Pre monsoon 2019 | | Post monsoon 2019 | |
| | | Class-I | Class-II | Class-I | Class-II | Class-I | Class-II |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| No such dam report | | | | | | | |

Table 2.3**List of dams inspected by Dam Safety Organisation, Nashik**

Officers from Dam Safety Organisation Nashik have inspected following dams from 01/04/2019 to 31/03/2020 and inspection notes have been issued to concerned field officers.

| Sr.No. | Name of Dam | Category | Date of Inspection |
|----------------------|-----------------------|----------|--------------------------|
| Class-I Dams | | | |
| 1 | Totaladoh | I | 23/09/2019 |
| 2 | Lower wunna (Wadgaon) | I | 17/01/2020 |
| 3 | Lower wunna (Nand) | I | 17/01/2020 |
| 4 | Gosikhurd | I | 18/01/2020 |
| 5 | Dhapewada (Barrage) | | 11/02/2020 |
| Class-II Dams | | | |
| 6 | Kurha | II | 15/01/2020 |
| 7 | Panjrabothali | II | 15/01/2020 |
| 8 | Madan | II | 15/01/2020 |
| 9 | Parsodi | II | 16/01/2020 |
| 10 | Bodalkasa | II | 11/02/2020 |
| 11 | Risala | II | 12/02/2020 |
| 12 | Khairbandh | II | 12/02/2020 |
| 13 | Pipriya | II | 12/02/2020 |
| 14 | Pangdi | II | 12/02/2020 |
| 15 | Rengepar | II | 13/02/2020 |
| 16 | Dongargaon | II | 25/02/2020 |
| 17 | Naleshawar * | II | 26/02/2020 |
| 18 | Kumbhali * | III | 01/03/2020 |
| Private Dams | | | |
| Class-I Dams | | | |
| 19 | Erai (Private) | I | 13/06/2019 25/09/2019 |
| Class-II Dams | | | |
| 20 | Gorewada (Private) | II | 12/06/2019 24/09/2019 |
| 21 | Ambazari (Private) | II | 12/06/2019 24/09/2019 |

*- Century old

Table 2.4

Circle wise no. of large dams where deficiencies are noticed

| Sr. No | Name of Circle | Total No. of Dams | | | Large Dam Class-I | | | | Large Dam Class-II | | | |
|----------------------------|------------------------|-------------------|------------|-------|-------------------|------------|------------|-----|--------------------|------------|------------|-----|
| | | Class - I | Class - II | Total | Def. Cat -1 | Def. Cat-2 | Def. Cat-3 | | Def. Cat-1 | Def. Cat-2 | Def. Cat-3 | |
| | | | | | | | Minor | Nil | | | Minor | Nil |
| [1] CE,WR, Nagpur | | | | | | | | | | | | |
| (1) | CIPC Chandrapur | 03 | 08 | 11 | 00 | 00 | 03 | 00 | 00 | 02 | 07 | 1 |
| (2) | CADA Nagpur | 09 | 37 | 46 | 00 | 06 | 09 | 00 | 00 | 09 | 37 | 00 |
| (3) | B.I.C. Bhandara | 04 | 11 | 15 | 00 | 03 | 04 | 00 | 00 | 1 | 9 | 2 |
| [2] CE, Gosikhurd, Nagpur. | | | | | | | | | | | | |
| (1) | NIC Nagpur | 01 | 02 | 03 | 00 | 00 | 01 | 00 | 00 | 00 | 02 | 00 |
| (2) | GPC, Nagpur | 01 | 00 | 01 | 00 | 00 | 01 | 00 | 00 | 00 | 00 | 00 |
| (3) | GLIC, Ambadi | 01 | 00 | 01 | 00 | 00 | 01 | 00 | 00 | 00 | 00 | 00 |
| | Total | 19 | 58 | 77 | 00 | 9 | 19 | 00 | 00 | 12 | 55 | 03 |
| Private | | | | | | | | | | | | |
| (1) | C.E. CSTPS, Chandrapur | 01 | 00 | 01 | 00 | 01 | 01 | 00 | 00 | 00 | 00 | 00 |
| (2) | NMC, Nagpur | 00 | 02 | 02 | 00 | 00 | 00 | 00 | 00 | 02 | 02 | 00 |
| | Total | 01 | 02 | 03 | 00 | 01 | 01 | 00 | 0 | 02 | 02 | 00 |
| | Grand Total | 20 | 60 | 80 | 00 | 10 | 20 | 00 | 00 | 14 | 57 | 03 |

Note - Pre and Post monsoon inspection reports of all Dams in Nagpur Region are received from field officers.

Table 2.5**Damwise number of Category-2 deficiencies noticed**

| Sr. No | Name of Dam | No. of deficiencies noticed |
|-----------------------------------|-----------------------------|------------------------------------|
| 1 | 2 | 3 |
| Class-I Dams | | |
| [1] CE,WR, Nagpur | | |
| (1) S.E .CADA ,Nagpur | | |
| 1 | Lower Wenna (Nand) | 03 |
| 2 | Lower Wenna (Wadgaon) | 05 |
| 3 | Kamthikhairy | 04 |
| 4 | Kolar | 02 |
| 5 | Totladoh | 02 |
| 6 | Ramtek | 03 |
| (2) S.E. B.I.C. Bhandara | | |
| 7 | Pujaritola | 02 |
| 8 | Kalisarar | 01 |
| 9 | Sirpur | 02 |
| [3] Private Dam | | |
| (1) C.E. CSTPS, Chandrapur | | |
| 1 | Erai | 03 |
| Class-II Dams | | |
| [1]CE, WR, Nagpur | | |
| (1) S.E.CADA,Nagpur | | |
| 1 | Khumari- nalla (Kalmeshwar) | 02 |
| 2 | Makardhokada | 03 |
| 3 | Nagalwadi | 04 |
| 4 | Nishanghat | 03 |
| 5 | Pandharabodi | 03 |
| 6 | Saikinalla | 02 |
| 7 | Salaimendha | 02 |
| 8 | Parsodi | 02 |

| Sr. No | Name of Dam | No. of deficiencies noticed |
|-------------------------------------|--------------------|------------------------------------|
| 1 | 2 | 3 |
| 9 | Dahegaon G | 01 |
| (2) S.E. BIC, Bhandra | | |
| 10 | Risala | 01 |
| (3) S.E .CIPC, Chandrapur | | |
| 11 | Teliya | 01 |
| 12 | Ghorzari | 01 |
| [4] Private Dam | | |
| (1) Commissioner NMC, Nagpur | | |
| 1 | Gorewada | 02 |
| 2 | Ambazari | 05 |

Table 2.6

Damwise Health status report of Class-I dams with category-1 deficiency

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Observation / Significant Deficiencies noticed | Remedial Measures Suggested |
|---|--------------|--------------------|--------------------|-----------------------|--|-----------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <p>----- No Such Dams under this category is reported -----</p> | | | | | | |

Table 2.7

Damwise Health status report of Class-I dams with category-2 deficiency

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Observation / Significant Deficiencies noticed | Remedial Measures Suggested |
|---|---|--------------------|--|------------------------|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I) Superintending Engineer & Adm., C.A.D.A., Nagpur EE N.I.D. (south) Nagpur | | | | | | |
| 1. | Name :-Lower Wenna (Nand) Dist. Nagpur Year of Completion: 1990 Location Longitude: 79° 07' 00" Latitude: 20° 43' 45" Height: 16.25 m Gross capacity: 62.18 Mm³ Spillway capacity: 5238 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 1227 | 22/05/2019 | Shri Jayant Gawali S.E. & Adm. C.A.D.A. Nagpur | W.W.Bar & Tail channel | 1) Scouring is observed for 20.0 m. length from end wall of stilling basin.(A7) | Scouring on d/s to be repaired by rich concrete filling suitably. |
| | | 22/10/2019 | Shri Jayant Gawali S.E. & Adm. C.A.D.A. Nagpur | Spillway Gates | 2) Generator needs repair.(A19) | Generator should be repaired. |
| | | 17/01/2020 | N.K. Tayade EE, DSD 2, Nashik | Walls | 3) There is tendency for water to under cut the ends of right side guide wall.(A16) Same as above | Necessary repairs should be done. |

[illegible]

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Observation / Significant Deficiencies noticed | Remedial Measures Suggested |
|---------------------------------|--|--|---|--|--|---|
| EE Pench Irr. Dn. Nagpur | | | | | | |
| 3. | Name :-Kamti Khairy Dist :- Nagpur Year of Completion: 1976 Location Longitude: 79° 11' 30" Latitude: 21° 27' 15" Height: 32 m Gross capacity: 220 Mm³ Spillway capacity: 12000 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 573 | 04/05/2019 19/10/2019 | Shri. J.G. Gawali S. E. & Adm. C.A.D.A. Nagpur Shri J.G. Gawali S. E. &Adm. C.A.D.A. Nagpur | Earthen Dam Spillway Gates Gallary Outlet Gates | 1) Relief wells not functioning.(A5) 2) Full lengths of chain or wire rope of hoist is not in sound condition and free from broken strands. .(A18) 3)Foundation drain holes choked.(A9) 4) Stem rods for lifting gates are bent. (B5) | Necessary repairs should be done. Necessary repairs and replacements shall be done. Foundation drain holes shall be cleaned. Necessary repairs should be done. |
| 4 | Name :-Totaladoh Dist :- Nagpur Year of Completion: 1989 Location Longitude: 79° 14' 00" Latitude: 21° 39' 30" Height: 74.5 m Gross capacity: 1241 Mm³ Spillway capacity: 12072 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 1212 | 30/05/2019 19/10/2019 23/09/2019 | Shri J.G. Gawali S.E. &Adm. C.A.D.A. Nagpur Shri J.G. Gawali S. E. &Adm. C.A.D.A. Nagpur N.K. Tayade EE, DSD 2, Nashik | Masonry dam River Outlet | 1) Porous pipes are choked. (A9) 2) Leakage through gate (40 to 50 lps per gate). (A4) Same as above | Porous pipes shall be cleaned immediately. All leakages need to be attended in time. Causes of leakages should be investigated & treated accordingly. |

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Observation / Significant Deficiencies noticed | Remedial Measures Suggested |
|---------------------------------|--|--|--|--|--|---|
| 5. | Name :-Ramtek Dist :- Nagpur Year of Completion: 1913 Location Longitude: 79° 20 ' 25" Latitude: 21° 20 ' 25" Height: 22.20 m Gross capacity: 105.00 Mm³ Spillway capacity: 514.26 m³/sec (UnGated) Sr. No. in National Register of Large Dams (July 2002) : 33 | 30/05/2019 19/10/2019 | Shri J.G. Gawali S.E. & Adm. C.A.D.A. Nagpur Shri J.G. Gawali S. E. &Adm. C.A.D.A. Nagpur | Outlet Earthen Dam Masonry Dam | 1).Conduit is not structurally sound and reasonably leakage proof. (A6) 2).Seepage noticed around the conduit. (A6) 3) joints of masonry spillway bar are exposed. (B11) | Necessary repairs should be done. Necessary repairs should be done. Necessary repairs should be done. |
| EE N.I.D. (south) Nagpur | | | | | | |
| 6. | Name :-Kolar Dist :- Nagpur Year of Completion: 1984 Location Longitude: 78° 48 ' 46" Latitude: 21° 24 ' 00" Height: 30.16 m Gross capacity: 35.38 Mm³ Spillway capacity: 1598 m³/sec. (Ungated) Sr. No. in National Register of Large Dams (July 2002) : 1040 | 26/05/2019 23/12/2019 | Shri J.G. Gawali S.E.& Adm. C.A.D.A. Nagpur Shri J.G. Gawali S. E. &Adm. C.A.D.A. Nagpur | Earthen Dam Masonry Dam | 1).Considerable leakage & leaching is observed through the body of dam. (A12) 2)Standing pool of water observed at D/S near gorge portion. (A2) | Leaching material getting accumulated to be scraped off frequently. Leached material to be collected yearly monolithwise and weighed & record of quantity and weight to be maintained. Leaching material to be tested from MERI, Nasik. Necessary action should be done. |

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Observation / Significant Deficiencies noticed | Remedial Measures Suggested |
|--|--|--|---|---|---|---|
| II) Superintending Engineer B.I.C. Bhandara EE Bagh Itiadh Dn. Gondia | | | | | | |
| 7. | Name :-Sirpur Dist :- Gondia Year of Completion: 1969 Location Longitude: 80° 27' 00" Latitude: 21° 03' 20" Height: 24.69 m Gross capacity: 203. 85 Mm³ Spillway capacity: 3633 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 227 | 07/06/2019 04/01/2020 | Shri R. S. Sontakke S.E. B.I.C. Bhandara Shri R. S. Sontakke S.E. B.I.C. Bhandara | Masonry Dam End Weir | 1) Considerable leaching from the seepage water and deposition of lime near seepage exit spots. (A12) 2)Scouring noticed on immediate D/S of end weir. (A17) | Leaching material getting accumulated to be scraped off frequently. Leached material to be collected yearly monolithwise and weighed & record of quantity and weight to be maintained. Leaching material to be tested from MERI, Nasik. Extent of erosion should be ascertained and monitored every year. The damaged portion should be repaired urgently. |
| 8. | Name :-Kalisarar Dist :- Gondia Year of Completion: 19880 Location Longitude: 78° 27' 00 Latitude: 21° 10' 30 Height: 25.52m Gross capacity: 30.46 Mm³ Spillway capacity: 1402.00 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 1174 | 07/06/2019 04/01/2020 | Shri R. S. Sontakke. S.E. B.I.C. Bhandara Shri R. S. Sontakke S.E. B.I.C. Bhandara | E.D.A. | 1).Reinforcement exposed of gate No.1 & 4 (A14) | Reinforcement should be embedded with proper grade of concrete. |

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Observation / Significant Deficiencies noticed | Remedial Measures Suggested |
|---------|---|--|---|---|---|--|
| 9. | Name :-Pujaritola Dist :- Gondia Year of Completion: 1970 Location Longitude: 80° 27' 00" Latitude: 21° 14' 20" Height: 19.20 m Gross capacity: 65.11 Mm³ Spillway capacity: 42.46 m³/sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : 222 | 07/06/2019 04/01/2019 | Shri . R.S.Sontkke S.E. B.I.C. Bhandara Shri R. S. Sontakke S.E. B.I.C. Bhandara | Spillway gate End weir | 1).Rubber seal of gate no 5,6,7& 10 need to be replaced. (B12) 2).Scouring observed on D/S of end weir in foundation.(A17) | Rubber seal shall be replaced. Extent of erosion should be ascertained and monitored every year. The damaged portion should be repaired urgently. |

Table 2.8

Damwise Health status report of Class-I dams with category-3 deficiency

| Sr. No | Name of Dam | Year of Completion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr.No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|---|--|--------------------|------------------------------------|-------------|--------------------------------|---|--|-----------------|--------------------------|------------------------------------|--------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Chief Engineer, W.R. Nagpur | | | | | | | | | | | |
| Superintending Engineer, C.I.P.C. Chandrapur | | | | | | | | | | | |
| 1 | Asolamendha (Dist. Chandrapur) | 1918 | 79° 49' 00" 20° 13' 10" | 26.63 | 67.01 | 758 | MH09MH0040 | Ungated | 08/05/2019 23/12/2019 | 3.3,3.8,3.9,3.13,3.19,3.20 | 06 |
| 2 | Lal Nalla (Dist. Wardha) | 2006 | 79° 03' 00" 20° 30' 30" | 14.54 | 29.515 | 925 .0 | MH09LH1663 | Gated | 08/05/2019 05/12/2019 | 3.9,3.20,3.22,3.30,3.33,3.24 | 06 |
| 3 | Dina (Dist:- Gadchiroli) | 1974 | 80° 07' 00" 19° 45' 10 " | 21.49 | 61.15 | 1671 | MH09MH0451 | Gated | 08/05/2019 23/12/2019 | 3.10,3.11,3.19,3.20 | 04 |
| Superintending Engineer, C.A.D.A. Nagpur | | | | | | | | | | | |
| 4 | Dham (Dist:-Wardha) | 1986 | 78° 28' 00 " 27° 57' 55 " | 33.35 | 72.46 | 5416.6 | MH09HH1143 | Ungated | 19/05/2020 05/01/2020 | 3.3,3.6,3.7,3.9,3.10,3.16 | 06 |
| 5 | Bor (Dist:-Wardha) | 1965 | 78° 45' 30 " 21° 03' 35 " | 36.28 | 138.75 | 3058 | MH09HH0115 | Gated | 19/05/2019 05/01/2020 | 3.1,3.9,3.10,3.13,3.19,3.20,3.30 | 07 |
| 6 | Khekarnalla. Dist :- Nagpur | 1988 | 78° 56' 45 " 21° 32' 12 " | 24.50 | 26. 32 | 1343 | MH09MH1197 | Gated | 26/05/2019 23/12/2019 | 3.7,3.9,3.16, 3.20, 3.24 | 05 |
| 7 | Lower Wenna (nand) | 1990 | 79° 07' 00 " 20° 43' 45 " | 16.25 | 62.18 | 5238 | MH09MH1253 | Gated | 27/05/2019 22/10/2019 | 3.7,3.9,3.13,3.19, 3.20,3.26, 3.30 | 08 |

| Sr. No | Name of Dam | Year of Compl- -etion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr.No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|--|--------------------------------|--------------------------|------------------------------------|----------------|--------------------------------------|--|--|--------------------|------------------------------|---|-----------------------|
| 8 | Lower Wenna (wadgaon) | 1997 | 79° 07' 00" 20° 43' 45" | 23.65 | 152.06 | 9613 | MH09MH1446 | Gated | 22/05/2019 23/10/2019 | 3.3,3.6,3.7,3.9,3.11,3.16,3.20, 3.30 | 08 |
| 9 | Kolar | 1984 | 78° 48' 46" 21° 24' 00" | 30.16 | 35.38 | 1598 | MH09HH1061 | Gated | 26/05/2019 23/12/2019 | 3.3,3.5,3.6,3.7,3.9,3.10,3.16,3. 20,3.22,3.30,3.33 | 11 |
| 10 | Kamathikairy | 1976 | 79° 11' 30" 21° 27' 15" | 32.00 | 220 | 12000 | MH09HH0596 | Gated | 04/05/2019 19/10/2019 | 3.3,3.7,3.9,3.11,3.13,3.16,3.20 ,3.21,3.22,3.33 | 10 |
| 11 | Totaladoh | 1989 | 79°14' 00" 21° 39' 30" | 74.05 | 1241 | 12072 | MH09HH1229 | Gated | 30/05/2019 22/10/2019 | 3.3, 3.16,3.19,3.22, 3.30,3.33 | 06 |
| 12 | Ramtek | 1913 | 79°20' 25" 21° 20' 25" | 22.20 | 105 | 514.26 | MH09MH0033 | Ungated | 30/05/2019 19/10/2019 | 3.7,3.16,3.20,3.30 | 04 |
| Superintending Engineer B.I.C. Bhandara | | | | | | | | | | | |
| 13 | Itiatoh (Dist :- Gondia) | 1970 | 80° 27' 18" 20° 48' 00" | 29.85 | 288.78 | 32.30 | MH09MH0227 | Ungated | 07/06/2019 04/01/2020 | 3.9,3.20,3.36 | 03 |
| 14 | Kalisarar | 1988 | 78° 27' 00" 21° 10' 30" | 25.52 | 30.46 | 10402 | MH09MH1198 | Gated | 07/06/2019 04/01/2020 | 3.9,3.13,3.16,3.20,3.28 | 05 |
| 15 | Sirpur | 1969 | 80° 27' 00" 21° 03' 20" | 24.69 | 203.85 | 30633 | MH09MH0228 | Gated | 07/06/2019 04/01/2020 | 3.5,3.6,3.7,3.9 | 04 |
| 16 | Pujaritola | 1970 | 80°27' 00" 21° 14' 20" | 19.20 | 65.11 | 42.46 | MH09MH0229 | Gated | 07/06/2019 04/01/2020 | 3.1,3.6,3.9,3.12,3.13,3.20,3.30 ,3.32 | 08 |

| Sr. No | Name of Dam | Year of Completion | Location Longitude/Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr.No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|---|-------------------------------|--------------------|-----------------------------|-------------|--------------------------------|---|--|-----------------|---------------------------|--|--------------------|
| Chief Engineer, Gosikhurd Project, Nagpur | | | | | | | | | | | |
| Superintending Engineer, Gosikhurd Project Circle Nagpur | | | | | | | | | | | |
| 17 | Gosi Khurd (Dist:- Bhandara) | 2008 | 79° 37'00" 20° 52' 30" | 44.05 | 1146 | 63726 | MH09MH1817 | Gated | 01/06/2019 05/11/2019 | 3.7,3.9,3.13,3.19, 3.20,3.36 | 06 |
| Superintending Engineer, G. L.I.C. Ambadi | | | | | | | | | | | |
| 18 | Dhapewada Barrage | 2013 | N.A. | 33.39 | 44.05 | 16124.61 | MH09MH2251 | Gated | 28/04/2019 Not written | 3.16 | 01 |
| Superintending Engineer, N.I.C. Nagpur | | | | | | | | | | | |
| 19 | Lower Wardha | 2009 | 78° 15'30" 21° 52' 30" | 29.60 | 253.34 | 22596.32 | MH09MH1811 | Gated | 16/05/2019 18/11/2019 | 3.1,3.3,3.6,3.7,3.9,3.19,3.20,3.22,3.25,3.30 | 10 |

Table 2.9

Damwise Health status report of Class-II dams with category-1 deficiency

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Observation / Significant Deficiencies noticed | Remedial Measures Suggested |
|---|--------------|--------------------|--------------------|-----------------------|--|-----------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <p>----- No Such Dams under this category is reported -----</p> | | | | | | |

Table 2.10

Damwise Health status report of Class-II dams with category-2 deficiency

| R.O. | DAM FEATURES | DATE OF INSPECTION | INSPECTING OFFICER | MAIN COMPONENT OF DAM | SIGNIFICANT DEFICIENCIES NOTICED. | REMEDIAL MEASURES SUGGESTED |
|---|--|--------------------------|--|--|--|--|
| <p>Chief Engineer, Water Resources Department, Nagpur Superintending Engineer & Administrator CADA, Nagpur. Executive Engineer, Nagpur Irrigation Division, (North), Nagpur</p> | | | | | | |
| 1. | Name:- Khumari nalla (Kalmeshwar) Date of completion :- 1993 Location :- Longitude :- 78° 15' 30" Latitude :- 21° 18' 45" Height :- 15.60 m. Gross capacity :- 5.1058 Mm³ Design Spillway capacity 478.9 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- MH09MH1312 | 04/05/2019 02/12/2019 | Mrs. S.S. Chopade EE, NID North, Nagpur | E/dam | 1).Dam top is not in proper level. (B1) 2) Stem rod is bend. (B5) | Dam section to be brought to correct design section and level by adding earthwork duly compacted properly. Necessary repairs should be done |
| 2. | Name:- Nagalwadi (Nagpur) Date of completion :- 1978 Location :- Longitude :- 79° 02' 00" Latitude :- 21° 34' 00" Height :- 16.37 m. Gross capacity :- 2.679 Mm³ Design Spillway capacity 08.84 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- MH09MH0688 | 15/05/2019 02/12/2019 | Mrs. S.S. Chopade EE, NID North, Nagpur | E/dam W.W. Bar & Tail channel | 1) There is settlement of embankment; the section of dam is not as per design. (B1) 2) Scouring noticed on d/s of w.w. bar. (A14) 3) Surface of gates deteriorated. (B11) 4) Retrogression at 1200m. (A7) | Embankment to be brought to correct design section and level by adding earthwork duly compacted properly. Embankment to be brought to design section by adding earthwork duly compacted properly below pitching. Proper remedial measure be taken & scouring be monitored. Necessary repairs be done Proper remedial measure be taken |

| R. O | DAM FEATURES | DATE OF INSPECTION | INSPECTING OFFICER | MAIN COMPONENT OF DAM | SIGNIFICANT DEFICIENCIES NOTICED. | REMEDIAL MEASURES SUGGESTED |
|---|---|--------------------------|--|--|--|--|
| Executive Engineer, Nagpur Irrigation Division (South), Nagpur | | | | | | |
| | Name:- Makardhokada(Nagpur) Date of completion :- 1978 Location :- Longitude :- 78° 56' 45" Latitude :- 20° 32' 12" Height :- 18.80 m. Gross capacity : 21.35 Mm³ Design Spillway capacity 929 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- MH09MH0718 | 3/06/2019 22/12/2019 | Mrs. S.S. Chopade EE, NID South, Nagpur | E/ Dam Outlet W.W Bar & Tail channel | 1) Standing pool of water in gorge portion of nalla.(A2) 2) E.G. not in working condition. .(B5) 3) In EDA concrete portion is damaged&Divide wall is damaged. (A14) | The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained Necessary repairs be done Damaged portion of EDA to be repaired by concrete filling suitably. |
| | Name:- Nishanghat(Nagpur) Date of completion :- 1985 Location :- Longitude :- 79° 06' 26" Latitude :- 20° 48' 20" Height :- 16.16 m. Gross capacity :- 2. 471 Mm³ Design Spillway capacity 159.10 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- -MH09MH1074 | 13/06/2019 04/12/2019 | Mrs. S.S. Chopade EE, NID South, Nagpur | E/ Dam W.W Bar & Tail channel | 1) Standing pool of water in gorge portion of nalla.(A2) 2) Section profile of dam from RD 210m to 390m is not as per design. (B1) 3) Heavy scouring in waste weir Tail channel from 0 to 510 m.(A7) | The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained Dam section to be brought to correct design section and level by adding earthwork duly compacted properly. Proper remedial measure be taken & scouring be monitored. |

| R. O | DAM FEATURES | DATE OF INSPECTION | INSPECTING OFFICER | MAIN COMPONENT OF DAM | SIGNIFICANT DEFICIENCIES NOTICED. | REMEDIAL MEASURES SUGGESTED |
|------|--|--------------------------|--|---|--|--|
| 1. | Name:- Pandharabodi (Nagpur) Date of completion :- 1967 Location :- Longitude :- 79° 17' 00" Latitude :- 20° 49' 45" Height :- 15.24 m. Gross capacity :- 13.86 Mm³ Design Spillway capacity 432 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- MH09MH0147 | 13/06/2019 22/12/2019 | Mrs. S.S. Chopade EE, NID South, Nagpur | E / dam Outlet W.W.Bar & Tail channel | 1) There is standing pool of water on d/s of dam in gorge portion. (A2) 2) Rubber seal damaged & needs replacement. (B12) 3) Major retrogression is noticed at 50 m. from spillway bar. (A7) | The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained. Necessary repairs should be done If retrogression is moving closer to the EDA of spillway or waste weir bar, protective measures, shall be undertaken to prevent progressive damage. Extent of retrogression should be ascertained and monitors every year by mapping. If the problem of retrogression is moving upstream and serious and for geological investigation the problem shall be referred to respective organisation for undertaking investigations and studies for evolving suitable solution to the problem. |
| 2. | Name:- Saikinalla (Nagpur) Date of completion :- 1994 Location :- Longitude :- 79° 12' 00" Latitude :- 20° 51' 00" Height :- 14.65 m. Gross capacity :- 8.990 Mm³ Design Spillway capacity :- 728 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- :- MH09LH1334 | 13/06/2019 22/12/2019 | Mrs. S.S. Chopade EE, NID South, Nagpur | E / dam Outlet | 1) Standing pool of water on d/s in gorge portion. (A2) 2) E.G. not in working condition. (B5) | The d/s area at least up to above 200 m from toe, shall be free from stagnation & the area should be well drained. Necessary repairs be done |

| R. O | DAM FEATURES | DATE OF INSPECTION | INSPECTING OFFICER | MAIN COMPONENT OF DAM | SIGNIFICANT DEFICIENCIES NOTICED. | REMEDIAL MEASURES SUGGESTED |
|---|---|--|--|---------------------------------------|--|--|
| | Name – Salaimendha (Nagpur) Date of completion 1972 Location : Longitude : 78°52'00" Latitude :- 20°02'00" Height :- 20.57 m. Gross capacity :-2.23 Mm ³ Design Spillway capacity 200 cumecs (Ungated) Sr. No. in National register of large Dams July 2009 : MH09MH0277 | 11/05/2019 27/12/2019 | Mrs. S.S. Chopade EE, NID South, Nagpur. | WW Bar & TC | 1) Seepage through spillway is observed & need urgently repair. (A15) 2) EDA is not in good condition; leakage is observed through the foundation of cushioning tank needs repairing works. (A14) | Proper remedial measures shall be immediately carried out. Necessary repairs be done |
| Executive Engineer , Wardha Irrigation Division , Wardha | | | | | | |
| | Name:- Parsodi (Wardha) Date of completion :- 1982 Location : - Longitude :- 78° 26' 00" Latitude :- 21° 13' 00" Height :- 20.05 m. Gross capacity :- 1.13 Mm³ Design Spillway capacity 80.71 cumecs (Ungated) Sr. No. in National register of large Dams July 2009:- MH09MH091 | 16/06/2019 03/12/2019 16/01/2020 | Shri S. C. Rahane EE, WID, Wardha N. K. Tayade EE, DSD 2, Nashik | E / dam Outlet | 1) Undulation are observed & Settlement of embankment. (B3) 2) Outlet well not in operation. (A6) Same as above. | Section to be brought to correct design section and level by adding earthwork duly compacted properly. Proper remedial measures shall be immediately carried out. |

| R.O. | DAM FEATURES | DATE OF INSPECTION | INSPECTING OFFICER | MAIN COMPONENT OF DAM | SIGNIFICANT DEFICIENCIES NOTICED. | REMEDIAL MEASURES SUGGESTED |
|---|--|--|---|-----------------------|--|---|
| | Name:- DAHEGAON G Date of completion :- 1984 Location :- Longitude :- 78° 29'00" Latitude :-20°57' 00" Height :- 16.80 m. Gross capacity :- 3.24 Mm ³ Design Spillway capacity 315 cumecs (Ungated) Sr. No. in National register of large Dams July 2009:- MH09MH1051 | 16/06/2019 03/12/2019 | Shri S. C. Rahane EE, WID, Wardha | Outlet | 1) Considerable leakage (3 cuses) is observed. (A4) | Proper remedial measures shall be immediately carried out. |
| Superintending Engineer , Bhandra Irrigation Project Circle, Bhandra Executive Engineer, Gondia Irrigation Division, Gondia. | | | | | | |
| 0 | Name:- Risala Date of completion :- 1967 Location :- Longitude :- 79°53'30 " Latitude :- 21°15'00 " Height :- 16.62 m. Gross capacity :- 6.575 Mm ³ Design Spillway capacity 6.575 cumecs (Ungated) Sr. No. in National register of large Dams July 2009:- MH09MH0142 | 11/05/2019 10/10/2019 12/02/2020 | Smt. S.S. Sonule EE,GID, Gondia N. K. Tayade EE, DSD 2, Nashik | Outlet | 1) Leakages observed through conduit of head regulator. Grouting is required. (A4) Same as above. | Day to day record of leakages shall be maintained. Proper remedial measures shall be immediately carried out. |

| R.O | DAM FEATURES | DATE OF INSPECTION | INSPECTING OFFICER | MAIN COMPONENT OF DAM | SIGNIFICANT DEFICIENCIES NOTICED. | REMEDIAL MEASURES SUGGESTED |
|---|---|--------------------------|---|-----------------------|--|--|
| Superintending Engineer , Chandrapur Irrigation Project Circle , Chandrapur Executive Engineer, Chandrapur Irrigation Division, Chandrapur | | | | | | |
| 1 | Name:- Teliya Date of completion :- 1972 Location :- Longitude :- 79° 21' 00" Latitude :- 20° 10' 0" Height :- 16.10 m. Gross capacity :- 1.152 Mm ³ Design Spillway capacity 130.55 cumecs (Ungated) Sr. No. in National register of large Dams July 2009:- MH09MH0271 | 08/06/2019 30/11/2019 | SHRI. S.B.Kale EE, CID, Chandrapur | Earthen Embankment | Standing pool of water on D/S at gorge portion. (A2) | The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained & Proper repairs be carried out. |
| 2 | Name:- Ghorazari Date of completion :- 1923 Location :- Longitude :- 79° 30' 07" Latitude :- 20° 30' 10" Height :- 20.04 m. Gross capacity :- 45.08 Mm ³ Design Spillway capacity 320 cumecs (Ungated) Sr. No. in National register of large Dams July 2009:- MH09MH0045 | 16/05/2018 14/11/2018 | SHRI. S.B.Kale EE, CID, Chandrapur | Earthen Embankment | Standing pool of water on D/S @ 40 m. (A2) | The d/s area at least up to above 200m. from toe, shall be free from stagnation & the area should be well drained & Proper remedial measures shall be immediately carried out. |

Table 2.11

Damwise Health status report of Class-II dams with category-3 deficiency

| Sr. No | Name of Dam | Year of Completion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr. No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|--|------------------|--------------------|------------------------------|-------------|--------------------------------|---|---|-----------------|--------------------------|----------------------|--------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Chief Engineer, Irrigation Department, Nagpur Superintending Engineer & Administrator, Cada, Nagpur Executive Engineer, Nagpur Irrigation Division, North, Nagpur | | | | | | | | | | | |
| 1 | Chandrabhaga | 1973 | 78°46'00" 21°16'00" | 20.10 | 8.886 | 771.51 | MH09MH0375 | Ungated | 05/04/2019 04/12/2019 | 3.9,3.22 | 02 |
| 2 | Mordham | 1979 | 78°48'20" 21°13'20" | 15.19 | 5.44 | 564.00 | MH09MH0788 | Ungated | 05/04/2019 04/12/2019 | 3.5,3.9,3.19 | 03 |
| 3 | Umari (Nag) | 1971 | 78°47'00" 21°25'45" | 21.51 | 5.90 | 516.00 | MH09MH0261 | Ungated | 05/03/2019 02/12/2019 | 3.1,3.2,3.5,3.17 | 04 |
| 4 | Nanda (Nagpur) | 1976 | 78° 44'00" 21°26'00" | 17.31 | 1.105 | 97 | MH09MH0545 | Ungated | 05/03/2019 02/12/2019 | 3.5,3.16,3.19,3.20 | 04 |
| 5 | Kesarnalla | 1974 | 78° 15'00" 21° 22'20" | 18.82 | 5.142 | 325 | MH09MH0424 | Ungated | 05/03/2019 02/12/2019 | 3.1,3.9 | 02 |
| 6 | Chikhali nalla | 2002 | 78°38'16 " " 21°05'21 " " | 17.68 | 7.2029 | 992 | MH09MH1611 | Ungated | 02/05/2019 18/11/2019 | 3.19,3.20,3.16,3.34 | 04 |
| 7 | Jam | 1996 | 78°38'19 " " 21°13'23 " " | 24.00 | 28.25 | 1956 | MH09MH1411 | Ungated | 02/05/2019 18/11/2019 | 3.16,3.19,3.20 | 03 |
| 8 | Khumari (Ramtek) | 1986 | 79°17'00" 21°28'30" | 15.24 | 2.12 | 92.80 | MH09MH1109 | Ungated | 11/05/2018 20/10/2018 | 3.19 | 01 |
| 9 | Nagalwadi | 1978 | 79° 02' 0" 21° 34' 0" | 16.37 | 2.679 | 208.84 | MH09MH0688 | Ungated | 15/05/2019 02/12/2019 | 3.5,3.16 | 02 |
| 10 | Kumari nala | 1993 | 78° 15' 0" 21° 18'45" | 15.60 | 5.1058 | 478.90 | MH09MH1312 | Ungated | 04/05/2019 02/12/2019 | 3.5,3.20,3.21 | 03 |
| 11 | Kotwalbordi | 1974 | 78°46'00" 21°13'00" | 15.23 | 1.418 | 98.00 | MH09MH0396 | Ungated | 05/04/2019 04/12/2019 | 3.17,3.20,3.34 | 03 |
| 12 | Sawangi nalla | 1974 | 78°54'54" 21° 00'24" | 17.30 | 17.30 | 137.00 | MH09LH0399 | Ungated | 06/05/2019 26/11/2019 | 3.20 | 01 |

| Sr. No | Name of Dam | Year of Completion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr. No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|--|-----------------|--------------------|------------------------------|-------------|--------------------------------|---|---|-----------------|--------------------------|--------------------------------------|--------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Executive Engineer, Nagpur Irrigation Division, South, Nagpur | | | | | | | | | | | |
| 13 | Kanolibara | 1976 | 78°51'30" 20°56'30" | 21.05 | 22.213 | 1141.00 | MH09MH0590 | Ungated | 27/05/2019 27/12/2019 | 3.7,3.9,3.22 | 03 |
| 14 | Nandora | 1988 | 78°51'45" 21°05'50" | 18.80 | 2.573 | 230.8 | MH09MH1192 | Ungated | 30/05/2019 24/12/2019 | 3.1,3.9,3.16,3.19,3.21,3.22 | 06 |
| 15 | Makardhokda | 1978 | 78° 56'45" 20° 32'12" | 18.80 | 21.35 | 929 | MH09MH0718 | Ungated | 13/06/2019 22/12/2019 | 3.5,3.7,3.9,3.13,3.20 | 05 |
| 16 | Niashanghat | 1985 | 79° 06'26" 20°48' 20" | 16.16 | 2.471 | 159.10 | MH09MH1074 | Ungated | 13/06/2019 04/12/2019 | 3.5,3.7,3.9,3.20,3.25 | 05 |
| 17 | Pandharbodi | 1967 | 79°17' 0" 20° 49' 5" | 15.24 | 13.86 | 432 | MH09MH0147 | Ungated | 3/06/2019 22/12/2019 | 3.5,3.7, 3.9,3.16, 3.21,3.22 | 06 |
| 18 | Saikinalla | 1994 | 79° 12'00" 20° 51'00" | 14.65 | 8.990 | 728 | MH09LH1334 | Ungated | 13/06/2019 22/12/2019 | 3.7,3.13,3.9,3.21, 3.22 | 05 |
| 19 | Salaimendha | 1972 | 78°52'00" 20°02'00" | 20.57 | 2.23 | 200 | MH09MH0277 | Ungated | 11/05/2019 27/12/2019 | 3.9,3.16,3.20,3.22 | 04 |
| 20 | Wunna | 1966 | 78°52'00" 20° 08'00" | 18.18 | 23.56 | 1326.64 | MH09MH0129 | Ungated | 11/05/2019 24/12/2019 | 3.2,3.5,3.7 | 03 |
| 21 | Zilpi | 1974 | 78°52'00" 21°04'00" | 18.95 | 1.559 | 80.00 | MH09MH0394 | Ungated | 11/05/2019 27/12/2018 | 3.2,3.7,3.9 | 03 |
| Executive Engineer, Bhandara Rairrigation Division, Bhandara. | | | | | | | | | | | |
| 22 | Betekar Bothali | 1978 | 79°33'05 " 21°25'30 " | 20.70 | 4.150 | 483.60 | MH09MH0722 | Ungated | 11/06/2019 06/11/2019 | 3.16 | 01 |
| 23 | Nagthana | 1975 | 79°37'00 " 20°23'00 " | 11.30 | 3.11 | 440.35 | MH09LH0506 | Ungated | 17/05/2019 06/11/2019 | 3.19 | 02 |
| 24 | Chandpur | 1915 | 79° 49'00" 21°32' 00" | 19.00 | 29.03 | 339 .25 | MH09MH0034 | Ungated | 17/05/2019 01/11/2019 | 3.16,3.19,3.20,3.21, 3.22 | 05 |
| Executive Engineer, Wardha Irrigation Division, Wardha. | | | | | | | | | | | |
| 25 | Ashti | 1963 | 78°17'00 " 20°12'00 " | 17.31 | 1. 71 | 143.24 | MH09MH0088 | Ungated | 16/06/2019 03/12/2019 | 3.1,3.2,3.13,3.7,3.9, 3.16,3.20,3.22 | 08 |

| Sr. No | Name of Dam | Year of Completion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr. No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|--|-----------------|--------------------|------------------------------|-------------|--------------------------------|---|---|-----------------|-----------------------|---|--------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 26 | Kanamwargram | 1973 | 78°11'00 " 20°15'00 " | 16.70 | 1.57 | 199.00 | MH09MH0344 | Ungated | 16/06/2019 03/12/2019 | 3.1,3.20,3.22 | 03 |
| 27 | Lahadevi | 1976 | 78°17'00 " 20°58'00 " | 16.48 | 0.82 | 66.33 | MH09MH0541 | Ungated | 09/06/2019 17/11/2019 | 3.1,3.2,3.5,3.9,3.19, 3.20,3.21,3.22,3.34 | 09 |
| 28 | Panchdhara | 1976 | 78°37'30 " 20°54'30 " | 18.15 | 9.68 | 809.1 | MH09MH0589 | Ungated | 23/05/2019 29/01/2020 | 3.1,3.9,3.19, 3.22,3.25,3.10,3.20 | 07 |
| 29 | Panjara-bothali | 1975 | 78°32'00 " 20°53'00 " | 17.68 | 2.056 | 96.86 | MH09MH0459 | Ungated | 09/06/2019 17/11/2019 | 3.5,3.7,3.9, 3.19, 3.22,3.25 | 06 |
| 30 | Pothara | 1983 | 79°02'30 " 20°33'10 " | 14.21 | 38.43 | 1200 | MH09LH1008 | Ungated | 24/05/2019 17/12/2019 | 3.1,3.19,3.20,3.22,3.16 | 05 |
| 31 | TakaliBorkhedi | 1971 | 78°44'45" 21°30'32" | 17.49 | 1.74 | 172 | MH09MH0242 | Ungated | 29/01/2020 23/05/2019 | 3.9,3.22,3.10,3.34 | 04 |
| 32 | Dongargaon | 1971 | 78°42'00 " 20°54'05 " | 16.98 | 4.810 | 382.00 | MH09MH0255 | Ungated | 23/05/2019 29/01/2020 | 3.1,3.7,3.20,3.21,3.2 2,3.19 | 06 |
| 33 | Dahegaongondi | 1984 | 78° 29'00" 20°57' 00" | 16.80 | 3.24 | 315.00 | MH09MH1051 | Ungated | 16/06/2019 03/12/2019 | 3.5,3.7,3.9, 3.20,3.21,3.25 | 06 |
| 34 | Umari (Wardha) | 1975 | 78° 24' 00" 20° 55' 00" | 20.98 | 2.555 | 95.40 | MH09MH0466 | Ungated | 09/06/2019 17/11/2019 | 3.16,3.9,3.20,3.22,3. 25 | 05 |
| 35 | Harshi | 1999 | 75° 20' 30" 20° 07' 45" | 17.36 | 1.747 | 140.10 | MH09MH1498 | Ungated | 09/06/2019 17/11/2019 | 3.1,3.9, 3.22,3.33 | 04 |
| 36 | Parsodi | 1982 | 78° 26'00" 21° 13'00" | 20.05 | 1.13 | 80.71 | MH09MH091 | Ungated | 16/06/2019 03/12/2019 | 3.5,3.9,3.21 | 03 |
| 37 | Madan | 2002 | 78°52'00" 20° 56'24" | 26.55 | 11.46 | 662.50 | MH09MH1608 | Ungated | 06.06.2019 30.01.2020 | 3.9,3.22,3.16,3.21 | 04 |
| Superintending Engineer , Bhandra Irrigation Project Circle , Bhandra Executive Engineer, Gondia Irrigation Division, Gondia. | | | | | | | | | | | |
| 38 | Naewgaon bandh | 1967 | 80°15'00 " 20°31'00 " | 11.58 | 45.94 | 124.20 | MH09LH0138 | Ungated | 08/05/2019 05/11/2019 | 3.20 | 01 |
| 39 | Bodalkasa | 1917 | 80° 01'00" 21°21'15" | 19 .20 | 17 .393 | 206 . 687 | MH09MH0039 | Ungated | 26/04/2019 10/11/2019 | 3.9,3.19,3.20 | 03 |
| 40 | Risala | 1967 | 79°53'30 " 21°15'00 " | 16.62 | 6.575 | 137.48 | MH09MH0142 | Ungated | 11/05/2019 10/10/2019 | 3.1,3.7,3.9,3.19,3.20 ,3.21,3.34 | 07 |

| Sr. No | Name of Dam | Year of Completion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr. No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|---|----------------|--------------------|------------------------------|-------------|--------------------------------|---|---|-----------------|-----------------------|-----------------------------|--------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 41 | Khairbandh | 1915 | 80° 00' 45" 21° 28' 30" | 18 .16 | 16.798 | 363.30 | MH09MH0023 | Ungated | 20/04/2019 10/11/2019 | 3.5,3.9 | 03 |
| 42 | Managad | 1970 | 80° 31'30" 21°13' 30" | 15 .70 | 7 .825 | 302 . 50 | MH09MH0208 | Ungated | 18/04/2019 24/12/2019 | 3.19 | 01 |
| 43 | Rengepar | 1978 | 88°07'30" 21° 16'30" | 17.17 | 3.965 | 410.88 | MH09MH0716 | Ungated | 04/05/2019 05/11/2019 | NIL | 00 |
| 44 | Pipriya | 1977 | 82°08' 00" 21°20' 00" | 15.43 | 1 .389 | 62.01 | MH09MH0464 | Ungated | 18/04/2019 24/12/2019 | 3.16 | 01 |
| 45 | Chorakhamara | 1923 | 79° 57'00" 21° 18' 0" | 21.05 | 21.051 | 264.94 | MH09MH0044 | Ungated | 26/04/2019 10/11/2019 | 3.1,3.9,3.5,3.20 | 04 |
| 46 | Chulband | 1977 | 80° 13'00" 21° 13'00" | 22.08 | 24.018 | 846.12 | MH09MH0445 | Ungated | 19/04/2019 05/11/2019 | 3.20 | 01 |
| 47 | Salegaon | 1964 | 80°20'45 " 21°10'35 " | 17.27 | 3. 395 | 86.93 | MH09MH0093 | Ungated | 25/19/2019 24/12/2019 | NIL | 00 |
| 48 | Umarzari | 1996 | 80°0 3' 45" 21° 28' 30" | 18.50 | 17.33 | 450 | MH09MH1472 | Ungated | 25/04/2019 06/11/2019 | 3.1,3.5,3.7,3.20 | 04 |
| Superintending Engineer , Chandrapur Irrigation Project Circle , Chandrapur Executive Engineer, Chandrapur Irrigation Division, Chandrapur | | | | | | | | | | | |
| 49 | Amalnala | 1985 | 79°10'00" 19°45'05" | 26.57 | 22.70 | 1067.12 | MH09LH0403 | Ungated | 08/06/2019 30/11/2019 | 3.5,3.20,3.22,3.19 | 04 |
| 50 | Ghorazari | 1923 | 79° 30'07" 20°30' 10" | 20.04 | 45.08 | 320 | MH09MH0045 | Ungated | 16/7/2019 | 3.7,3.19 | 02 |
| 51 | Teliya (C'pur) | 1972 | 79° 21' 00" 20° 10' 0" | 16.10 | 1.152 | 130.55 | MH09MH0271 | Ungated | 08/06/2019 30/11/2019 | 3.1,3.7,3.19,3.20 | 04 |
| 52 | Pakadiguddam | 1993 | 79° 02'00" 20° 02'00" | 18.90 | 13.31 | 803 | MH09MH1703 | Ungated | 08/06/2019 30/11/2019 | 3.7,3.19,3.20,3.9 | 04 |
| 53 | Sondo | 1975 | 79° 16'00" 19° 39'09" | 16.49 | 2.15 | 174 | MH09MH0478 | Ungated | 08/06/2019 22/12/2019 | 3.1,3.5 | 01 |
| 54 | Nalleshwar | 1922 | 79°35' 00" 20°14' 00" | 12 . 80 | 8 . 88 | 308 .43 | MH09MH0042 | Ungated | 05/05/2019 22/11/2019 | 3.2,3.5,3.7,3.16,,3.20,3.22 | 06 |

| Sr. No | Name of Dam | Year of Completion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr. No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|---|-------------|--------------------|------------------------------|-------------|--------------------------------|---|---|-----------------|--------------------------|----------------------|--------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 55 | Chargaon | 1983 | 79° 10'10" 20° 25'40" | 14.40 | 21.70 | 1450 | MH09LH1007 | Ungated | 25/12/2019 | 3.5,3.7,3.16,3.22 | 04 |
| Executive Engineer, Chandrapur Medium Pro. Division No.1, Chandrapur | | | | | | | | | | | |
| 56 | Dongargaon | 2000 | 79° 34' 0" 19° 36' 0" | 19.88 | 14.178 | 840 | MH09MH1549 | Ungated | 22/11/2019 | Nil | 00 |
| Chief Engineer, Gosi Khurd Project ,Nagpur Superintending Engineer, Nagpur Irrigation Circle, Nagpur. Executive Engineer Medium Project Division, Gondia | | | | | | | | | | | |
| 57 | Katangi | 2001 | 80°11'00 " 21°21'00 " | 13.65 | 11.12 | 845 | MH09LH1675 | Ungated | 10/06/2019 05/02/2020 | 3.9,3.16,3.22 | 03 |
| Executive Engineer , Minor Irrigation Division, Wardha | | | | | | | | | | | |
| 58 | Kar | 2000 | 78°27'14" 21°13'39" | 25.13 | 25.96 | 2315.00 | MH09MH1556 | Ungated | 16/05/2019 25/12/2019 | 3.1,3.9,3.16,3.22 | 04 |

Table 2.12

Damwise Health status report of Private Class-I dams with category-1 deficiency

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Significant Deficiencies noticed | Remedial Measures Suggested |
|--|--------------|--------------------|--------------------|-----------------------|----------------------------------|-----------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <p>----- No Such Dams under this class -----</p> | | | | | | |

Table 2.13

Damwise health status report of private Class-I dams with category-2 deficiency

| Sr. No | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Significant Deficiencies Noticed | Remedial Measures Suggested |
|--------|---|--------------------------|--|-----------------------|---|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Erai (Dist:Chandrapur) Year of Completion: 1985 Location Longitude: 79 ° 15'30 '' Latitude: 20° 06' 00'' Height: 26.93 m Gross capacity: 226 Mm ³ Spillway capacity: 2610 m ³ /sec (Gated) Sr. No. in National Register of Large Dams (July 2002) : MH09HH1010 | 13/06/2019 25/09/2019 | Shri. N.K. Tayade, E.E.D.S.O.2 Nasik Shri S. B.Khairnar SDE. D.S. D-2., Nasik | Masonry Dam | 1) Emergency gate hoisting structure deteriorated. (A18) 2) Uplift pressure cell, plumb bob not in working condition (B9) 3) Some portion of gallery is inaccessible due to plumb bob instrument covered with steel grill placed in gallery instead of plumb bob chamber (A8) | Necessary repairs shall be done immediately Necessary repairs shall be done immediately It should be removed immediately |

Table 2.14

Damwise Health status report of Private Class-I dams with category-3 deficiency

| Sr. No | Name of Dam | Date of Completion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr.No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|-----------|---------------------------|--------------------|------------------------------------|----------------|-----------------------------------|--|---|--------------------|--------------------------|--|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 | Erai (Dist:Chandrapur) | 1985 | 79°15'30" 20° 06' 00" | 26.93 | 226 | 2610 | MH09HH1010 | Gated | 13/06/2019 25/09/2019 | 3.1,3.9,3.12,3.18,3.25,3.27, 3.33,3.35,3.36 | 09 |

Table 2.15

Health status report of Private Class-II dams with category-1 deficiency

| Sr. No. | Dam Features | Date of Inspection | Inspecting Officer | Main Component of Dam | Significant Deficiencies noticed | Remedial Measures Suggested |
|---|--------------|--------------------|--------------------|-----------------------|----------------------------------|-----------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| <p>----- No Such Dams under this category is reported -----</p> | | | | | | |

Table 2.16

Damwise health status report of private Class-II dams with category-2 deficiency

| SR NO | DAM FEATURES | DATE OF INSPECTION | INSPECTING OFFICER | MAIN COMPONENT OF DAM | SIGNIFICANT DEFICIENCIES NOTICED. | REMEDIAL MEASURES SUGGESTED |
|-------|---|--------------------------|---|---|--|---|
| 1 | Name:- Gorewada(Nagpur) Date of completion :- 1911 Location :- Longitude :- 79° 03' 00" Latitude :- 20° 15' 00" Height :- 17.42 m. Gross capacity :- 8.84 Mm³ Design Spillway capacity : 685.76 cumecs (Gated) Sr. No. in National register of large Dams July 2009 :- MH09MH0029 | 12/06/2019 24/09/2019 | Shri. N.K. Tayade EE,DSD-2 Nasik | Earthen dam | 1).Dam seems to be under section at some places. (B1) 2) Seepage water is found near D/S toe of dam. (A11) | Dam section to be brought to correct design section and level by adding earthwork duly compacted properly. Necessary repairs be done |
| 2 | Name:- Ambazari (Nagpur) Date of completion :- 1870 Location :- Longitude :- Latitude :- Height :- 15.60 m. Gross capacity :- 8.37 Mm³ Design Spillway capacity :- . cumecs (Ungated) Sr. No. in National register of large Dams July 2009 :- MH09LH0006 | 12/06/2019 24/09/2019 | Shri. N.K. Tayade EE,DSD-2 Nasik | Earthen Dam W.W. bar Tail channel | 1).Poor crest profile & depression observed. (B3) 2). Slopes of dam is not observed as per design section. (B1) 3)Big Trees observed on U/S & D/S slope of Dam. (B13) 4) There is leakage on left side of bar. 5) Monumental structure is constructed immediately D/S of W.W. bar in tail channel. | Cracked portion should be excavated in the form of trench up to bottom of cracks and trench field by well compacted with proper grade (zone) of soil. Section to be brought to correct design section and level by adding earthwork duly compacted properly. All Trees must be removed . Necessary repairs be done Water way for passing flood in tail channel should be clear. |

Table 2.17

Damwise Health status report of Private Class-II dams with category-3 deficiency

| Sr. No | Name of Dam | Date of Completion | Location Longitude/ Latitude | Height in m | Gross Capacity Mm ³ | Design Spillway Capacity m ³ / sec | Sr.No. in NRLD Register of Large Dams 2009 | Gated / Ungated | Date of Inspection | Deficiencies noticed | Total Deficiencies |
|--------|-------------------|--------------------|------------------------------|-------------|--------------------------------|---|--|-----------------|--------------------------|----------------------|--------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1. | Gorewada (Nagpur) | 1911 | 79° 03' 00" 20° 15' 00" | 17.42 | 8.84 | 685.76 | MH09MH0029 | Gated | 12/06/2019 24/09/2019 | 3.1,3.24,3.29 | 03 |
| 2. | Ambazari (Nagpur) | 1870 | N.A. | 15.60 | 8.37 | N.A. | MH09LH0006 | Ungated | 12/06/2019 24/09/2019 | 3.1,3.24,3.29 | 03 |

Table 2.18**Significant category 2 deficiency wise list of class-I dams**

| Sr. No | Deficiency | Names of dams | Total No. of dams |
|---------------|---|--|--------------------------|
| 1 | A 2: Standing pool / Ponding / Water Logging / Slushy condition on D/S of Dam | Kolar, | 1 |
| 2 | A 4 : Major leakages through outlet conduit/pipe joints/Gates. | Totaladoh | 1 |
| 3 | A 5 ; Relief wells not functioning properly./ Abnormal rise in water level in wells. | Lower Wenna (Wadgaon) , Kamthi khairy | 2 |
| 4 | A6: Seepage noticed around the conduit. | Ramtek | 1 |
| 5 | A 7 : Retrogression /scouring in tail channel. | Lower Wenna (Nand), Lower Wenna (Wadgaon), | 2 |
| 6 | A 8 : Drainage gallery inaccessible/No adequate lighting./ No dewatering arrangement or failure. | Erai | 1 |
| 7 | A 9 : Foundation drains / holes/ porous pipes/choked/ no seepage through foundation drain holes. | Kamthikhairy, Totaladoh, Lower Wenna (Wadgaon) | 3 |
| 8 | A 11 : Sweating / seepages through D/S of masonry dam | Lower Wenna (Wadgaon) | 1 |
| 9 | A 12 : Excesssive considerable leaching from seepage water. | Kolar, Sirpur | 2 |
| 10 | A 14 : EDA / Stilling basin damaged/Hydraulic performance not good. | Kalisarar | 1 |
| 11 | A 15 : Leakages through spillway /piers//junction of flank wall. | Lower Wenna (Wadgaon) | 1 |
| 12 | A16 : Damages / foundation erosion/ scour/undermining observed in vicinity of flank walls/ guide walls/ junction walls/return walls. | Lower Wenna (Nand) | 1 |
| 13 | A 17 : End weir not in good condition / scouring noticed on immediate D/S. | Sirpur, Pujaritola | 2 |
| 14 | A 18 : Wire ropes of hoist not in good condition/hoisting structure damaged/cracked. | Kamthikhairy, Erai | 2 |
| 15 | A 19 : Alternative power system Generator for gate operation not working properly. | Lower Wenna (Nand) | 1 |
| 16 | B 7: Waste weir/waste weir bar not in good condition/coping damaged/leakage through waste weir. | Ramtek | 1 |
| 17 | B 9: Instruments not in working condition. | Erai | 1 |
| 18 | B 12: Damage to Rubber seals/ considerable Leakages through gates. | Pujaritola | 1 |

Table 2.19**Significant category 2 deficiency wise list of class-II dams**

| Sr. No | Deficiency | Names of dams | Total no of dams |
|---------------|---|--|-------------------------|
| 1 | 2 | 3 | 4 |
| 1 | A 2 : Standing pool / Ponding / Water Logging / Slushy condition on D/S of Dam | Nishanghat , Makardhokada Saikinalla, Dongargaon(Chandrapur), Pandharbodi, Ghorazari, Teliya | 07 |
| 2 | A4 : Major leakages through outlet conduit/pipe joints/Gates. | Risala, Dahegaon (G) | 02 |
| 3 | A 6 : Outlet well is damaged/not in good condition /cracks observed/jets of water in well. | Parsodi | 01 |
| 4 | A 7 : Retrogression /scouring in tail channel. | Nishanghat ,Pandharbodi, Nagalwadi | 03 |
| 5 | A 11 : Sweating / seepages through D/S of masonry dam | Gorewada | 01 |
| 6 | A 14 : EDA / Stilling basin damaged/Hydraulic performance not good. | Makardhokada, Nagalwadi, Salaimendha | 03 |
| 7 | A 15 : Leakages through spillway /piers//junction of flank wall. | Salaimendha | 01 |
| 8 | B 1 Dam section is not as per design | Nishanghat , Nagalwadi, Saikinalla, Gorewada, Ambazari, Khumarinalla(Kalmeshwar) | 06 |
| 9 | B3 : Considerable settlement of embankment / Rock toe/Pitching/ U/S & D/S slops, bulging/concavity of slopes. | Parsodi, Dongargaon (Chandrapur), Ambazari | 02 |
| 10 | B 5 : Outlet gates not functioning properly. Stem rod is bent(Service gate/Emergency gate/Stop log gate/sluice gate) | Khumarinalla (Kalmeshwar), Makardhokada, Saikinalla | 03 |
| 11 | B 11 : Surface paint/steel surface of spillway gates deteriorated. | Nagalwadi | 01 |
| 12 | B 12 : Damage to Rubber seals/ considerable Leakages through gates. | Pandharbodi | 01 |
| 13 | B 13 : Heavy vegetation/big trees on embankment top/slope making dam portion not accessible | Ambazari | 01 |

Chart -1

Districtwise & Classwise Dams in Nagpur Region

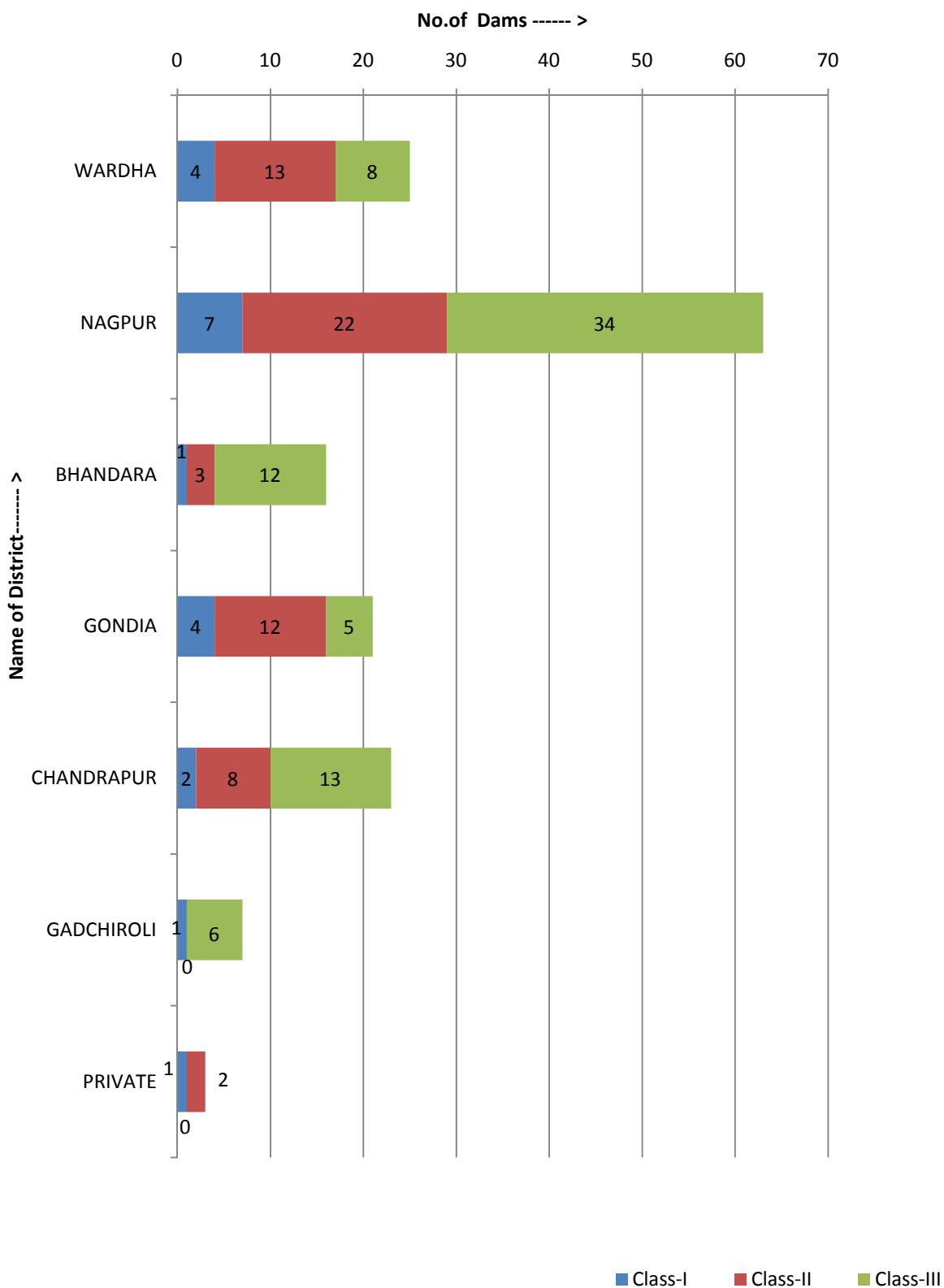


Chart-2

Category-2 deficiencies in Class-I dams

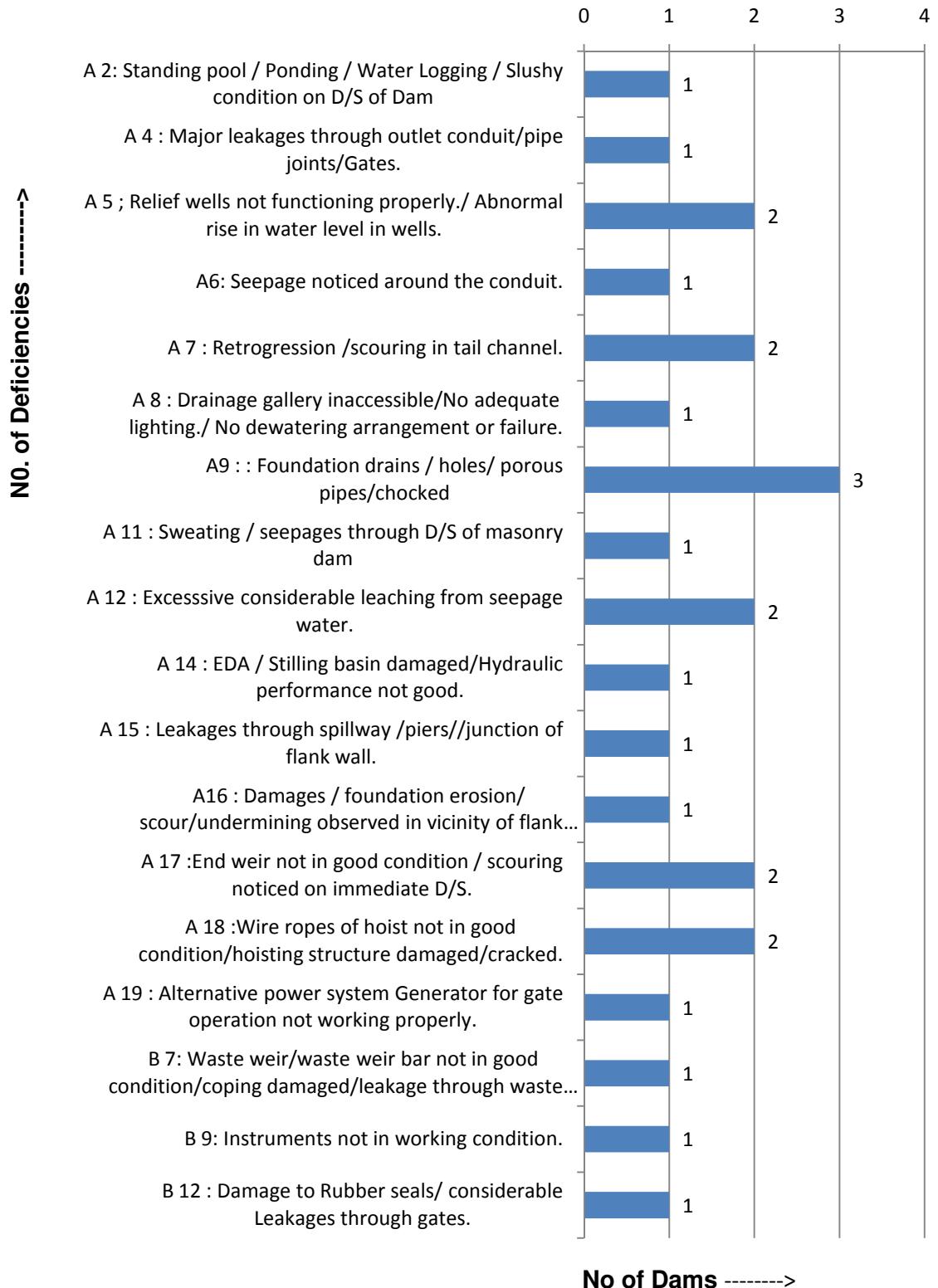
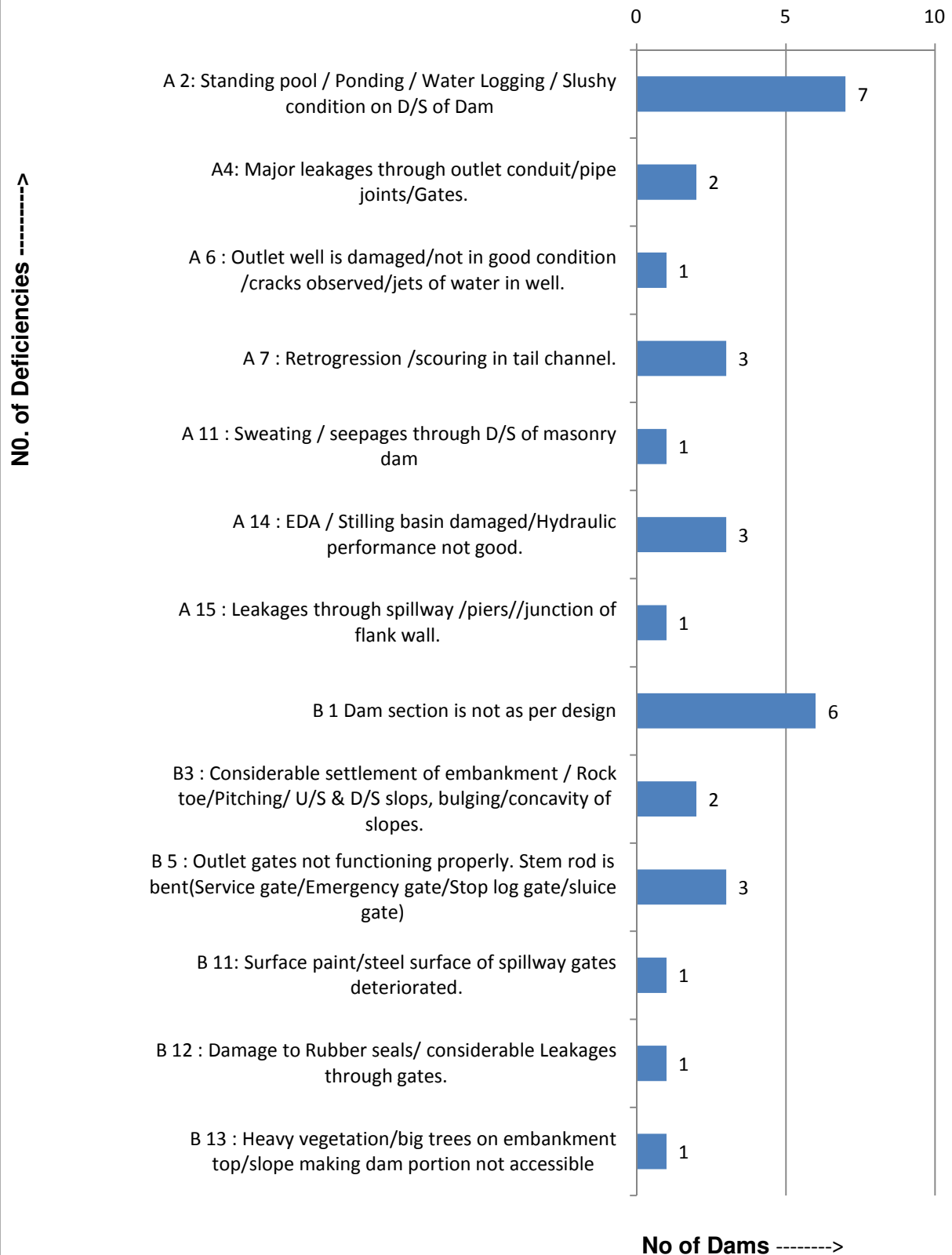


Chart-3
Category-2 deficiencies in Class-II dams



ANNEXURE- 1

General Information for Dam Safety Inspections

1.0 TIME SCHEDULE OF INSPECTIONS

The Government of Maharashtra has designed systematic approach for monitoring each and every dam. The periodical inspection of dams must be completed as per following schedule.

| Type of Inspection | Last dates for | |
|--|--|---|
| | Completion of inspection | Sending of inspection reports to concerned authorities. |
| (1) Pre Monsoon | 15 th May | 30 th June |
| (2) Post Monsoon | 30 th November | 31 st December |
| (3) Special inspection before the first filling (Report need not be sent to Dam safety organisation) | 30 th April | 31 st May |
| (4) Special inspection after the first filling | within one week after the lake attains the intended storage level. | within one week from the date of inspection. |
| (5) Special inspection after a severe distressing event or accident or incident. | Immediately after the event is noted. | Within one week form the date of inspection? |

2.0 CLASSIFICATION OF DAMS -

The dams are categorized into three types based on their component and features as below .

| SR No | Type of Dam | Height from general level of deepest foundation in m. | Impounded gross storage capacity Up to FRL in M Cum | Spillway capacity | Type of spillway |
|-------|-----------------------|---|---|-----------------------|------------------|
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | Large Dam (Class-I) | Above 30 m | Above 60 M Cum | Above 3,000 Cumecs | Gated Spillway |
| 2 | Large Dam (Class-II) | 15 m to 30 m | 15 M Cum upto 60 MCum | 2,000 to 3,000 Cumecs | Ungated Spillway |
| 3 | Large Dam (Class-III) | 10 m.to15m | 1.0 M Cum upto 15 MCum | 2,000 to 3,000 Cumecs | Ungated Spillway |

3.0 FIELD INSPECTION AUTHORITIES –

The designated inspection authority for periodical inspection of dam depending upon the classification of type of dam is as below :-

| SR No | Type of Dam | Inspection authority | Inspection Reports to be sent to | Test Inspection |
|-------|-----------------------|--|--|---|
| 1 | 2 | 7 | 8 | 9 |
| 1 | Large Dam (Class-I) | Superintending Engineer/ Administrator | 1) Chief Engineer 2) Superintending Engineer Dam Safety Organisation. | Test Inspection by the Regional Chief Engineer/ Chief Administrator for the dams having height more than 60 m or storage capacity more than 1000 MCum or spillway capacity 10000 Cumecs or more |
| 2 | Large Dam (Class-II) | Executive Engineer | 1) Superintending Engineer/ Administrator 2) Superintending Engineer, Dam safety Organisation | |
| 3 | Large Dam (Class-III) | Sub-Divisional Eng./Sub Divisional Officer | 1)Superintending Engineer/ Administrator 2) Executive Engineer | |

4.0 PREPARATION OF ANNUAL HEALTH STATUS REPORTS OF CLASS-I AND CLASS-II DAMS.

Dam safety organisation takes over view of the periodical inspection reports of class-I & class-II dams received from field officers, and significant deficiencies are immediately reported to concern authorities to carry out remedial measures. Also based on all periodical inspection reports from field officers and test inspections by DSO officers, the Region wise Annual Health Status Report has been prepared and sent to government, CWC and all concerned Chief Engineers.

5.0 PREPARATION OF ANNUAL HEALTH STATUS REPORT OF CLASS-III DAMS

The responsibility of Health and Safety monitoring of class-III dams lies with the respective Chief Engineer. Hence for Class-III Dams based on periodical inspection reports, Annual Health Status Report of Class-III dams should be prepared by Chief Engineers and sent to DSO for record.

6.0 GUIDELINES REGARDING PREPARATION OF ANNUAL HEALTH STATUS REPORT OF IDENTIFIED LARGE DAMS-

ASHR is prepared in DSO as per Central Water Commission New Delhi's guidelines received vide letter No. 3/19/NCDS/HS/DSM/2001/627-56 dated 28 August 2002. As per this letter it is requested that all states / organizations should send the AHSR for all large dams in prescribed Performa in the month of 'April' every year.

7.0 CATEGORIZATION OF DEFICIENCIES

The deficiencies observed are categorized as per CWC, New Delhi's letter no.3/19/NCDS/HS/DSM/2007/627-56 dated 28 August 2002 , as below

Deficiency Category -1- Dams with major deficiencies which may lead to dam failure.

Deficiency Category -2- Dams with major rectifiable deficiencies needing immediate attention.

Deficiency Category -3- Dams having minor/nil deficiencies.

For further detailing of deficiencies based on the nature and priority of deficiency , DSO has standardized all the three types of deficiencies. These standardized deficiencies are appended as the Annexure -2

8.0 NATIONAL REGISTER OF LARGE DAMS-

NRLD is compilation of the large dams (Height above 10 meter) in the country as per information received from the owner of dams. In NRLD the definition of "Large Dams" has been adopted as per the norms of International Commission on Large Dams (ICOLD).

NRLD is consist of a Proforma with 20 columns which gives information regarding salient features of Large Dams. Field officers need to submit the information of new dams to DSO every year upto December. The DSO compiles the information required for NRLD from field officer. The response regarding submission of NRLD information from field officer is very poor . After regular follow up/ correspondence from DSO office incomplete information receives from field officers. In every January the NRLD register is updated. As per NRLD register 2018 Maharashtra state comprises of total 2400 dams (2129 completed dams and 271 under construction dams)

9.0 MONITORING OF DEFICIENCY REMOVAL PROGRAM AS PER ANNUAL HEALTH STATUS REPORT.

As per Water Resources Department Marathi letter No.2014 dt.12/02/2015 Director General, Design, Training, Hydrology, Research and Safety MERI Nashik has been entrusted to monitor the deficiency removal program. For this a meeting has been held with all concern Chief Engineers and the program has been prepared for removal of deficiencies as per AHSR.

10.0 SUGGESTIONS FOR INSPECTION BY FIELD OFFICERS -

- 1) Due care shall be taken while filling the salient features of dam and information regarding N.C.D.S. documents.
- 2) It is observed that the information regarding number of instruments installed does not tally for pre & post monsoon inspection report of the same dam. In some cases it is observed that the list of instruments given in previous year do not appears in the current year. These discrepancies should be avoided.
- 3) The periodical inspection reports of all the dams shall be sent in original instead of carbon or xerox copy.
- 4) Ambiguous or incomplete replies shall be avoided. It is necessary to check point wise replies, which should clear and self explanatory.
- 5) The deficiencies observed frequently since long shall be deleted only after rectification work is completed and reported to Dam Safety Organisation, Nashik- 4.
- 6) The inspecting officer is advised to write the word "special attention" in inspection report against all such items wherever immediate attention is necessary from concerned field officer in charge of dam from safety point of dams and life & property on the downstream & would be useful for identifying categorisation of deficiencies in Dam Safety Organisation, Nashik- 4.
- 7) The extent of embankment settlement shall be furnished with its measurement & Reduced Distance (R.D.) and it shall be with compared designed cross section.
- 8) If the existing dam section is found under section as compared to the design section during inspection then the work of resectioning shall be carried out and opinion of inspecting officer shall be stated in inspection report.
- 9) The quantum of retrogression/scouring in tail channel shall be given in inspection report.
- 10) The monolith wise quantum of leaching in galleries and all type of leakages in dam shall be noted in inspection report.
- 11) The trial of spillway gates shall be carried out before monsoon every year & observed condition shall be mentioned in inspection report.
- 12) The information in Appendix II (Performance of meteorological instruments installed) and Appendix III (performance of taking observation of instruments installed in large dams) shall be filled properly and complete.
- 13) The compliance of rectification work of deficiencies of each dam mentioned in status report shall be communicated to Dam Safety Organisation, Nashik every year so that this can be included in the Action Taken Report Part-I of status report.
- 14) Date of inspections is not mentioned in some pre / post inspection reports. This is mandatory since it will reflect in the Annual health status report.

11.0 STANDARD PROCEDURE FOR CONFIRMATION AND REMOVAL OF CATEGORY-I DEFICIENCY OF DAM.

A systematic approach and working methodology is very essential to monitor the safety aspects of the dams. Hence in order to avoid any havoc among the stakeholders of dam, the standard procedure for confirmation of category-I deficiency has been circulated by DSO vide Marathi letter No.1491 dt.25/11/2014.

During the scrutiny of Pre and Post Monsoon report or during DSO test Inspection whenever it is found that the deficiency is of Category-I it will be immediately communicated to concern SE and CE. Concerned CE/SE should immediately visit the dam and should satisfied himself that the deficiency pointed out is a major deficiency which may lead to failure of dam, and should confirm to the DSO regarding the classification of deficiency as per his opinion. If it is confirmed then it will be finalised as Category-I deficiency and accordingly it will be appear in AHSR.

As per government directions, Category-I deficiency should be removed immediately on top priority and after completion of physical work of deficiency removal, Concern Chief Engineer should communicate this to DSO.

Annexure 2

Standardized Deficiencies

Standard Deficiencies Category- 1

1 E - Earthen Dam.

- 1E.1** Seepage water has created an open pathway or pipe through dam, which may lead to failure of dam by piping.
- 1E.2** Heavy seepage with muddy or turbid water is observed through any part of dam.
- 1E.3** Seepage water flooding from a boil in the foundation or from relief well on downstream side of dam.
- 1E.4** Outlet well / Head regulator well and hoisting structure is collapsed/completely damaged.
- 1E.5** Outlet pipe in the body of the dam is damaged/failed and uncontrolled outlet-releases eroding Toe of dam.
- 1E.6** Debris stuck under gate or gate leaf is cracked / failed resulting uncontrolled flow through outlet.

1 M Masonry Dam.

- 1M.1** Downstream movement or tilting of dam.
- 1M.2** Differential movement of dam blocks/monoliths.
- 1M.3** Vertical Displacement with visible cracking in the body of dam.
- 1 M.4** Spillway gate damaged / not working.

Standard Deficiencies Category – 2

| Deficiency Cat II (A) | Deficiency Cat II (B) |
|---|---|
| Earthen Dam | |
| A.1: Boil/leakage/ seepage/ wet patches/ slushiness,in Earthen Dam. | B 1 Dam section is not as per design |
| A 2: Standing pool / Ponding / Water Logging / Slushy condition on D/S of Dam | B 2 : Cross and toe drains not working properly/ drains silted or vegetated causing stagnant pool of water. |
| A 3 : Leakages in vicinity of junction between earthen dam & masonry dam portion. | B 3 : Considerable settlement of embankment / Rock toe/Pitching/ U/S & D/S slopes, bulging/concavity of slopes. |
| A 4 : Major leakages through outlet conduit/pipe joints/Gates. | B 4: Longitudinal / Transverse cracks/ low area/sink holes/gully formation on top side slope of earthen dam. |
| A 5 ; Relief wells not functioning properly./ Abnormal rise in water level in wells. | B 5 : Outlet gates not functioning properly. Stem rod is bent(Service gate/Emergency gate/Stop log gate/slucie gate) |
| A 6 : Outlet well is damaged/not in good condition /cracks observed/jets of water in well. | B 6 : Approach to dam through all weather road not constructed/maintained properly. |
| A 7 : Retrogression /scouring in tail channel. | B 7: Waste weir/waste weir bar not in good condition/coping damaged/leakage through waste weir. |
| Masonry / Concrete Dam | |
| A 8 : Drainage gallery inaccessible/No adequate lighting./ No dewatering arrangement or failure. | B 8 : Pointing on U/S face of dam not in good condition./deterioration spalling of concrete surface. |
| A 9 : Foundation drains / holes/ porous pipes/choked/ no seepage through foundation drain holes. | B 9: Instruments not in working condition. |
| A 10 : Heavy leakages through porous pipes/ through dam body in gallery /monolith joints. | B 10 : Leakages through River sluice. |
| A 11 : Sweating / seepages through D/S of masonry dam | |
| A 12 : Excessive considerable leaching from seepage water. | |
| A 13 : Swelling / minor cracking observed on body of dam. | |
| A 14 : EDA / Stilling basin damaged/Hydraulic performance not good. | |
| A 15 : Leakages through spillway /piers//junction of flank wall. | |
| A 16: Damages / foundation erosion/ scour/undermining observed in vicinity of flank walls/ guide walls/ junction walls/return walls. | |
| A 17 : End weir not in good condition / scouring noticed on immediate D/S. | |
| Spillway gates. | |
| A 18 : Wire ropes of hoist not in good condition/hoisting structure damaged/cracked. | B 11: Surface paint/steel surface of spillway gates deteriorated. |
| A 19 : Alternative power system Generator for gate operation not working properly. | B 12 : Damage to Rubber seals/ considerable Leakages through gates. |
| A 20 : Operation of gates not smooth needs repair. | |
| Other structures | |
| | B 13 : Heavy vegetation/big trees on embankment top/slope making dam portion not accessible. |
| | B 14 : Deck bridge slab/ pier / damaged cracked/ alignment disturbed. |
| | B 15 : Major portion of Pitching damaged/washed away. |

Standard Deficiencies Category – 3

- 3.1 Profuse growth of bushes and trees over dam portion.
- 3.2 Guard stones/ chainage stones and parapet wall not provided /damaged.
- 3.3 Growth of aquatic weeds in reservoir of dam is observed.
- 3.4 Ant hills or crab holes/holes made by rodents/animals.
- 3.5 Minor undulation/ settlement/slightly less top width/ Rain cuts / pot holes observed on dam top & slopes.
- 3.6 Access road/Dam top road surface/ slab joints damaged needs repair.
- 3.7 Pitching on embankment of dam is dislocated /disturbed at some places.
- 3.8 Breaching section is not accessible/ Instruction board showing operation of breaching section is not available.
- 3.9 Section of Toe drain/cross drain/ out fall drain/rock toe damaged at some places.Pitching of drains disturbed.Some weed,vegetation growth/ siltation in nalla/drains. Nalla needs regradation.
- 3.10 Surface drain/ Catch water drains for berms are silted /damaged.
- 3.11 Electric cable & wiring are damaged/not in good condition.
- 3.12 Minorleaching in the gallery/ body of dam.
- 3.13 V – notches/ measuring devices are not in working condition/ silted / damaged/ not provided.
- 3.14 Mosquito net door is to be provided to avoid entry of reptiles in thegallery.
- 3.15 Damage to natural slope protection works,guniting damaged/washed out. Wire mesh exposed.
- 3.16 Guide wall/Divide wall/Guide bund/End Sill wall damaged/ Pointing is not in good condition/weep holes not functioning. At some places w.w bar/coping is damaged.
- 3.17 Provision of access to stilling basin/ladder not provided.
- 3.18 EDA ponding with water not possible to Inspect.
- 3.19 Minor erosion/ Scouring/Retrogression/ pot holes in tail channel. Ponding, standing Water in EDA / Tail channel.
- 3.20 Lubrication/painting/minor repairs required for parts of Gates / hoisting Structure /Rubber seal damaged/ replacement.
- 3.21 Approach bridge to intake well / spillway gates railing /flooring plates damaged / need repairs. Need of ladder for inspection well/EDA.
- 3.22 Minor leakages through river sluice/outlet/ gates.
- 3.23 Air vent not periodically cleaned./damaged/closed.
- 3.24 EAP / ROS /GOS /Record drawings/ not provided / not prepared at dam site.
- 3.25 The record of periodical measurements of leakage discharge from dam / relief well is not maintained.
- 3.26 Street light on dam top is not provided/not working.

- 3.27** Security / CC TV camera/entry gate not provided/not working.
- 3.28** Sufficient staff arrangement is not available for security ,instrument readings and measurements and maintenance on dam site.
- 3.29** Fencing around dam is not provided/ damaged due to which unauthorized trespassers are seen.
- 3.30** Communication facilities like mobile wireless, warning devices, telephone is not available at dam site.
- 3.31** Sufficient stock of spares/stationary required is not available at dam site. Storage arrangement not provided at site.
- 3.32** Security cabin at dam entrance/Irrigation outlets not provided/damaged/needs repair.
- 3.33** Minor leakages through masonry/ concrete dam body/gallery of dam/outlet well.
- 3.34** Approach channel silted.Trash rack need to be cleaned/ damaged/not provided.
- 3.35** Minor damages to spillway / masonry/ concrete portion of dam/outlet well.
- 3.36** Porous pipes/foundation drains / holes not periodically cleaned.

Annexure - 3



Photo -1

Risala Dam (Class-II)

Taluka - Tiroda Dist - Gondia

Date of Inspection – 11-02-2020

Leakage in conduit from dam body. (A17) (Photo 1)



Photo 2

Erai Dam (Private Dam) (Class-I)

Taluka & Dist –Chandrapur

Date of Inspection –25/09/2019

Emergency gate hoisting structure deteriorated. (A18) (Photo 2)

**Consolidated Health Status Report
Of Identified Large Dams In
Nagpur Region 2019-20**

PART – 3

**Annual performance Report of
Instruments installed on large Dams based
on Pre & Post Monsoon- 2019 inspection report**

PART – 3 Annual performance Report of Instruments installed on large dams

3.1 General.

The main purpose of instrumentation in dam is to monitor the safety of the dam and to warn of any changes that could in danger the safety of a dam, as well as to provide a confirmatory check in design assumptions and methods of computation.

Instruments embedded in or installed at the surface of the dam keeps a constant watch over the performance and indicate the distress spots for which remedial measures may be taken. Thus, instruments play an important role in checking the safety of dams and helps in monitoring and evaluating the performance of the dams during the construction as well as during the operation.

Instruments installed on dams are “Eyes and Ears” of dam’s performance vis-à-vis parameters adopted during its design. The field officers in charge of dams have not been able to upkeep and monitor/maintain instruments installed on dams. Efforts should be taken by all field officers to repair / replace instruments at the earliest. Monitoring of vital parameters like seepage, uplift, settlement and timely remedial measures will go long way in extending the life of the dam.

3.2 INSTRUMENTATION IN EARTHEN DAMS

Commonly used instrument in earthen dam are as below.

1) Pore Pressure Meter

They are installed in bore holes drilled below the foundation or through already completed embankment. Hence cannot be repaired or replaced.

2) Casagrande /standpipe piezometers

These are used for measuring pore water pressure in soil. These instruments can be installed at any time after completion of construction of the dam at desired location.

3) Twin Tube Piezometers

These are also used for measuring pore water pressure in earthen dam. These are installed in foundation and embankment during construction of dam. If PVC pipes are found choked due to leached material then it can be cleaned with CuSo4. If pipes are cut / broken then it cannot be replaced as those are in body of dam. Outside measuring assembly can be

repaired. Periodical maintenance, periodical reading and periodical calibration are utmost important.

4) Earth pressure cells

These are installed in the foundation. The cables which are outside the body can be replaced if damaged. The sensor cannot be repaired or replaced.

5) Settlement Gauges (surface settlement gauges/vertical cross arms)

These are used for measuring settlement in earth fill dam, rock fill dam and high embankment. Initially when the dam is under construction these instruments are installed. Settlement of dam is more in initial period, which gradually decreases and it is almost nil after certain period. As such these gauges also do not show settlement after few years.

6) Slope Indicator

This is installed in foundation with one end at bottom and other at top of the dam.

It measures horizontal and vertical movement of the dam. This can be replaced.

3.3 INSTRUMENTATION IN CONCRETE/ MASONRY DAM

Commonly used instruments in concrete / masonry dams are as below.

1) Stress meters

The stress meters measure stresses inside the dam body. These instruments are embedded in concrete/masonry during construction stage hence cannot be repaired or replaced.

2) Strain meter/ No stress strain meter

The strain meters measures the deformation in the structure at the particular location due to strain, creep, temperature etc. The main purpose is to determine the stress distribution in the concrete dam during and after construction of dam. Since instrument is installed in the body of the dam it cannot be repaired or replaced.

3) Uplift pressure cells

The bowl type uplift pressure cells are provided in the foundation of dam. Uplift pressure cell is used for monitoring uplift pressure of water in the foundation of dam and concrete structure. The pressure cell pipes can be cleaned if choked. The pressure gauges can be repaired or replaced.

4) Plumb bob /Co-ordimeter

Conventional/inverted plumb bob is used to measure deflection of the dam body. It measures the horizontal displacement in dam's foundation and abutment. Plumb bob can be repaired or replaced.

5) Thermocouples/ Thermometers

These are used to measure the temperature variations in the body of concrete dam. These are installed in layers at various levels and can not be replaced or repaired after construction.

6) Long gauge extensometer

It is used to measure the deformation/displacement in the foundation of the concrete dam. Once it fails to function can not be repaired.

7) Joint meters

The joint meters measure the opening of the joints across which they are embedded. As such they are located near the joints.

3.4 STATUS OF DAM INSTRUMENTATION IN THE REGION.

Considering the fact that most of the instruments were non-functional from many years, Govt. of Maharashtra appointed a committee to study these instruments. The recommendations of the committee were accepted and incorporated in G.R. धसुसं २०१४(६२१/१४)/ सिं.व्य.(कामे) dated 31.12.2015. Accordingly to every dam owner, it is informed by Dam Safety Organisation to update the list of instruments at the dam site. In this report the updated details of instruments are considered.

The status of dam instrumentation in thenagpur region is given in table No.3.1. Similarly the details of mortality of instruments is given in table No.3.2 and comparison of mortality rate with respect to previous year is given in table no. 3.3

3.5 Observations

- 1) Various instruments numbering 112 have been installed on these 9 dams. Out of which 5 were working and 107 were not working i.e. 95.53 % instruments are in non working condition.
- 2) As for no dam instrument data reading are available so No Instrumentation data analysis report have been prepared for Nagpur region.
- 3) The observations of the instruments should be taken regularly and need to be sent to D.S.O. Nashik for analysis.
- 4) Comparison of mortality rate of instrument as compared to last year is given as per table No.3.3.

Table No. 3.1

Dam wise Status of Dam Instruments Installed on Large Dams (Nagpur)

| Sr. No. | Dam Name | Instrument Name | Date of Installation | Total | Functional Status (F/N.F) | |
|--------------------------------|----------------------|-------------------------|----------------------|-------|---------------------------|----------------|
| | | | | | Functional | Non Functional |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Chief Engineer,(W.R) Nagpur | | | | | | |
| 1 | Totaladoh | Uplift pressure cell | -- | 14 | 0 | 14 |
| | | Plumb bob | -- | 1 | 0 | 1 |
| 2 | Sirpur | Twin Tube Piezometers | -- | 2 | 0 | 2 |
| 3 | Itiadoh | Twin Tube Piezometers | -- | 2 | 0 | 2 |
| 4 | Kamti Khairy | Cassagrande piezometers | -- | 10 | 0 | 10 |
| | | Uplift Pressure cell | -- | 13 | 0 | 13 |
| 5 | Lower Wunna (Nand) | Stand pipe Piezometer | -- | 17 | 0 | 17 |
| 6 | Lower Wunna(Wadgaon) | Stand pipe Piezometer | -- | 30 | 0 | 30 |
| 7 | Bor | Stand pipe Piezometer | -- | 1 | 0 | 1 |
| 8 | Erai | Stand pipe Piezometer | -- | 10 | 4 | 6 |
| | | Uplift Pressure cell | -- | 7 | 0 | 7 |
| | | Strain meter | -- | 1 | 0 | 1 |
| | | Plumb bob | -- | 1 | 0 | 1 |
| | | | | | | |
| 9 | Gosi Khurd | Plumb bob(conventional) | 10/10/2017 | 2 | 0 | 2 |
| Plumb bob(Inverted) | | | 10/10/2017 | 1 | 1 | 0 |
| CE Wise Total for 9 Dams | | | | 112 | 5 | 107 |
| NAGPUR Region Total for 9 Dams | | | | 112 | 5 | 107 |

TABLE NO 3.2

Mortality Status of Instruments installed on Large Dams (Nagpur)

| Sr. No. | Type of Instruments | Number Of Instruments | | | |
|-------------------------|--|-----------------------|----------|-------------|---------------|
| | | Total | Working | Non-Working | Mortality (%) |
| 1 | 2 | 3 | 4 | 5 | 6 |
| (A) Earth Dams | | | | | |
| 1 | Casagrande/ Stand pipe piezometers /Vibrating | 68 | 4 | 64 | 94.11 |
| 2 | Twin tube piezometers | 4 | 0 | 4 | 100 |
| 3 | Horizontal/Vertical device / Cross arm surface settlement plug | - | - | - | - |
| 4 | Earth pressure cells | - | - | - | - |
| 5 | Slope indicator | - | - | - | - |
| Total | | 72 | 4 | 68 | 94.44 |
| (B) Masonry Dams | | | | | |
| 1 | Pore pressure meters | - | - | - | - |
| 2 | Stressmeter | - | - | - | - |
| 3 | Strainmeter/ No stress-strain meter | 1 | 0 | 1 | 100 |
| 4 | Uplift pressure cells | 34 | 0 | 34 | 100 |
| 5 | Plumb bob/ Inverted Plumb Bob / co-ordimeter | 5 | 1 | 4 | 80 |
| 6 | Long Gauge extensometer, Multiple Bore hole extensometer | - | - | - | - |
| 7 | Thermometers | - | - | - | - |
| 8 | Jointmeters / Dial Gauge | - | - | - | - |
| 9 | Tiltmeter | - | - | - | - |
| Total | | 40 | 1 | 39 | 97.50 |

| | Instruments in | Total | Working | Non Working | Mortality |
|----|--------------------|------------|----------|-------------|--------------|
| A) | Earth Dams | 72 | 4 | 68 | 94.44 |
| B) | Masonry Dams | 40 | 1 | 39 | 97.50 |
| | Grand Total | 112 | 5 | 107 | 95.53 |

Table No. 3.3
Comparative Statement For Status of Instruments in Dams
Nagpur Region

| Year | | HSR 2018 | | | | | HSR 2019 | | | | |
|--------|----------------------------|------------|-------------------|-------------|-----------------|---------------|------------|-------------------|-------------|-----------------|---------------|
| Sr. No | Name of Chief Engineer | Total Dams | Total Instruments | Functioning | Not-Functioning | % functioning | Total Dams | Total Instruments | Functioning | Not-Functioning | % functioning |
| 1 | Chief Engineer (WR) Nagpur | 9 | 93 | 21 | 72 | 22.58 | 9 | 112 | 05 | 107 | 4.46 |
| | Total | 9 | 93 | 21 | 72 | 22.58 | 9 | 112 | 05 | 107 | 4.46 |

**Annual Consolidated Health Status Report
Of Identified Large Dams In
AmravatiRegion2019-20**

PART – 4

**Based on Annual performance Report of
Meteorological instruments installed on dams
based on Pre & Post Monsoon- 2019 inspection report**

PART - 4 Annual performance Report of Meteorological instruments installed on dams

4.1 General

Hazard potential of dam depends upon the possible hazard it poses to population on the downstream during flood. In case of gated spillways, generally flood is considered to impinge when reservoir is at F.R.L. If flood forecasting and warning systems are in place, flood impingement can be considered at lower when F.R.L. considering prior depletion.

The establishment of hydro-meteorological stations in the vicinity of every Class-I dam and rain gauge network in its catchments assumes vital importance due to its role in flood forecasting and warning. The hydro-meteorological station shall be capable of recording data relating to, among other parameters, rainfall, atmospheric pressure, maximum & minimum temperature and humidity, wind speed, wind direction, height of waves and reservoir water temperature. It is important that a representative proportion of the rain gauge network is linked to flood forecasting and warning control centre by telemetry.

4.2 Observations

From Pre/Post Monsoon Reports it is seen that the ANNEXURE-IV which is “**Checklist of Various Meteorological Instruments installed on Dams**” is not filled properly and quantity of number of instruments varies from year to year. As this status of instruments is submitted to C.W.C., New Delhi. Field authorities need to make sure that correct information is filled. Table 4.1 gives the damwise status of the meteorological instruments, and Table 4.2 gives the status of morality of meteorological instruments installed in the region.

1. As per Pre/Post Monsoon reports of Nagpur region it is seen that 85 various meteorological instruments installed on dams out of which 61 are functioning and 24 are non functioning. The non-functioning should be repaired/replaced on priority.
2. As per the government circular CDA-1013/(207/13)/CAD(works)/ August-2013. It is mandatory to install **Pan Evaporimeter** to measure evaporation on all major and medium projects.

Efforts should be taken by field officers to establish automatic flood warning systems which will help in saving lives, livestock and property and will invariably contribute to lessening of the overall impact of floods.

Table- 4.1

**DAMWISE STATUS OF METEOROLOGICAL INSTRUMENTS INSTALLED ON DAMS IN
NAGPUR REGION**

| Sr. No. | Name of dam with location | Name of Instruments | No. of Instruments | Performance | | Status of Data Analysis |
|---------|---------------------------|---|--------------------|-------------|-------------|--|
| | | | | Working | Not working | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 1 | Kolar Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | Data collection is done at field level |
| 2 | Itiadh Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2)Raingauge in catchment(ordinary) | 8 | - | 8 | -do- |
| | | 3)Pan evaporimeter | 1 | - | 1 | -do- |
| | | 4) Thermometer for reservoir water temp. | 1 | - | 1 | -do- |
| 3 | Kalisarar Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 4 | Pujaritola Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2)Pan evaporimeter | 1 | 1 | - | -do- |
| | | 3) Thermometer for reservoir water temp. | 1 | - | 1 | -do- |
| 5 | Sirpur Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2)Pan evaporimeter | 1 | - | 1 | -do- |
| | | 3)Thermometer for air jump | 1 | 1 | - | -do- |
| | | 4)Posta Corder Earth Quake Recorder | 1 | - | 1 | -do- |
| 6 | Totladoh Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2)Pan evaporimeter | 1 | 1 | - | -do- |
| | | 3) ThermometerforReservoir water temp. | 1 | - | 1 | -do- |
| 7 | Bor Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2)Raingauge in catchment(ordinary) | 7 | 7 | - | -do- |
| | | 3) Digital Automatic Water level recorder | 1 | - | 1 | -do- |
| 8 | Asolamendha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 9 | Dina Dist-Gadchiroli | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |

| | | | | | | |
|----|--|---|---|---|---|--------|
| 10 | LowerWenna (Nand) Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2) Pan evaporimeter | 1 | - | 1 | -do- |
| 11 | LowerWenna (Wadgaon) Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 12 | Dham Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2)Raingauge on dam(self records) | 1 | - | 1 | -do- |
| 13 | Navegaonbandh Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 14 | Ashti Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2)Raingauge on dam(self records) | 1 | 1 | - | -do- |
| | | 3)Pan evaporimeter | 1 | 1 | - | -do- |
| | | 4)Wind velocity recorder | 1 | 1 | - | -do- |
| | | 5)Wind direction recorder | 1 | 1 | - | -do- |
| | | 6)wet & Dry bulb Thermo.(for humidity) | 1 | 1 | - | -do- |
| | | 7)Thermometer for reservoir water temp. | 1 | 1 | - | -do- |
| | | 8)Other meteo. | | | | |
| | | 9)Automatic water Stage recorder | 1 | 1 | - | -do- |
| | | 10)Sun shine Recorder | 1 | 1 | - | -do- |
| 15 | Dongargaon Dist-Wardha | 1)Raingauge in the catchment self recorder | 1 | 1 | - | -do- |
| 16 | Kannamwargra m | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 17 | Panchadhara Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | |
| 18 | Harashi Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | --do-- |
| 19 | Khindsi(Ramtek) Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 20 | Khekarnalla Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 21 | Bodalkasa Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 22 | Chorkhamara Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 23 | Wunna Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 24 | Jam Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | — | 1 | -do- |

| | | | | | | |
|----|-------------------------------|------------------------------------|---|---|---|--------|
| 25 | Kar Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 26 | Takaliborkhedi Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 27 | Pothara Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| | | 2)Rainguage on dam(self record) | - | - | - | -do- |
| 28 | Khairbandh Dist- Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 29 | Risola Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 30 | Chulbandha Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 31 | Madan Tank Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 32 | Mangad Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 33 | Salegaon Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 34 | Pipriya dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | - | 1 | -do- |
| 35 | Rengepar Dist-Gondia | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 36 | Mordham Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 37 | Kesarnalla Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 38 | Kanolibara Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 39 | Chandrabhaga Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 40 | Kamthi-khairy Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | --do-- |
| | | 3)Pan evaporimeter | 1 | 1 | - | --do-- |
| 41 | Khumari Nalla Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | - | 1 | -do- |
| 42 | Umari Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | - | 1 | -do- |
| 43 | Erai Dist-Chandrapur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | --do-- |
| | | 2)Pan evaporimeter | 1 | 1 | - | --do-- |
| 44 | Lal Nalla Dist-Wardha | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 45 | Lower Wardha Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 46 | Wenna Medium Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |

| | | | | | | |
|----|------------------------------|---------------------------------|-----------|-----------|-----------|------|
| 47 | Zilpi Dist-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 48 | Katangi Dist.-Nagpur | 1)Raingauge on dam(ordinary) | 1 | 1 | - | -do- |
| 49 | Gosikhurd Dist – Bhandara | 1)Raingauge on dam(ordinary) | 1 | - | 1 | -do- |
| | | 2)Pan evaporimeter | 1 | - | 1 | -do- |
| | | 3)Wind velocity recorder | 1 | - | 1 | -do- |
| | | Total | 85 | 61 | 24 | |

Table No. 4.2

Mortality status of Meteorological Instruments Installed on Dams In Nagpur Region

| Sr. No. | Type of Instruments | Number Of Instruments | | | |
|---------|---|-----------------------|---------|-------------|---------------|
| | | Total | Working | Non-Working | Mortality (%) |
| 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | Rain gauge on dam (ordinary) | 46 | 41 | 5 | 10.87 |
| 2 | Rain gauge on dam (Self recorder) | 2 | 1 | 1 | 50.00 |
| 3 | Rain gauge in catchment (ordinary) | 15 | 7 | 8 | 53.33 |
| 4 | Rain gauge in catchment (Self recorder) | 1 | 1 | 0 | 0.00 |
| 5 | Pan Evapometer | 9 | 5 | 4 | 44.44 |
| 6 | Wind Velocity recorder | 2 | 1 | 1 | 50.00 |
| 7 | Wind direction recorder | 1 | 1 | - | 0.00 |
| 8 | Wet/dry bulb thermometer | 1 | 1 | - | 0.00 |
| 9 | Thermometer for air jump | 1 | 0 | 1 | 100.00 |
| 10 | Thermometer for reservoir water temp. | 3 | 1 | 2 | 66.66 |
| 11 | Water stage recorder | - | - | - | 0.00 |
| 12 | Baro meter | - | - | - | 0.00 |
| 13 | Sun shine recorder | 1 | 1 | - | 100.00 |
| 14 | Max. and Minimum thermometer | - | - | - | 0.00 |
| 15 | Wave height recorder | - | - | - | 0.00 |
| 16 | Hydrometer | - | - | - | 0.00 |
| 17 | Humidity meter | - | - | - | 0.00 |
| 18 | Steven meter | - | - | - | 0.00 |
| 19 | Automatic level recorder | 1 | 1 | - | 0.00 |
| 20 | Digital Automatic Water level recorder | 1 | - | 1 | 100.00 |
| 21 | Posta Corder earth quack recorder | 1 | - | 1 | 100.00 |
| Total | | 85 | 61 | 24 | |

**Consolidated Health Status Report
Of Identified Large Dams In
Nagpur Region 2019–20**

PART – 5

**Status of NCDS Documents to DSO of Category I Dams
(including Private Dams)**

National Committee on Dam Safety (NCDS) Documents

Importance of National Committee on Dam Safety (NCDS) Documents :

Central Water Commission (CWC) has laid down various guidelines covering the standardized dam safety practices-essentially guiding the dam owners in preparation of Emergency Action Plans, Periodical Dam Safety inspections, comprehensive dam Safety evaluation and appropriate institutional framework for dam safety. Their implementation is emphasized during the meetings of National Committee on Dam Safety (NCDS) and through the communications sent in this regard.

During the 34th meeting held at Chennai in March 2015 it was requested to all the Dam owners to take necessary steps for preparation of EAPs & other documents & report to NCDS Secretariat about the number of Dams for which EAPs & other documents have been prepared, along with the target dates for the preparation of EAPs & other documents for the remaining Dams.

The documents to be prepared as per National Committee on Dam Safety are as under & these shall be properly maintained and kept up to date by including latest information available.

1. EAP
2. R.O.S & G.O.S.
3. Data Book
4. O & M manual
5. Record Drawing & Completion Report,

1. EAP : Emergency Action Plan:

An Emergency action plan is a formal plan that identifies potential emergency conditions at a dam prescribes the procedures to be followed to minimize property damage and loss of life. The EAP contains procedures and information to assist the dam owner in taking necessary actions in time to moderate or alleviate the problems, in

addition to issuing early warning & notification messages to responsible emergency management authorities, viz., District Magistrate/Collector, Armed Forces, Paramilitary forces, Project Authorities & other Central/State Agencies. It also contains inundation maps to show the emergency management authorities of the critical areas for necessary relief and rescue actions in case of an emergency. In a nutshell, it outlines “who does, what, where, when and how” in an emergency situation or unusual occurrence affecting the Dams. The Emergency Action Plan has to be prepared as per Guidelines circulated by C.W.C., New Delhi’s vide letter no. 3/19/NCDS/Guidelines EAP/DSM/2004/233-67, Dtd. 17 May 2006. CWC Guidelines are available on http://www.cwc.gov.in/main/downloads/cwc/EAP_chapters.pdf

2. R.O.S. (Reservoir operation schedule) & G.O.S. (Gate operation schedule) :

It is very necessary to lay down operating procedures of all storage reservoirs with the objective to limit the flood stages in the river downstream and with maximum feasible utilization of the flood capacity of the river channel downstream of reservoirs, consistent with the safety of the dam. A proper reservoir operation schedule should be in place.

For this purpose a schedule of opening and closing the gates to limit the reservoir levels to preset gauges should be laid down. Schedule for the dam as per operation & maintenance manual should be strictly adhered. The entire capacity of reservoir is used for active conservation. When the reservoir rises above active conservation, operation will be in accordance with the standing operation procedures. Inflow forecasting arrangement should be made for easy operation of gates. The Engineer in charge should inform immediately to the flood maintenance engineer downstream and flood –fighting center of the releases from the reservoir.

3. Data book:

Proper assessment of dam safety involves a thorough review of design, construction and performance records prior to conducting a field examination. The Data Book is an unpublished document which is prepared before the initial safety inspection of each dam. This book is abbreviated, convenient source of information, summarizing all pertinent records and history related to the safety of a dam and is a reference for the

evaluation team. This Data Book should answer most questions about the dam. A list of reference is included if additional information is needed. Continual updating of the Data Book will be required as future inspections are made, new problems arise, new investigations are undertaken and remedial treatments performed. Documentation of all projects may be done in the Data Book format which is the primary data base for the team evaluating the safety of a dam. (Guidelines on standardized Data Book format are available at http://www.cwc.gov.in/Dam_safety.html)

4. O & M Manual:

It is desirable that a separate manual is available with the officers. The officers Incharge of such works are requested to personally go through the manual and maintain the records from time to time in such a manner as to give their successors complete and correct idea of the state of each of the several storage works in their charge and the different standing orders on all matters concerning the works. This will enable them to tackle problems as they arise, by quickly referring to the manual as far as possible without having to depend on the office to give information. The complete set of manual for each of the storage works should be personally handed over to successor by each concerned officer.

Copies of the maintenance manual shall be maintained at all offices right from sectional office to Circle office.

It is also necessary that the manuals are inspected at the time of inspection by the superior officers. Record of handing over and inspection should be maintained.

5. Record Drawing & Completion Report :

The importance of record drawings & completion report as an archival data need not be emphasized. All efforts should be made by field engineers to prepare Record Drawing & Completion Report and store them for future reference.

NAGPUR REGION

| <u>Position of preparation of Emergency Action Plan (EAP)</u> | | | | | |
|--|----------------------------|--------------|-----------------|---------------------|----------------|
| Category-I Dams =19 | | | | | |
| Sr. No. | Name of CE | Total | Received | Not Received | Remarks |
| 1 | CE (WR) NAGPUR | 15 | 09 | 06 | |
| 2 | CE GOSIKHURD NAGPUR | 4 | 3 | 1 | |
| 3 | Private Dam | 1 | 1 | 0 | |
| | Total | 20 | 13 | 07 | |

| <u>Position of preparation of Reservoir Operation Schedule (ROS)</u> | | | | | |
|---|----------------------------|--------------|-----------------|---------------------|----------------|
| Gated Dams = 13 | | | | | |
| Sr. No. | Name of CE | Total | Received | Not Received | Remarks |
| 1 | CE (WR) NAGPUR | 9 | 9 | 0 | |
| 2 | CE GOSIKHURD NAGPUR | 4 | 3 | 1 | |
| 3 | Private Dam | 1 | 1 | 0 | |
| | Total | 14 | 13 | 1 | |

| <u>Position of preparation of Gate Operation Schedule (GOS)</u> | | | | | |
|--|----------------------------|--------------|-----------------|---------------------|----------------|
| Gated Dams = 13 | | | | | |
| Sr. No. | Name of CE | Total | Received | Not Received | Remarks |
| 1 | CE (WR) NAGPUR | 9 | 6 | 3 | |
| 2 | CE GOSIKHURD NAGPUR | 4 | 3 | 1 | |
| 3 | Private Dam | 1 | 1 | 0 | |
| | Total | 14 | 10 | 4 | |

| <u>Damwise position of EAP, ROS, GOS Document (Class-I Dams)</u> | | | | |
|---|--|----------------|----------------|------------|
| Sr.No. | Name of dam | GOS | ROS | EAP |
| 1 | 2 | 3 | 4 | 5 |
| | <u>Nagpur Region</u> | | | |
| A | C.E., (WR) NAGPUR | | | |
| | 1) S.E. & ADM. C.A.D.A., NAGPUR | | | |
| 1 | KHEKARA NALLA | R | R(2014) | NR |
| 2 | KOLAR (UG) | Not Applicable | Not Applicable | NR |
| 3 | LOWER WENNA (NAND) | R | R(2014) | R(2009) |
| 4 | LOWER WENNA (WADGAON) | NR | R(2008) | R |
| 5 | TOTLADOH | R(1990) | R(2014) | R |
| 6 | KAMTHI KHAIRY | R | R(2008) | R |
| 7 | RAMTEK (UG) | Not Applicable | Not Applicable | NR |
| 8 | ITIADOH (UG) | Not Applicable | Not Applicable | NR |
| 9 | SIRPUR | NR | R(2014) | NR |
| 10 | KALISARAR | R(1990) | R(2014) | R(2008) |
| 11 | PUJARITOLA | NR | R(2014) | NR |
| | Total | 8 | 8 | 11 |
| | (R) Received | 5 | 8 | 5 |
| | (NR) Not Received | 3 | 0 | 6 |

| | | | | |
|----------|-------------------------------|----------------|----------------|---------|
| | 2) SE CIPC, Chandrapur | | | |
| 1 | BOR | R(2007) | R(2014) | R(2009) |
| 2 | DHAM (UG) | Not Applicable | Not Applicable | R(2002) |
| 3 | ASOLA MENDHA (UG) | Not Applicable | Not Applicable | R(2008) |

| | | | | |
|----------|---|----------------|----------------|-----------|
| 4 | DINA (AG) | Not Applicable | Not Applicable | R(1998) |
| | Total | 1 | 1 | 4 |
| | (R) Received | 1 | 1 | 4 |
| | (NR) Not Received | 0 | 0 | 0 |
| B | C.E. GOSIKHURD PROJECT NAGPUR | | | |
| | 1) S.E. N.I.C., NAGPUR | | | |
| 1 | LAL NALLA | R(2006) | R | R(2006) |
| 2 | LOWER WARDHA | R(2009) | R(2009) | R(2009) |
| | Total | 2 | 2 | 2 |
| | (R) Received | 2 | 2 | 2 |
| | (NR) Not Received | 0 | 0 | 0 |
| | 2) SE Gosikhurd Project Circle, Nagpur | | | |
| 1 | GOSIKHURD | R(2009) | R(2009) | R(2009) |
| | Total | 1 | 1 | 1 |
| | (R) Received | 1 | 1 | 1 |
| | (NR) Not Received | 0 | 0 | 0 |
| | 3) SE Gosikhurd L. I. Circle, Ambadi | | | |
| 1 | Dhapewada Barrage | NR | NR | NR |
| | Total | 1 | 1 | 1 |
| | (R) Received | 0 | 0 | 0 |
| | (NR) Not Received | 1 | 1 | 1 |

| | | | | |
|----------|--|----------|----------|----------|
| | Private Dam | | | |
| C | CE General(O&M) Supre Thermal power station Urjanagar, Chandrapur | | | |
| | SE(c),civil Maintains Unit ,Chandrapur | | | |
| 1 | Erai | R | R | R |
| | Total | 1 | 1 | 1 |
| | (R) Received | 1 | 1 | 1 |
| | (NR) Not Received | 0 | 0 | 0 |

| <u>Position of preparation of Other NCDS Documents</u> | | | | | | | | | | |
|---|---------------------|-------------------|-------------------|--------------|----------------|--------------|-----------|--------------|-------------|--------------|
| Class-I Dams =20 | | | | | | | | | | |
| Sr. No. | Name of CE | Total no. Of dams | Completion Report | | Record Drawing | | Data Book | | O&M Mannual | |
| | | | Received | Not Received | Received | Not Received | Received | Not Received | Received | Not Received |
| 1 | CE (WR) NAGPUR | 15 | 3 | 12 | 4 | 11 | 3 | 12 | 2 | 13 |
| 2 | CE GOSIKHURD NAGPUR | 4 | 1 | 3 | 2 | 2 | 1 | 3 | 2 | 2 |
| | PRIVATE DAM | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| | Total | 20 | 4 | 16 | 6 | 14 | 4 | 16 | 4 | 16 |

| <u>Damwise position of Other NCDS Documents (Class-I Dams)</u> | | | | | |
|---|--|--------------------------|-----------------------|------------------|-------------------------|
| Sr. No. | Name of dam | Completion Report | Record Drawing | Data Book | O& M Mannual |
| 1 | 2 | 3 | 4 | 5 | 6 |
| | <u>Nagpur Region</u> | | | | |
| A | C.E., (WR) NAGPUR | | | | |
| | 1) S.E. & ADM. C.A.D.A., NAGPUR | | | | |
| 1 | KHEKARA NALLA | NR | NR | R | NR |
| 2 | KOLAR (UG) | NR | NR | NR | NR |
| 3 | LOWER WENNA (NAND) | NR | NR | NR | NR |
| 4 | LOWER WENNA (WADGAON) | NR | NR | NR | NR |
| 5 | TOTLADOH | NR | NR | NR | NR |
| 6 | KAMTHI KHAIRY | R | R | R | R |
| 7 | RAMTEK (UG) | R | NR | NR | NR |
| 8 | ITIADOH (UG) | NR | R | NR | NR |
| 9 | SIRPUR | NR | NR | NR | NR |
| 10 | KALISARAR | NR | NR | NR | NR |
| 11 | PUJARITOLA | NR | NR | NR | NR |
| | Total | 11 | 11 | 11 | 11 |
| | (R) Received | 2 | 2 | 2 | 1 |
| | (NR) Not Received | 9 | 9 | 9 | 10 |
| | 2) SE CIPC, Chandrapur | | | | |
| 1 | BOR | NR | NR | NR | NR |
| 2 | DHAM (UG) | NR | R | NR | NR |

| | | | | | |
|----------|--------------------------|-----------|-----------|-----------|-----------|
| 3 | ASOLA MENDHA (UG) | R | R | R | R |
| 4 | DINA (AG) | NR | NR | NR | NR |
| | Total | 4 | 4 | 4 | 4 |
| | (R) Received | 1 | 2 | 1 | 1 |
| | (NR) Not Received | 3 | 2 | 3 | 3 |

| | | | | | |
|----------|---|-----------|-----------|-----------|-----------|
| B | C.E. GOSIKHURD PROJECT NAGPUR | | | | |
| | 1) S.E. N.I.C., NAGPUR | | | | |
| 1 | LAL NALLA | NR | NR | NR | NR |
| 2 | LOWER WARDHA | NR | R | NR | R |
| | Total | 2 | 2 | 2 | 2 |
| | (R) Received | 0 | 1 | 0 | 1 |
| | (NR) Not Received | 2 | 1 | 2 | 1 |
| | 2) SE Gosikhurd Project Circle, Nagpur | | | | |
| 1 | GOSIKHURD | R | R | R | R |
| | Total | 1 | 1 | 1 | 1 |
| | (R) Received | 1 | 1 | 1 | 1 |
| | (NR) Not Received | 0 | 0 | 0 | 0 |
| | SE Gosikhurd L. I. Circle, Ambadi | | | | |
| 1 | DHAPEWADA BARRAGE | NR | NR | NR | NR |
| | Total | 1 | 1 | 1 | 1 |
| | (R) Received | 0 | 0 | 0 | 0 |
| | (NR) Not Received | 1 | 1 | 1 | 1 |

| | | | | | |
|----------|--|-----------|-----------|-----------|-----------|
| | <u>Private Dam</u> | | | | |
| C | CE General(O&M) Supre Thermal power station Urjanagar, Chandrapur | | | | |
| | SE(c),civil Maintains Unit ,Chandrapur | | | | |
| 1 | Erai | NR | NR | NR | NR |
| | Total | 1 | 1 | 1 | 1 |
| | (R) Received | 0 | 0 | 0 | 0 |
| | (NR) Not Received | 1 | 1 | 1 | 1 |

**Annual Consolidated Health Status Report
Of Identified Large Dams In
Nagpur Region**

PART – 6

**Data filling status on DHARMA portal
Nagpur Region**

DHARMA: Dam Health and Rehabilitation monitoring application

Introduction-

Dam health & Rehabilitation Monitoring application (DHARMA) is a web based asset management software to support the effective collection and management of authentic asset and health data for all large dams in India and address key dam safety challenges of .

- i) Insuring Completeness of information.
- ii) Bring stake holders together
- iii) Effectively managing asset inventory.
- iv) Assess soundness of dam health.

Design and Development-

DHARMA software will consist of seven modules.

- i) project features
- ii) Project portfolio
- iii) Engineering features.
- iv) Asset health.
- v) Asset rehabilitation.
- vi) Stake holders and
- vii) Document library.

The first three modules (i to iii) consist of mostly static data, to be entered once and rarely undergo a change whereas modules iv) and v) will be dynamic and require regular updating with information associated with inspections, investigations, instrumentation and rehabilitation works. Modules vi) and vii) contain information useful for reference.

Data filling status on Dam Health and Rehabilitation Monitoring Application (DHARMA) portal of Nagpur Region, in DRIP- II

| Sr. No | Name of Dam | NRLD registration number | Dharma data filling status (%) |
|---|-----------------------|--------------------------|--------------------------------|
| [A]Chief Engineer(W.R.)Water Resources Department Nagpur | | | |
| (1)Superintending Engineer, Chandrapur Irrigation Circle, Chandrapur | | | |
| (a)Executive Engineer , Wardha.Irrigation .Dn.Wardha | | | |
| 1 | Bor | MH09HH0115 | 15% |
| 2 | Dham | MH09HH1143 | 11% |
| (b)Executive Engineer, Chandrapur Irrigation Div. Chandrapur | | | |
| 1 | Asolamendha | MH09MH0040 | 11% |
| 2 | Dina | MH09MH0451 | 16% |
| 3 | Lalnalla | MH09LH1663 | 11% |
| (2)Superintending Engineering CADA , Nagpur. | | | |
| (a) Executive Engineer Nagpur Irrigation Div(N). Nagpur | | | |
| 1 | Khakaranalla | MH09MH1197 | 11% |
| 2 | Kolar | MH09HH1061 | 18% |
| 3 | Lower Wenna (Nand) | MH09MH1253 | 10% |
| 4 | Lower Wenna (Wadgaon) | MH09MH1447 | 11% |
| (b) Executive Engineer Pench Irrigation Div. Nagpur | | | |
| 1 | Totaladoh | MH09HH1229 | 12% |
| 2 | Kamti khairy | MH09HH0596 | 14% |
| 3 | Ramtek | MH09MH0033 | 11% |
| (C)E.E.Bagh Itiadoh Dn. Gondia | | | |
| 1 | Itiadoh | MH09MH0227 | 10% |
| 2 | Sirpur | MH09MH0228 | 11% |
| 3 | Kalisarar | MH09MH1198 | 11% |
| 4 | Pujaritola | MH09MH0229 | 25% |
| [B]Chief Engineer,Gosikhurd project,Nagpur | | | |
| (1)Superintending Engineer, Nagpur Irrigation Circle, Nagpur | | | |
| (a)Executive Engineer , Lower Wardha project .Dn.Wardha | | | |
| 1 | Lower Wardha | MH09MH1811 | 11% |
| (1)Superintending Engineer, Gosikhurd Project Circle, Nagpur | | | |
| (a)Executive Engineer , Gosikhurd Dam Dn. Wahi (pauni). | | | |
| 1 | Gosikhurd | MH09MH1817 | -- |
| 1)Superintending Engineer, Gosikhurd Lift irrigation Circle, Ambadi | | | |
| 1 | Dhapewada Barrage | MH09MH2251 | 9% |
| [C] C. G.. M. MSPGC. Chandrapur | | | |
| (1)Superintending Engineer, Civil Maintenance Unit CSTPS Chandrapur | | | |
| (a)Executive Engineer , Civil Maintenance Unit CSTPS Chandrapur | | | |
| 1 | Erai (Private) | MH09HH1010 | 10% |

**Annual Consolidated Health Status Report
Of Identified Large Dams In
Nagpur Region 2019-20**

PART – 7

**Status Report of Gates of Various Gated Dams in
Nagpur Region
(Including Private Dams)**

Part- 7 - Status report of Gates of Various gated dams in Nagpur region (Including Private Dams)

7.1 General

As per GR.NO.ID/1078/23/8/IMP/2 Dtd.10/09/1980, Dam Safety Organization has been established by Government of Maharashtra for effective monitoring the safety aspects of dam.

As per Maharashtra Government Guidelines and regulation, Chief Engineer (Mechanical), Water Resources Dept. Nashik assigned Dams gate Inspection work to Superintending Engineer, Mechanical Circle, Nashik to assure proper operation and maintenance of Dam gates

Under Superintending Engineer, Mechanical Circle, Nashik Executive Engineer, Inspection unit, Aurangabad and Executive Engineer, Sluice Gate Mfg. Division, Dapodi , Pune are looking after all the inspection works.

Division offices Conduct all pre monsoon & Post Monsoon Gate Inspection work of Government, Semi Government, & Private Dams and send Reports to related authorities for same.

After Inspection work the observed points or deficiencies are classified into various categories as given below.

| | | |
|--|--|----------------------------------|
| Def. Category 1 | Dams with Major Deficiencies which may lead to dam failure | Very Serious Defects |
| Def. Category 2 (2 A)& (2B) | Dams with rectifiable Deficiencies needs immediate attention | Serious Defects (2A) |
| | | Require immediate attention (2B) |
| Def. Category 3 | General Defects | General Defects |

In the year of 2018 pre and post monsoon inspection of total 139 gated dams have been carried out by Mechanical Organisation. It is to be noted that Chief engineer (Mechanical) W.R.D Nashik, prepares independently the detail Health status Report of all the gated dams inspected by mechanical organisation. This report is published and submitted to WRD and circulated to all Concern Chief Engineers.

In this Health Status Report, only the damwise number of deficiencies noted by mechanical organisation are given in this part of AHSR. For details regarding the actual deficiencies Health Status Report circulated by Mechanical Organisation shall be referred.

7.2 Overall Health Statuses of Gated Dams

14 Class-I gated dams in the Nagpur region are inspected by Mechanical Organisation. Category -1 deficiency is not observed on any dam. Category -2 & 3 deficiencies are observed on all the 14 dams. Total 36 Category -2 deficiencies and total 1032 Category -3 deficiencies are observed on the dams in the region.

Table No.7.1 shows the dam wise and category wise deficiencies identified in the region.

Table 7.1
Damwise and Categoriwise Number of Deficiencies Identified on Gated Dams in the Nagpur Region

| Sr. No. | Name of Class-1 Gated Dam | Categoriwise Identified Deficiencie | | | Remarks |
|-----------|-----------------------------------|-------------------------------------|------------------|-------------|----------------------------|
| | | Cat-I | Cat-II (2A)&(2B) | Cat-III | |
| 1 | 2 | 3 | 4 | 5 | 6 |
| A) | Chief Engineer (WR) | | | | |
| 1 | Khekaranala | 0 | 2 | 41 | |
| 2 | Lower Venna (Nand) | 0 | 1 | 68 | |
| 3 | Lower Venna (Wadgaon) | 0 | 2 | 74 | |
| 4 | Totaladoh | 0 | 1 | 80 | |
| 5 | Kamatikhairi (Pench) | 0 | 2 | 149 | |
| 6 | Shirpur | 0 | 1 | 43 | |
| 7 | Kalikasar | 0 | 3 | 69 | |
| 8 | Pujaritola | 0 | 4 | 89 | |
| 9 | Bor | 0 | 3 | 72 | |
| 10 | Lalnala | 0 | 0 | 74 | |
| B) | Chief Engineer (Gosikhurd) | | | | |
| 11 | Lower Wardha | 0 | 13 | 92 | |
| 12 | Gosikhurd | 0 | 2 | 86 | |
| 13 | Dhapewada Barrage | 0 | 0 | 52 | Newly added for inspection |
| 14 | Erai | 0 | 2 | 43 | Private Dam |
| | Total - | 0 | 36 | 1032 | |