وزارة البيئة والمياه والزراعة
Ministry of Environment Water & Agriculture

The Dam Competition Program

Applicant Guidelines

Ministry of Environment, Water & Agriculture

Classification: Public-Internal

1. Program Overview

1.1 Introduction

The Dam Competition Program is a national, implementation-focused innovation initiative aimed at addressing sedimentation challenges affecting dams across the Kingdom of Saudi Arabia.

Sediment accumulation reduces dam storage capacity, increases operational and maintenance costs, and impacts long-term water security. Given the Kingdom's climatic and geological conditions, sedimentation poses a growing operational risk that requires practical, scalable, and deployable solutions.

The program is designed to move beyond research and conceptual studies by **piloting real solutions in operational dam environments**. Selected applicants will implement and test their solutions through paid pilot engagements, with the objective of validating performance, feasibility, and impact.

1.2 Program Objectives

The program aims to:

- Identify implementable solutions addressing dam sedimentation challenges
- Pilot and validate solutions in real operational environments
- Improve dam efficiency, resilience, and lifecycle performance
- Reduce long-term operational and sediment-related risks
- Enable scalable solutions aligned with national water priorities

1.3 Scope of Solutions

The program welcomes solutions addressing sedimentation across the full lifecycle, including but not limited to:

- Monitoring, prediction, and decision-support solutions
- Sediment control and mitigation approaches (including upstream and catchment-level interventions)
- Sediment treatment, transformation, and reuse solutions

Solutions may target existing sediment accumulation, future sediment inflow, or both.

1.4 Challenge Focus Areas (Tracks)

While the Dam Competition Program follows a **single application and evaluation process**, submitted solutions are expected to align with **one of the following three challenge focus areas ("Tracks")**.

Applicants are not required to submit separate applications per track; however, each proposal must clearly indicate which track it primarily addresses.

Track 1: Smart Monitoring, Prototyping, and Prediction

This track focuses on **digital, data-driven, and intelligent solutions** that enhance visibility, prediction, and operational decision-making related to dam sedimentation.

Typical solution areas include (but are not limited to):

- Real-time or near-real-time sediment monitoring systems
- IoT-based sensing and data acquisition
- AI/ML-based prediction of sediment inflow, accumulation, or high-risk events
- Early warning systems and decision-support tools for dam operation and maintenance

Expected Technology Readiness Level (TRL): TRL 6–9 (validated prototype to operational deployment)

Solutions under this track should demonstrate a high level of technical maturity and readiness for deployment in operational dam environments.

Track 2: Sediment Control and Mitigation

This track focuses on **physical, engineering, and nature-based solutions** aimed at reducing sediment generation, transport, or accumulation.

Typical solution areas include:

- Catchment- or watershed-level sediment reduction interventions
- Engineering solutions to control sediment movement
- Hybrid or nature-based solutions that improve system resilience
- Climate-adaptive approaches addressing extreme rainfall or runoff events

Interventions may occur:

- At the dam structure
- Upstream within the catchment area

Expected Technology Readiness Level (TRL): TRL 6–9 (field-tested or operationally deployable solutions)

Solutions are expected to be technically proven and suitable for pilot implementation at real dam sites.

Track 3: Sediment Transformation and Reuse

This track focuses on **turning sediment from a liability into a resource** through safe, compliant, and economically viable reuse pathways.

Typical solution areas include:

- Reuse of dredged or removed sediment in construction or materials
- Alternative cement or aggregate applications
- Mining, environmental, or land restoration uses
- Circular economy and value-chain creation models

Expected Technology Readiness Level (TRL): TRL 4–9 (validated concept to operational deployment)

This track allows for **slightly earlier-stage solutions**, provided there is a clear and credible pathway to pilot implementation within the program timeframe.

2. Eligibility Criteria

2.1 Eligible Applicants

The direct beneficiary of the program must be a **legally registered startup or small and medium enterprise (SME)**. Eligible entities include:

- Startups and SMEs operating in related fields
- Established technology companies and solution providers
- Engineering and environmental consultancies classified as small or medium enterprises

Individual applicants are not eligible.

Consortium Applications:

Research entities such as universities and research centers may participate through a consortium arrangement, provided that:

- The Lead Applicant is a qualified startup or SME that meets the eligibility criteria above
- The lead applicant assumes full contractual and financial responsibility for the application
- The research entity participates as a supporting partner within the consortium and may not apply independently

2.2 Technical Readiness

Applicants must demonstrate sufficient technical maturity to support pilot implementation. Expected TRL ranges vary by solution type:

- Track 1 (Monitoring & Prediction): TRL 6–9
- Track 2 (Control & Mitigation): TRL 6–9
- Track 3 (Transformation & Reuse): TRL 4–9

Applicants must clearly justify the stated TRL and provide supporting evidence such as pilots, deployments, prototypes, or validation results.

2.3 Geographic and Operational Requirements

- Applicants may be local or international entities
- Selected applicants must be willing and able to operate in Saudi Arabia during the pilot phase
- Local presence or partnerships is required prior to contracting

2.4 Compliance

Applicants must confirm:

- Compliance with applicable environmental, safety, and regulatory requirements
- Ability to operate in controlled dam environments under operator supervision
- Willingness to comply with reporting, monitoring, and evaluation requirements

3. Application Process

3.1 Overview

The Dam Competition Program follows a **single-stage application process**:

1. Submission of a Full Proposal
2. Evaluation and shortlisting
3. Interviews with shortlisted applicants
4. Nomination of selected SMEs for pilot implementation

There is **no pre-proposal or concept note stage**.

3.2 Full Proposal Submission

Applicants must submit a complete proposal through the official application platform announced at launch.

The proposal must include:

- Applicant and organizational information
- Description of the sedimentation problem addressed
- Detailed solution description and technical approach
- Implementation plan for real dam deployment
- Risk assessment and mitigation strategy
- Expected impact and measurable outcomes
- Budget and milestone-based funding plan
- Relevant team experience and prior deployments

Incomplete or non-compliant submissions may be excluded from evaluation.

4. Evaluation Process

All eligible applications will be evaluated through a structured and transparent process.

4.1 Full Proposal Evaluation Criteria

Each proposal is evaluated out of 100 points based on the following criteria:

Evaluation Criterion	Description	Weight
Problem Relevance	Clarity and relevance of the problem addressed	**15%**
Technical Merit	Soundness and appropriateness of the technical solution	**20%**
Implementation Feasibility	Practicality of deployment on real dam sites	**20%**
Expected Impact	Anticipated operational, environmental, or cost impact	**15%**
Scalability	Potential to replicate across multiple dams	**10%**
Team Capability	Relevant experience and execution capacity	**10%**
Budget & Value for Money	Cost-effectiveness and alignment with milestones	**10%**
Total		**100%**

4.2 Proposal Scoring Scale

Score Range	Interpretation
90–100	Excellent – Highly implementation-ready and impactful
75–89	Very Good – Strong proposal with manageable risks
60–74	Adequate – Requires clarification or refinement
Below 60	Insufficient – Does not meet program requirements

4.3 Interviews and Final Selection

Top-scoring applicants will be invited to **interviews or clarification sessions** to:

- Validate implementation readiness
- Clarify technical and operational assumptions
- Assess risk awareness and mitigation plans

Final selection will consider:

- Full proposal evaluation results
- Interview outcomes
- Overall feasibility of pilot implementation

A **limited number of SMEs** will be nominated for pilot implementation, subject to budget and operational considerations.

5. Funding and Contracting

Selected applicants will be engaged through **paid pilot contracts**

Funding is **milestone-based**, linked to verified deliverables

An initial mobilization payment may be provided upon contract execution

Detailed contractual terms will be shared with shortlisted applicants.

6. Intellectual Property and Data

- Intellectual property remains with the solution provider
- Implementing entities retain non-exclusive rights to use pilot results for governmental purposes
- Data generated during pilots must be handled in accordance with applicable data governance and confidentiality requirements

7. Important Notes

- Submission of an application does not guarantee selection or funding
- The program reserves the right to modify timelines or scope if required
- Evaluation outcomes are final and not subject to appeal

8. Announcements and Updates

All official announcements, timelines, and application instructions will be published through the program's official channels and application platform.