# Geo-Innovation Challenge

## Geo-Innovate for Public Health Care

## 8-10 October, 2024

**Organized by**

Punjab Engineering College (Deemed to be University), Chandigarh, India

**Supported by**

National Geospatial Program, Department of Science and Technology, Government of India, New Delhi

## Principal Investigator

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## The GeoInnovation Challenge Program

In India's recent journey of sustainable economic growth, knowledge India has adopted a new information regime through its 'Digital India' program to support good governance, sustainable development goals and empowerment of its citizens. The challenges on our developmental path include inclusiveness, transparency, efficiency, and productivity, all while striking a delicate balance between economic growth and sustainable development. Geospatial technologies have emerged as powerful enablers over the last three decades, contributing significantly to addressing these challenges.

Innovations in geospatial technologies are crucial for enhancing governance and system efficiency. While these technologies have found widespread adoption across various sectors, true economic and social value emerges through innovation. Whether it's in the realms of food and water security, environmental sustainability, health, disaster risk reduction, location-based services, infrastructure and development planning, governance enhancement, or monitoring the Sustainable Development Goals (SDG), the integration of geospatial technologies with artificial intelligence, IoT, big data, and more opens up a world of possibilities.

**The Geo Innovation Challenge Program is not just a competition; it's a repository of groundbreaking ideas that have the potential to shape our future. We invite participants to contribute ideas that go beyond conventional boundaries, proposing innovative solutions that merge geospatial technologies with cutting-edge advancements charting the course for a brighter future!**

**Apply now to be a catalyst for positive change!**

## The National Geospatial Program of the Department of Science and Technology, Government of India

In the heart of India's technological advancement lies the National Geospatial Programme (NGP) of the Department of Science and Technology, Government of India. The Geospatial Capacity Building Program initiated in 2010 has over the years flourished, fostering capacities in geospatial science, technology, solutions, and entrepreneurship. Its transformative journey initiated with a modest ambition has evolved into a robust program, igniting minds and expanding horizons.

For a decade, the Geospatial Capacity Building Program under DST has been a cornerstone, conducting 166 comprehensive three-week programs conducted as Summer and Winter Schools in Geospatial Technologies at a basic (Level 1) and advanced level (Level 2). The 2024 cycle includes a 11 three week Level 1-(Standard) programs, 4 three week Level 1-(Spatial Thinking) programs, 8 Level 2-(Advanced) three week programs and 7 Geo Innovation Challenge Programs being conducted by various Universities across India selected through a stringent process by the DST.

The sessions at these programs comprise classroom, lab, fieldwork, and mini-projects. Central to this success is a structured curriculum and the advocacy of open-source software. The dedicated portal, https://dst-iget.in, is a reservoir of learning materials, connecting educators, professionals, and scientists, and catalyzing India's geospatial domain. The NGP-DST's geospatial capacity building program is coordinated nationally by the Bharati Vidyapeeth Deemed University, Department of Geoinformatics, Institute of Environment Education and Research, Pune.

The Punjab Engineering College (Deemed to be University), Chandigarh is one of the selected institutions for conducting the Geo Innovation Challenge Program.

## Punjab Engineering College (Deemed to be University), Chandigarh, India

Punjab Engineering College (Deemed to be University) (PEC) having its roots in Lahore as Mugalpura Engineering College since 1921, moved to its present campus in 1953 as PEC affiliated to Panjab University. The institute became Deemed University in 2003 through a MHRD notification and rechristened as PEC University of Technology in 2009.

It is a Grant-in-Aid institution under administration of Union Territory of Chandigarh, Government of India. The institute has 146 acres sprawling and pious campus and is house of Chandigarh College of Architecture also. The academic and administrative processes are like IITs in the country. The institute governance is through a vibrant Board of Governors, chaired by a renowned industrialist, Sh. Rajinder Gupta. The institute is headed by a director on 5 years tenure; a position, which is equivalent to Vice Chancellor of Universities. The institute offers 8 Undergraduate B. Tech. Programmes and 14 Post graduate M. Tech. Programmes in various disciplines of engineering and technology. After becoming University, the institute has also started PhD programme in various disciplines of engineering, science, management, humanities, and social sciences. The admission to UG and PG programmes are made through national level examinations namely JEE (Mains) and GATE respectively. There are 9 academic departments and 2 centers of excellence.

The faculty of academic departments and centers is involved in cutting edge research and development works. The institute collaborates very closely with research organizations, industries, alumni and other academic institutions both India and abroad, and has signed MoUs to pursue joint research in niche areas. The students graduating from this institute are placed in highly reputed companies. Visit us on: https://pec.ac.in/

## Department of Electronics and Communication Engineering

The department of electronics and communication engineering is one of the leading departments of the institute and established well repute at National and international level in academic research and development. Department of electronics and communication offers two B.Tech. courses namely Electronics and communication and VLSI Design and Technology, and two M.Tech. programs namely electronics and VLSI Design. Since its inception, the department is actively engaged in different research and consultancy projects in the field of geospatial technologies.

The department provides students with the fundamental knowledge and problem-solving skills in the field of electronics and communication engineering required for a fulfilling career and to create and disseminate knowledge to improve research, education and practice. The department has produced many technocrats who are serving the country as well as successfully settled abroad. The department has been involved with research and has produced some excellent outcome in the form of consultancies and projects. The department also actively collaborates with several government agencies for carrying out the research and consultancy services in the field of geospatial technologies. The Department is also well known for its R&D activities as is evident from the number of completed and ongoing projects funded by external agencies.

*Fig 1. Punjab Engineering College (Deemed to be University), Chandigarh, India*

## Details of the Geo Innovation Challenge

The Geo Innovation Challenge aims to recognize, encourage, and nurture innovation among the youth of our nation. It serves as a platform for ideas that could evolve into full proposals, potentially receiving support from the Department of Science and Technology (DST) in the future.

### Who can participate in the Geo-Innovation Challenge?

Candidates having or pursuing Doctoral / Masters/ Bachelors degree in any field from any recognized university under the age of 40 years with innovative original ideas OR Individuals under the age of 40 years with industry or field experience and innovative original ideas without the above required qualification are eligible to apply. The candidates whose ideas are selected for presentation can participate in the event.

### Do I need to have studied/ be studying Geospatial Science/ Geoinformatics to be eligible to apply?

Not at all! We strongly encourage candidates from all fields of study to apply and bring their innovative ideas on development and use of geospatial science and technology for the socio-economic development of the country. You could also team up with a member from a completely different field or somebody who is into geospatial technologies to develop your idea andapply!

### Do I have to submit a project proposal?

No, you do not have to submit a project or a project proposal. You need to submit idea(s).

## What is the difference between an Idea and a Project Proposal?

Any project begins with an idea. An idea lays the foundation stone for the starting of a project. In other words, without an idea there can be no project. In other words, without an idea there can be no project.

An idea forms the basis to either solve an impasse or to improve on how things are done. It's a creative process of coming up with possible solutions that address societal needs and problems. A project further develops the idea, its viability, its structure, its implementation, etc. We strongly encourage participants to submit ideas (introduce something new) and NOT project proposals. For example, the United Nations Sustainable Development Goals provide a good framework and starting point to address poverty, gender equality, environment protection, infrastructure development, etc.

All of these can benefit by the spatial perspective that geospatial technologies provide. Don't worry about how big or the big picture. We need thousands of ideas, both big and small, to ensure that the goals are met and to build a better world !

## What is Innovation?

Innovation is a new idea or a method that is translated into a product or a service that creates value. The real essence of innovation is improvement the ability to create something better that serves as a source of collective well-being, economic growth and sustainable development.

## Can I team up when submitting my idea?

Yes. However there can be a maximum of three participants in a team. If you are a team, make sure both the participants apply for the challenge and register for the same.

## What if only I can be present at the Geo-Innovation Challenge?

Only one of you will be funded to attended the event. The rest of the team may attend the event online. Participation of atleast one person physically is mandatory.

## What is the purpose of conducting this Geo-Innovation challenge?

The Geo-Innovation challenge will serve as a repository of ideas leading to Call for Proposals by the Department of Science of Technology (DST), Government of India, in future. The ideas generated will be used for inviting 'Call for Proposals' by DST in future. The top three ideas with names of the participants will be displayed on the DST website.

Our primary goal is to support viable ideas that have potential to create unique products, services and methods, ultimately enhancing the life of people and contributing to sustainable development.

The PIs of the respective institution selected to conduct the Geo Innovation Challenge are conducting the Geo Innovation Challenge based on specific themes. Kindly go through the dst-iget portal and read the themes carefully before applying.

## Can I submit an idea even if my area of research is not fully related to Geospatial technologies?

Yes. We suggest you team up with someone from the geospatial background to check the feasibility of realizing your idea. New knowledge can only be generated when we move out of our silos and work with interdisciplinary teams combining different strengths.

## I am a student of B.Tech./M.Tech./ M.Sc./B.Sc./etc. , do I qualify?

Yes.

## What kind of ideas can I submit?

The Geo-Innovation Challenge program addresses different broad themes as given below. You could submit an idea related to any of the themes. Kindly check the brochures of the individual institutions for the theme.

## What happens if my idea is short-listed?

The shortlisted participants will have to present their ideas in the Geo-Innovation Challenge in person (one team member). Once shortlisted you will have to submit 1000 words essay covering the points given in the following pages and you will need to travel to the University to present it at a three day event. Dates of all of the above are mentioned in this brochure.

## Do I actually have to create my idea / work through all the details?

Remember idea is akin to a concept. A project proposal is a detailed plan. We expect ideas. You can just explain your idea using the guidelines provided. Having visuals in the presentation is encouraged and that may include a sketch, picture or even a prototype, work flow, etc.

## How will the ideas be awarded?

- The three top innovative ideas will be awarded cash prizes and a certificate with an opportunity to be mentored in developing the idea into a full proposal/business proposition. Such candidates may also further develop the full project proposal and submit to DST, subject to eligibility, when the 'Call for Proposals' is released by DST.

First Prize: Merit Certificate and INR 12000/-

Second Prize: Merit Certificate and INR 8000/-

Third Prize: Merit Certificate and INR 5000/-

- A Compendium with all the innovative ideas will be published by DST on the website.

## What tips can you give for improving my submission?

- Your writing and presentation should be clear, highlighting the problem identification process, current status, need for innovation and the innovation itself.
- Highlight the uniqueness.
- Clearly explain how the idea is different from what is already available.
- Describe your innovation as comprehensively as possible.
- Make it easy for the jury to assess your idea.
- Pitch well: How well can you convince the jury of your idea. Identify market/industry potential, social Impact, etc. and explain what is needed to move the idea closer to completion, as a product or tool or research project.
- Remember that the bright ideas should have clearly identified the idea, the market, the problem being solved or business case, the technology needed, and the next steps to develop or commercialize the idea, and submission of facts.
- What problem is your idea addressing? (Remember the problem could be societal, or in technology development, or in the development of a scientific concept, which can have an impact towards sustainable development)

- What is the current status?
- What is the proposed innovation?
- What will be its impact on any aspect of sustainable development or betterment of life of people?
- What is the proposed innovation?
- What will be its impact on any aspect of sustainable development or betterment of life of people?

**Remember: DO NOT submit any research work/ algorithms to be used and/or results associated. We are mainly focusing on new ideas.**

## How the idea will be evaluated?

The submitted ideas will be evaluated based on the following:

Significance of the idea in solving an issue/problem, its innovative component and probable impact on sustainable development goals, adequacy in problem identification, novelty and innovation in the idea, relevance to the theme of the Geo-Innovation Challenge, approaches proposed, feasibility of the idea in producing disruptive technologies and impact in the area under consideration.

## How to apply?

1. The first step is to send a 300-words abstract briefly mentioning about your idea, innovation versus current status, and how it can address an existing problem. Apply through the portal http://dst-iget.in. Upload the following documents as a single pdf

- Abstract (not more than 300 words) clearing stating the title of your idea, need for the proposed innovation, the key idea using geospatial technology, keywords and names of team members, email ids/mobile nos. (max. 3 team members)
- Your identity card /s from the institution where you are currently working/ studying which clearly mentions the validity.
- Your Google Scholar Id/ LinkedIn Id/ ORCID Id / Researchgate Id (atleast one of these)

2. All participants who have applied will be invited to a one day ONLINE orientation to provide inputs. Following this you will have approximately 20 days to submit your full idea. The full idea (as a 1000 word document) should be submitted **directly to the PI** of the program where you are applying by the due date mentioned in the brochure.

3. Selected candidates will be informed by mail by the PI. Once selected all further guidelines for presentation will be sent via email by the PI. Candidates should ensure that they are thoroughly prepared for their final presentation.

## What are the theme/(s) for submitting ideas under the Geo Innovation Challenge Program being conducted by Punjab Engineering College (Deemed to be University), Chandigarh?

### Theme: Geo-Innovate for Public Health Care

Public health has become a cornerstone of efforts designed to prevent morbidity and mortality across the globe. The complexity of today's public health challenges illuminates the need to open our scientific arms and embrace new methodologies, technologies, theoretical frameworks, strategies, and approaches that represent transdisciplinary thinking. Geography and social characteristics are increasingly important to public health and Geo Health is where geography and public health intersect. The fields of public health and spatial sciences have become increasingly intertwined as our lives become more global. Thus, to highlight the need to utilize innovative and emergent methodologies to confront increasingly complex public health challenges Punjab engineering college is conducting a 3-day Geo Innovation challenge under the theme of Geo Health. In order to recognize, encourage and nurture innovation for national socio-economic development that is responsive to today's complex and evolving public health challenges, PEC, Chandigarh invites novel ideas related to following **subthemes:**

- GIS and Drones in medical emergency services,
- Multidimensional Geo-visualization for monitoring of environmental changes and its impact on health,
- Geospatial analysis and IOT in real-time health systems,
- Geo-AI in health and healthcare
- Geo-computation and Public health etc

## Important Information

Last date of application on dst-iget portal: 2 August 2024
Online orientation of applicants: 7 August 2024
Submission of Full Idea: 28 August 2024
Intimation of acceptance for next round : 17 September 2024
Dates of the final event : **8-10 October, 2024**

**Mode of conduct:** Offline
**No. of seats:** 25
**Registration Fees:** Nil

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## Address

Punjab Engineering College (Deemed to be University), Sector 12, Chandigarh, Pin-160012

## Certificate

A certificate of participation will be awarded to each participant only after attending the full course.

## Travel and Lodging

Each participant (if applying singly) and one team member from each team (if applying as a group) will be reimbursed with 3 AC train fare. Lodging and boarding on a double sharing basis will be provided by the host institution.

## Infrastructure and Facilities

## Laboratory

### RS & GIS Infrastructure

Ministry of Railways has established Kalpana Chawla Chair of Geospatial Technology (KCC GT) at Punjab Engineering College (Deemed to be University) for promoting Research and Development in the areas of Geo-spatial Technology. This chair is established in the memory of Kalpana Chawla, the first Indian Women astronaut, who graduated from this institute in 1982.

The lab in the department is well furnished with the state-of-the art computing facility with high-performance DSP processors to perform tasks related to remote sensing and GIS. The laboratories are equipped with the latest version of GIS software namely: QGIS, GrassGIS, ILWIS, MATLAB and handheld GPS devices.

## Lodging and Boarding

The institute has a Guest house, with well-furnished AC/non-AC rooms and can provide accommodation to external resource persons/experts who visit the institute.

*Fig.2. Department*


*Fig 3. GIS and Remote Sensing Lab*


*Fig 4. Auditorium*

*Fig 5. Conference Hall*

**Deputation Letter (Format) for DST Summer/Winter School/ Geoinnovation Program 2024-25 (Prospective participant must submit this on the letter-head of the respective institution where they are working)**

This is to state that Dr./Mr./Ms._____working at _____( name of the institute) as _____ (Designation), since _____ ( year ) is being deputed/nominated to_____(program name in detail) from ----------( date, month, year) to---------- ( date, month, year) . He/she will be relieved from his/her duties during this period.

Signature and Seal (Head of the Institute)