

# Quadruple Helix and Strengthening Knowledge Interactions for Frugal Innovation

## 17-21 February, 2025

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## Overview

As elaborated by the UNCTAD in its 2017 report, new innovation approaches are needed to support the implementation of the Sustainable Development Goals. The promise of these new innovation approaches hinges on how successfully they can create a balance between scale and context specificity, while maintaining inclusiveness. Many such innovations require an appreciation for polycentric knowledge interactions based on mutual respect for various kinds of knowledge holders. This course takes up the case of frugal innovation, as one such new approach, and elaborates on how to strengthen knowledge interactions for generating socially impactful frugal innovations.

India and the Netherlands offer interesting complementary experiences with key elements of this agenda. While India is rightly seen as the 'home' of many successful frugal innovations, both by local communities and by larger companies, The Netherlands is seen as the champion of consensus-building and co-creation by various stakeholders. The argument in the course is that scalable frugal innovations tend to be more successful and relevant when they succeed in synergizing efforts by local communities, local and global business, intermediary organizations, knowledge institutes and government agencies. The so-called Quadruple Helix model of the 'DutchDiamond' is an example of how stakeholders in the Netherlands have developed experience with such co-creation processes, that mobilizes government officials, business actors, university-based researchers and society through so-called citizen science participation. In the course we will discuss to what extent and under which conditions, some of the more successful Dutch experiences in sectors like water and agro-food might be useful in the Indian context. Moreover, the Dutch Quadruple Helix model has failed to achieve lasting results in policy areas like energy and shipbuilding, which will be instructive to see the context specificity and contingent nature of where and when Quadruple Helix processes are more likely to produce useful results. A next element in the course investigates how to further develop relationships between the constituting stakeholders in a Quadruple Helix model in India. Finally, also through a simulation game, the course critically assesses the potential value added of using a Quadruple Helix model to strengthen knowledge interactions for frugal innovations with developmental impacts.

## Objectives

The primary objectives of the course are as follows:

- i) To build up and strengthen research capacity on frugal innovation in Indian universities,
- ii) To reach out to social sector professionals and industry executives on unfolding dynamics of frugal innovation,
- iii) To sensitize policymakers on the challenges and need to support frugal innovations in a country like India,
- iv) Motivate scientists to carry out and critically analyze frugal innovations.

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| <b>Modules</b>                 | <p><b>Day 1</b></p> <p>Lecture:</p> <ul style="list-style-type: none"> <li>• Mainstream and alternative theories of innovation, explaining the need to focus on frugal innovation.</li> <li>• Main types of frugal innovation (bottom-up versus top-down), main actors in frugal innovation (companies, NGOs, social enterprises, communities, individual citizens) and nature of impact (economic, social, environmental).</li> </ul> <p>Tutorial:</p> <ul style="list-style-type: none"> <li>• Discuss examples of frugal innovation, elaborate on the readings and Q&amp;A</li> </ul> <p><b>Day 2</b></p> <p>Lecture:</p> <ul style="list-style-type: none"> <li>• Helix models: the various generations – culminating in the Quadruple Helix model</li> <li>• Models of Science communication: the deficit and the dialogue model</li> </ul> <p><b>Day 3</b></p> <p>Lecture:</p> <ul style="list-style-type: none"> <li>• The Dutch consensus-building Quadruple Helix model: successes and failures</li> <li>• Citizen science and Peoples Movement in India</li> </ul> <p><b>Day 4</b></p> <p>Lecture:</p> <ul style="list-style-type: none"> <li>• Citizen Science and Peoples Movement in Europe</li> </ul> <p>Tutorial:</p> <ul style="list-style-type: none"> <li>• Discuss examples of Dutch Quadruple Helix and Indian citizen science</li> </ul> <p>Lecture:</p> <ul style="list-style-type: none"> <li>• Lessons and cross-learning for Frugal innovation ecosystem building</li> </ul> <p>Tutorial:</p> <ul style="list-style-type: none"> <li>• Q&amp;A and preparation for the simulation game: role play instructions</li> </ul> <p><b>Day 5</b></p> <p>Lecture:</p> <ul style="list-style-type: none"> <li>• Consensus building through simulation games</li> </ul> <p>Simulation game:</p> <p>Quadruple Helix game for frugal innovations in India<br/>Drawing conclusions and lessons from the simulation game and the overall course</p> <p><b>The maximum number of participants will be 50</b><br/><b>Venue: JNU Convention Centre</b></p> |
| <b>You Should Attend If...</b> | <ul style="list-style-type: none"> <li>• Masters and Doctoral Students of Science, and Social Sciences. Scientists and Social Researchers.</li> <li>• S&amp;T Policy officials, Company Executives, R&amp;D personnel, NGO professionals.</li> </ul>   |
| <b>Fees</b>                    | <p><b>Participation fees for the course:</b><br/> JNU M.Sc., M.A. Students: <b>INR 100</b><br/> JNU Research Students (M.Tech., MBA &amp; Ph.D.): <b>INR 1000</b><br/> JNU Faculty: <b>INR 2,000</b><br/> Other Institutions (Faculty/ Research Students)/NGO: <b>INR 2,000</b><br/> Industry participants: <b>INR 5000</b>; Foreign Participants (non-SAARC): <b>USD 200</b></p> <p>The above fee covers the expenses for all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. Some of the participants (if needed) may be provided with accommodation/food on payment basis.</p> <p>Registration link for JNU-GIAN : <a href="http://www.jnu.ac.in/GIAN/">http://www.jnu.ac.in/GIAN/</a></p>   |

# The Faculty



Peter Knorringa is Professor of Private Sector and Development at the International Institute of Social Studies (ISS) of Erasmus University Rotterdam in The Hague, The Netherlands. He is also the Founding Director of the Leiden-Delft Erasmus Universities' International Centre for Frugal Innovation (ICFI) since 2014. Professor Knorringa has 30 years of experience in research, teaching, capacity building and advisory work.

Areas of specialization: value chain analysis, industrial clustering, entrepreneurship, small enterprise development, local economic development, informal sector and survival business; role of trust, networks and social capital in development; sustainability standards; frugal innovation and its developmental relevance.

Extensive research and working experience in India and Vietnam, and has also worked in Brazil, China, Costa Rica, Ethiopia, Indonesia, Kenya, Nepal, South Africa, Tanzania, Uganda and Russia, among others for the World Bank, UNIDO, ESRC in the UK, The Dutch Ministry of Foreign Affairs and various Dutch Development NGOs. He has published in leading journals on development, entrepreneurship and innovation. Prof Knorringa co-edited the Handbook on Frugal Innovation (Published by Edward Elgar, 2023), which is the first handbook on this subject.

## **Course Co-ordinator:**



Saradindu Bhaduri teaches at the Centre for Studies in Science Policy, Jawaharlal Nehru University. He is Associate Professor at the Centre, and the Founding Coordinator of the Trans-disciplinary Research Cluster on Frugality Studies (TRCFS, a collaboration between JNU, TERI, IIT Roorkee, MDI, Gurgaon and ICFI). He has held the Prince Claus Chair in Development and Equity at the International Institute of Social Studies (ISS) of Erasmus University Rotterdam, The Netherlands (2015-17) where he remained an Honorary Professor during 2018-23.

Area of Specialization: intellectual property rights; technology policy processes; regulation of innovation; heterodox economic theories of innovation; grassroots and frugal innovation; innovation in the informal economy.

Research and fieldwork experiences in almost all regions of India, and in Brazil, Estonia, France, Germany, Kenya, Portugal, and The Netherlands. He has published in leading journals on innovation and development. He is a co-editor of the Handbook on Frugal Innovation (Edward Elgar 2023).