

UQIDAR: The University of Queensland - IIT Delhi Academy of Research Joint PhD Project Proposal Template

1. Project Title:

Project ID

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	<i>Yongping Wei</i>	<i>Dhanya C. T.</i>	
School or Department (or company, if applicable)	<i>School of Earth and Environmental Sciences</i>	<i>Department of Civil Engineering</i>	
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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 040104	3 040601
2 040604	4. 040608

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 River morphology	3 Sediment transport
2 Extreme events	4 Climate change

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...

Eg: organic chemistry, physiology, topology, CFD, etc

1 Geomorphology	3 Water Resources Engineering
2 Agricultural Engineering	4 Hydrometeorology

5. Project description

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

Globally, the morphological structure of the river networks is undergoing significant changes in the recent past. The disturbance in the morphology has made significantly negative impact on the ecosystem dependent on it. Identification of possible root causes behind such changes is hence critical to future river basin management. The proposed project aims to investigate the possible impact of the changing frequency and magnitude of floods on the morphology and stream networks, focussing on change in dynamics between erosion and deposition, which is the main mechanism of changes in river morphological structure. The stable chain of erosion, transport, and deposition may be altered during flood events, affecting the dynamic stability of rivers. Integrated hydro-dynamic and sedimentation models will be developed over a representative river basin, to simulate the possible degradation and aggradation of river bed/banks during such extremes. The project aims to develop a framework to study the changes in the pattern and profile of river beds during the flow regimes during extreme conditions.

6. Project deliverables/outcomes

Highlight the expected outcomes of the project

- A framework to assess the impact of extreme flooding on the morphological pattern and profile of rivers.
- Practical tool to analyse river erosion and sedimentation for operation, planning and management of reservoirs and basin water resources .

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. **Resilient Environment** ✓
2. Transforming Societies
3. Feeding the World
4. **Technology for Tomorrow** ✓
5. Healthy ageing

8. Type of Student

This project is best suited for an:

i-student	<input type="checkbox"/>
a-student	<input type="checkbox"/>
i- or a-student	<input checked="" type="checkbox"/>

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.



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AUSTRALIA



Indian Institute of
Technology Delhi

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: Expertise in water resources engineering, Hydrologic/hydro-dynamic modelling

Desirable Capabilities: Geomorphology, GIS and remote sensing

Expected qualifications (Courses/Degrees etc): Masters in Engineering (Water Resources Engineering/Agricultural Engineering/ Remote Sensing & GIS)