



TECHNOLOGY DEVELOPMENT FUND (TDF) SCHEME



TITLE: DEVELOPMENT OF BORE WEAR REDUCING LINER FOR TANK & ARTILLERY

1. Objective:

To design and develop a bore wear-reducing liner for tank and artillery barrels, enhancing barrel longevity, improving performance consistency, and reducing maintenance requirements under operational conditions.

2. Background:

The barrels of tanks and artillery systems are subjected to extreme stress, high temperatures, and wear during firing operations. This leads to reduced accuracy, frequent maintenance, and increased lifecycle costs. A bore wear-reducing liner can significantly mitigate these issues, ensuring better operational reliability and cost-effectiveness.

3. Problem Statement:

The current tank and artillery barrels experience accelerated wear and erosion due to high-temperature combustion gases, friction, and repeated firing cycles. Frequent barrel replacements and maintenance lead to higher operational downtime and costs. A solution is needed to minimize wear, extend barrel life, and maintain consistent performance under extreme conditions.

4. Proposed Solution:

- 1. Material Innovation:** Develop advanced wear-resistant materials or coatings to withstand high temperatures and pressures.
- 2. Liner Design:** Engineer a bore liner that seamlessly integrates with existing barrels without compromising ballistic performance.
- 3. Testing and Validation:** Conduct rigorous testing under simulated operational conditions to validate the liner's effectiveness.
- 4. Manufacturing Scalability:** Ensure cost-effective production for mass deployment across tank and artillery platforms.

5. Expected Outcome:

1. Increased lifespan and reliability of tank and artillery barrels.
2. Reduced maintenance costs and operational downtime.
3. Enhanced accuracy and performance consistency during extended operations.

6. Key Deliverables:

1. Prototypes of bore wear-reducing liners for testing and validation.
2. Performance data and analysis reports from operational simulations.
3. Technical documentation for integration and maintenance.
4. Scalable manufacturing framework for deployment.

7. Strategic Relevance:

This project addresses a critical need in modern armored and artillery warfare by ensuring sustained operational readiness. It aligns with defense modernization initiatives and supports indigenization goals by developing advanced solutions for the armed forces.

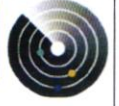
8. Future Expectation:

1. **Extended Barrel Longevity:** The bore wear-reducing liner is expected to significantly increase the operational lifespan of tank and artillery barrels, reducing the frequency of barrel replacements and ensuring consistent performance over extended periods of use.
2. **Enhanced Combat Readiness:** By reducing maintenance downtime, the solution will improve the availability of tanks and artillery systems during critical missions, ensuring a higher degree of combat readiness.
3. **Improved Accuracy and Reliability:** The liner will maintain barrel integrity, preserving accuracy and reliability even under prolonged and intensive firing cycles, critical for precision targeting in modern warfare.
4. **Cost Efficiency:** The reduction in barrel replacements and maintenance will lead to long-term cost savings, making the solution economically beneficial for large-scale deployment across the armed forces.
5. **Scalability Across Platforms:** The technology can be adapted and scaled for use in a wide range of tank and artillery systems, enhancing its versatility and applicability across different military platforms.
6. **Strategic Self-Reliance:** The indigenously developed solution will reduce dependency on foreign technology, aligning with the national goal of self-reliance in defense manufacturing and technology.
7. **Global Export Potential:** Once proven, the technology could be marketed internationally to allied nations, offering a competitive and high-performance solution to global defense forces.
8. **Foundation for Future Innovations:** The successful development of this project could pave the way for future advancements in wear-resistant materials and coatings, benefiting other high-stress defense applications such as naval guns, aircraft cannons, and missile launch systems.

--End of Document--



TECHNOLOGY DEVELOPMENT FUND (TDF) SCHEME



FEASIBILITY CUM RFI RESPONSE FOR THE PROJECT REQUIREMENT UNDER TDF SCHEME (PROFORMA)

1. **Name of the Institute** (Industry/Academia):
2. **Contact details:**
 - a. Email
 - b. PoC
 - c. Address
3. **Title of the project requirement:**
4. **Project Description** (Define broad understanding of the project requirement and proposed solution under the project).
5. **Briefly detail the proposed technical solution in terms of subsystem/submodule levels.**
6. **Road map for achieving the proposed outcome (Development Plan Phase wise -Max 5 phases).**
7. **Development and production Estimates:**
 - i. Estimated time required for development of the proposed technology /product (In Months).
 - ii. Estimated cost required for the for development of the proposed technology /product (BQs of submodules/subsystems if any pls attach).
 - iii. Estimated production cost of the end product after successful development (per unit or batch cost).
 - iv. Whether the industry has already done any Suo moto design and development of the proposed product/technology at Technology Readiness Level – Yes/No
 - v. Details of Suo moto design and development done if marked Yes in previous question (within 250 words).
 - vi. Essential infrastructure required for development of the proposed product/technology for which funding is required.
8. **Technical strength in terms of manpower.**
9. **Relevant Work Experience.**
10. **Any other relevant information**

Queries if any and the reply in PDF FORMAT to be submitted online addressing to;

TO,

THE DIRECTOR TDF, DRDO

DRDO BHAWAN, RAJAJI MARG, NEW DELHI 110011

Email to, arjunk.hqr@gov.in, CC to dir.tdf-drdo@gov.in.