

# Infrastructure Resilience Academic Exchange (IRAX)



[First Call for Proposals](#)

March 2025

# 1. CONTEXT

## 1.1. About CDRI

Launched by the Prime Minister of India at the 2019 United Nations Climate Action Summit, Coalition for Disaster Resilient Infrastructure (CDRI) is a global partnership of national governments, UN agencies and programmes, multilateral development banks, the private sector, and academia.

CDRI was accorded the status of an 'International Organization' by the Government of India via a Headquarter Agreement in August 2022.

CDRI advances the cause of climate and disaster resilient infrastructure (DRI), thereby ensuring sustainable development. The Coalition's resilience programmes draw on the operational principles of collaboration, inclusion and focus on the most vulnerable, while considering the emerging priorities of its members in the backdrop of a rapidly exacerbating context of climate extremes and disaster risk.

## 1.2 About IRAX

Launched in 2023 by CDRI, Infrastructure Resilience Academic Exchange (IRAX) has an objective of developing enhanced opportunities for higher education and research in disaster resilient infrastructure. Building DRI knowledge within academia is essential given the systemic nature of physical and climate-induced disaster risks. IRAX aims to strengthen engagement with academia to mainstream DRI across curricula and develop a pool of industry-ready skilled infrastructure professionals and deepen the academia-industry connect.

IRAX will facilitate the sharing of knowledge from institutions with expertise in DRI to those seeking to strengthen their courses, methods and research. IRAX will contribute to a more resilient world by offering value-added education, research opportunities, and professional development, guided by its three objectives:

1. **Curating** opportunities for higher education and research in climate and disaster resilient infrastructure
2. **Catalyzing** research on innovative solutions for DRI and its application in real-world scenarios
3. **Creating** a cadre of industry-ready infrastructure professionals on DRI

To operationalize IRAX, CDRI has established a consortium of universities focused on DRI across its member countries. Support under IRAX, announced periodically through calls for proposals, is exclusively available to universities within this consortium.

## 2. FIRST CALL FOR PROPOSALS (CFP)

### 2.1 Creating a Primer on Disaster Resilient Infrastructure (DRI)

The prime objective of the IRAX programme is to create a cadre of industry-ready infrastructure professionals on DRI.

This CFP aims to leverage the academic strengths of the consortium universities to curate and deliver a self-paced open online course (OOC) which could be utilized by all kinds of infrastructure stakeholders such as students, faculty, policymakers, financiers, engineers and disaster risk reduction (DRR) professionals to build capacities on DRI.

The OOC must align with the following requirements as outlined by the CDRI secretariat,

- a) The OOC will be featured and offered through CDRI's learning platform DRI Connect. It will connect learners to other resources created and curated by CDRI and other stakeholders on DRI.
- b) OOC should help learners to comprehend the concept of DRI, infrastructure lifecycle and risk and impact of major climate and geo-hazards and building infrastructure resilience in the context of different geographies. Apart from the basic understanding of DRI the OOC may add physical and financial risk assessment for infrastructure planning and different methods, tools and techniques for it. OOC should have a "learning by doing" component to ensure that the knowledge and skills gained are evaluated effectively.
- c) OOC should cover multi-sectoral, multi-hazard and multi-geography perspective. Examples of infrastructure failure, challenges and resilience from CDRI member countries and representing different kinds of geographical contexts must be added.
- d) Utilization of DRI Lexicon launched by CDRI is essential<sup>1</sup>.
- e) The OOC is proposed to have 8-10 hours of total learning time. The expected components and outcomes of OOC to be detailed in 2.4.

### 2.2 Learning Objectives

The OOC is proposed to have the following learning objectives and outcomes.

#### 2.2.1. Learning Objectives,

- a) To understand the impact of climate and geo-hazards on the critical infrastructure sectors such as transport, power, telecom and social infrastructure sectors such as health and education.
- b) To understand the importance and need for systemic infrastructure resilience covering both structural and non-structural measures.
- c) To understand the basic principles of DRI and ways to utilize them throughout the entire infrastructure life cycle.

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<sup>1</sup> DRI Lexicon is available at the link: <https://lexicon.cdri.world/>

### 2.2.2 Learning Outcomes

After the completion of the OOC, learners will be,

- a) sensitised towards the need and urgency of achieving DRI.
- b) able to contextualize the need of infrastructure resilience and DRI within their domain of work and utilise these principles in their professional life.

## **2.2 Applicant Profile**

This CFP is only open for universities which have an MOU with CDRI as a member of IRAX university consortium. The lead university applying for this proposal may collaborate with maximum one more university within or outside the consortium depending on the need of the proposal. Collaboration with non-consortium universities is allowed only if the university is situated in a CDRI member country. A list of consortium universities is attached at Annexure-A and that of CDRI member countries is attached as Annexure-B. Industry collaborations are encouraged as well. CDRI's project agreement will be with the nodal university submitting the proposal.

In case some universities are in the process of signing an MOU with CDRI, such universities may submit their proposals only after the MOU is finalized and signed. Any proposals submitted without an existing MOU will not be considered for evaluation.

As signing of MOUs with CDRI is a continuous process, the list of universities given in Annexure-A may get updated periodically, and any such change will be communicated to all members of the consortium. The list given in Annexure-B might change as more countries might join CDRI.

## **2.3 Duration**

The total duration of the project will be maximum up to 300 days (~10 months) starting from the award date of the project. OOC should be made available for offer on DRI Connect by the end of eighth month of the award date.

## **2.4 Components and Deliverables of the OOC**

2.4.1 Needs Assessment: The selected university will have to conduct a needs assessment for creating a target learner profile, process of curriculum design and course learning objectives and outcomes. This process may be undertaken through conducting a stakeholder workshop or setting up a community of practice. The findings of the needs assessment and how these will be dovetailed in the next deliverables would be discussed with CDRI through a short report.

2.4.2 Curriculum Design: A detailed curriculum for the OOC will be created. The curriculum produced should have the following: (a) structure of main topics and sub-topics with delivery hierarchy and duration of instruction, reading and evaluation (b) Instructional strategies including the distribution of instruction time, reading time and evaluation time along with instruction design including and not limited to animation videos, teaching videos, diagrams, case-studies, (c) mandatory and suggested reading lists to be featured in DRI connect (d) scheme of evaluation and minimum criteria of certification. The curriculum must be discussed and finalized with CDRI before moving forward with instruction design and creation of material.

**2.4.3 Instruction Design and Material:** OOC material in the form of following but not limited to instructor's videos supported with slides, interactive multimedia consisting of graphics, animations, documentaries, recorded demonstrations, dramatized scenarios, cartoon strips, 3D models and animations, infographics, diagrams, sketches, maps, screencast videos, slides with audio narration, etc., compatible and aligned with technical features of the DRI connect platform. A content map and structure will be needed to be discussed with CDRI before content is created. OOC will undergo pilot testing on the DRI connect platform before making it public.

**2.4.4 Evaluation Design and Certification:** An evaluation scheme with its components to be developed in consultation with CDRI. A question bank for Multiple Choice Questions (MCQs) and other specific assessment and evaluation exercises in the form of and not limited to activities for formative assessments and module-end exercises, summative auto-graded tests, answer keys for self-assessment. At least one "learning by doing" exercise to be designed and included in the evaluation scheme.

**2.4.5 Promotion Webinars and Pre and Post OOC Survey:** Minimum 2 webinars for promoting the OOC within proposed learner profiles in consultation with CDRI. A pre and post survey of all OOC users for a span of two months. Survey forms, data collection through DRI connect and analysis report to be prepared.

**Table 2.4.1 List of Components and Deliverables**

Tasks	Deliverables
2.4.1 Needs Assessment	1. Needs Assessment Report and Recommendations for the next tasks.
2.4.2 Curriculum Design	1. Curriculum booklet with learning objectives and outcomes, main topics, sub-topics, hourly distribution, topic-wise mandatory and supplementary reading lists and evaluation scheme.
2.4.3 Instruction Design and Content	<ol style="list-style-type: none"> <li>1. Instruction Design plan and a storyboard (including scripts, diagrams, animation scheme etc.)</li> <li>2. OOC Content compatible with DRI Connect for minimum 4 hours</li> <li>3. Quality Assurance report in terms of correctness of text and delivery.</li> <li>4. Closed pilot testing of OOC by pre-selected participants nominated by CDRI and host-university after consultation.</li> </ol>
2.4.4 Evaluation Design and Certification & Handing Over	<ol style="list-style-type: none"> <li>1. Evaluation Scheme, marking criteria and Question Bank for MCQs and Model answers for self-evaluated assignments (if any).</li> <li>2. All materials produced as per 2.4.1, 2.4.2, 2.4.3 and 2.4.4 will be handed over to CDRI and OOC will be made operational on DRI connect.</li> </ol>

2.4.5 Promotion Webinars and Pre and Post OOC Surveys	<ol style="list-style-type: none"> <li>1. Conduct webinars for promotion of OOC through DRI Connect (2 no.)</li> <li>2. Survey Questions and setting up survey through DRI connect.</li> <li>3. Analysis report of survey responses for all OOC participants of 2 months.</li> </ol>
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## 2.5 Funding Available

One proposal will be funded. The total budget available for the activity is US\$ 80,000 to US\$ 120,000 depending on the quality of proposals and the level of proposed interaction design and quality.

Only up to 15% institutional overhead costs will be allowed from the total budget. The budget may be utilized for surveys and workshops, payment of professional fees, consumables and other activities necessary for completing the abovementioned deliverables. Purchase of capital assets is not allowed.

## 2.6 Submission and Selection Process

- a) Interested universities may email the requisite Proposal Submission Form (Form-IRAXCFP-1) with suggested attachment(s) at [IRAX@cdri.world](mailto:IRAX@cdri.world) with the email subject line "Response to the IRAX First CFP".
- b) The proposals will be evaluated as per the following criteria,

**Table 2.6.1: Evaluation Criteria**

	Criteria	Weightage
1	Experience of the Lead-University and Partner University with a previous record of conducting such activities.	5%
2	Approach and Methodology	40%
3	Alignment with CDRI's Sectoral and Geographic Focus	10%
4	Assigned Resources (Experts, Trainers and Industry Practitioners) and Committed outputs	25%
5	Budgetary Considerations (Proposed allocation of financial resources for various components)	10%
6	Plan of Implementation and timelines	5%
7	Sustainability and GEDSI considerations	5%

- c) Selected proposals will be invited for a co-creation workshop in an online or offline mode to align the work with CDRI's priorities and objectives and finalize the award budget.

## 2.7 Other Information

- a) CDRI will facilitate technical orientation of DRI Connect platform for universities submitting proposal from time to time and for selected universities on need basis.
- b) The OOC will be co-branded between CDRI and the lead/collaborating university(ies). The copyright for all content created for the OOC shall remain with CDRI. The lead/collaborating university(ies) will be granted an irrevocable,

non-exclusive, non-transferable and non-assignable license to use, publish, and host the content in perpetuity, solely for non-commercial purposes with due acknowledgment of CDRI's ownership.

- c) The lead/collaborating university(ies) may use any existing content in the development of the OOC, provided that prior written authorization is obtained for the use of any readings, images, and video clips, whether used as core or supplementary material.
- d) CDRI and the lead/collaborating University(ies) shall retain all ownership of IP owned or developed prior to this collaboration or outside the scope of this engagement.

## 2.8 Terms of payment

Payments will be made upon satisfactory completion of the tasks and approval by competent authorities based on the deliverables as listed in 2.4.

**Table 2.8.1: Payment Schedule**

1 <sup>st</sup> Instalment	40%%	After finalization of Project Agreement and submission of a short inception report with timelines.
2 <sup>nd</sup> Instalment	40%	Submission of deliverables from 2.4.1 till 2.4.4
3 <sup>rd</sup> Instalment	20%	After delivery of 2.4.5

## 2.9 Standards of quality

Information and data created according to the Scope of Work should follow internationally accepted standards and practices.

## 2.10 Reporting Structure

Selected Lead University will report to the Director (Research Knowledge Management & Capacity Development) and the IRAX team on updates on progress, challenges, and key decisions as listed in 2.4.

## **Annexure-A**

### **Member Universities of the IRAX University Consortium**

(as on 25<sup>th</sup> March 2025)

<b>University</b>	<b>Focal person</b>	<b>Email</b>
Indian Institute of Technology Roorkee	Dr Arun Kumar	<a href="mailto:arun.kumar@hre.iitr.ac.in">arun.kumar@hre.iitr.ac.in</a>
Durham University	Dr Bruce Malamud	<a href="mailto:bruce.malamud@durham.ac.uk">bruce.malamud@durham.ac.uk</a>
Keio University	Dr Rajib Shaw	<a href="mailto:rajib.shaw@gmail.com">rajib.shaw@gmail.com</a>
Indian Institute of Technology Bombay	Dr Ravi Sinha	<a href="mailto:rsinha@civil.iitb.ac.in">rsinha@civil.iitb.ac.in</a>
School of Planning and Architecture Bhopal	Dr Rama Umesh Pandey	<a href="mailto:ramapandey@spabhopal.ac.in">ramapandey@spabhopal.ac.in</a>
TH Köln – University of Applied Sciences	Dr Alexander Fekete	<a href="mailto:alexander.fekete@th-koeln.de">alexander.fekete@th-koeln.de</a>
University of Liverpool	Dr Luigi Di Sarno	<a href="mailto:Luigi.Di-Sarno@liverpool.ac.uk">Luigi.Di-Sarno@liverpool.ac.uk</a>
Tribhuvan University	Dr Basanta Raj Adhikari	<a href="mailto:bradhikari@pcampus.edu.np">bradhikari@pcampus.edu.np</a>
The Instituto Tecnológico de Santo Domingo (INTEC)	Dr. Kalil Erazo	<a href="mailto:kalil.erazo@intec.edu.do">kalil.erazo@intec.edu.do</a>
University of Twente	Dr Eefje Hendriks	<a href="mailto:e.hendriks@utwente.nl">e.hendriks@utwente.nl</a>



## **Annexure-B**

### **CDRI Member Countries**

(as on 25<sup>th</sup> March 2025)

1	Afghanistan	23	United States of America
2	Bangladesh	24	Argentina
3	Bhutan	25	Brazil
4	India	26	Chile
5	Japan	27	Jamaica
6	Maldives	28	Peru
7	Mongolia	29	Antigua & Barbuda
8	Nepal	30	Cuba
9	Sri Lanka	31	Dominican Republic
10	Tajikistan	32	Guatemala
11	Vietnam	33	Guyana
12	France	34	Haiti
13	Germany	35	Honduras
14	Italy	36	Australia
15	Netherlands	37	Fiji
16	Turkiye	38	Nauru
17	UK	39	Samoa
18	Ghana	40	Tonga
19	Madagascar	41	Chad
20	Mauritius	42	Ecuador
21	South Sudan	43	New Zealand
22	Canada		