Republic of Indonesia, Ministry of Public Works

Directorate General of Water Resources

Indonesia
Expert Dispatch Scheme
Dam Design and Construction Advisory Services

Completion Report

Supporting Report 1

Summary of Regulations, Laws and Guidelines on Dam Safety and Construction in Indonesia

February 2025

Japan International Cooperation Agency

CTI Engineering International Co., Ltd.
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	Kalimantan	Sulawesi	Bali-NTT-NTB
Canceled from Original	Lambakan	Pelosika	Mbay
	Riam Kiwa	Jenelata	
Added	Marangkayu	Ameroro	Tiu Suntuk
	Sepaku Semoi	Budong-Budong	

48 Dams Completed at end of 2024

Jawa (20)			Sumatera (7)	Kalimantan (3)	Sulawesi (7)	Bali-NTT-NTB (11)	
Jatigede	Bendo	Karian	Rajui	Teritip	Karaloe	Raknamo	Napun Gete
Bajulamati	Gongsen	Cipanas	Paya Seunara	Sepaku Semoi	Lolak	Titab	Temef
Nipah	Tukul	Lewikeris	Muara Sei Gong	Tapin	Passeloreng	Tanju	Tiu Suntuk
Gondang	Pidekso	Randugunting	Sukoharjo/ Way		Kuwil Kawangkoan	Mila	Beringin Sila
Logiung	Tugu	Semantok	Sekampung		Ladongi	Rotiklot	
Sindang Heula	Ciawi	Sadawarna	Lausimeme		Pamukkulu	Bintang Bano	
Kuningan	Sukamahi		Marga Tiga		Ameroro	Tamblang	

5 Dams Currently under Impounding

Jawa (1)	Sumatera (2)	Kalimantan (1)	Bali-NTT-NTB (1)
Jlantah	Keureuto	Marangkayu	Sidan
	Rukoh		

9 Dams Currently under Construction

Jawa (3)	Sumatera (1)	Sulawesi (2)	Bali-NTT-NTB (2)	Maluk-Papua (1)
Benar	Komering II/ Tigadihadji	Budong-Budong	Manikin	Wey Apu
Bagong		Bulango Ulu	Meninting	
Jragung				

Location of Objective 61 Dams

Dams Completed from 2015 up to 2024 and Dams Currently Under Construction

List of Collected Documents

I. Technical Standard/Regulation of Dams
1. Hazard Classification of Dams
2. Emergency Action Plan
3. Regulation: Procedure for Process of Dam Safety Commission
4. Regulation: Procedure for Approval -Dam Construction & Demolition
5. Guideline: Impounding Reservoir
6. Guideline: Dam Safety Inspection & Evaluation
7. Guideline: Dam Safety Assessment
8. Guideline: Seepage Control in Filltype Dam
9. Guideline: Dam Operation & Maintenance _ Vol. 1 - 5
10. Guideline: Sedimentation Management
11. Guideline: Tailing Dam for Mining
12. Guideline: Implementation of Fill-type Dam Construction
13. Manual for Visual Inspection of Fill Type Dam
14. Guideline: General Design Criteria for Fill-Type Dam
15. Guideline: Grouting of Dam
16. Guideline: Construction of Cut-Off Wall of Fill-type Dam
17. Guideline: Dam on Soft Soil Foundation
18. Guideline: Dynamic Analysis of Fill-Type Dam
19. Guideline: Dynamic Analysis of Gravity Concrete Dam
20. Guideline: Survey & Monitoring of Reservoir Sedimentation
21. Technical Guideline: Dam Hazard Classification

I. Technical Standard/Regulation of Dams (Continue)
22. Technical Guideline: Book 1 Very Complexed Bent of Concrete
23. Technical Guideline: Book 2 Very Complexed Bent of Concrete
24. Guideline: Bend on Concrete Membrane of Rockfill Dam (CFRD).
25. Attachment A. Guideline for Design & Construction of Concrete Facing Rockfill Dam
26. Attachment B. Guideline for Design & Construction of Concrete Facing Rockfill Dam
27. Technical Guidelines: Dam Risk Assessment
28. TECHNICAL GUIDELINES. DAM RISK ASSESSMENT LAMP
29. Guideline: Planning & Construction of Tunnel for Dam
30. Attachment: Guideline for Planning & Construction for Dam
II. Government/Minister Regulation
1. Government Regulation of the Republic of Indonesia Number 37, 2010, Regarding Dam
2. Minister Order of The PUPR regarding Dam Number 27/PRT/M/2015
3. Amendment of Minister Order of The PUPR related to Dam, No.6 2020
III. Others
1. Standard for Fill-Type Dam Planning
2. Vol 1. Survey & Investigation
3. Vol 2. Hydrological Analysis
4. Vol 3. Dam Foundation & Dam body
5. Vol 4. Design of Dam Appurtenant Structures
6. Vol 5. Hydromechanics, Instrumentation & Complementary Works
7. Indonesian Earthquake & Hazard Map, 2017

Summary of Regulations, Laws and Guidelines on Dam Safety and Construction in Indonesia

General Map

List of Collected Documents

Table of Contents

Attachment

Summary of Regulations, Laws and Guidelines on Dam Safety and Construction in Indonesia

1. Overview

This report extensively summaries the guidelines, regulations, and technical standards governing dam safety, construction, and management in Indonesia. Developed by the Ministry of Public Works and Public Housing and the Dam Safety Commission, these guidelines aim to ensure dams are designed, built, and managed with the highest safety standards, environmental sustainability, and social responsibility. The guidelines also reflect Indonesia's commitment to integrating advanced technologies and disaster mitigation strategies into dam safety practices.

2. Summary of Collected Documents

2.1 General Guidelines for Dam Construction in Indonesia

The "Pedoman Umum Pembangunan Bendungan di Indonesia" (General Guidelines for Dam Construction in Indonesia) offers a comprehensive framework for planning, designing, constructing, operating, and maintaining dams nationwide. These guidelines are critical in ensuring dams' safety, functionality, and sustainability, essential for water resource management, flood control, irrigation, and hydroelectric power generation.

Key Sections:

(1) Planning and Feasibility Studies:

- Site Selection: Criteria for site selection include topographical, geological, hydrological, and environmental factors.
- Feasibility Studies: Detailed assessments of technical, economic, social, and environmental viability are required.

(2) Design Guidelines:

- Structural Design: Emphasizes robust designs capable of withstanding seismic activities and extreme weather.
- Hydrological Considerations: Focuses on water flow management, spillways, and reservoir operations.
- Environmental and Social Impact: Mitigation measures for habitat loss, community displacement, and river flow alterations.

(3) Construction Procedures:

- Quality Control: Strict measures to ensure integrity and safety during construction.
- Contract Management: Clear guidelines for roles, responsibilities, and smooth project execution.

(4) Operation and Maintenance:

- Safety Monitoring: Regular inspections and monitoring systems to detect potential issues.
- Emergency Preparedness: Comprehensive plans, including early warning systems and evacuation procedures.

(5) Regulatory and Legal Framework:

- Compliance: Dams must adhere to national laws, regulations, and international best practices.
- Institutional Responsibilities: The roles of various government bodies and stakeholders are clearly delineated.

(6) Environmental and Social Management:

- Sustainability Measures: Incorporation of sustainable practices to minimise environmental degradation.
- Community Engagement: Stakeholder involvement to ensure equitable distribution of benefits.

Conclusion:

The General Guidelines for Dam Construction in Indonesia serve as a critical tool for ensuring dam projects are conducted with the highest standards of safety, environmental stewardship, and social responsibility, contributing to the sustainable development of water resources while minimizing risks.

2.2 Collection of Guidelines for Dam Safety and Construction

This section summarizes various technical guidelines issued by the Ministry of Public Works and Public Housing and the Dam Safety Commission, covering various aspects related to dam safety, construction, operation, and maintenance.

Key Documents:

(1) Guidelines for Determining Dam Hazard Classification:

- Methodology for classifying dams based on hazard levels is essential for risk assessment and emergency planning.

(2) Guidelines for Emergency Action Plan Preparation:

- Framework for preparing Emergency Action Plans (EAPs), including risk assessments and evacuation procedures.

(3) Rules of Procedure for Dam Safety Commission Meetings:

- Procedural rules for conducting meetings within the Dam Safety Commission, covering responsibilities and decision-making processes.

(4) Guidelines for Approval and Decommissioning of Dam Functions:

- Procedures for obtaining approval for dam construction and decommissioning, ensuring compliance with legal requirements.

(5) Guidelines for Reservoir Filling:

- Instructions for safely filling reservoirs, including monitoring water levels and ensuring dam stability.

(6) Guidelines for Dam Safety Inspection and Evaluation:

- Detailed inspection and evaluation processes are used to ensure dams' ongoing safety and integrity.

(7) Guidelines for Dam Safety Assessments:

- Methodology for conducting comprehensive safety assessments, including risk analysis and structural evaluations.

(8) Guidelines for Seepage Control in Earthfill Dams:

- Focuses on controlling seepage in earthfill dams, crucial for maintaining structural integrity.

(9)–(13) Operation and Maintenance Guidelines (Parts 1-5):

- Detailed guidelines for the operation and maintenance of dams, covering inspections, schedules, and operational procedures.

(14) Guidelines for Reservoir Sedimentation Management:

- Strategies for managing sedimentation in reservoirs, crucial for maintaining operational efficiency.

(15) Guidelines for Mine Waste Dams:

- Safety and environmental considerations specific to dams associated with mine waste, including design and monitoring practices.

(16) Guidelines for the Construction of Earthfill Dams:

- Comprehensive instructions for constructing earthfill dams, including design criteria and construction techniques.

(17) Manual for Visual Inspection of Earthfill Dams:

- Guidance on visual inspections of earthfill dams, including procedures and criteria for assessing dam conditions.

(18) General Design Criteria for Dams:

- Outlines general design criteria, including structural, hydrological, and geotechnical considerations.

(19) Guidelines for Grouting in Dams:

- Instructions for grouting in dam construction, focusing on techniques to enhance stability.

(20) Guidelines for Constructing Cut-Off Walls in Earthfill Dams:

- Details the construction of cut-off walls to control seepage in earthfill dams.

(21) Guidelines for Dams on Soft Soil Foundations:

- Instructions for constructing dams on soft soil foundations, addressing unique challenges.

(22) Guidelines for Dynamic Analysis of Earthfill and Concrete Dams:

- Procedures for conducting dynamic analyses and assessing dam behaviour under seismic and dynamic loads.

(23) Guidelines for Dynamic Analysis of Gravity Concrete Dams:

- Instructions for dynamic analysis of gravity concrete dams, focusing on seismic stability.

(24) Guidelines for Survey and Monitoring of Reservoir Sedimentation:

- Guidance on surveying and monitoring sedimentation in reservoirs is crucial for long-term dam operations.

(25)-(29) Technical Guidelines for Dam Construction:

- Detailed technical guidelines covering various aspects of dam construction, including hazard classification, roller-compacted concrete dams, risk assessment, and more.

Conclusion:

This comprehensive collection of guidelines provides a robust framework for ensuring the safety, durability, and environmental sustainability of dam projects in Indonesia. Adherence to these guidelines is crucial for successfully and safely implementing dam projects across the country.

2.3 Regulations and Technical Guidelines for Dam Safety and Construction

This section focuses on the key regulations and technical guidelines that form the legal and procedural framework for dam safety in Indonesia.

Key Regulations:

(1) Permen PUPR 27-2015:

Regulation on the Safety of Dams: Establishes the framework for dam safety management, including classification, safety requirements, emergency preparedness, monitoring, and reporting. Permen PUPR 27-2015 is a critical regulation issued by the Ministry of Public Works and Public Housing (PUPR), focusing on the overall safety of dams. The regulation establishes the framework for dam safety management, including:

(a) Classification of Dams: Dams are classified based on their size, location, and potential hazard. This classification determines the level of safety measures required.

(b) Safety Requirements: a) The regulation specifies the minimum safety requirements for the design, construction, operation, and maintenance of dams. b) It mandates regular safety inspections and the implementation of risk management plans.

(c) Emergency Preparedness: Guidelines for preparing and implementing Emergency Action Plans (EAPs) for dams, including procedures for communication, evacuation, and post-event analysis.

(d) Monitoring and Reporting: a) Dams are required to have monitoring systems in place to detect and respond to potential safety issues. b) Regular reporting

to the Dam Safety Commission is required to ensure ongoing compliance.

(2) Permen PUPR 06-2020:

Regulation on Dam Safety Management: Provides detailed guidance on dam safety management, including risk assessments, safety audits, public safety, and periodic reviews. Permen PUPR 06-2020 builds upon the framework established in Permen PUPR 27-2015, providing more detailed guidance on the management of dam safety:

(a) Management Systems: The regulation outlines the establishment of a comprehensive dam safety management system, integrating risk assessments, safety audits, and continuous improvement processes.

(b) Roles and Responsibilities: Clarifies the roles of various stakeholders, including dam owners, operators, and regulatory bodies, in maintaining dam safety.

(c) Technical Requirements: Provides technical guidelines for conducting safety assessments, including hydrological, geological, and structural analyses.

(d) Public Safety: Emphasizes the importance of public safety, requiring dams to be equipped with warning systems and emergency preparedness measures.

(e) Periodic Reviews: The law mandates periodic safety reviews and updates to safety management plans based on new data or technological advancements.

(3) Permen PUPR 07-2023:

Updated Regulation on Dam Construction and Safety: Introduces updates focused on technological integration, sustainability measures, disaster mitigation, inspection protocols, and training. This report provides a thorough overview of the key regulations and guidelines governing dam safety, construction, and maintenance in Indonesia. The documents outlined are essential for ensuring dams are designed, built, and managed according to high safety and sustainability standards.

(a) Technological Integration: Encourages the adoption of advanced technologies, such as remote sensing and real-time monitoring, for improved dam safety management.

(b) Sustainability Measures: Incorporates environmental sustainability into dam safety practices, ensuring that dam operations minimize ecological impacts.

(c) Disaster Mitigation: Strengthens the focus on disaster mitigation, particularly in areas prone to natural hazards such as earthquakes and floods.

(d) Enhanced Inspection Protocols: Introduces stricter inspection protocols, with increased frequency and detail in the assessment of dam integrity.

(e) Training and Capacity Building: Emphasizes the importance of training for personnel involved in dam safety, including regular drills and updates on best practices.

(4) Panduan Perencanaan Bendungan Urugan: Planning Guidelines for Earthfill

Dams

The Panduan Perencanaan Bendungan Urugan is a series of volumes that provide comprehensive guidance on the planning and design of earthfill dams:

(5) Volume 1: Survey & Investigation:

This volume focuses on the initial surveys and investigations necessary to plan an earthfill dam. It covers site selection, geological and hydrological assessments, and baseline data collection, which are essential for the design phase.

(6) Volume 2: Hydrological Analysis

This volume provides methodologies for hydrological analysis, including calculating inflows, assessing flood risks, and determining reservoir capacity. It ensures that the dam is designed to handle extreme weather events and variable water flows.

(7) Volume 3: Foundation and Body Design

This volume outlines the principles for designing the dam's foundation and body. It includes guidelines on material selection, structural stability, and methods to prevent seepage and erosion.

(8) Volume 4: Design of Complementary Structures

Covers the design of ancillary structures such as spillways, drainage systems, and other components critical to the safe operation of the dam. These structures ensure the dam can safely manage excess water and prevent overtopping.

(9) Volume 5: Hydromechanical Works, Instrumentation, and Complementary Structures

Focuses on the hydromechanical aspects, instrumentation, and additional structures essential for the dam's operation. It includes guidelines for installing and maintaining equipment that monitors dam performance and safety.

(10) Pedoman Umum Bendungan: General Guidelines for Dams

Provides broad guidelines applicable to all types of dams, covering various aspects of their lifecycle from design and construction to operation and maintenance.

Conclusion: These regulatory and technical guidelines are essential for ensuring that dams in Indonesia are designed, constructed, and managed according to high safety and sustainability standards. The regulations, particularly those updated in recent years, reflect Indonesia's commitment to integrating modern technology and disaster mitigation strategies into dam safety practices.

2.4 Technical Guidelines for Earth-fill Dam Planning and Design

This section provides an in-depth summary of the guidelines specifically related to earth-fill dam planning and design, which are critical for ensuring the stability and safety of these structures.

Volumes Overview:

(1) Volume 1: Survey & Investigation

- This volume focuses on the initial surveys and investigations necessary to plan an earthfill dam. It covers site selection, geological and hydrological assessments, and baseline data collection, which are essential for the design phase.

(2) Volume 2: Hydrological Analysis

- Provides methodologies for hydrological analysis, including calculating inflows, assessing flood risks, and determining reservoir capacity. This volume ensures that the dam is designed to handle extreme weather events and variable water flows.

(3) Volume 3: Foundation and Body Design

- This volume outlines the principles for designing the dam's foundation and body. It includes guidelines on material selection, structural stability, and methods to prevent seepage and erosion.

(4) Volume 4: Design of Complementary Structures

- Covers the design of ancillary structures such as spillways, drainage systems, and other components critical to the safe operation of the dam. These structures ensure that the dam can safely manage excess water and prevent overtopping.

(5) Volume 5: Hydromechanical Works, Instrumentation, and Complementary Structures

- Focuses on the hydromechanical aspects, instrumentation, and additional structures essential for the dam's operation. It includes guidelines for installing and maintaining equipment that monitors dam performance and safety.

2.5 Summary of Additional Technical Guidelines for Dams

This section summarizes additional technical guidelines that address various specific aspects of dam construction, operation, and maintenance, complementing the broader guidelines covered earlier.

(1) Technical Guidelines for Seepage Control in Earthfill Dams

(a) Objective:

- ✓ To manage and control seepage through earthfill dams, which is crucial for maintaining structural integrity and safety.

(b) Key Aspects:

- ✓ Seepage Control Measures: Techniques for controlling and reducing seepage, including the use of filters, drainage systems, and cut-off walls.
- ✓ Monitoring: Regular inspections and monitoring systems to promptly detect and address seepage issues.

(2) Guidelines for Dynamic Analysis of Earthfill and Concrete Dams

(a) Objective:

- ✓ To evaluate the behaviour of earthfill and concrete dams under dynamic conditions, including seismic loads.

(b) b. Key Aspects:

- ✓ Dynamic Analysis Procedures: Methodologies for assessing the response of dams to dynamic loads, such as earthquakes.
- ✓ Seismic Safety: Ensuring that the dam design can withstand seismic forces and prevent structural failure.

(3) Guidelines for Constructing Cut-Off Walls in Earthfill Dams

(a) Objective:

- ✓ To provide detailed instructions for constructing cut-off walls to control seepage in earthfill dams.

(b) b. Key Aspects:

- ✓ Design and Construction: Guidelines for designing and constructing effective cut-off walls to prevent seepage.
- ✓ Material Selection: Recommendations for materials and techniques that enhance the effectiveness of cut-off walls.

(4) Guidelines for Reservoir Sedimentation Management

(a) Objective:

- ✓ To manage reservoir sedimentation, affecting dam operations and storage capacity.

(b) Key Aspects:

- ✓ Sedimentation Control Measures: Strategies for reducing and managing sediment accumulation in reservoirs.
- ✓ Monitoring and Maintenance: Regular monitoring of sediment levels and maintenance activities to address sedimentation issues.

(5) Guidelines for Mine Waste Dams

(a) Objective:

- ✓ To ensure the safe construction and management of dams associated with mine waste.

(b) Key Aspects:

- ✓ Design and Construction: Guidelines specific to mine waste dams, including stability and environmental considerations.
- ✓ Monitoring and Risk Management: Procedures for monitoring dam safety and managing risks associated with mine waste dams.

(6) Guidelines for Dynamic Analysis of Gravity Concrete Dams

(a) Objective:

- ✓ To evaluate the dynamic response of gravity concrete dams, particularly under seismic loading.

(b) Key Aspects:

- ✓ Seismic Analysis: Techniques for assessing the seismic performance of gravity concrete dams.
- ✓ Design Recommendations: Guidelines for incorporating seismic safety measures into the design of gravity concrete dams.

(7) Manual for Visual Inspection of Earthfill Dams

(a) Objective:

- ✓ To guide the conducting visual inspections of earthfill dams to assess their condition.

(b) Key Aspects:

- ✓ Inspection Procedures: Detailed procedures for performing visual inspections and identifying potential issues.
- ✓ Documentation and Reporting: Guidelines for documenting inspection findings and reporting any concerns.

(8) Guidelines for Grouting in Dams

(a) Objective:

- ✓ To provide instructions for grouting, a technique used to enhance the stability and watertightness of dams.

(b) Key Aspects:

- ✓ Grouting Techniques: Methods and materials used for grouting, including grout mixes and application procedures.
- ✓ Quality Control: Measures to ensure the effectiveness and quality of grouting operations.

(9) 9. Guidelines for Dams on Soft Soil Foundations

(a) Objective:

- ✓ To address the unique challenges of constructing dams on soft soil foundations.

(b) Key Aspects:

- ✓ Foundation Design: Techniques for designing and constructing dams on soft soil to ensure stability.
- ✓ Soil Improvement: Methods for improving soil conditions to support dam construction.

(10) General Design Criteria for Dams

(a) Objective:

- ✓ To outline general design criteria applicable to various types of dams.

(b) Key Aspects:

- ✓ Structural Design: Principles for designing dams to ensure structural integrity and safety.
- ✓ Hydrological Considerations: Guidelines for managing water flow and reservoir operations.

(11) Guidelines for Survey and Monitoring of Reservoir Sedimentation

(a) Objective:

- ✓ To provide guidance on surveying and monitoring sedimentation in reservoirs.

(b) Key Aspects:

- ✓ Survey Techniques: Methods for surveying sediment levels and assessing reservoir capacity.
- ✓ Monitoring Protocols: Procedures for ongoing monitoring and management of sedimentation.

(12) Guidelines for Roller-Compacted Concrete Dams

(a) Objective:

- ✓ To provide detailed guidance on designing and constructing roller-compacted concrete dams.

(b) Key Aspects:

- ✓ Construction Techniques: Guidelines for using roller-compacted concrete in dam construction.
- ✓ Quality Control: Measures to ensure the quality and durability of roller-compacted concrete.

(13) Guidelines for Risk Assessment in Dam Construction

(a) Objective:

- ✓ To assess and manage risks associated with dam construction projects.

(b) Key Aspects:

- ✓ Risk Assessment Procedures: Methods for identifying and evaluating potential risks.
- ✓ Mitigation Strategies: Strategies for mitigating identified risks and ensuring project safety.

2.6 Implementation and Compliance

(1) Institutional Roles and Responsibilities

- Dam Safety Commission: Oversees compliance with safety guidelines, conducts inspections, and manages risk assessments.
- Ministry of Public Works and Public Housing: Develops and updates guidelines, provides technical support, and ensures adherence to regulations.
- Project Developers and Contractors: Responsible for implementing guidelines during dam construction and operation.

(2) Compliance and Enforcement

- Regulatory Compliance: Ensures all dam projects adhere to national laws, regulations, and technical standards.
- Inspection and Audits: Regular inspections and audits to verify compliance with safety and operational guidelines.
- Training and Capacity Building: Programs to enhance the knowledge and skills of personnel involved in dam management and safety.

(3) Public Awareness and Community Engagement

- Public Awareness Programs: Initiatives to inform communities about dam safety and emergency preparedness.
- Community Involvement: Engagement with local communities to address concerns and ensure the equitable distribution of benefits.

3. Conclusion

The comprehensive set of guidelines, regulations, and technical standards provided in this report offers a robust framework for ensuring the safety, stability, and environmental sustainability of dams in Indonesia. By adhering to these guidelines, stakeholders can contribute to successfully implementing and managing dam projects while minimizing risks and enhancing the benefits of these critical infrastructure assets.

Attachment 1 : List of Collected Documents and the Contents

Tables below provides lists of the collected regulations, laws, and guidelines governing dam construction and management in Indonesia. The report is structured around various critical documents, including:

1. Guidelines for the Dam Engineering Center (Pedoman Balai Teknik Bendungan)
2. SNI (Indonesian National Standard)□ SNI (Standar Nasional Indonesia)
3. KP (Planning Criteria) in the years 1989 and 2013 versions
4. Planning Guide (Panduan Perencanaan) consisting guidelines about embankment dam planning guide.

This list consolidates essential legal and technical references that ensure Indonesian dams meet national and international safety standards. It is a crucial tool for professionals and institutions dedicated to advancing the resilience and performance of dam infrastructure across the country.

Guidelines for the Dam Engineering Center (Pedoman Balai Teknik Bendungan)

Pedoman Balai Teknik Bendungan		*Guidelines for the Dam Engineering Center*
1	PEDOMAN UNTUK MENENTUKAN KLASIFIKASI BAHAYA BENDUNGAN	*GUIDELINES FOR DETERMINING DAM HAZARD CLASSIFICATION*
2	PEDOMAN PENYIAPAN RENCANA TINDAK DARURAT	*GUIDELINES FOR PREPARING EMERGENCY ACTION PLANS*
3	TATA TERTIB SIDANG KOMISI KEAMANAN BENDUNGAN	*RULES OF DAM SAFETY COMMISSION ASSEMBLY*
4	TATA CARA UNTUK PERSETUJUAN PEMBANGUNAN & PENGHAPUSAN FUNGSI BENDUNGAN	*PROCEDURES FOR APPROVAL OF DAM CONSTRUCTION & REMOVAL OF FUNCTION*
5	PEDOMAN PENGISIAN WADUK	*GUIDELINES FOR FILLING THE RESERVOIR*
6	PEDOMAN INSPEKSI DAN EVALUASI KEAMANAN BENDUNGAN	*DAM SAFETY INSPECTION AND EVALUATION GUIDELINES*
7	PEDOMAN KAJIAN KEAMANAN BENDUNGAN	*DAM SAFETY ASSESSMENT GUIDELINES*
8	PEDOMAN PENGENDALIAN REMBESAN PADA BENDUNGAN URUGAN	*GUIDELINES FOR CONTROLLING Seepage in Embankment Dams*
9	PEDOMAN OP_PB BAG 1	*OP_PB GUIDELINES BAG 1*
10	PEDOMAN OP_PB BAG 2	*OP_PB GUIDELINES BAG 2*
11	PEDOMAN OP_PB BAG 3	*OP_PB GUIDELINES BAG 3*
12	PEDOMAN OP_PB BAG 4	*OP_PB GUIDELINES CHAPTER 4*
13	PEDOMAN OP_PB BAG 5	*OP_PB GUIDELINES CHAPTER 5*
14	PEDOMAN PENGELOLAAN SEDIMENTASI WADUK	*RESERVOIR SEDIMENTATION MANAGEMENT GUIDELINES*
15	PEDOMAN BENDUNGAN LIMBAH TAMBANG	*MINE WASTE DAM GUIDELINES*
16	PEDOMAN PELAKSANAAN KONSTRUKSI BENDUNGAN URUGAN	*GUIDELINES FOR IMPLEMENTATION OF CHARGE DAM CONSTRUCTION*
17	MANUAL INSPEKSI VISUAL BENDUNGAN URUGAN	*URUGAN DAM VISUAL INSPECTION MANUAL*
18	PEDOMAN KRITERIA UMUM DESAIN BENDUNGAN	*GENERAL CRITERIA GUIDELINES FOR DAM DESIGN*
19	PEDOMAN GROUTING UNTUK BENDUNGAN	*GROUTING GUIDELINES FOR DAM*
20	PEDOMAN PEMBUATAN DINDING HALANG (CUT-OFF) PADA BENDUNGAN URUGAN	*GUIDELINES FOR CONSTRUCTION OF CUT-OFF WALLS IN FILL DAM*
21	PEDOMAN BENDUNGAN PADA DONASI TANAH LUNAK	*DAM GUIDELINES ON SOFT SOIL DONATIONS*
22	PEDOMAN KONSTRUKSI DAN BANGUNAN-ANALISIS & DINAMIS BENDUNGAN URUGAN	*CONSTRUCTION AND BUILDING GUIDELINES-ANALYSIS & DYNAMICS OF ILL DAM*
23	PEDOMAN ANALISIS DINAMIK BENDUNGAN BETON GAYA BERAT	*GUIDELINES FOR DYNAMIC ANALYSIS OF HEAVY FORCE CONCRETE DAM*
24	PEDOMAN SURVEY DAN MONITORING SEDIMENTASI WADUK	*GUIDELINES FOR SURVEYING AND MONITORING RESERVOIR SEDIMENTATION*
25	PEDOMAN TEKNIS KLASIFIKASI BAHAYA BENDUNGAN	*TECHNICAL GUIDELINES FOR DAM HAZARD CLASSIFICATION*
26	PEDOMAN TEKNIS BUKU 1 BENDUNGAN BETON PADAT GILAS	*TECHNICAL GUIDELINES BOOK 1 MILLED SOLID CONCRETE DAM*
27	PEDOMAN TEKNIS BUKU 2 BENDUNGAN BETON PADAT GILAS	*TECHNICAL GUIDELINES BOOK 2 MILLED SOLID CONCRETE DAM*
28	PEDOMAN DESAIN DAN KONSTRUKSI BENDUNGAN URUGAN BATU MEMBRANE BETON	*GUIDELINES FOR DESIGN AND CONSTRUCTION OF CONCRETE MEMBRANE STONE FILL DAM*
28.a	LAMPIRAN A. PEDOMAN DESAIN & KNSTRKSI BEND URUGAN BATU MEMBRAN BETON	*APPENDIX A. DESIGN & CONSTRUCTION GUIDELINES FOR CONCRETE MEMBRANE STONE FILL BEND*
28.b	LAMPIRAN B. PEDOMAN DESAIN & KNSTRKSI BEND URUGAN BATU MEMBRAN BETON	*APPENDIX B. DESIGN & CONSTRUCTION GUIDELINES FOR CONCRETE MEMBRANE STONE FILL BEND*
29	PEDOMAN TEKNIS PENILAIAN RISIKO BENDUNGAN	*TECHNICAL GUIDELINES FOR DAM RISK ASSESSMENT*
29.a	LAMPIRAN PEDOMAN TEKNIS PENILAIAN RISIKO BENDUNGAN	*ATTACHMENT TO TECHNICAL GUIDELINES FOR DAM RISK ASSESSMENT*
30	PEDOMAN PERENCANAAN DAN KONSTRUKSI TEROWONGAN UNTUK BENDUNGAN	*GUIDELINES FOR TUNNEL PLANNING AND CONSTRUCTION FOR DAM*
30.a	LAMPIRAN PEDOMAN PERENCANAAN DAN KONSTRUKSI TEROWONGAN UNTUK BENDUNGAN	*ATTACHMENT TO GUIDELINES FOR TUNNEL PLANNING AND CONSTRUCTION FOR DAM*

SNI-Standar Nasional Indonesia (Indonesian National Standard)

SNI (Standar Nasional Indonesia)	*SNI (Indonesian National Standard)*
SNI 03-1731-1989-F Pedoman Keamanan Bendungan	*SNI 03-1731-1989-F Dam Safety Guidelines*
SNI 03-2849-1992 - Tata cara pemetaan geoteknik lapangan	*SNI 03-2849-1992 - Procedures for field geotechnical mapping*
SNI 03-2851-1991 - Tata cara perencanaan teknik benudngan penahan sedimen	*SNI 03-2851-1991 - Procedures for technical planning of sediment retaining dams*
SNI 03-3976-1995 - tata cara pengadukan pengecoran beton	*SNI 03-3976-1995 - procedures for mixing concrete casting*
SNI 03-6381-2000 - Spesifikasi bangunana ukur debit cipolleti	*SNI 03-6381-2000 - Building specifications for measuring cipolleti discharge*
SNI 03-6416-1-2000 - Spesifikasi bahan sambungan pada bendungan beton - bagian 1 pemilihan bahan penahan air	*SNI 03-6416-1-2000 - Specifications for connection materials in concrete dams - part 1 selection of water retaining materials*
SNI 03-6460.1-2000 - Tata Cara Keamanan Penerowongan Untuk Konstruksi Sipil Bagian 1 Perencanaan Dan Organisasi	*SNI 03-6460.1-2000 - Tunneling Safety Procedures for Civil Construction Part 1 Planning and Organization*
SNI 03-6460.2-2000 - Tata cara keamanan penerowongan untuk konstruksi sipil Bagian 2 Bahaya Darurat Dan Lingkungan Kerja	*SNI 03-6460.2-2000 - Tunneling safety procedures for civil construction Part 2 Emergency Hazards and Work Environment*
SNI 03-6465-2000 - Tata cara pengendalian mutu bendungan urugan	*SNI 03-6465-2000 - Procedures for controlling the quality of embankment dams*
SNI 03-6720.1-2002 - Geotekstil-Bagian 1 Tata Cara Desain Geotekstil Sebagai Filter Dan Transisi Dalam Bendungan Urugan	*SNI 03-6720.1-2002 - Geotextiles-Part 1 Procedures for Geotextile Design as Filters and Transitions in Embankment Dams*
SNI 03-6720.2-2002 - Geotekstil-Bagian 2 Tata Cara Pengukuran Lubang Dan Permeabilitas Geotekstil Sebagai Filter Dan Transisi Dalam Bendungan Urugan	*SNI 03-6720.2-2002 - Geotextiles-Part 2 Procedures for Measuring Holes and Permeability of Geotextiles as Filters and Transitions in Fill Dams*
SNI 03-7043-2004 - Tata cara desain hidraulik tubuh bendung tetap dengan peredam energi tipe MDL	*SNI 03-7043-2004 - Procedures for hydraulic design of fixed weir bodies with MDL type energy absorbers*
SNI 03-64161-2000 - Spesifikasi bahan sambaungan pada bendugan beton bagian 1	*SNI 03-64161-2000 - Specifications for connection materials in concrete dams part 1*
SNI 13-4691-1998 - Penyusunan Peta Geologi	*SNI 13-4691-1998 - Preparation of Geological Maps*
SNI 19-6459-2000 - Tata Cara Pengontrolan Sedimentasi pada Waduk	*SNI 19-6459-2000 - Procedures for Controlling Sedimentation in Reservoirs*
SNI 1726-2019 - Persyaratan Beton Struktural Untuk Bangunan Gedung	*SNI 1726-2019 - Structural Concrete Requirements for Buildings*
SNI 1726-2019 Tata cara perencanaan ketahanan gempa untuk struktur gedung dan non gedung	*SNI 1726-2019 Procedures for earthquake resistance planning for building and non-building structures*
SNI 1966_2008 - Attenberg Limit	*SNI 1966_2008 - Attenberg Limit*
SNI 2411_2008 - Cara uji kelulusan air bertekanan di lapangan	*SNI 2411_2008 - How to test pressurized water in the field*
SNI 2415-2016 - Tata cara perhitungan debit banjir rencana	*SNI 2415-2016 - Procedure for calculating planned flood discharge*
SNI 2436_2008 - Tata cara pencatatan dan identifikasi hasil Pengeboran Inti	*SNI 2436_2008 - Procedures for recording and identifying Core Drilling results*
SNI 2847-2019 - Persyaratan Beton Struktural Untuk Bangunan Gedung	*SNI 2847-2019 - Structural Concrete Requirements for Buildings*
SNI 4153_2008 - Cara uji penetrasi lapangan dengan SPT	*SNI 4153_2008 - How to test field penetration with SPT*
SNI 7754_2012 - Tata cara penentuan gradasi bahan filter pelindung pada bendungan tipe urug	*SNI 7754_2012 - Procedure for determining the gradation of protective filter materials in fill type dams*
SNI 8062_2015 - Tata Cara Desain Tubuh Bendungan Tipe Urugan	*SNI 8062_2015 - Procedures for Body Design of Embankment Type Dams*
SNI 8062-2015 - Tata Cara Desain Tubuh Bendungan Tipe Urugan	*SNI 8062-2015 - Procedures for Body Design of Embankment Type Dams*
SNI 8064-2016 - Metode Analisis Stabilitas Lereng Statik Bendungan Tipe Urugan	*SNI 8064-2016 - Static Slope Stability Analysis Method for Fill Type Dams*
SNI 8460-2017 - Persyaratan perancangan geoteknik	*SNI 8460-2017 - Geotechnical design requirements*
SUMMARY-SNI-03-6720-3-2002-Tentang-Geotekstil-Bagian-3-Tata-Cara-Pemasangan-Geotekstil-Sebagai-Filter-Dan-Transisi-Dalam-Bendungan-Urugan	*SUMMARY-SNI-03-6720-3-2002-About-Geotextiles-Part-3-Procedures-Installing-Geotextiles-As-Filters-And-Transitions-In-Fill-Dams*
SUMMARY-SNI-03-6737-2002- Metode perhitungan awal laju sedimentasi waduk	*SUMMARY-SNI-03-6737-2002- Initial calculation method for reservoir sedimentation rate*

Planning Guide (Panduan Perencanaan) years 1989 version

KP (Kriteria Perencanaan) 1986	*KP (Planning Criteria) 1986*
KP-01-PERENCANAAN JARINGAN IRIGASI	*KP-01-IRRIGATION NETWORK PLANNING*
KP-02- BANGUNAN UTAMA	*KP-02- MAIN BUILDING*
KP-03-SALURAN	*KP-03-CHANNEL*
KP-04-BANGUNAN	*KP-04-BUILDING*
KP-05-PETAK TERSIER	*KP-05-TERTIARY LAND*
KP-06-PETAK BANGUNAN	*KP-06-BUILDING PLOT*
KP-07-STANDAR PENGGAMBARAN	*KP-07-STANDARD DRAWING*
PEDOMAN PENANGGULANGAN BANJIR	*FLOOD MANAGEMENT GUIDELINES*
PT (PERSYARATAN TEKNIS) 01- PERENCANAAN JARINGAN IRIGASI	*PT (TECHNICAL REQUIREMENTS) 01- IRRIGATION NETWORK PLANNING*
PT (PERSYARATAN TEKNIS) 03- PENYELIDIKAN GEOTEKNIK	*PT (TECHNICAL REQUIREMENTS) 03- GEOTECHNICAL INVESTIGATIONS*
PT (PERSYARATAN TEKNIS) 04- PENYELIDIKAN MODEL HIDROLIS	*PT (TECHNICAL REQUIREMENTS) 04- HYDRAULIC MODEL INVESTIGATION*
PT (PERSYARATAN TEKNIS) 02- PENGUKURAN TOPOGRAFI	*PT (TECHNICAL REQUIREMENTS) 02- TOPOGRAPHIC MEASUREMENT*
SPI (STANDAR PERENCANAAN TOPOGRAFI)	*SPI (TOPOGRAPHIC PLANNING STANDARD)*

Planning Guide (Panduan Perencanaan) years 2013 version

KP (Kriteria Perencanaan) 2013	*KP (Planning Criteria) 2013*
KP-01-PERENCANAAN JARINGAN IRIGASI	*KP-01-IRRIGATION NETWORK PLANNING*
KP-02- BANGUNAN UTAMA	*KP-02- MAIN BUILDING*
KP-03-SALURAN	*KP-03-CHANNEL*
KP-04-BANGUNAN	*KP-04-BUILDING*
KP-05-PETAK TERSIER	*KP-05-TERTIARY LAND*
KP-06-PETAK BANGUNAN	*KP-06-BUILDING PLOT*
KP-07-STANDAR PENGGAMBARAN	*KP-07-STANDARD DRAWING*
KP-08 Spesifikasi Teknis Kriteria Perencanaan-Standar Pintu Pengatur Air Irigasi-Perencanaan, Pemasangan, Operasi dan Pemeliharaan	*KP-08 Technical Specifications Planning Criteria-Standards for Irrigation Water Control Doors-Planning, Installation, Operation and Maintenance*
KP-09 Spesifikasi Teknis Kriteria Perencanaan-Standar Pintu Pengatur Air Irigasi-Spesifikasi Teknis	*KP-09 Technical Specifications Planning Criteria-Standards for Irrigation Water Control Doors-Technical Specifications*

Attachment 2 : "Table of Contents" of the Collected Documents (English Translation)

GUIDELINES TO DETERMINE CLASSIFICATION OF DAM HAZARDS

DEPARTMENT OF PUBLIC WORKS DIRECTORATE
GENERAL OF WATER DAM SECURITY CENTER

HAZARD CLASSIFICATION GUIDELINES

ATTACHMENT
DECISION OF THE DIRECTOR GENERAL OF WATER

NUMBER: 108/KPTS/A/1998

DATE: December 22, 1998

LIST OF CONTENTS

GUIDELINES FOR PREPARING EMERGENCY ACTION PLANS

DECISION OF THE DIRECTOR GENERAL OF WATERING

NUMBER: 94/KPTS/A/1998

DATE: JULY 30, 1998

DEPARTMENT OF PUBLIC WORKS DIRECTORATE
GENERAL OF WATER DAM SECURITY CENTER

EMERGENCY ACTION PLAN GUIDELINES

ATTACHMENT

DECISION OF THE DIRECTOR GENERAL OF WATER

NUMBER: 94/KPTS/A/1998

DATE: JULY 30, 1998

LIST OF CONTENTS

ATTACHMENT

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

PROCEDURES FOR APPROVAL OF DAM CONSTRUCTION AND REMOVAL OF DAM FUNCTION

OCTOBER 2002

DAM SECURITY COMMISSION

DECISION OF THE DIRECTOR GENERAL OF WATER RESOURCES/CHAIRMAN OF THE DAM SAFETY COMMISSION

NUMBER: 04/KPTS/1994, jo Number: 04/KPTS/2002

About :

PROCEDURES FOR APPROVAL OF THE CONSTRUCTION AND REMOVAL OF THE DAM'S FUNCTION

LIST OF CONTENTS

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES FOR FILLING THE RESERVOIR

OCTOBER 2002

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY BOARD)

GUIDELINES FOR FILLING THE RESERVOIR

LIST OF CONTENTS

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

DAM SAFETY INSPECTION AND EVALUATION GUIDELINES

MARCH 2003

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY CENTER)

DAM SAFETY INSPECTION GUIDELINES

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDIX LIST

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

DAM SAFETY ASSESSMENT GUIDELINES

MARCH 2003

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY CENTER)

LIST OF CONTENTS

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES

CONTROL OF SEEPAGE IN FILLED DAM

DECEMBER 2005

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY CENTER)

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES
DAM MAINTENANCE AND OBSERVATION OPERATIONS

PART 1
GENERAL

MARCH 2003

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY CENTER)

LIST OF CONTENTS

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES
DAM MAINTENANCE AND OBSERVATION OPERATIONS

PART 2
GENERAL

MARCH 2003

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY CENTER)

LIST OF CONTENTS

LIST OF TABLES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES

DAM MAINTENANCE AND OBSERVATION OPERATIONS

PART 3

INSTRUMENTATION AND MONITORING SYSTEMS

MARCH 2003

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY CENTER)

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDIX LIST

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES
DAM MAINTENANCE AND OBSERVATION OPERATIONS

PART 4
SAFETY INSPECTION FOR HYDROMECHANICAL AND ELECTRICAL EQUIPMENT
MARCH 2003

Secretariat Office
DAM SAFETY COMMISSION
(DAM SECURITY CENTER)

LIST OF CONTENTS

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES
DAM MAINTENANCE AND OBSERVATION OPERATIONS

PART 5
OPERATION AND MAINTENANCE OF HYDROMECHANICAL AND ELECTRICAL EQUIPMENT

MARCH 2003

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY CENTER)

LIST OF CONTENTS

ATTACHMENT

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

RESERVOIR SEDIMENTATION MANAGEMENT GUIDELINES

November 2004

Secretariat Office

DAM SAFETY COMMISSION

(DAM SECURITY CENTER)

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

MINE WASTE DAM GUIDELINES

November 2004

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES
IMPLEMENTATION OF FILL DAM CONSTRUCTION

November 2004

LIST OF CONTENTS

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

MANUAL

VISUAL INSPECTION OF THE FILLING DAM

November 2004

LIST OF CONTENTS
FILLING DAM VISUAL INSPECTION MANUAL

LIST OF FIGURES

LISTPHOTO

LIST OF TABLES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES

GENERAL CRITERIA FOR DAM DESIGN

MARCH 2003

Secretariat Office

DAM SAFETY COMMISSION (DAM SECURITY BOARD)

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES

GENERAL CRITERIA FOR DAM DESIGN

DECEMBER 2005

LIST OF CONTENTS
GROUTING GUIDELINES FOR DAM

CHAPTER XII Evaluation of Grouting Implementation

CHAPTER XIII Technical Specifications for Grouting Works

ATTACHMENT :

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

GUIDELINES
CONSTRUCTION OF A CUT-OFF WALL ON THE EMBANKMENT DAM

DECEMBER 2005

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

CONSTRUCTION OF EMBANKMENT DAM ON SOFT SOIL FOUNDATIONS

Decision of the Director General of Water Resources

Number: 04 / KPTS / D / 2007

Date: February 16, 2007

DEPARTMENT OF GENERAL WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

APPENDIX LIST

LIST OF TABLES

LIST OF FIGURES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

DYNAMIC ANALYSIS OF EMBANKMENT DAM

Decision of the Director General of Water Resources

Number: 27 /KPTS /D/ 2008

Date: January 31, 2008

DEPARTMENT OF GENERAL WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

DYNAMIC ANALYSIS OF EMBANKMENT DAM

Decision of the Director General of Water Resources

Number: 27 /KPTS /D/ 2008

Date: January 31, 2008

DEPARTMENT OF GENERAL WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SURVEYING AND MONITORING RESERVOIR SEDIMENTATION

Decision of the Director General of Water Resources

Number: 39/KPTS/D/2009

Date: February 26, 2009

DEPARTMENT OF GENERAL WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

DEPARTMENT OF REGIONAL HOUSING AND INFRASTRUCTURE

DIRECTORATE GENERAL OF RESOURCES

WATER POWER

CLASSIFICATION OF DAM HAZARDS

Decision of the Director General of Water Resources

Number: 257/KPTS/D/2011

Date: MAY 30, 2011

DEPARTMENT OF GENERAL WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

BOOK 1

PLANNING AND IMPLEMENTATION OF GRIND SOLID CONCRETE DAM

Decision of the Director General of Water Resources

Number: 305/KPTS/D/2011

Date: 30 September 2011

DEPARTMENT OF GENERAL WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

BOOK II

ROCK FOUNDATIONS, INSTRUMENTATION SYSTEMS AND WATER BOOTS OF MILLED SOLID CONCRETE DAM

Decision of the Director General of Water Resources

Number: 305/KPTS/D/2011

Date: 30 September 2011

MINISTRY OF PUBLIC WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

GUIDELINES FOR DESIGN AND CONSTRUCTION OF CONCRETE MEMBRANE STONE FILL DAM

Decision of the Director General of Water Resources

Number: 304/ KPTS / D/ 2011

Date: 30 September 2011

MINISTRY OF PUBLIC WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

LIST OF TABLES

GUIDELINES FOR DESIGN AND CONSTRUCTION OF CONCRETE MEMBRANE STONE FILL DAM

Decision of the Director General of Water Resources

Number: 304/ KPTS / D/ 2011

Date: 30 September 2011

MINISTRY OF PUBLIC WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS
APPENDIX A

GUIDELINES FOR DESIGN AND CONSTRUCTION OF CONCRETE MEMBRANE STONE FILL DAM

Decision of the Director General of Water Resources

Number: 304/ KPTS / D/ 2011

Date: 30 September 2011

MINISTRY OF PUBLIC WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS
APPENDIX B

Dam Risk Assessment

MINISTRY OF PUBLIC WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Dam Risk Assessment

MINISTRY OF PUBLIC WORKS

DIRECTORATE GENERAL OF WATER RESOURCES

APPENDIX LIST

GUIDELINES FOR PLANNING AND IMPLEMENTING TUNNEL CONSTRUCTION FOR DAM

The decision of the Director General of Resources, Ari

Number: 325/KPTS/D/2011

Date: December 12, 2011

MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SNI

Indonesian National Standards

Procedure for calculating planned flood discharge

SNI 2415:2016

National Standardization Boards (BSN)

LIST OF CONTENTS

List of Figures

List of Tables

PROCEDURES

GEOTEXTICAL DESIGN AS A FILTER AND TRANSITION IN THE IMPAIRMENT DAM

SNI 03-6720.3-2002

Pd T -24-1999-03

SCOPE:

This standard covers procedures for designing geotextiles as filters and transitions in embankment dams. It includes a description of the use of geotextiles in general, geotextiles as filters and transitions in embankment dams, filtration principles, criteria, and the use of geotextiles as sliding surfaces.

SUMMARY:

The potential use of geotextiles in dams can be divided into:

a) Temporary use during construction, which includes:
   (a) Temporary haul roads;
   (b) Temporary spillway protection
   (c) Fill drainage to accelerate consolidation;
   (d) Filter or drainage media to maintain the desired profile.

b) Permanent use during construction. The main functions of geotextiles in civil engineering are as follows;

a) Separation and anti-contamination can involve filtration but can also involve resistance to stress due to loading;

b) Filtration prevents the migration of basic soil particles into the filter due to the flowing water's drag force on the particles.

c) Drainage allows for permeability along the geotextile plane so that it functions well as a filter when water flows along the geotextile;

d) Mechanical reinforcement in the use of geotextiles is intended to provide additional strength to the geotextile soil composite system and the contact area between the embankment and the foundation.

Use of geotextiles in dam Filling by Fayoux (1981) outlines the main functions of geotextiles in civil engineering, including the following:

1) Separation and anti-contamination can involve filtration, but can also involve resistance to stress due to loading.

2) Filtration is preventing the migration of basic soil particles into the filter due to the drag force on the particles by flowing water.

3) Drainage allows for permeability along the geotextile plane so that it functions well as a filter when water flows into it, and this drainage is only limited to low fill (maximum height around 10 m).

CALCULATION METHOD

INITIAL RATE OF RESERVOIR SEDIMENTATION

SNI 03-6737-2002

SCOPE:

This standard establishes a method for the initial calculation of reservoir sedimentation rates, which addresses requirements, provisions, methods of calculation and reporting, and initial calculation of reservoir sedimentation rate, especially based on data on flow volume and river sediment volume entering the reservoir.

SUMMARY:

The standard objective of the initial reservoir sedimentation rate calculation method is to calculate the reservoir sedimentation rate for reservoir planners and managers.

The reservoir sedimentation rate is the speed of the volume of river sediment deposition in the reservoir per year.

Data for calculating sedimentation rates in reservoirs must meet the following conditions:

1) The volume of river flow entering the reservoir with a minimum data period of 10 years;
2) The volume of river sediment entering the river Reservoir with a minimum period of 10 years of data.
3) Reservoir volume was measured based on reservoir topography mapping during planning.

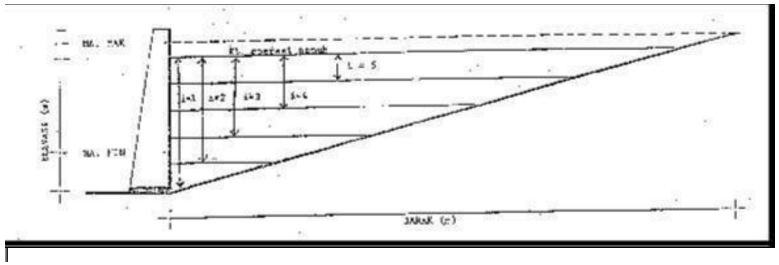
The formulas used include the *Reservoir section volume formula*; (view image)

$$VB_i = V_w - \frac{i-1}{5} V_w$$

Description:

VB_i = volume of reservoir section i (m_3)

V_w = reservoir volume (m_3)



SNI

Indonesian National Standards

Backfill geotechnical design requirements

SNI 8460-2017

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Procedures for Designing the Body of an Embankment-Type Dam

SNI 8062_2015

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

How to test field penetration with SPT

SNI 4153:2008

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

How to test field penetration with SPT

SNI 4153:2008

National Standardization Boards (BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

How to test pressurized water in the field

SNI 2411:2008

National Standardization Boards (BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Attenberg Limit

SNI 1966_2008

National Standardization Boards (BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

SNI 1726-2019

Structural Concrete Requirements for Buildings

National Standardization Boards

(BSN)

LIST OF CONTENTS

List of Figures

List of tables

SNI

Indonesian National Standards

Procedures for controlling sedimentation in reservoirs

SNI 19-6459-2000

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Preparation of Geological Maps

SNI 13-4691-1998

National Standardization Boards

(BSN)

LIST OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SNI

Indonesian National Standards

Specifications for connection materials in concrete dams part 1

SNI 03-64161-2000

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Procedures for hydraulic design of a fixed weir body with an MDL-type energy reducer

SNI 03-7043-2004

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Geotextiles - Part 2:
Procedures for measuring hole diameter and permeability of geotextiles as filters and transitions in embankment dams
SNI 03-6720.2-2002

National Standardization Boards (BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Geotextiles - Part 1:
Procedures for installing geotextiles as filters and transitions in embankment dams

SNI 03-6720.1-2002

National Standardization Boards (BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

PROCEDURES

QUALITY CONTROL OF EMBANKMENT DAM

SNI 03-6465-2000

National Standardization Boards

(BSN)

LIST OF CONTENTS

LIST OF CONTENTS

SNI

Indonesian National Standards

SNI 03-6460.1-2000

Tunneling Safety Procedures for Civil Construction

Part 1

Planning And Organization

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Specifications for connection materials in concrete dams - part 1 selection of water retaining materials

SNI 03-6416-1-2000

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Cipoletti discharge measuring building specifications

SNI 03-6381-2000

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

PROCEDURE FOR MIXING CONCRETE CASTING

SNI 03-3976-1995

National Standardization Boards

(BSN)

LIST OF CONTENTS

SNI

Indonesian National Standards

Procedures for engineering planning for sediment retaining weirs

National Standardization Boards

(BSN)

LIST OF CONTENTS

Procedures

Field engineering geological mapping

National Standardization Board

(BSN)

LIST OF CONTENTS

DAM SAFETY GUIDELINES

SKBI - 1.7.10. 1987

UDC: 627.8 (083.7)

DEPARTMENT OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER DAM
SECURITY CENTER

LIST OF CONTENTS

SNI

Indonesian National Standards

Static Slope Stability Analysis Method for Embankment-Type Dams

SNI 8064-2016

BackfillNational Standardization Boards (BSN)

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

PLANNING CRITERIA PART 1

IRRIGATION NETWORK

KP-1

DECEMBER 1986

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

PLANNING CRITERIA

PART

MAIN BUILDINGS

KP-2

DECEMBER 1986

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

PLANNING CRITERIA PART 3

CHANNEL

KP-3

DECEMBER 1986

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

PLANNING CRITERIA

PART

BUILDING

KP-4

DECEMBER 1986

LIST OF CONTENTS

9. COMPLETE BUILDINGS

IRRIGATION PLANNING STANDARDS

PLANNING CRITERIA

PART

TERTIARY LAYOUT

KP-5

DECEMBER 1986

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

PLANNING CRITERIA

PART

BUILDING PARAMETERS

KP-6

DECEMBER 1986

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

PLANNING CRITERIA

PART

DEPICTION STANDARDS

KP-7

DECEMBER 1986

LIST OF CONTENTS

FLOOD MANAGEMENT GUIDELINES

1987

LIST OF CONTENTS

IRRIGATION PLANNING MANUAL

SUPPORTING PART FOR IRRIGATION PLANNING STANDARDS

DECEMBER 1986

LIST OF CONTENTS

FOREWORD
LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

TECHNICAL REQUIREMENTS

PART

IRRIGATION NETWORK PLANNING

PT-01

GEOTECHNICAL INVESTIGATIONS

PT-03

HYDRAULIC MODEL INVESTIGATION

PT-04

DECEMBER 1986

PART PT - 01 IRRIGATION NETWORK PLANNING
LIST OF CONTENTS

PART PT - 03 GEOTECHNICAL INVESTIGATIONS
LIST OF CONTENTS

PART PT - 04 INVESTIGATION OF HYDRAULIC MODELS

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

IRRIGATION PLANNING STANDARDS
TECHNICAL REQUIREMENTS
PART TOPOGRAPHIC MEASUREMENTS PT-02

CONTENTS

PART I
VERTICAL AERIAL SHOOTING

LIST OF CONTENTS

PART II
CREATION OF ORTHOPHOTO MAP

LIST OF CONTENTS

PART III
PHOTOGRAMMETRIC LINE MAP

LIST OF CONTENTS

PART IV
TERRESTRIAL SITUATION MAPPING 1:5000 SCALE

LIST OF CONTENTS

PART V
TERRESTRIAL SITUATION MAPPING 1:2000 SCALE

LIST OF CONTENTS

PART VI
RIVER MEASUREMENT AND WEIR LOCATION

LIST OF CONTENTS

PART VII
SITUATIONAL SYSTEM CHANNEL TRACE MEASUREMENT

LIST OF CONTENTS

PART VIII
IP SYSTEM CHANNEL TRACE MEASUREMENT

LIST OF CONTENTS

PART IX
TERTIARY CHANNEL TRACE MEASUREMENT

LIST OF CONTENTS

PART X
MEASUREMENT OF SPECIAL BUILDING LAND SITUATIONS

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

IRRIGATION PLANNING STANDARDS PLANNING CRITERIA PART 1 IRRIGATION NETWORK KP-1

JANUARY 2013

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

IRRIGATION PLANNING STANDARDS PLANNING CRITERIA PART MAIN BUILDINGS (HEAD WORKS) KP-2

2013

IRRIGATION PLANNING STANDARDS

IRRIGATION PLANNING STANDARDS PLANNING CRITERIA PART 3 CHANNEL KP-3

2013

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

IRRIGATION PLANNING STANDARDS PLANNING CRITERIA PART BUILDING KP-4

2013

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

IRRIGATION PLANNING STANDARDS
PLANNING CRITERIA PART TERTIARY LAYOUT KP-5

2013

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

IRRIGATION PLANNING STANDARDS
PLANNING CRITERIA PART BUILDING PARAMETERS KP-6

2013

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

IRRIGATION PLANNING STANDARDS
PLANNING CRITERIA PART DEPICTION
STANDARDS KP-7

2013

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

SECTION PLANNING CRITERIA IRRIGATION CONTROL GATES STANDARDS: PLANNING, INSTALLATION, OPERATION AND MAINTENANCE KP-08

2013

LIST OF CONTENTS

IRRIGATION PLANNING STANDARDS

IRRIGATION WATER CONTROL GATE STANDARDS: TECHNICAL SPECIFICATIONS KP-09

2013

LIST OF CONTENTS

EMBANKMENT DAM PLANNING GUIDE. VOLUME I SURVEY AND INVESTIGATION

JULY 1999

DEPARTMENT OF PUBLIC WORKS DIRECTORATE
GENERAL OF WATER DAM SECURITY CENTER

LIST OF CONTENTS

EMBANKMENT DAM PLANNING GUIDE VOLUME II
HYDROLOGICAL ANALYSIS

JULY 1999

DEPARTMENT OF PUBLIC WORKS DIRECTORATE
GENERAL OF WATER DAM SECURITY CENTER

LIST OF CONTENTS

EMBANKMENT DAM PLANNING GUIDE, VOLUME III FOUNDATION AND DAM BODY DESIGN

JULY 1999

DEPARTMENT OF PUBLIC WORKS DIRECTORATE
GENERAL OF WATER DAM SECURITY CENTER

LIST OF CONTENTS

EMBANKMENT DAM PLANNING GUIDE VOLUME IV
AUXILARRY BUILDING DESIGN

JULY 1999

DEPARTMENT OF PUBLIC WORKS DIRECTORATE
GENERAL OF WATER DAM SECURITY CENTER

LIST OF CONTENTS

EMBANKMENT DAM PLANNING GUIDE VOLUME V HYDROMECHANICAL WORK, INSTRUMENTATION AND AUX BUILDING

JULY 1999

DEPARTMENT OF PUBLIC WORKS DIRECTORATE
GENERAL OF WATER DAM SECURITY CENTER

LIST OF CONTENTS