UQIDAR: The University of Queensland - IIT Delhi Academy of Research

Joint PhD Project Proposal Template

1. Project Title: | Examining the social acceptance of Concentrated Solar Power (CSP) projects in India

Project ID | **UQIDAR-00132**

2. Supervision Team

Please visit the IITD website www.iitd.ac.in and UQ Website http://researchers.uq.edu.au/ to highlight potential collaborators that would be best suited for the proposed project. Complete where possible – advise if you'd like assistance establishing contacts.

	University of Queensland	*IIT Delhi*	*External/Industry (if applicable)*
Supervisor Name	*Dr. (Ms) Vigya Sharma*	*Dr. (Ms) Upasna Sharma*	
School or Department (or company, if applicable)	*Energy & Poverty Research Group, School of Chemical Engineering*		
Phone Number	*3346 7725*		
Email-ID	*v.sharma@uq.edu.au*		
URL for more info			

3. Other Supervisor Details

Please include other associate supervisors below:

Full Name and Title(s):
School/Department/Company details:
Phone/Email/URL:

2. Field of Research CODES:

(Specify up to four four-digit FOR codes for your project – see **here** for more detail on FoR codes)

1. 1604	3. 1606
2. 0915	4. 0502

3. Keywords: *(this will assist in classifying project and presenting projects to students on the applications portal)*

Choose up to 4 keywords for your project.

Eg: nanotechnology, data science, novel batteries, etc

1. Renewable energy expansion	2. Land acquisition and conflict
3. social impacts	4. energy access

4. Discipline Background of Candidate: *(this will assist in presenting projects to applicants on the apps portal)*

Ideally this project requires students with a background in...	1 Human geography	3 Engineering
Eg: organic chemistry, physiology, topology, CFD, etc	2. Development studies	4. Policy studies

5. Project description

Summary of the proposed project, including aims and methodology. (max. 300 words)

The Indian government has set ambitious targets for renewable energy expansion (175 GW by 2022) to decarbonise the national energy mix. Solar energy forms the core of India's renewable energy plans. While most focus in India so far has remained on solar PV, the pace of development and commissioning of concentrated solar power plants (CSP) has remained slow. Seven CSPs were identified in 2011; only three have so far been completed and remain operational. There is however, growing policy focus on CSP expansion; conservative scenarios suggest up to 5.7 GW will be generated by CSP by 2022.

Among other barriers for CSP development, water security is a particularly important issue. The industry's water intensive nature may result in severe implications for water availability and resulting impacts on other industry. Considering that six out of the seven CSPs identified for commissioning are located in arid, desert regions in western India, social acceptance for CSPs may need particular attention by policymakers, project developers and local stakeholders. Five out of these seven plants are located in Rajasthan, India's desert state with acute water shortages, while another is located in the Kutch region of Gujarat (also, extremely water-stressed region).
The development of CSPs therefore, without adequate understanding of local concerns is highly contentious, particularly at the community level. Currently, water-CSP nexus has been given very little attention in India. The proposed PhD project will address this gap and highlight important insights into how local conflicts that may arise due to water stress, as a consequence of CSP development may be best managed and resolved.

Methodologically, the project will apply a case study approach to examine community concerns, including identifying/ pre-empting pressure points for conflicts. Through qualitative, ethnographic studies, it will investigate how potential conflicts are currently being managed, and whether strategies currently in place have been successful in securing social acceptance of the technology. Consequently, it will also identify where strategies for conflict mitigation have been insufficient and suggest a roadmap for how these could be improved in the future.
The student will undertake several months of extended field work that will allow a grounded understanding of the local context through observations, structured questionnaire surveys, and interviews with key stakeholders including community members, industry, and local, state and central governments.

6. Project deliverables/outcomes

Highlight the expected outcomes of the project

Findings from the project will provide insights into factors influencing community level acceptance of CSP. A pro-active understanding of what bottlenecks may appear in scaling up CSP technology will allow adequate preparation for a tailored response that will, in turn, enable greater market and technological innovation as well as realization of utility scale solar projects.

Research findings will be disseminated to policy actors and business developers working in the CSP space, with a view to improving awareness and practice around identifying and managing water- and land-related conflicts arising from the deployment of this expansive technology, especially at the community level. Ultimately, the research will contribute to renewable energy expansion that is equitable and just across present and future generations.

Specifically, the following deliverables are expected from the project:
  i) A policy-focused white paper on 'fostering social acceptance of CSP projects in India'. This paper will be presented to Members of the Parliament as a means to guide policy, drawing on empirically-robust evidence.
  ii) At least 3 scientific articles in international journals of high repute in the field of renewable energy. This will contribute immensely to literature on energy justice, and ethics around renewable energy expansion – little research currently exists on likely impacts of renewable energy projects across the world, much less emanating from the developing world.
  iii) Deeper collaboration between researchers at IIT-D and UQ's Energy & Poverty Research group on the social

and institutional costs of energy expansion. By the end of the project, we believe there will be a community of researchers in India, Australia and elsewhere interested in this topic area. We would like to seek support from industry and other funding sources to organise a joint workshop in Rajasthan in year 4 of the project to bring this community of researchers together, share learnings, and identify collaborative research and training opportunities that will build on this initial UQIDAR project.

7. Research Impact Themes:

Highlight which Research Impact Theme(s) this project will address?

(Feel free to nominate more than one. For more information, see http://www.uq.edu.au/research/impact/)

1. Healthy Ageing
2. Feeding the World
3. <mark>Resilient Environment</mark>
4. <mark>Technology for Tomorrow</mark>
5. <mark>Transforming Societies</mark>

8. Type of Student

This project is best suited for an:

i-student	X
a-student	
i- or a-student	

Note that an i-student will be expected to spend year-1 at IIT-D, year-2 at UQ and the remaining time at IIT-D.

An a-student will spend year-1 at UQ, year-2 at IIT-D and the remaining time at UQ.

All students will be required to complete some amount of coursework in their first year.

9. Student capabilities and qualifications

List the ideal set of capabilities (at least 2 essential and 2 desirable) that a student should have for this project. Feel free to be as specific or as general as you like. These capabilities will be input into the online application form and students who opt for this project will be required to show that they can demonstrate these capabilities. Add specific skill sets here…

Essential Capabilities:

Passion to work with people and communities, to contribute to improving development outcomes equitably.

Appreciation of interdisciplinary education and training (any discipline is welcome to apply)

Desirable Capabilities:

Desire to work in cross-cultural settings

Willingness to work in an interdisciplinary team and the ability to step out of comfort zone to ask difficult questions.

Willingness to travel

Expected qualifications (Courses/Degrees etc):

High academic credentials – disciplinary training no barrier. Applicants with background in engineering, social sciences, law, environmental science are all welcome to apply.