

Grand Challenges - Karnataka

Channelizing Innovations for Social Impact

A KBITS-IKP Program

CALL 6, August 30 to October 15, 2017

Introduction

Over the past few years, the startup ecosystem in Karnataka, especially Bengaluru, has blossomed into a force to reckon with. Bengaluru is among the top global cities in terms of attracting talent and capital. This startup ecosystem offers great potential for innovation to solve local issues not only around Bengaluru, but also for Karnataka as a whole.

Grand Challenges - Karnataka is an initiative of the Government of Karnataka, under the newly launched Start-up Policy of the government, to scout for new technologies or innovations that can offer solutions to some of the longstanding issues pertaining to the state of Karnataka. Grand Challenges, Karnataka aims to channelize innovations for social impact, and in the process, support the establishment and growth of start-ups.

Grand Challenges around five well defined priority questions are planned in the first phase. Phase I was launched on August 8, 2016 with the announcement of Call 1 around real-time monitoring of quality of sewage water. Call 2 was launched on October 1, 2016 catering to the needs of the agriculture sector where the innovators were required to come up with a technology solution for early detection of crop diseases and pest infestation. The 3rd Call was launched on Nov 28, 2016 seeking technologies to ensure effective delivery of primary health services through meaningful, transparent and democratic engagement of communities. Call 4 was launched on April 19, 2017 and sought innovative interventions aimed at tackling Undernutrition and Calorie-Protein-Micronutrient Deficiencies in children, adolescents and adults. Call 5 on traffic management in Bengaluru is also being launched along with Call 6.

We shortlisted three start-ups for the first phase grant of Rs. 10 lakhs for a period of 6 months under Call 1 and 10 more innovators under Call 2 and Call 3. The selection process for the Call 4 has also been completed.

The program is supported by the Karnataka Biotechnology and Information Technology Services (KBITS) as the funding agency and IKP Knowledge Park (IKP) as the implementation partner.

Grand Challenge- 6

The state of Karnataka has been facing severe droughts successively in the recent years with 160 of the 175 taluks in the state drought-hit and experiencing severe drinking water crisis. The state was 71% short of normal rainfall between October 1, 2016 and December 31, 2016, according to data from the state disaster management authority. The failure of monsoons in the recent

years has exacerbated the water crisis leading to plunging water levels in different reservoirs across the state due to low rainfall in the catchment areas.

Overall about 75% of the available water in the state is used for agriculture, and roughly about 15% for industrial and 10% for municipal use. Currently only 36% of the agricultural land in Karnataka is irrigated. The demand for water can only increase as more land is brought under irrigation if suitable measures are not adopted for optimal use of water. Unlike in many other states, rainwater in the plain areas of Karnataka is largely conserved and utilized as not much of it flows into the sea except in case of the west-flowing rivers.

The major urban centres including the state capital Bengaluru are seeing a decline in the per capita water availability. With Cauvery water in short supply the residents have to depend on borewells and supply from water tankers which is expensive and also of low quality. The rural areas in the state are also facing depleting ground water resources because of years of reckless exploitation for irrigation of water guzzling crops. Drinking water has become scarce leading to deepening of borewells leading to even more exploitation of ground water resources.

While the government would dwell on long term initiatives such as more efficient utilization of existing water resources harvesting more water from the west-flowing rivers, as well as regulations on growing crops that consume huge amounts of water and incentives and penalty in pricing for use of recycled and fresh water in industries, there is a need and opportunity to explore market driven innovative solutions for optimising water usage at the individual and community levels.

Grand Challenges Call 6 focuses on **Water Conservation in Karnataka**. Innovative projects that have the potential for adaptation will be identified through two phases, the Testing Phase and the Scale-up Phase. The selected proposals will be funded, monitored and nurtured over an eighteen-month period (6 months for the Testing Phase and 12 months for the Scale-up Phase) through this program.

Challenge Statement

The government has taken several steps to encourage water conservation and reducing over exploitation of the limited resources. These efforts have led to increased availability of water resources in some areas. There is still scope for improvement by focusing on reducing water usage and wastage and making each drop last. While big ticket investments by the government like construction of dams and canals, inter-linking of rivers etc. aimed at water conservation and improvement in the ground availability in the state, have shown improvement in some areas, they have been found to be inadequate considering the rapid decline in the groundwater level and existing water scarcity. There is room for improvement by focusing on innovations which can encourage conservation paradigms like reduce-reuse-recycle. Therefore, it is imperative that innovative solutions enabling water conservation through different approaches at different stages in the water cycle are encouraged.

There is a need to create awareness through real-time data on quality and quantity of water being utilized at individual level including water use in agriculture for predicting a potential water crisis. This requires solutions involving crowdsourcing for data generation and development of sustainable, feasible, scalable & low maintenance kits/mobile app/sensors/technology for

monitoring water quality and quantity for reducing water consumption at individual level. The presence of real-time data can potentially help in bringing behavioral change and thus change in existing practices.

Solutions that meet the criteria of sustainability, feasibility, scalability, lower storage volume along with ease of maintenance will make it attractive for the end user to adopt these solutions and improve on water conservation. We can improve water conservation further by creating attractive alternatives to optimal water use during cleaning, reducing water requirements through atomizer taps/showers, low water use flushes and using drip irrigation in agriculture and so on.

Many people tend to adopt wasteful practices of water usage, some of which could be attributed to:

- Lack of awareness and non-judicious use
- High costs of alternate methods of irrigation like drip irrigation
- Lack of recycling resources
- Space constraints for rainwater harvesting

Hence, efforts are needed to popularize various means of reducing-reusing-recycling which will serve as ways to conserve water till the last drop.

As part of the Karnataka Grand Challenges initiative, KBITS aims to promote innovative solutions in the areas of water conservation, reduce, reuse and recycling of water. The solution could include innovative processes, methods, tools, devices, techniques, procedures and service delivery models for popularization and adoption of low cost and highly efficient means of water conservation.

The Challenge therefore seeks **technology based innovative interventions aimed at Water Conservation in Karnataka, for prototyping, testing and scaling up in Karnataka.**

The innovator should take care of the following aspects in each phase.

Phase 1:

In Phase I, the innovators will have to develop the prototype/solution and successfully demonstrate three functional prototypes (in case the system involves prototyping a new device) or demonstrate the solution for at least 10 users (in the case the system is a service/software/ app-based solution) in two locations in Karnataka. The period of live demonstration is part of the six months allocated to Phase I.

Some examples of possible technology interventions that the innovator could target are as follows:

1. Water optimisation in agriculture which could include new ways of irrigation with suitable controls so that optimal water is supplied to the plants. This could include low cost and efficient micro irrigation, drip irrigation, sprinklers etc.

2. New solutions for recycling water in industrial setups
3. Water table monitoring and democratisation of real time water data
4. Novel design of flush toilets with less use of water both for urban and rural settings
5. Novel design of taps, such as atomizers for reducing water usage and wastage
6. Out-of-the-box solutions for rainwater harvesting and storage of harvested water in a cost and space efficient manner
7. Treatment of grey water through modular treatment plants for small size apartments, independent houses
8. Alternative low cost and space storage mechanisms in urban areas where there is space constraint, e.g. Storing water in the form of gel
9. Efficient technologies for packaging and logistics, so that there is no wastage of water during transportation
10. Detecting leakages in underground water supply pipes
11. Detecting illegal water supply connections
12. Low cost, accurate individual household water meters and bulk water meters for water supply pipeline
13. Prepaid water supply meter for Indian conditions

Please note that these are just illustrative solutions and the applicant need not be constrained by the above examples.

The prototype of the proposed solution should be executed within the timeframe and budget allocated for Phase 1.

Phase 2:

The innovation will be selected for Phase 2, based on

- 1) Ability to define and demonstrate criteria for uptake of the product/solution**
- 2) User validation through feedback**
- 3) Stability, robustness and scalability of the solution through a sustainable revenue model**

The support provided under the Call will be catalytic to enable the applicant to test and scale up select innovation and/or innovative solutions in the target locations across Karnataka.

Funding

The funding will happen in two stages.

Phase I: In the first stage, if selected, up to **five** innovators will be eligible for testing the proposed solution for funding of up to INR 10 lakhs for a period of six months for prototyping and testing of their innovative solution in a real-world setting.

Phase II: After six months, the selected candidates in Phase I will undergo one more round of selection out of which **one** of them will be selected for a further funding of up to INR 50 lakhs for a period of 12 months to scale up the solution.

The award agreement will be structured as a **grant-in-aid**.

The program will not only provide funds but also work with the awardees for the duration of their project and beyond to ensure project implementation and bring to the awardees the deep collective experience of mentors, resources and network. Through this KBITS-supported program, IKP, and other partners will help the winning candidates with access to networks and marketing channels to commercialize their innovations.

The support provided under the Call will be catalytic to enable the applicant to prototype and pilot select innovation and/or innovative solutions in the target areas.

Eligibility, Selection Criteria and Application Process

Who can apply?

This Call for Proposals is open to anyone from any discipline in India - from individuals, researchers and faculty in colleges/ universities/government laboratories/ institutions to start-ups, and not for profit organizations.

On selection for Phase II, the awardee is expected to incorporate a start-up registered in the state of Karnataka and defined as a Start-up as per the Start-up Policy, 2015-2020, Govt. of Karnataka.

The Call will be open for applying from August 30, 2017 until 11:59 PM, October 15, 2017 (IST) on the program website www.impact-karnataka.org.

Selection Criteria:

Proposals will be selected based on the following criteria:

- 1. Alignment with the mandate of the Call**—Is the proposed solution fulfilling the parameters listed above.
- 2. Potential impact** – What is the envisaged scale of impact of your innovative solution?
- 3. Feasibility**— Is the proposed solution technologically viable?
- 4. Sustainability**— Has the applicant thought about a business model surrounding the innovation?
- 5. Accessibility**— How easy is for the end consumer to access the solution?
- 6. Novelty**— What is the novel innovation used by the applicant?
- 7. Execution capacity**— How good is the team?

Application Process:

Applicants will register on the program website, fill an online form at www.call5.impact-karnataka.org, and submit a ten-page description of the innovative solution (including diagrams, figures and references) - the working concept, proposal for testing and adaptation, a short-term strategy (for the award duration) and long-term direction.

Only online submissions will be accepted. Please do not email us any application.

The online form on the program website www.impact-karnataka.org consists of the following.

Applicant Information

Name:

Email:

Address:

City:

State:

Country:

Phone:

Organization Name:

Specialization:

Website:

Project Title:

You will be able to answer the following questions on the website through text boxes. Do not include answers to these questions in your attachments.

1. Please share a brief description of your proposed solution and explain why is it unique. (1000 characters)
2. Describe any prior work done in this area. (1000 characters)
3. Where and how do you plan to test your solution for Phase I using this funding? (1000 characters)
4. What is the estimated per user cost on a daily or monthly basis? (1000 characters)
5. What is the expected number of users where the solution will become sustainable? How long will it take to achieve the target? (1000 characters)
6. How are you uniquely qualified to implement the proposal? (Mention educational background, work experience, awards (if any) and any other relevant information) (1000 characters)
7. Provide details of your team and resources available to you to pursue this challenge (1000 characters)?

You will be able to upload a project related document. Please explain in sufficient detail the following aspects of innovative solution in the ten-page document (please do not exceed 10 pages, typed in Times New Roman font size 12pt, and restrict your attachment size to 10 Mb, otherwise your application will be disqualified).

1. Proposed solution
2. Prior work in related area (if any, with data)
3. Project plan which includes development and testing plan, and deployment (Phase I – 6 months & Phase II – 12 months)
4. Budget plan for the project and other sources of funding and final costing of the system

5. Human resources involved and potential/identified collaborators in the participating country

6. Business plan (long term)

Team Details

Up to 3 resumes of the team members can be uploaded. If there are more than 3 team members, the resumes can be combined into a single file and uploaded.

Submission

Please submit your application on www.impact-karnataka.org. Only online applications will be accepted.

Terms and Conditions

Awardees will be bound by the terms and conditions of this initiative. In awarding grants to innovators in furtherance of the objectives stated above, the Parties will ensure that:

(a) The knowledge and information arising out of or in connection with such awards be promptly and broadly disseminated.

(b) The products, services, processes, technologies, materials, software, data or other innovations arising out of or in connection with such awards be made available and accessible at an affordable price to people most in need within India and the developing world.

(c) Karnataka government will have a royalty free access to the innovation for manufacturing and use within the state of Karnataka.

(d) The recipient agrees to submit, periodic reports to IKP and KBITS and along with details of the financial utilization of the grant.

(e) KBITS reserves the right to reject all or any of the proposals without assigning any reason whatsoever.

*For clarifications please email us at **impact-karnataka@ikpknowledgepark.com** or Call us at **+91 81050 79820**.*