Hack4Agri
A youth led program to strengthen agriculture in Karnataka

Background

Food wastage significantly impacts the economy and environment, compromising India's food security. In developing countries, it contributes to higher carbon footprints, water footprints, land degradation, and biodiversity loss. Approximately 40 percent of food produced in India is wasted annually, which not only represents a significant loss of resources but also contributes to environmental degradation. Reducing food wastage can alleviate pressure on natural resources, lower greenhouse gas emissions, and enhance food security. Agricultural food waste is seen across various **agricultural sectors** (cereals and pulses, vegetables and fruits, meat, dairy, poultry, fisheries and aquaculture) as well as at different **agricultural stages** (on-farm harvesting losses, transportation, storage, processing, market and distribution, retail and consumption).

The agriculture sector also faces a decline in the number of farmers and youth interest. With an ageing farming population and increasing urbanization, there is a critical need to re-engage youth in agriculture. This concern is exacerbated by the mismatch between agricultural education and market needs, leading to a phenomenon known as the "agri-brain drain." By making education relevant to market needs through student-led real-time solutions, the programme aims to bridge this gap. Encouraging youth to develop innovative solutions leveraging technological and digital tools can help in addressing these issues effectively.

Given the above background, with the support of the Australian Government, The Energy and Resources Institute (TERI) is implementing project Hack4Agri - a unique programme that engages the youth of Karnataka to ideate, innovate, incubate and implement scalable solutions to address post-harvest losses in the agricultural sector. The project aims to tackle the above-mentioned challenges affecting the agricultural sector of Karnataka by providing the youth with a platform for innovation, thereby enhancing their skill sets in problem-solving, critical thinking, technology adaptation, and solution-based approaches. The programme is designed to provide equal opportunity for all participants and enhance their learning experience through the process. The programme will also document and showcase the process of developing the hacks and their implications towards addressing agricultural food waste.
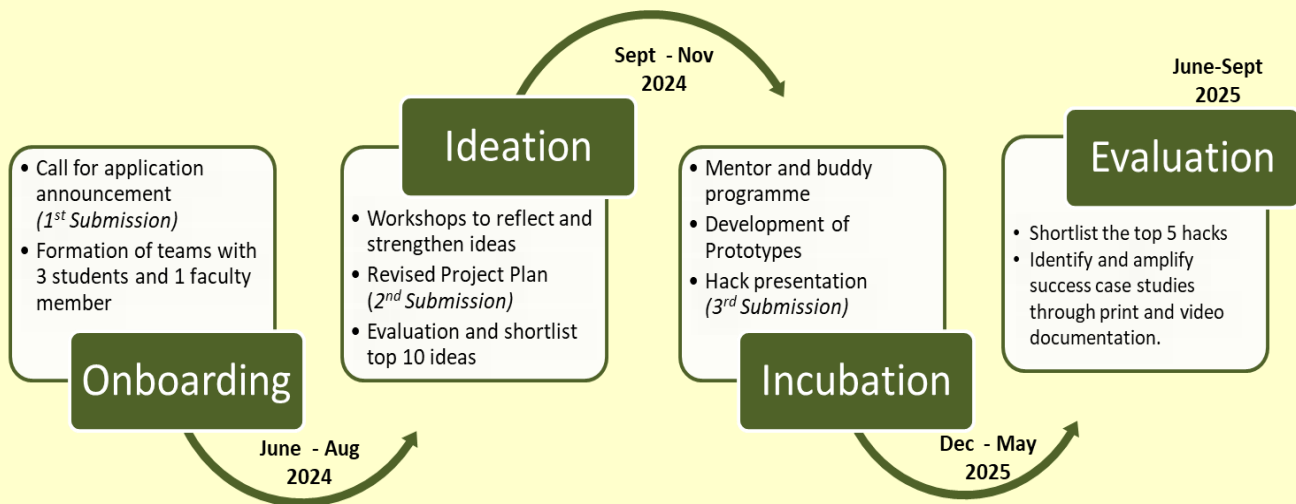
What do we mean by Hacks?

The programme seeks hacks that harness the power of science and technology to effectively address the problems related to post-harvest agricultural waste. All hacks should be problem-driven, with the goal of creating and applying knowledge for sustainability. Hacks can be in the form of a method, process or product, and need to have science, technology and innovation at their core. They must be scalable, addressing issues and problems in the local context.

Programme Structure and Timeline:

The programme is organized under four broad sections in a linear relationship which is visually represented in the flow chart below. The timeframe for each section is also detailed.

Figure 1: Programme flow

Programme flow chart:

Onboarding (June - Aug 2024)
- Call for application announcement (*1st Submission*)
- Formation of teams with 3 students and 1 faculty member

Ideation (Sept - Nov 2024)
- Workshops to reflect and strengthen ideas
- Revised Project Plan (*2nd Submission*)
- Evaluation and shortlist top 10 ideas

Incubation (Dec - May 2025)
- Mentor and buddy programme
- Development of Prototypes
- Hack presentation (*3rd Submission*)

Evaluation (June-Sept 2025)
- Shortlist the top 5 hacks
- Identify and amplify success case studies through print and video documentation.

Onboarding Phase:

Duration: June-August 2024

Activities: The competition announcement and promotion, receipt of online applications in the prescribed format. Applicants need to share their 'Hacks' and detail how they are addressing the issue of post-harvest agricultural waste. Application from teams comprising 3 students and 1 faculty is sought.

Ideation Phase

Duration: September - November 2024

Activities: Workshops will be conducted for applications to reflect and strengthen their ideas. Technical sessions aimed at strengthening the submission of revised applications in the prescribed format will be followed. A jury of experts will review the revised applications and shortlist 10 hacks.

Incubation Phase
Duration: December – May 2025
Activities: The shortlisted 10 hacks will be closely mentored to develop solution prototypes. The viability and scalability of the programme will be emphasized by linking the teams to diverse stakeholders linked with the agricultural sector.

Evaluation Phase
Duration: June – September 2025
Activities: The shortlisted 10 hacks will undergo another round of evaluation by an eminent jury panel. A grand finale will be organized to felicitate the top 5 entries. In order to amplify the success of the programme as well as inspire and motivate youth, a booklet and video documenting the journey of hacks and its potential impacts to address the prevailing problems of the agricultural sector will be developed.

Prizes and Incentives:
- Cash Prizes for winners
- Certificates -Participation and Merit
- Knowledge enhancement through technical sessions
- Mentoring and guidance at all stages of hack development
- Network with relevant stakeholders from agricultural ecosystem

Programme Guidelines:
1. **Eligibility:** Open to students (age group 18-23 years) and their faculty from Higher Education Institutions (HEIs) in the state of Karnataka.
2. **Team Composition:** Each team will consist of four members: three students and one faculty member from the same HEI. The HEI will need to certify that the proposed teams are bonafide students of the HEI along with their age. Gender distribution across teams is preferred.
3. **Number of application:** One team can submit only one application with no overlap of team members. However, the faculty member can advise and mentor multiple teams from the same college.
4. **Submissions:** A total of three rounds of submission
   - *Submission 1:* This submission aims at understanding how the proposed idea addresses the problems related to agricultural food waste. The online submission is to be made through the link: https://forms.gle/Sr3hngGkFYNAKfV17
   - *Submission 2:* This submission will be after attending the workshops designed to strengthen the applications. The deadline and mode of submission will be shared at the workshop.
   - *Submission 3:* This submission will be at the end of the incubation phase and the submission details will be shared with the top ten teams.

5. **Deadline:** The last date for submission of the online application is **20 September 2024.**

6. **Evaluation:** A panel of Agriculture-Environment- Technology Experts will use the following evaluative criteria
   - Environmental Impact
   - Idea Innovation
   - Technical Maturity
   - Scalability and Replication of Idea
   - Business Value.

7. **Acknowledgement:** All applicants are required to acknowledge the project-Hack4Agri and its partners during and after the project.

8. **Promotion:** The project organizers have the right to showcase and promote the 'Hacks' as an outcome of the project on various platforms.

Contact Information:

Ms. Saltanat Kazi, *Fellow*
The Energy and Resources Institute (TERI)
Southern Regional Centre,
4th Main, Domlur II Stage, Domlur,
Bengaluru - 560071, India
(+91-80) 25356590-94
Email: saltanat.kazi@teri.res.in
projecthack4agri@gmail.com

Ms. Monmi Barua, *Fellow*
The Energy and Resources Institute (TERI)
6C Darbari Seth Block,
IHC Complex, Lodhi Road,
New Delhi – 110003, India
(+91-11) 2468 2100/ 4150 4900
Email: monmi.barua@teri.res.in
projecthack4agri@gmail.com