

PUB Overseas Seed Fund for Water Technologies Fact Sheet

Background

1. The Public Utilities Board (PUB), Singapore's National Water Agency, is the statutory board of the Ministry of the Environment and Water Resources, responsible for ensuring a sustainable and efficient water supply for Singapore with the Four National Taps (local catchment water, imported water, NEWater and desalinated water). PUB regulates and oversees Singapore's entire water supply system which comprises the water catchment systems, drainage systems, water reclamation plants and sewage systems.
2. By 2060, Singapore's water demand is expected to double from the current 430 million gallons a day (mgd) to approximately 800 mgd. Approximately 70% of this projected demand is expected to be from the non-domestic sector. Based on the current state-of-the-art water technologies, a significant increase in energy consumption and waste generation can be expected, in addition to increasing challenges faced in ensuring water quality and security, alongside various competing uses for land and water resources.
3. Over the last decade, PUB has been supporting various research ideas and upstream technology developments which can potentially meet Singapore's future water demand more efficiently and effectively, as compared to the current state-of-the-art technologies. Some of PUB's current focus areas are listed in Appendix 1.

PUB Overseas Seed Fund

4. Seeking beyond incremental improvements to the existing technologies, PUB Overseas Seed Fund for Water Technologies aims to solicit novel and ingenious breakthrough ideas to develop proof-of-concept for disruptive water technologies that will bring the water research in Singapore to a whole new level.
5. This Seed Fund rewards high-risk, high-return research proposals and is open to support any work that applies new theories / new methods based on the basic principles of science, to address Singapore's current water supply and/or demand challenges.
6. All the research work can be carried out overseas. Upon successful proof-of-concept of the basic research, applicants are encouraged to test-bed the new concept or technology at various test-bedding sites available in PUB.
7. Cross-disciplinary and multi-disciplinary research proposals are strongly encouraged.

Eligibility Information

8. This Seed Fund is open to overseas Institutes of Higher Learning (IHLs), Research Institutes (RIs) and private companies. Applicants will qualify for 100% funding support for approved qualifying costs.

Application Procedures

9. To apply, the applicant must submit a proposal using the template as shown in Annex A. The proposal should include the following categories of information:
 - i. A clear description of the objective(s) to be achieved.
 - ii. A succinct description of how the novel technologies can achieve breakthroughs in water-related challenges compared with state-of-the-art technologies. Information on the technical review of the technology proposed is required.
 - iii. Scientific principles, general research plan and scope of work to achieve the proposal outcome.
 - iv. Estimated budget required.
 - v. The proposed team's expertise, previous related work and experience (2-page CVs shall be submitted for the Lead PI, as well as for all co-PIs and collaborators, using the format specified in Annex B).
 - vi. Expected research outputs and outcomes, and proposed key performance indicators (KPIs) for the project.
 - vii. Other relevant information as determined by the PI.
10. Please refer to Appendix 2 for the details of qualifying costs for the PUB Overseas Seed Fund for Water Technologies.

Electronic Submission

11. The completed proposal should be sent as an email attachment to Dr Liu Lei, LIU_Lei@pub.gov.sg. Documents in word format are preferred, but not required. The deadline for the proposal submission is **18 April 2017, 11:00 am** (Singapore time, GMT +08:00).

Evaluation Criteria

12. Proposals received will be reviewed by PUB's Project Evaluation Panel (PEP), which comprises local and international experts. The PEP shall evaluate the proposals based on the following criteria:
 - i. Excellent science and cutting-edge technology with proposed activity involving innovative research that seeks to bring together the best R&D talent available.
 - ii. Good understanding/consideration of Singapore's local conditions/context/needs and potential for application to PUB.

- iii. Robust management and governance, with adequate checks and balances, a clear structure of accountability, as well as reasonable milestones and deliverables.
 - iv. Reasonableness of the proposed budget.
13. Grant awards will be announced in October 2017.

Estimated Budget

14. Funding support for each awarded Research Proposal will be capped at S\$400,000. The Applicant should contribute in-kind services, cash, or a combination of the two towards the proposed project. In-kind services can include labour, materials, and other services. In-kind contributions demonstrate the participation and commitment of the applicants to the project.

Maximum Project Duration

15. The maximum funding period for each Research Proposal is 2 years.

Requirements of Grant Recipients

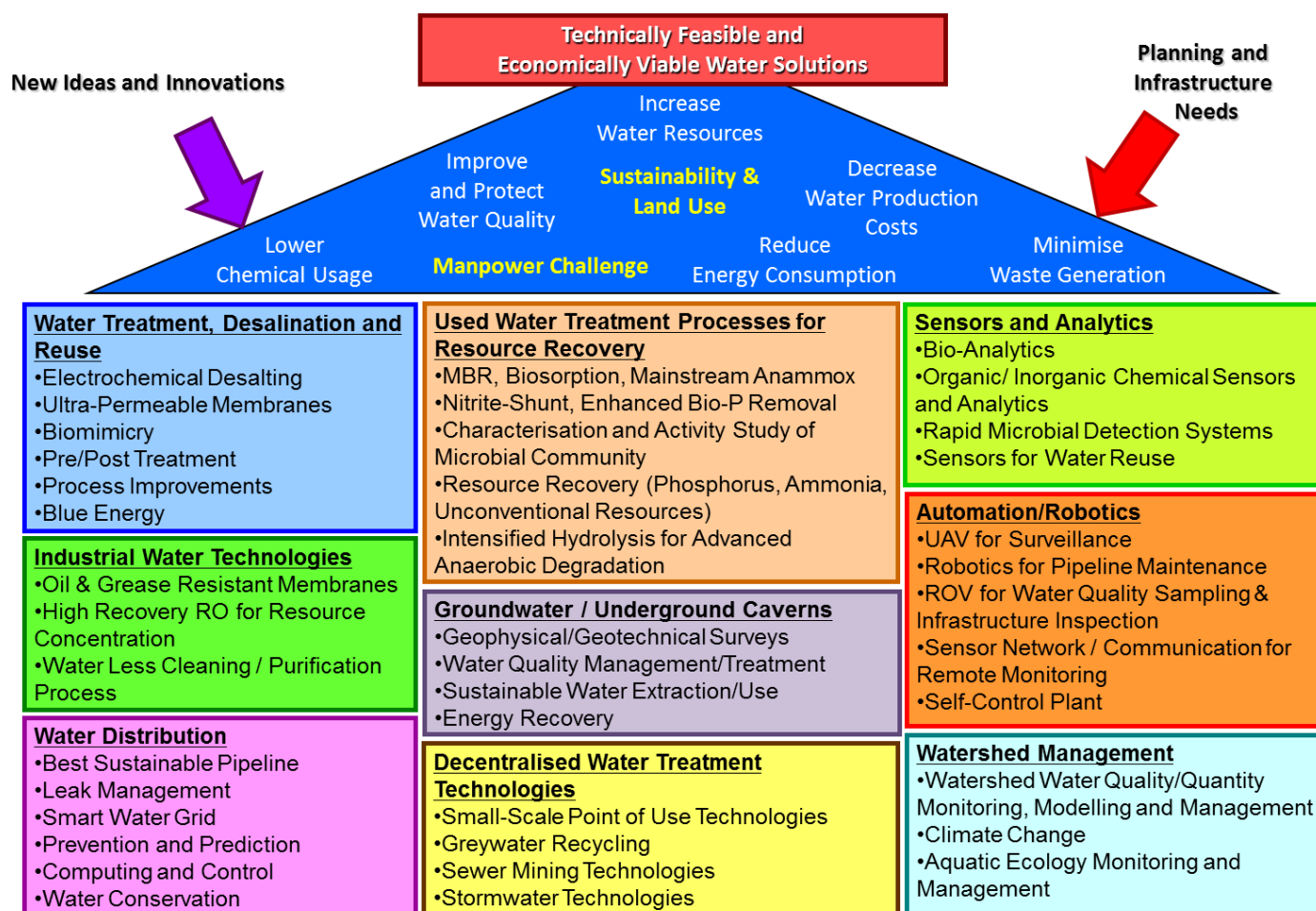
16. Recipients of this Seed Fund are obliged to report on the activities to which the grant is being applied through either conference calls or visits to Singapore.

Point of Contact

17. For more information, please contact Dr Liu Lei (LIU_Lei@pub.gov.sg) or Dr Shan Junhong (SHAN_Junhong@pub.gov.sg) from PUB Singapore.

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R&D Technology Roadmap



DETAILS OF QUALIFYING COSTS FOR PUB R&D FUNDING

The details listed below are for guidance only and may be updated from time to time based on changes in R&D project administration and management processes. In general, collaborators shall provide adequate justifications for all proposed cost items, including any requests to deviate from the guidelines below. The final decision on the supportable cost items and amount for each project rests with PUB.

Manpower costs

Salary and compensation	<ul style="list-style-type: none"> Salaries, compensation and staff benefits (including bonuses, staff insurance and annual leave) are allowable if the payment is made according to a formal prevailing policy of the host institution/company that is consistently applied regardless of the source of funds. For Institutes of Higher Learning (IHLs), manpower costs are not supportable for Principal Investigators and Co-Investigators who are faculty members already receiving salaries from the institutions. For companies, salaries and compensation for PI and Co-PIs are only allowed if the scope of work is directly required to the project and not just for administrative roles. Salaries and compensation for clerical and support staff are not supported.
Part time staff	<ul style="list-style-type: none"> For IHLs, hired staff or students should be working on the project based on the level of commitment agreed upon with PUB. Singapore-based undergraduate or graduate interns involved in the research project, are supportable based on the prevailing rates of the host institution.
Overtime pay	<ul style="list-style-type: none"> Overtime pay is not supportable.
Employment costs	<ul style="list-style-type: none"> Mandatory pre-employment medical check-up for new staff should be already included under manpower costs, and is allowable if it is in accordance to a formal prevailing policy of the host institution/company. Staff recruitment and related cost, such as advertisement, recruitment agency cost, staff relocation, housing allowances are not supported.

Equipment/Materials costs

Equipment/Materials	<ul style="list-style-type: none"> Only equipment and materials directly required to carry out the project is supportable. Office equipment, such as facsimile machines, photocopier machines are not allowed. Furniture are not allowed unless required for the setting up of containerised site office.
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	<ul style="list-style-type: none"> • The cost of equipment/materials can and should include the estimated bank charges, postage, courier and freight charges, delivery and installation, customs and import duties, taxes, etc (where necessary). • For equipment costing more than S\$100,000, PI is to submit three quotations for each equipment if requested by PUB. Equipment which cost more than \$100,000 is not entitled to financial support on overheads.
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Professional services

Analysis of samples (water, soil etc)	<ul style="list-style-type: none"> • Analysis of samples should be conducted under PUB's Demand Aggregate (DA) contract unless it can be justified why the DA contract could/should not be used, for example, analysis is not covered under the contract, or the analysis can be done more cheaply.
Honoraria for overseas consultants	<ul style="list-style-type: none"> • The engagement of consultants is allowed if the engagement can be justified to be necessary for the project scope. • Consultancy fees for overseas consultants shall be according to a formal prevailing policy of the host institution/company. • Claims for staff/students brought in by visiting professors/experts are not allowed, as these should be paid by their own host institutions, unless approved otherwise. • The visit by the consultant is limited to a one-week visit per consultant per year for both IHLs and companies, unless justifiable otherwise.

Miscellaneous cost

Rental/leasing/usage of equipment / facilities	<ul style="list-style-type: none"> • For IHLs, usage/rental fees for existing equipment belonging to the PI or co-PI are not allowable. Usage/rental fees for equipment/services which (i) belong to other PIs not involved in the project; or (ii) are part of the host institution's central/shared facilities (such as animal holding units and central laboratory), are allowable. • For IHLs, rental or leasing of equipment/facilities necessary for the successful execution of the project must be based on prevailing fee schedule of the host institution which should be consistently applied regardless of funding source. For companies, the leasing of equipment should be based on the actual cost incurred.
Repair and maintenance of equipment	<ul style="list-style-type: none"> • This is strictly for equipment which is required to be used for the project.

	<ul style="list-style-type: none"> • The period of maintenance funded, if approved, should be only for the duration of the project.
Publication page charges	<ul style="list-style-type: none"> • Allowed only for IHLs if the publications are directly related to the project and published in peer-reviewed journals. This cost is not supportable for companies, unless approved otherwise. • As a rule of thumb, the allowable funding for page charges is limited to two publications per year.
Local/Overseas Training	<ul style="list-style-type: none"> • Only allowed if it is justified to be necessary for the project. • For overseas training, expenses that are allowed include course fees, round-trip economy airfare, moderate class hotel accommodation for the duration of the training and daily subsistence and transport allowance. The budget for the daily allowance for accommodation, food and transport (excluding air tickets) should be capped at the subsistence allowance allowed for public servants for stay in that country. Transportation to and from airport is allowed. • Application fees for travel visas are supportable. • Number of overseas training is limited to one training for a period of 2 weeks per project, unless approved otherwise. • For local training, only course fees are allowable, unless otherwise approved.
Local/Overseas Conference	<ul style="list-style-type: none"> • The conference should be directly relevant to the research area or necessary to accomplish the project objectives for PI, Co-Investigators, and researchers funded under the project grant. Not allowable for students unless they are PhD students who are presenting papers. • Expenses for overseas conference that are allowed include conference registration, round-trip economy airfare, moderate class hotel accommodation for the duration of the conference and daily subsistence and transport allowance. The budget for the daily allowance for accommodation, food and transport (excluding air tickets) should be capped at the subsistence allowance allowed for public servants for stay that country. Transportation to and from Singapore airport is allowed. • As a rule of thumb, the funding for the number of overseas conferences supported is limited to one conference for one person per year. As a guideline, the presenter being should be the one funded to attend the conference. • For local conferences, only conference registration fees are allowable, unless otherwise approved.

Travel for overseas consultants	<ul style="list-style-type: none"> • Travel components that are allowed include round-trip economy airfare, moderate class hotel accommodation for the duration of the visit/meeting and daily subsistence and transport allowance. The budget for the daily allowance for accommodation, food and transport (excluding air tickets) should be capped at the subsistence allowance allowed for public servants for stay in Singapore. Transportation to and from airport in country of origin is allowed.
Entertainment & Refreshment	<ul style="list-style-type: none"> • Not allowed.
Transportation, Postage & Courier services	<ul style="list-style-type: none"> • Only allowable for transportation directly related to the research, such as site and sampling works. Transportation for meetings is not allowed. • Rental of vehicles (land/sea/air) is only allowed if directly related to the project and deemed necessary with no other cheaper alternatives available.
Patent filing and related cost	<ul style="list-style-type: none"> • Not allowable.
Vaccinations & Occupational Health Checks	<ul style="list-style-type: none"> • Not allowable unless directly related to the research and/or for the purpose of compliance with statutory requirements.
Professional Membership Fees	<ul style="list-style-type: none"> • Not allowable. This applies to PI and Co-Investigators as well as all research staff funded under the project.
Legal Fees	<ul style="list-style-type: none"> • Not allowable.
Lease/Rent of office space	<ul style="list-style-type: none"> • Not allowable.
General office consumables, e.g. stationery and photocopying	<ul style="list-style-type: none"> • Not allowable.

Overheads

Overheads, which includes utilities, space, core scientific equipment, IT support, library, finance management, human resource, grant administration, and research governance (such as intellectual property management, safety compliance, research ethics and animal welfare)	<ul style="list-style-type: none"> • For IHLs, overheads is allowable according to a formal prevailing policy of the host institution that is consistently applied regardless of the source of funds. • For companies, overheads is not allowed.
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