



2015 CALL FOR PROPOSALS

Upscaling solid waste technologies to advance the South African waste sector

ANNOUNCEMENT

1 Call for proposals

The Department of Science and Technology (DST) is pleased to announce a call for proposals for the upscaling of (solid) waste management technologies. Only projects with a Technology Readiness Level (TRL) value ≥ 3 (greater than or equal to three) will be considered for support. The TRL definitions are shown in Appendix 1: TRL Definitions.

Applicants are requested to familiarise themselves with the information provided in this Call as well as in the Waste Research, Development and Innovation (RDI) Roadmap for South Africa (2015-2025), before preparing an application.

- Strategic framework of the Waste RDI Roadmap (6 Clusters) – available online at: http://wasteroadmap.co.za/download/rdi_clusters.pdf
- Waste RDI Roadmap – available online at: http://wasteroadmap.co.za/download/waste_rdi_roadmap_summary.pdf

2 Background

The Waste RDI Roadmap is an initiative of the DST, managed by the CSIR, aimed at strengthening –

- human capital development (HCD)
- research and development (R&D), and
- innovation in the field of solid waste management

Through the strategic investment in science, engineering and technology, the Department aims to support the prevention of waste and the optimised extraction of value from waste reuse, recycling and recovery, in order to create significant social, economic, and environmental benefit for the country.

The Waste RDI Roadmap provides a framework to implement –

- More effective decision-making
- Faster insertion of context-appropriate technology
- Export of know-how and technology
- Strengthened RDI capability and capacity

3 Research themes

Research proposals must be aligned with one of the following thematic areas and sub-themes of the Waste RDI Roadmap –

i. Technology Solutions

Design, development, evaluation, demonstration, localisation and deployment of technologies (both local and inbound) for customer-driven performance improvement

- Process Performance Optimisation
- Technology Development
- Technology Evaluation and Demonstration
- Technology Localisation

ii. Waste logistics performance

Optimisation of strategic, tactical and operational decision-making in respect of logistics objectives, assets and resources

- Strategic Network Design
- Planning and Management Systems
- Operational Logistics Processes

iii. Waste and environment

Strengthen the ability to identify, monitor, evaluate and report on environmental impacts of waste and its management, in order to inform better targeted and more effective responses

- Climate change

Proposals must also address one of the following priority waste streams –

- Organic waste
- Plastic waste
- Electronic waste (WEEE)
- Municipal waste

R&D and Innovation in waste tyres, while a priority of the Waste RDI Roadmap, will continue to be supported by REDISA and is therefore not a focus of this Call for Proposals.

4 Eligibility criteria

Researchers from South African Universities, Science Councils and other public research institutions, working in relevant disciplines, are invited to submit proposals for the DST research grant.

5 Evaluation criteria

All applications will undergo evaluation by an independent review panel, to assess the suitability of the proposal in terms of the Waste RDI Roadmap's objectives. All proposals will be evaluated against the following criteria:

- i. **Alignment:** the research proposal must address the priorities and research themes of the Waste RDI Roadmap (Section 3 above)
- ii. **Stage of Technology Development:** The project must be of an applied research and/or a developmental nature; fundamental or basic research will not be funded. The technology must be at least TLR3 (Technology Readiness Level 3) as defined by the TRL guidelines provided as an Annexure. Preferably, the proposed offering must have passed the initial proof of

concept stage. Specific technologies are expected to provide a step change in efficiency, operational cost or improved performance when compared with today's solutions.

- iii. **Relevance:** the research must have the potential to directly, and positively, influence the management of solid waste in South Africa, by moving waste up the hierarchy away from landfilling towards waste prevention, reuse, recycling or recovery, in a manner that will provide maximum environmental, social and economic benefit for the country
- iv. **Innovation:** the project is original and contributes to the body of knowledge or develops practical solutions to move waste away from landfilling towards waste prevention, reuse, recycling or recovery
- v. **Technology Viability:** Proof of technical viability of the solution (process, product or service) and/or technology must have been established by an independent expert in the field, and submitted with the proposal.¹
- vi. **Technology Development:** The project must advance the technology to a stage where it can be further funded, commercialised and/or utilised. There has to be a clear indication of the change in TRL level that is expected during the project. Not advancing the TRL will not disqualify the project, but significant progress must be shown.
- vii. **Project Team:** The project team must comprise the relevant resources who have the requisite skills/experience to execute the project.
- viii. **Capacity development:** Only projects that include an element of capacity development through the training of post-graduate students, interns or junior staff will be considered
- ix. **Market:** The project proposal must show that there is a reasonable market in terms of volume or price.
- x. **Project Plan:** The project plan must include focused activities with clear deliverables/outcomes and time lines and at least one deliverable must be a viable proposal/business plan for taking the idea forward.
- xi. **Value for money:** the benefits of the proposed research are measurable and the value of the benefits exceed the value of the investment. The budget should be reasonable for the scope of work to be undertaken and should correlate with the proposed activities.

6 Equity and redress

In line with the national imperative of equity and redress, the research call prioritises support for designated groups viz. black, female and persons with disabilities.

7 Submission of proposals

To be eligible for consideration, proposals must be submitted on the research proposal template provided, and submitted in .pdf format. Research proposals should not exceed 10 pages and should include the following:

- Title of project
- Abstract (*max 250 words*)
- Keywords (*max 5 words*)
- Outline of the project
- Expected Outcomes, Results and Contributions of the project
- Completed research
- Intellectual Property²
- Project Risks

¹ The DST and CSIR reserve the right to undertake further assessment of technical viability utilising external consultants should it not have the in-house capability to assess the technology.

² Any new Intellectual Property developed from this grant funding will be subject to the IPR Act (as per the contracting conditions)

- Significance of the Research
- Workplan
- References cited
- Brief CV of Lead Researcher and core team members with allocated contribution to project

8 Value

The project budget should not exceed R1 000 000 (excluding VAT) and co-funding of activities will be considered positively. All other funding received for this project must be declared and projects may be rejected if already funded by e.g. TIA or by other government departments and/or agencies.

9 Reservations

The DST expressly reserves the following rights:

- To reject all or any proposals
- To waive any or all irregularities in the proposals submitted
- To retain the right not to select any application/s even if meeting all the requirements

10 Contract negotiations

The successful applicant/s will be required to enter into a written Agreement with the CSIR.

11 Validity

All applications will be regarded as valid for 180 days from the 9 December 2015 whereafter the CSIR may request an updated application, should this become necessary.

12 Closing date

Applications must be submitted electronically via email to info@wasteroadmap.co.za in the prescribed format. The deadline for the submission of proposals is **Wednesday, 9 December 2015 at 17:00**.

All applicants will be notified about the outcome of their applications before the end of January 2016.

For any queries relating to the call for proposals, contact:

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ANNEXURE 1: TECHNOLOGY READINESS LEVELS (TRLs) DEFINITIONS

TRL	Definition	
TRL 1	Basic principles observed	Basic Research: Initial scientific research has been conducted. Principles are qualitatively postulated and observed. Focus is on new discovery rather than applications.
TRL 2	Technology concept formulated	Applied Research: Initial practical applications are identified. Potential of material or process to solve a problem, satisfy a need, or find application is confirmed.
TRL 3	Experimental proof of concept	Critical Function or Proof of Concept Established: Applied research advances and early stage development begins. Studies and laboratory measurements validate analytical predictions of separate elements of the technology.
TRL 4	Technology validated in lab	Lab Testing/Validation of Alpha Prototype Component/Process: Design, development and lab testing of components/processes. Results provide evidence that performance targets may be attainable based on projected or modeled systems.
TRL 5	Technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)	Laboratory Testing of Integrated/Semi-Integrated System: System Component and/or process validation is achieved in a relevant environment.
TRL 6	Technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)	Prototype System Verified: System/process prototype demonstration in an operational environment (beta prototype system level).
TRL 7	System prototype demonstration in operational environment	Integrated Pilot System Demonstrated: System/process prototype demonstration in an operational environment (integrated pilot system level).
TRL 8	System complete and qualified	System Incorporated in Commercial Design: Actual system/process completed and qualified through test and demonstration (pre-commercial demonstration).
TRL 9	Actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)	System Proven and Ready for Full Commercial Deployment: Actual system proven through successful operations in operating environment, and ready for full commercial deployment.

Source:

European Commission (EC) Horizon 2020 – Work Programme 2014-2015, General Annex G
Technology Innovation Agency (TIA) – uYilo e-mobility programme kick-start fund 2014-2015