

Sustainable Cities and Rapid Urbanisation

Mapping Institutions, Researchers and Funders in India

Report prepared for RCUK India and UK Science and Innovation Network
by
Amaltas, India



UK Science
& Innovation
Network



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Amaltas is a Delhi based organisation with a mission to work within the broad scope of development to provide high quality consulting and research in support of accelerating improvements in the lives of people. Amaltas has garnered a wide range of experience through its portfolio of prestigious projects with foundations such as the Bill and Melinda Gates Foundation, World Vision, Save the Children; research institutions such as Johns Hopkins University and IDRC, Canada; the UN including UNDP, UNICEF, UNAIDS, UNWomen; bilateral and multilaterals such as the World Bank, DFID, USAID; and governments including Government of India, the Royal Government of Cambodia among others. It has core competencies in high quality research, documentation and evaluation. A detailed profile of Amaltas may be found at www.amaltas.asia.

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Executive Summary

The Study

1. Science and innovation are critical inputs to the prosperity and sustainable growth of countries. International collaborations are an excellent way in which to develop research and knowledge, nurture new capabilities, encourage new ideas, and foster new opportunities to support growth. The United Kingdom and India have had collaborative research ties of longstanding.
2. Sustainable Cities and Rapid Urbanisation was identified by the Governments of the UK and India as a key thematic area on which UK and India collaboration is envisaged. The priority subthemes in the Sustainable Cities and Rapid Urbanisation theme area are:
 - i. Developing integrated, multidisciplinary solutions to natural and man-made hazards and risks in cities.
 - ii. Understanding the interaction between physical and social processes in urban and peri-urban spaces to inform development of inclusive communities.
 - iii. Developing a better understanding of governance, public participation, service provision and rights to improve safety of women and vulnerable groups.
 - iv. Developing innovative solutions for integrated transport, water, waste and energy infrastructures through innovative information management and decision support methods and tools.
 - v. Developing new approaches to integrate built and natural, tangible and intangible cultural heritage in urban planning and design.
 - vi. Developing a systems approach to urban planning and development.
3. Urbanisation is a growing phenomenon in emerging economies. As the world has modernised, the world has become predominantly urban. Urban growth in India has been particularly rapid and is only expected to accelerate. The new megacities of Bangalore and Chennai are expected to grow exponentially. Mumbai and Kolkata are already 10 times more densely populated than New York. But rapid increase in urbanisation has led to the emergence of new challenges of violence, poverty, environmental risks and social inequalities. Clearly, research on urban issues is going to become more and more important in ensuing years.
4. This study has been carried out to locate leading institutions actively engaging in research in the subthemes. It seeks to identify researchers affiliated with these institutions (RLI) or those in other institutions (ROI) through bibliometric study, and to map funders active in this area. The intended audience for this study are the seven Research Councils in UK, RCUK India, the Science and Innovation Network, Indian and UK policy makers, Indian research councils, public and private companies, academics, and researchers working in the area of Sustainable Cities and Rapid Urbanisation.

5. The study draws upon several sources of evidence:
 - Desk review of existing reports and commentaries on social science research in India
 - Detailed search on Google Scholar to identify institutions and their researchers publishing between 2010-2014
 - Delphi interviews with active researchers to drive an iterative process to identify key institutions and researchers.
 - Thorough study of the websites of key organizations engaged with research on urbanisation
 - Advice from key experts
6. Google Scholar was selected as the search engine of choice to carry out the bibliometric review of the work of researchers. Bibliometric data was captured between 18 December 2014 and 20 March 2015. During the course of the study, 71 institutions and 155 researchers were identified, 415 papers accessed and 11 funders were researched. Over 70 email requests for information were sent and 11 researchers interviewed.

Research Context

7. Science has played a central role in the Indian knowledge systems in medicine, mathematics, astronomy, dance and music. More recently, successes such as the Green and White Revolutions, and India's capabilities in information technology and space science are noteworthy. India has the third largest scientific and technical manpower in the world. There are 634 universities with a total intake of 3.3 million students per year. Masters level enrolments in 2012 were 0.2 million, and PhD level were 0.1 million. The R&D sector has been growing at 20% in India over the past several years, albeit from a relatively small base. Over 1000 multinational companies have based their R&D operations here.
8. India has shown its determination to claim a leading position in science and innovation. The President of India declared in 2009 that 2010 – 2020 would be the 'Decade of Innovation'. In 2013, a new 'Science, Technology and Innovation' policy was announced. The policy puts its emphasis on science and technology based solutions for some of India's most trenchant problems. The National Innovation Foundation set up in 2010, has fostered over 2 million ideas, innovations and traditional knowledge practices from across the urban and rural areas of the country.
9. Nonetheless, significant problems still burden the sector: there is severe faculty shortage and poor quality training leading to a poor track record of accreditation of institutions. Although India ranks ninth globally in terms of research publications, it has one of the lowest citation impacts of all countries. The 12th Five Year Plan also notes several *a priori* requirements for achieving India's ambitions in research. These include enrichment of knowledge base; incentivizing research and development in public and private sector; improving governance in science and technology institutions; university, industry, and scientific establishment collaborations; promoting collaboration through clusters; supportive financial systems; platform

for best practices and innovations; improving the flow of technology; intellectual property rights; and use of Geographic Information Systems for development.

10. Policy pronouncements such as the 'Atal Innovation Mission', 'Skill India Mission' and the 'Global Initiative of Academic Networks' are all directed towards building capacity among Indian students and entrepreneurs. 'Make in India' is a flagship programme of the new Government which encompasses initiatives to facilitate investment, foster innovation, enhance skill development, protect intellectual property and build best in class manufacturing infrastructure in the country.
11. International collaboration is being sought to tackle the challenges of a sustainable urban transformation. India and Japan have jointly unveiled a plan with India to launch 'Green Cities'. The government has launched HRIDAY, the 'National Heritage City Development and Augmentation Yojana' for 12 selected cities. India will also establish '100 Smart Cities' as part of its effort to provide modern, efficient and safe settlements for its growing urban population and to build capabilities in keeping with the digital age.

Findings of the Study

12. While there is limited research on urbanisation, the field is growing rapidly. Institutions that lead in terms of researcher pool, publications and citations, and influence were primarily well-established universities such as several Indian Institutes of Technology, Jawaharlal Nehru University and Tata Institute for Social Sciences. Most of these have specific departments dedicated to urban studies. In the last 10 years, the number of recognised institutions and courses by Institute of Town Planners of India has almost doubled. Research in the urbanisation subthemes of interest is uneven. The study finds that of the six subthemes, three of them – inclusion, infrastructure and hazards – are comparatively well represented in terms of research output for the past five years. The three subthemes of systems, safety and heritage, however, have little research output.
13. Research on urbanisation is oriented towards practice, rather than traditional scholarly work. Researchers identified in the study primarily produce large amounts of grey literature, such as training manuals, handbooks and policy advocacy material. Academic work generating new knowledge in the form of publications in scholarly journals is relatively limited. While publications are limited they tend to be of high quality. The majority of publications accessed through Google Scholar are academic publications (79%) and are peer reviewed (63%). Publications in international journals suggest a lack of easily accessible, Indian publishing platforms on the one hand, but also that these research outputs are compelling to a broader global audience, on the other.
14. Institutions such as Jawaharlal Nehru University, Public Affairs Centre and National Institute of Disaster Management have strong ties with the Government of India. The orientation to practice-based research means that almost all of the 60 institutions identified in this study work closely with the government on urban development projects. The largest concentration of institutions (40%) is in the National Capital Region with other prominent institutions clustered

around the large metropolitan cities of Bengaluru, Chennai and Mumbai. Both academic and non-academic institutions are active in the field. Institutions working in the six subthemes are almost equally split between academic and non-academic categories. The 15 leading institutions dominate the field both in terms of researchers and publications. These leading institutions constitute only a quarter of the total research institutions, but are home to more than 55% of all researchers. Their researchers are in turn, responsible for a significant proportion (63%) of total research publications.

15. Researchers in the Leading Institutions (RLI) are more prolific than Researchers in Other Institutions (ROI). They produce a greater number of publications. It should also be noted that across RLI and ROI, highly published authors do not necessarily have high citations. RLI also have significantly more influence than ROI. Researchers are unequally distributed across subthemes. There is a relatively higher concentration of researchers in the areas of infrastructure, hazards and inclusion. These researchers are also highly productive and the research output in these subthemes are comparatively higher. Research in the subthemes of safety and heritage is particularly lacking.
16. Funding opportunities identified in the study are unevenly spread across the six subthemes. Funding for inclusion, safety and heritage is comparatively lower. Despite this lack of funding, inclusion remains one of the most prolific subthemes indicating how topical it is for researchers in India. Funding institutions have close collaborations to international agencies. Funders also formally collaborate with international organisations when deciding research priorities. Most collaborations are with organisations based in the United States, Germany and France.
17. Collaborations with the UK are comparatively limited and are through organisations such as WaterAid and the London School of Economics and Political Science. Only a few major collaborations with London School of Economics and Political Science, University College London, University of Sussex and University of Warwick were found. Indian collaborating partners are IIT Bombay, Indian Institute for Human Settlements and Jawaharlal Nehru University. Most collaboration is of a broad nature and rarely on specific urban studies projects.
18. Research Funding in India is well established. Almost all funders are large scale and have been active for a long time in the funding landscape. While the Government of India remains the prime local funder, Trusts and Foundations also support a substantial amount of research in India. Most funding is directly available to individuals through fellowships. Opportunities for institutional funding is comparatively limited and is mostly through research grants.

71 institutions and

155 researchers work

on the six subthemes in
India.

Over **400** relevant papers
were produced in the past 5
years.

15 research institutions in
India are home to 55% of
researchers working on urban
issues and produce
63% of all publications
accessed.

Almost half of the publications are in the urban infrastructure subtheme.

The majority of the 11 Indian funders are government organisations and were established before 2000.

Section I

About the Study
Methodology
Structure of the Report

About the Study

Science and innovation are a critical input to the prosperity and sustainable growth of a country. They ensure that the country can meet emerging challenges ranging from water-energy demands and natural disasters, to climate change and public health. Countries require an excellent research base with the right infrastructure and skilled people to generate solutions to such challenges. International collaborations are an excellent way to develop research and knowledge, nurture new capabilities, encourage new ideas and foster new opportunities to support growth.

The United Kingdom and India have longstanding research ties that function through a variety of mechanisms. In 2014, the UK has set up the Newton Fund to develop science and innovation partnerships that promote the economic development and welfare with a number of countries.¹ In India, this partnership takes the form of the Newton Bhabha Fund, which is operationalised through a core group of Delivery Partners including Research Councils UK.ⁱ The Newton Bhabha Fund augments existing research collaboration with India to jointly deliver innovative solutions to global development challenges.

The Sustainable Cities and Rapid Urbanisation thematic area which this report addresses, was identified by the UK-India Task Force Meeting held in February 2014. It was further endorsed by the UK-India Science and Innovation Council in November 2014, at which the ministers of the two countries signed the Newton-Bhabha Fund Memorandum of Understanding.

The priority subthemes identified under Sustainable Cities and Rapid Urbanisation for the UK-India partnership are:

1. Developing integrated, multidisciplinary solutions to natural and man-made hazards and risks in cities.
2. Understanding the interaction between physical and social processes in urban and peri-urban spaces to inform development of inclusive communities.
3. Developing a better understanding of governance, public participation, service provision and rights to improve safety of women and vulnerable groups.
4. Developing innovative solutions for integrated transport, water, waste and energy infrastructures through innovative information management and decision support methods and tools.
5. Developing new approaches to integrate built and natural, tangible and intangible cultural heritage in urban planning and design.
6. Developing a systems approach to urban planning and development.

UK-India research funded under this theme seeks to develop solutions to make pilot cities more resilient, more inclusive and more sustainable socially, economically and environmentally. Research will seek to develop solutions for more widespread access to higher education, social equality and

ⁱ See Annexure 1 for more on SIN, Research Councils UK and the Newton Bhabha Fund.

making pilot cities overall safer to live in. New approaches will be proposed to better protect tangible and intangible heritage in pilot cities.

Methodology

This study was commissioned to understand the research and innovation ecosystem in India in the area of Sustainable Cities and Rapid Urbanisation. Amaltas was asked to locate the leading institutions actively engaged in research in the subthemes, and identify researchers affiliated with these institutions or independent of them through bibliometric study. Amaltas was also asked to map funders active in this area and understand their research priorities and modalities.

Through the study, it is hoped that the knowledge base about the research landscape in India can be enlarged, and potential partners in Indian universities and institutions can be identified. The intended audience for this study are the seven Research Councils in UK, RCUK India, UK's Science and Innovation Network, Indian and UK policy makers, Indian research councils, public and private companies, academics, researchers working in the area of Sustainable Cities and Rapid Urbanisation.

The study draws upon several sources of evidence:

- Desk review of existing reports and commentaries on social science research in India.
- Detailed search on Google Scholar to identify institutions, and their researchers publishing non-academic works as well as in indexed, peer reviewed journals between 2010 – 2014.
- Delphi interviews with active researchers in the field to drive an iterative process to identify key institutions and researchers.
- Thorough study of the websites of key organisations engaged with research on urbanisation.
- Sense checking of key results by experts in the subject areas.

A research-oriented approach was undertaken to identify key researchers and institutions through bibliometric analysis. In order to carry out bibliometric analysis using both publication and citation metrics, several academic research search engines were considered. In the end, Google Scholar was adopted as the search engine of choice. Bibliometric data referred to in the study was captured between 18 December 2014 and 17 March 2015.

The data collection for this study followed an iterative course. Bibliometric study yielded the names of researchers and institutions. These institution leads were then followed to capture the researchers in these institutions and their bibliometric data was accessed. During the course of the study, 71 institutions and 155 researchers were identified, 415 papers accessed after scanning many more for their relevance to the subthemes, and 11 funders were researched. Over 70 email requests for information were sent and 11 researchers interviewed. Inputs from researchers and expert review yielded names of additional institutions for which research followed a similar track.

Research meant that data points for each paper of each researcher in every institution that we could get information on, over five years were gathered and weighted in order to construct scores for the institutions and researchers. The relative score assigned to each data point was fine-tuned in light of the purpose of the study and is provided in the chapter on findings.

Institutions were then ranked based on these scores to identify the most active ones. Data points included total number of relevant researchers and publications in the institution (based on website data), publication and citation counts of researchers, and nature of the publication and the impact factor of the journals in which published. Leading institutions were then identified based on natural inflection points in the rank data. Accordingly, 15 leading institutions working in the priority subthemes within the overall theme of Sustainable Cities and Rapid Urbanisation were identified.

The ranks that have been arrived at reflect both the availability and type of data as well as the relative importance that each data point was assigned to construct the score. Hence the likelihood that these scores would match say, the QS college rankings (<http://www.topuniversities.com/university-rankings/brics-rankings>) is low since the nature and type of data used to construct those rankings, as well as the weights assigned differ significantly from the ones used in this report. The research players identified in this study belong to sector specific departments of public and private research institutes, research centres and university departments that are active in the six subthemes of interest.

Researchers were also scored, using a scoring protocol outlined in the findings chapter. As per the terms of reference, researchers were grouped into those affiliated to the leading institutions (RLI) and those working in the other institutions (ROI). Data for the two sets of researchers is presented and some general observations have been made regarding research in leading and other institutions, as well as that in the subthemes of interest.

The approach adopted to identify funders was different. The study identified funders from a variety of sources – publication declarations, conference proceedings, reports on various institutional websites and advice from subject experts. A long list of funders was investigated on the basis of extensive web search to distil a shorter list of Indian funders active in the subthemes in the past five years.

Structure of the Report

The analysis in this report focuses on the past five years (2010 - 2014). Section I provides an overview of the purpose of the study, its main sources of information and how it was carried out. Section II describes how the research landscape in the subthemes has evolved, its present situation, and summarises the findings of the study in respect of the institutions and universities that concentrate on this area, the researchers who carry out work in the subthemes of interest and the funders who support their work. Finally Section III provides a detailed description of the research landscape. It presents a matrix of researchers and their focus areas. This section also carries a full listing of mapped institutions in the subthemes of interest as well as one page dossiers on the 15 leading institutions. These dossiers will provide a snapshot of the institution including key research projects in the past five years, relevant departments, institutional strength, international and national collaborations and main funders. Finally the section has dossiers on funders with a brief introduction to each along with their key grant windows and funding patterns. However, in spite of every effort, it is possible that small research players who lack web presence may not appear in this report.

Section II

The Research Context
Overall Findings
Institutions
Researchers
Funders

The Research Context

In 2008, the world became predominantly urban. The UN estimates that cities in countries with emerging markets will see their populations more than double, rising from 2.5 billion in 2009 to 5.2 billion by 2050.² India has experienced a sharp rise in urban populations in the last two decades from 286 million in 2001 to 320 million in 2011. The new megacities of Bangalore and Chennai are expected to grow exponentially, and existing ones such as Mumbai and New Delhi will triple in size by 2050. Furthermore, the urban economy exerts a compelling attraction for rural populations, and will bring 30 rural migrants to an Indian city every minute over the next 20 years.³ Mumbai and Kolkata are 10 times more densely populated than New York, 60% of population growth is through natural population increase, most development is brownfield and municipal expenditure is only 0.5% of India's Gross Domestic Product.⁴

Rapid increase in urbanisation has led to the emergence of new challenges of violence, poverty, environmental risks and social inequalities.⁵ It is evident that economic development can no longer be viewed in isolation from environmental protection and inclusive social progress.⁶ Research on urban planning is relatively limited in India – much of it is required to be interdisciplinary. Researchers and institutions from fields as diverse as gender studies and civil engineering, apply their domain knowledge to the study of urbanisation. As a result, research in the field is uneven. While some streams of research have long-established roots, others are still emerging.

But before considering research in the area of urbanisation, it may be worthwhile to dwell upon the general research landscape in India. India has a long and venerable history as a country in which science has played a central role of its everyday life. This has resulted in many path-breaking gifts to the world such as the invention of zero and the decimal system, yoga, architectural and engineering marvels such as the cities of the Indus Valley Civilization, Iron pillar of Qutub Minar, Taj Mahal, Golconda Fort and the City of Mandu. World-renowned universities at Nalanda and Taxila taught Indian and foreign students the Arthshastra, Rigveda and Indian knowledge systems in medicine, mathematics, astronomy, dance and music. Modern achievements have been the Green and White Revolutions leading to self-sufficiency in agriculture and milk respectively. India is also one of an elite group of nations which has capabilities in space science and technology.⁷

India has the third largest scientific and technical manpower in the world. There are 634 universities with a total intake of 3.3 million students per year. Masters level enrolments in 2012 were 0.2 million, and PhD level were 0.1 million. About 16,000 doctorate degrees are awarded each year.⁸ In the overall landscape, four types of research Institutions can be found: public sector established centres of research; academic research institutes/ universities; non government research bodies supported by private or public funds; and private sector research laboratories.

More recently, India has shown its determination to reclaim its leading position in science and innovation by declaring that India will become one of the top five global scientific powers by 2020.⁹ A 2007 World Bank report titled 'Unleashing India's Innovation: Toward sustainable and inclusive growth', describes the reasons that India is seen to have promising innovation potential including its large research and development human resource base and technical publications and patents.¹⁰ In

2009, the President of India declared that 2010 – 2020 would be the ‘Decade of Innovation’, marked by policy reforms, new funding schemes and programmes promoting public-private partnerships, international collaborations, technology transfers, applied research and development (R&D), academia - industry linkages, cluster development, rural innovations and skill development.

In 2013, a new ‘Science, Technology and Innovation’ policy was announced to replace the Science and Technology policy of 2003.¹¹ The policy puts emphasis on science and technology based solutions for some of India’s most trenchant problems, while advocating that the innovations should be frugal, distributed and affordable. The government feels that “developing solutions to social problems [must become] the new grammar of modern science”.¹²

The National Innovation Foundation, set up in 2010, has built up a database of over 2 hundred thousand ideas, innovations and traditional knowledge practices from across the urban and rural areas of the country.¹³ The R&D sector has been growing at 20% in India over the past several years, albeit from a relatively small base. Over 1000 multinational companies have based their R&D operations here. India is also the third most preferred destination for R&D after Silicon Valley and cities in USA. India is now gearing up to expand and upgrade innovation and research especially in the sectors of engineering, agriculture, pharmaceuticals and information technology. But significant problems still burden the sector: there is severe faculty shortage (amounting to over a third) and poor quality training leads to a poor track record of accreditation of institutions. Although India ranks ninth globally in terms of research publications, it has one of the lowest citation impacts of all countries.

The 12th Five Year Plan (2012 – 2017) has identified the following thrust areas for renewed attention: energy and environment; food and nutrition; water and sanitation; habitat; affordable health care; and skill building and unemployment; while science and technology promotion is proposed through induction of scientific temper, improving skills for the application of science, providing for careers in science, and making research and innovation more attractive.¹⁴ However the Plan also notes several *a priori* requirements for achieving these ambitions, among which are enrichment of knowledge base; incentivising research and development in public and private sector; improving governance in science and technology institutions; university, industry, and scientific establishment collaborations; promoting collaboration through clusters; supportive financial systems; platform for best practices and innovations; improving the flow of technology; intellectual property rights; and use of Geographic Information Systems for development.¹⁵

The most recent Union Budget of India (2015-16) has committed money to supporting this ambition.¹⁶ Policy pronouncements such as the Atal Innovation Mission to be established in NITI Aayog, Skill India Mission and the Global Initiative of Academic Networks (GIAN) are all directed towards building capacity among Indian students and entrepreneurs. Some draw upon and amplify capacities within the country’s universities and research bodies, while others seek partnerships with nations that are willing to share ideas and learning.¹⁷

‘Make in India’ is a flagship programme of the new Government in India. It encompasses several initiatives to facilitate investment, foster innovation, enhance skill development, protect intellectual property and build best in class manufacturing infrastructure in the country. Announced at Prime

Minister Modi's maiden Independence Day speech on 15 August 2014, it focuses on 25 sectors namely automobiles, aviation, chemicals, Information Technology & Business Process Management, pharmaceuticals, construction, defence manufacturing, electrical machinery, food processing, textiles and garments, ports, leather, media and entertainment, wellness, mining, tourism and hospitality, railways, automobile components, renewable energy, biotechnology, space, thermal power, roads and highways and electronics systems. Its official website at www.makeinindia.com provides more details.¹⁸



International collaboration is being sought to tackle the challenges of a sustainable urban transformation. The Japan International Cooperation Agency is helping to develop the Delhi Water Plan 2021, and India and Japan have jointly unveiled a plan to launch 24 'Green Cities' along the Delhi-Mumbai Industrial Corridor.¹⁹

The government has launched HRIDAY, the National Heritage City Development and Augmentation Yojana, for 12 selected cities. The Minister for Urban Development said, "... steps will be taken to tap the unlimited potential underlying in tourism and heritage sector unleashing the power of skilful artisans and traditional economy. Our aim is to preserve the rich heritage and showcase them to the next generation as the contribution or achievements of our ancestors". An outlay of INR 5000 million (~GBP 53 million) has been provided for phase I of the initiative.²⁰

India will also establish '100 Smart Cities' as part of its effort to provide modern, efficient and safe settlements for its growing urban population and to build capabilities in keeping with the digital age. This is to ensure that "As the fruits of development reach an increasingly large number of people, the pace of migration from the rural areas to the cities is increasing. A neo middle class is emerging which has the aspiration of better living standards. Unless, new cities are developed to accommodate the burgeoning number of people, the existing cities would soon become unliveable".²¹ Four 'pillars' have been identified for smart cities: physical infrastructure, social infrastructure, institutional infrastructure, and economic infrastructure. Each of these requires great technical investment along with financial investment if the initiative is to bear fruit.²²

Overall Findings

Six subthemes identified by a UK-India Roundtable organised by RCUK India and SIN were used as the basis for this report. These have each been assigned a single word identifier and a colour code for ease of reference in the discussion that follows. The six subthemes, their identifiers and colour codes are:

| Colour Codes for the Six Subthemes | |
|---|----------------|
|  | Hazards |
|  | Infrastructure |
|  | Inclusion |
|  | Heritage |
|  | Safety |
|  | Systems |

Hazards: Developing integrated, multidisciplinary solutions to natural and man-made hazards and risks in cities.

Infrastructure: Developing innovative solutions for integrated transport, water, waste and energy infrastructures through innovative information management and decision support methods and tools.

Inclusion: Understanding the interaction between physical and social processes in urban and peri-urban spaces to inform development of inclusive communities.

Heritage: Developing new approaches to integrate built and natural, tangible and intangible cultural heritage in urban planning and design.

Safety: Developing a better understanding of governance, public participation, service provision and rights to improve safety of women and vulnerable groups.

Systems: Developing a systems approach to urban planning and development.

While there is limited research on urbanisation, the field is growing rapidly. The mapping exercise found a limited number of institutions, researchers and funders active in the six urbanisation subthemes over the past five years. Institutions were primarily well-established universities such as several Indian Institutes of Technology, Jawaharlal Nehru University and Tata Institute for Social Sciences. Most of these universities had specific departments dedicated to urban studies however, a substantial number of think-tanks, non governmental organisations and a few academic institutions were also identified by the study which exclusively focus on urbanisation. It should be noted that, as per the Institute of Town Planners, India (ITPI), only 21 institutions are officially recognised as offering urban planning and design certifications.²³ However, this number is rapidly increasing; in the last 10 years, the number of recognised institutions and courses by ITPI has almost doubled. Furthermore, several researchers in fields such as sociology, gender studies, and information technology are increasingly focused on exploring the urbanisation subthemes in their work.

Research in urbanisation subthemes is uneven. The study finds that of the six subthemes, three of them – inclusion, infrastructure and hazards – are comparatively well represented in terms of research output for the past five years. This is displayed in figure 1 where the stacked bars show the relative proportion of publications in each subtheme in each year. It should be noted that the numbers displayed are the absolute number of publications in that subtheme. Figure 1 shows that the subtheme of infrastructure has consistently had the greatest number of publications in the past five years. It also has the most researchers. Furthermore, research papers within infrastructure has more than doubled; yearly publication counts have risen from 27 in 2010 to 53 in 2014. The three subthemes of systems, safety and heritage however, have little research output. For safety and heritage, especially, there have been limited publications and only a few researchers are active in these subthemes. The lack of research in these three subthemes would indicate that there is limited interest in them amongst Indian researchers. However, it should also be noted that research in the systems subtheme has been rising over the past five years, suggesting increasing focus on it.

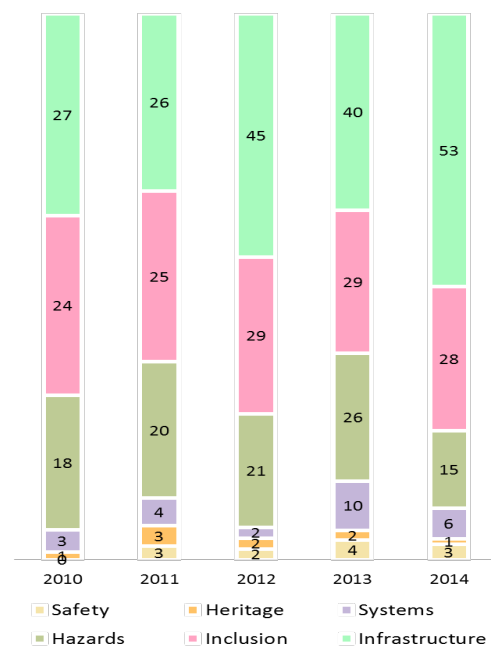


Figure 1 Publication counts in subthemes by year

Research on urbanisation is oriented towards practice, rather than traditional scholarly work. The mapping exercise reveals that work is largely dedicated towards practice and implementation. Researchers identified in the study primarily produce large amounts of grey literature, such as training manuals, handbooks and policy advocacy material. However, their academic work in the form of publications in scholarly journals is relatively limited.

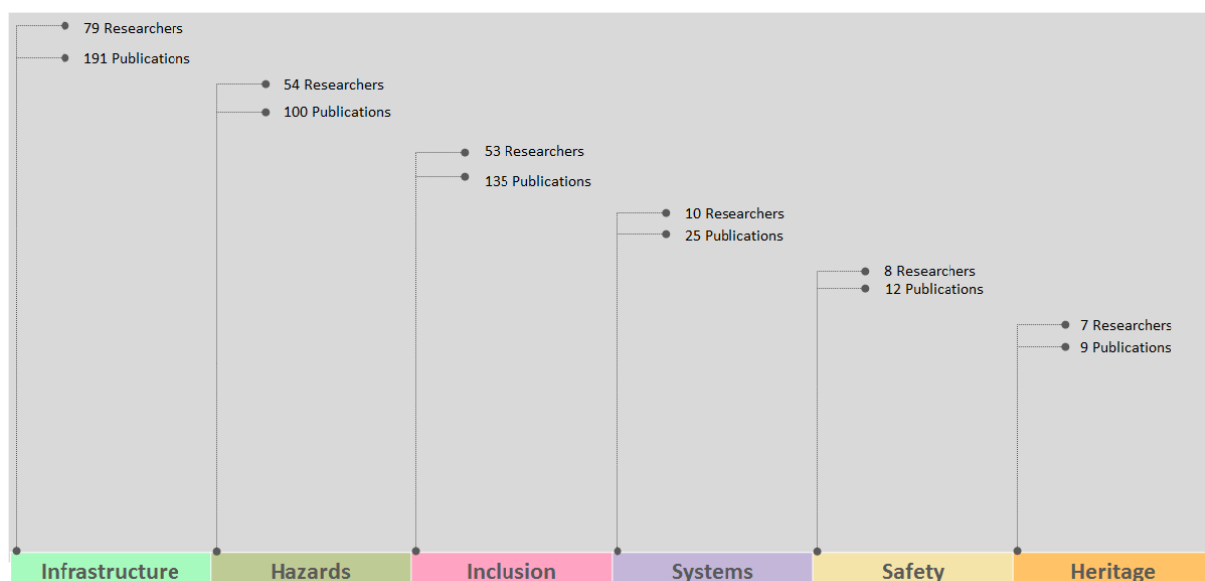


Figure 2 Researcher and Research Output by Subtheme

There is a considerable difference between the number of publications listed by institutions, which generally includes grey literature, and the publication counts found in academic search engines.

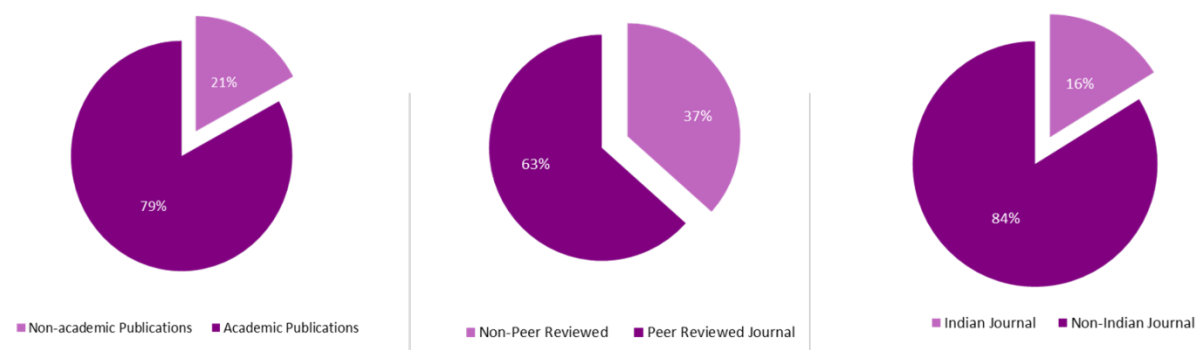


Figure 3 Types of publications

While publications are limited they tend to be of high quality. The mapping exercise revealed that the majority of publications reviewed in this study through scholarly search engines are academic publications (79%) and are peer reviewed (63%). Of those publications in scholarly journals, most are published in international journals (84%). While the high number of publications in international journals could suggest a lack of easily accessible, Indian publishing platforms, it also indicates that these research outputs are compelling to a broader global audience. Furthermore, the high rates of peer reviewed publications indicate that they can be considered to be of high quality.

Institutions have close ties with the Government of India. The orientation to practice-based research means that almost all of the 71 institutions identified in this study work closely with the government on urban development projects. Furthermore, several of the identified institutions are national institutes and autonomous government bodies.

Institutions are primarily located in metropolitan area such as the large cities of Bengaluru, Chennai and Mumbai. The largest concentration of institutions (36%) is in the National Capital Region.

There is relatively little collaboration with UK institutions at this time. Only a few major collaborations with key institutions were identified in the mapping; these are with London School of Economics and Political Science, University College London, University of Sussex and University of Warwick. Indian collaborating partners are IIT Bombay, Indian Institute for Human Settlements and Jawaharlal Nehru University. Most collaborations were partnerships and memorandums of understandings between institutions and were rarely on specific urbanisation research projects.

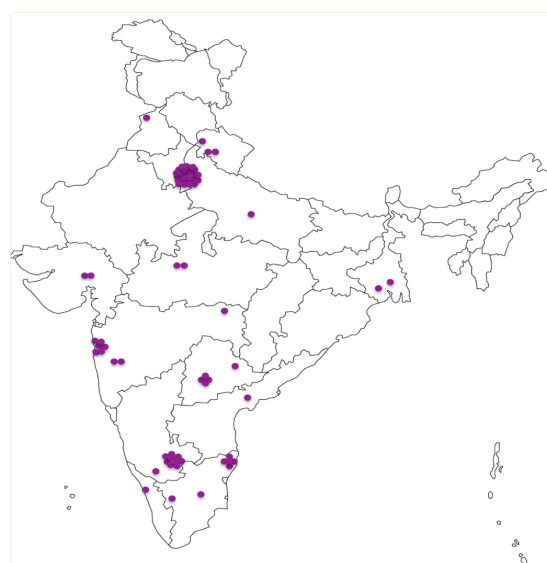


Figure 4 Research Institutions Working on Urbanisation

Institutions

Both academic and non-academic institutions are active in the field. Institutions working in the six subthemes are almost equally split between academic and non-academic categories, with the former being institutions that offer teaching and can grant degrees. These academic institutions include large universities with departments dedicated to studying urbanisation as well as entire schools working on research in the area. The non-academic institutions are largely made up of government agencies, research centres and think tanks.

Leading institutions were identified by scoring them on the number of publications that appear on their website, as well as researchers, publication and citation counts obtained on Google Scholar.

The 15 leading institutions dominate the field both in terms of researchers and publications. The study ranked a total of 60 institutions to arrive at a list of the 15 leading institutions. These leading institutions constitute a quarter of the total research institutions, but are home to more than 65% of all researchers. Their researchers are in turn, responsible for a significant proportion (70%) of total research publications. The 15 leading institutions can thus be viewed as centres for specialisation in urbanisation and the six subthemes.

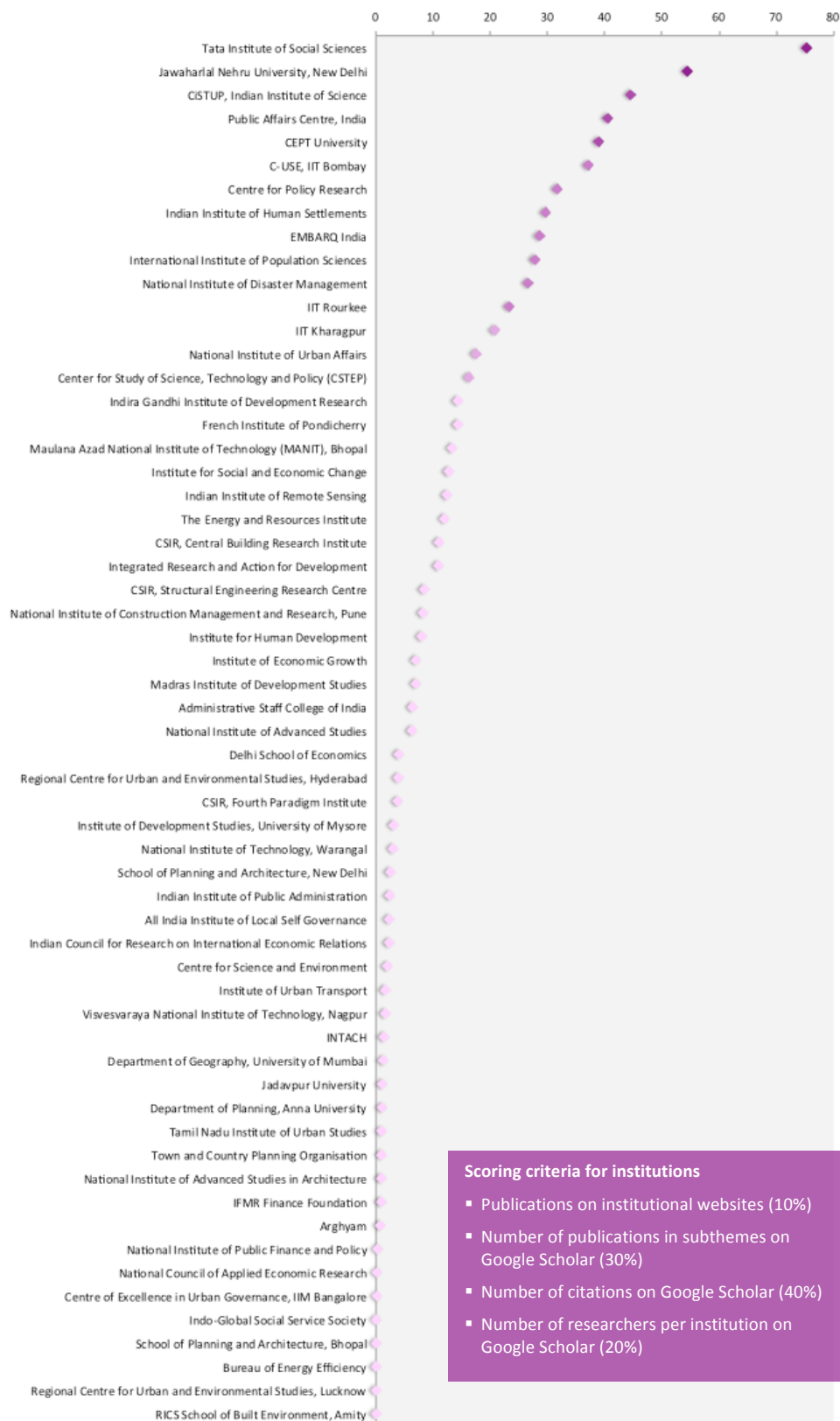


Figure 5: The leading institutions

Researchers

In this study, researchers have been classified into two categories. Those associated with the 15 leading institutions are termed Researchers in Leading Institutions (RLI). On the other hand, those researchers affiliated with the remaining 56 institutions or having no institutional affiliation are termed as Researchers in Other Institutions (ROI). Amongst RLI, only those researchers who are primary authors or are secondary authors on publications where the primary author has a non-Indian affiliation have been considered for further analysis.

RLI are more prolific than ROI When the top 20 ROI are compared to RLI, it becomes evident that RLI are significantly more prolific, producing a greater number of publications. Furthermore, on average, RLI have comparatively higher numbers of citations than ROI indicating that those in the 15 leading institutions have greater influence and reach. Leading institutions, are thus, able to better showcase their researchers and give them more opportunities to publish. It should also be noted that across both RLI and ROI, highly published authors do not necessarily have high citations.

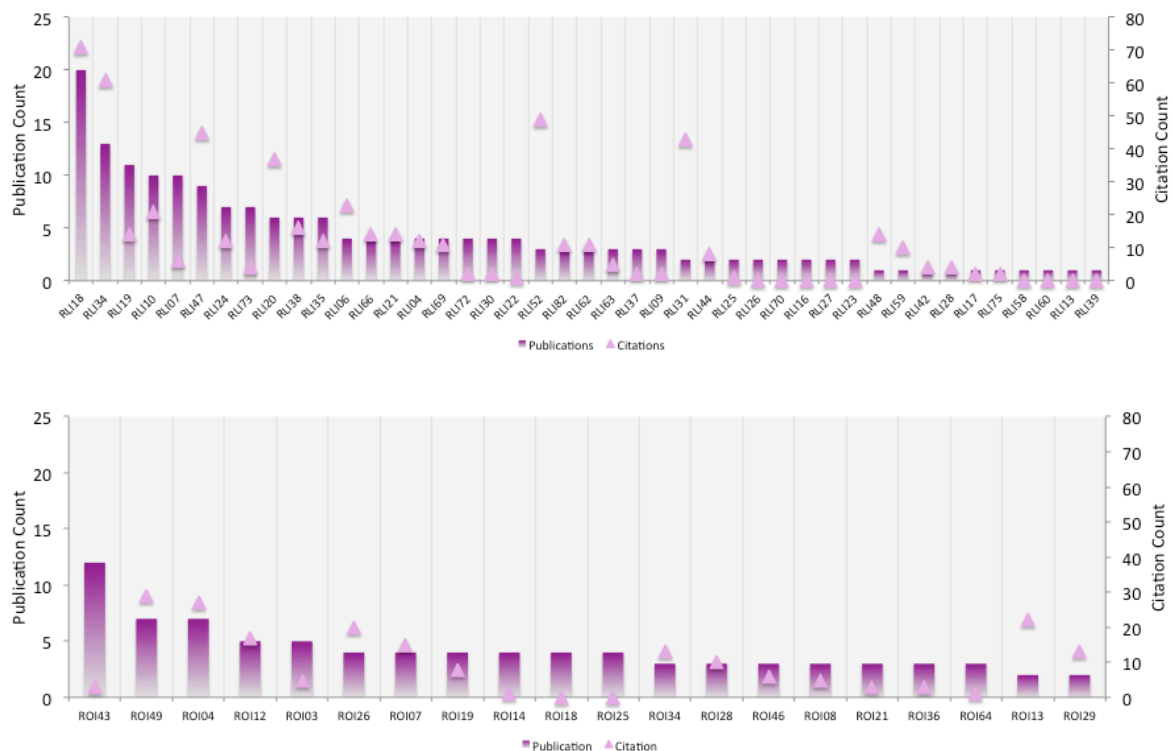


Figure 6: Publication and Citation Counts of RLI and ROI

RLI also have significantly more influence than ROI. The mapping exercise scored researchers on the type of publications they produced, the number of times they appeared as primary author and their research collaborations at the national and international level. Those publishing in scholarly journals with high impact factors, having a large number of articles where they were the primary author and having multiple national and international collaborations scored higher than others. As figure 7 shows, RLI have significantly greater influence (represented by the size of the circles) than ROI.

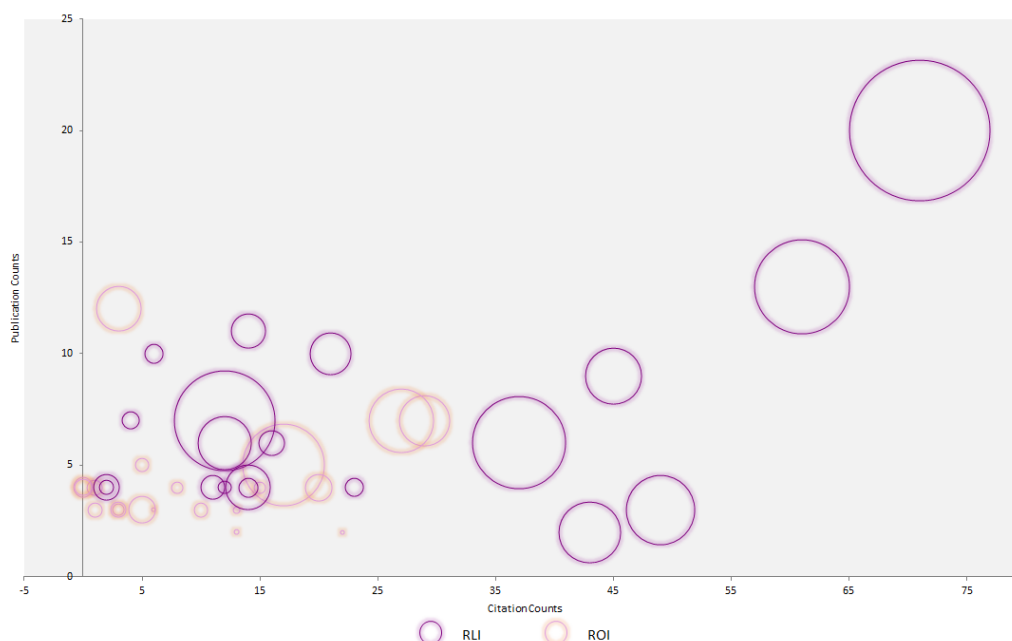


Figure 7: Influence of RLI and ROI

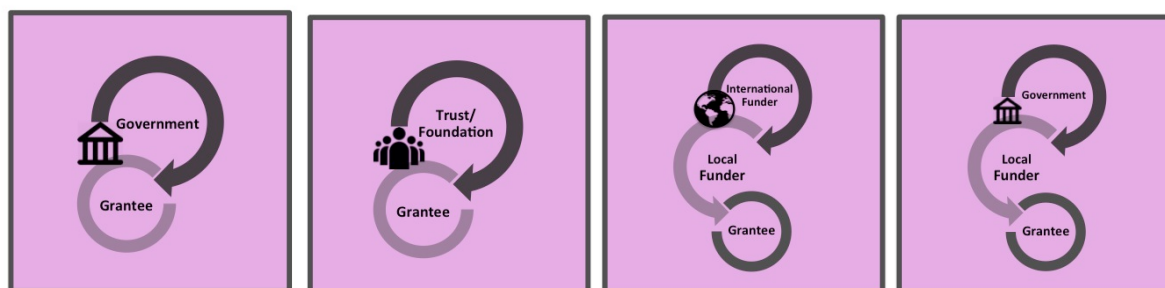
Scoring criteria for researchers

- Number and nature of publications on Google Scholar (35%)
- Number of citations on Google Scholar (25%)
- Number of articles in which they are the primary author or secondary author where the first author has an international collaboration (20%)
- Number and nature of collaborations on Google Scholar (20%)

Researchers are unequally distributed across subthemes. The mapping exercise finds that a relatively higher concentration of researchers can be found in the areas of infrastructure, hazards and inclusion. As the graphs in Annexure II show, these researchers are also highly productive and the research output in these subthemes are comparatively higher. The subthemes of heritage, safety and systems, on the other hand, are underrepresented, with few researchers working in these areas and producing limited amount of research within them. Research in the subthemes of safety and heritage is particularly lacking.

Funders

The mapping exercise revealed that a variety of funding models are used in the urbanisation field. Four models are in vogue across the funding space; these are represented graphically below.



Funding through the Government of India. The primary supporter of research in urbanisation is the government. The Ministries of Human Resource Development, and Housing and Urban Poverty Alleviation as well as the University Grants Commission are particularly prominent funders.

Funding through National Trusts and Foundations. A limited amount of funds are also available from Indian Trusts and Foundations. While these organisations primarily fund implementation based projects, there are some funds available for research on urban issues.

Funding from the local partner of an International Funding Agency. Several national organisations partner with international funding agencies to offer financial support for urbanisation research. This model commonly works through individual grant windows facilitated by institutions.

Funding from the local partner of a Government Agency. National and state governments can also partner with local institutions to facilitate funding for research.

Funding opportunities identified in the study are unevenly spread across the six subthemes. Researchers working in the subthemes of infrastructure, systems and hazards are eligible for multiple grant windows from the funders identified in this study. While some of the identified grant windows, which fund science and technology research may not specifically fund urbanisation research; nevertheless, research in urbanisation is still eligible for their funds. Funding for inclusion, safety and heritage is comparatively lower. Despite this lack of funding, inclusion remains one of the most prolific subthemes indicating how topical it is for researchers in India.

Funding institutions have close collaborations to international agencies. Funders' websites show that they aside from the funding opportunities they offer, they also formally collaborate with international organisations when deciding research priorities. Most of these collaborations are with organisations based in the United States, Germany and France. Collaborations with the UK are comparatively limited and are through organisations such as WaterAid and London School of Economics.

Funding in India is well established. Almost all funders are large scale and have been active for a long time in the funding landscape. While the Government of India remains the prime local funder, Trusts and Foundations also support a substantial amount of research in India. Most funding is directly available to individuals through fellowships. Opportunities for institutions are comparatively limited and are mostly through grants. Funding can be provided on an input basis i.e., for specific cost items of research, such as salary, reagents, etc. or on an outcome basis i.e., results delivered. In almost all cases, funds are disbursed on an input based model with few grants offering outcome based funding.

In the section that follows, detailed information on researchers, institutions and funders active is presented as matrices and individual dossiers.

Section III

Researcher Matrices
Institution List & Dossiers
Funder Dossiers

Researcher Matrices

Two matrices are presented in this section. The first matrix presents an alphabetically arranged list of RLI, their institutional affiliation and the subtheme in which they work. The second matrix provides the same data for ROI.

Researchers at Leading Institutions

| Researcher Code | Researcher name | Institution of Affiliation | Subthemes | | | | | |
|-----------------|-------------------------|---|-----------|----------------|-----------|----------|--------|---------|
| | | | Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
| RLI01 | A.K. Gosain | Indian Institute of Technology Delhi | ■ | | | | | |
| RLI02 | A.K. Mittal | Indian Institute of Technology Delhi | | ■ | | | | |
| RLI03 | A.K. Neema | Indian Institute of Technology Delhi | ■ | ■ | | | | |
| RLI04 | Akshay Mani | Embarq India | | ■ | | | | |
| RLI05 | Amit Bhatt | Embarq India | | ■ | | | | |
| RLI06 | Anil K. Gupta | National Institute of Disaster Management | ■ | ■ | | | | |
| RLI07 | Anjali Mahendra | Embarq India | | ■ | | | | |
| RLI08 | Arindam Jana | Indian Institute for Human Settlements | | | ■ | | | |
| RLI09 | Aromar Revi | Indian Institute for Human Settlements | ■ | | ■ | | | |
| RLI10 | Ashish Verma | CISTUP, Indian Institute of Science | | ■ | | | | ■ |
| RLI11 | A.V. Reddy | Public Affairs Centre | | ■ | ■ | | | |
| RLI12 | Binoy Mascarenhas | EMBARQ India | | ■ | | | | |
| RLI13 | Biswanath Dash | Tata Institute of Social Sciences | ■ | | | | ■ | |
| RLI14 | B.J. Alappat | Indian Institute of Technology Delhi | ■ | | | ■ | | |
| RLI15 | B.R. Gurjar | Indian Institute of Technology Roorkee | ■ | | | | | |
| RLI16 | Chandrani Bandyopadhyay | National Institute of Disaster Management | ■ | | | ■ | | |
| RLI17 | Chhavi Dhingra | Embarq India | | ■ | | | | |
| RLI18 | Darshini Mahadevia | Centre for Environmental Planning and Technology University | | ■ | ■ | | | |
| RLI19 | Debapratim Pandit | Indian Institute of Technology Kharagpur | ■ | ■ | ■ | | | |
| RLI20 | Debolina Kundu | National Institute of Urban Affairs | | | ■ | | | |
| RLI21 | Deepak Baidur | Indian Institute for Human Settlements | | ■ | | | | |
| RLI22 | G.L. Sivakumar Babu | CISTUP, Indian Institute of Science | | ■ | | | | |
| RLI23 | Gaurav Raheja | Indian Institute of Technology Roorkee | | ■ | | ■ | | |
| RLI24 | Gautam Bhan | Indian Institute for Human Settlements | | | ■ | | | |
| RLI25 | Geetanjoy Sahu | Tata Institute of Social Sciences | ■ | | ■ | | | |
| RLI26 | H.M. Shivanand Swamy | Centre for Environmental Planning and Technology University | | ■ | ■ | | | |
| RLI27 | Irshad Mohammed | Tata Institute of Social Sciences | ■ | ■ | ■ | | ■ | |
| RLI28 | Jacquleen Joseph | Tata Institute of Social Sciences | ■ | | | | | |

| Researcher Code | Researcher name | Institution of Affiliation | Subthemes | | | | | |
|-----------------|------------------------|---|-----------|----------------|-----------|----------|--------|---------|
| | | | Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
| RLI29 | Janki Andharia | Tata Institute of Social Sciences | ■ | | | | | |
| RLI30 | Joy Sen | Indian Institute of Technology Kharagpur | ■ | | ■ | | | |
| RLI31 | K.C. Sivaramakrishnan | Centre for Policy Research | | | ■ | | | |
| RLI32 | Khare Mukesh | Indian Institute of Technology Delhi | ■ | | | | | |
| RLI33 | Krithi Ramamritham | Indian Institute of Technology Bombay | | ■ | | | | |
| RLI34 | K.S. Sridhar | Institute of Development Studies, University of Mysore | | ■ | | | | |
| RLI35 | Lalitha Kamath | Tata Institute of Social Sciences | | | ■ | | | |
| RLI36 | M. Parida | Indian Institute of Technology Roorkee | | ■ | | | | |
| RLI37 | M.S. Mohan Kumar | CISTUP, Indian Institute of Science | | ■ | ■ | | | |
| RLI38 | Madhav Pai | Embarq India | | ■ | | | | |
| RLI39 | Madhushree Sekher | Tata Institute of Social Sciences | | | ■ | | | |
| RLI40 | Milap Punia | Jawaharlal Nehru University | | | ■ | | ■ | |
| RLI41 | Minal Pathak | Centre for Environmental Planning and Technology University | ■ | | | | | |
| RLI42 | Neha Sami | Indian Institute for Human Settlements | | | ■ | | | |
| RLI43 | Nikhil Choudhury | Embarq India | | ■ | | | | |
| RLI44 | Nirmalya Choudhury | Tata Institute of Social Sciences | | ■ | ■ | | | |
| RLI45 | Nivedita Kashyap | Public Affairs Centre | | ■ | ■ | | | |
| RLI46 | P. Srinath | Public Affairs Centre | | ■ | ■ | | | |
| RLI47 | Panjamani Anbazhagan | CISTUP, Indian Institute of Science | ■ | | | | | |
| RLI48 | Partha Mukhopadhyay | Centre for Policy Research | | | ■ | | | |
| RLI49 | Pawan Mulukutla | Embarq India | ■ | | | | | |
| RLI50 | Prashanth Kumar Bachu | Embarq India | ■ | | | | | |
| RLI51 | Priyanka Vasudevan | Embarq India | ■ | | | | | |
| RLI52 | R.B. Bhagat | International Institute of Population Sciences | | | ■ | | | |
| RLI53 | R. Shankar | Indian Institute of Technology Roorkee | ■ | | | | | |
| RLI54 | Rabindranath Datta | Indian Institute of Technology Kharagpur | | ■ | ■ | | | |
| RLI55 | Radhika Khosla | Centre for Policy Research | ■ | | | | | |
| RLI56 | Ramasubramniam Shankar | Indian Institute of Technology Roorkee | | ■ | | | | |
| RLI57 | Ratoola Kundu | Tata Institute of Social Sciences | | | ■ | | | |
| RLI58 | Rejeet Mathews | Embarq India | | ■ | | | | |

| Researcher Code | Researcher name | Institution of Affiliation | Subthemes | | | | | |
|-----------------|----------------------|---|-----------|----------------|-----------|----------|--------|---------|
| | | | Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
| RLI59 | Rohit Mutatkar | Tata Institute of Social Sciences | | | ■ | | | |
| RLI60 | Ronita Bardhan | Indian Institute of Technology Bombay | ■ | ■ | ■ | | | |
| RLI61 | S.Y. Kularni | Indian Institute of Technology Roorkee | | ■ | | | ■ | |
| RLI62 | Sachin Warghade | Tata Institute of Social Sciences | | ■ | | | | |
| RLI63 | Samuel Paul | Public Affairs Centre | | ■ | ■ | | | |
| RLI64 | Saraswati Raju | Jawaharlal Nehru University | | | | | ■ | |
| RLI65 | Shibu K. Mani | Tata Institute of Social Sciences | ■ | | | | | |
| RLI66 | Shilpa Phadke | Tata Institute of Social Sciences | | | | | ■ | |
| RLI67 | Sreeja S. Nair | National Institute of Disaster Management | ■ | | | | | |
| RLI68 | Subhankar Karmakar | Indian Institute of Technology Bombay | ■ | | | | | |
| RLI69 | Subodh Wagle | Tata Institute of Social Sciences | | ■ | ■ | | | |
| RLI70 | Sudeshna Mitra | Indian Institute of Technology Kharagpur | ■ | ■ | | | | |
| RLI71 | Sukhdeo Thorat | Jawaharlal Nehru University | | | ■ | | | |
| RLI72 | Sumetee Pahwa Gajjar | Indian Institute for Human Settlements | ■ | | | | | |
| RLI73 | T.V. Ramachandra | CISTUP, Indian Institute of Science | ■ | ■ | | ■ | | |
| RLI74 | Tanushri Gupte | Embarq India | | ■ | | | | |
| RLI75 | Tejal Kanitkar | Tata Institute of Social Sciences | | ■ | | | | |
| RLI76 | T.G. Sitharam | CISTUP, Indian Institute of Science | | ■ | | ■ | | |
| RLI77 | Umang Jain | Embarq India | | ■ | | | | |
| RLI78 | Unmesh Patnaik | Tata Institute of Social Sciences | ■ | | | | | |
| RLI79 | V. Upadhyay | Indian Institute of Technology Delhi | | | ■ | | | |
| RLI80 | V Devdas | Indian Institute of Technology Roorkee | | ■ | ■ | | | |
| RLI81 | Vijay Anadkat | Embarq India | | ■ | | | | |
| RLI82 | Yamini Aiyar | Centre for Policy Research | | ■ | | | | |

Researchers at other Institutions

| Researcher Code | Researcher name | Institution of Affiliation | Subthemes | | | | | |
|-----------------|---------------------------|---|-----------|----------------|-----------|----------|--------|---------|
| | | | Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
| ROI01 | A. Veeraragavan | Indian Institute of Technology Madras | | ■ | | | | |
| ROI02 | Abha Mittal | CSIR Central Building Research Institute | ■ | | | | | |
| ROI03 | Alka Bharat | Maulana Azad National Institute of Technology, Bhopal | ■ | | | | | |
| ROI04 | Amitabh Kundu | Independent | | | ■ | | | |
| ROI05 | Aparna Phadke | Department of Geography, University of Mumbai | | | ■ | | | |
| ROI06 | Ashok Kumar | CSIR Central Building Research Institute | ■ | | | | | |
| ROI07 | B. Sudhakar Reddy | Indira Gandhi Institute of Development Research | ■ | ■ | | | | |
| ROI08 | Bhupatthi Rav | Regional Centre for Urban and Environmental Studies | ■ | ■ | | | | |
| ROI09 | Bhuvaneswari Raman | Jindal School of Government and Public Policy | | | ■ | | | ■ |
| ROI10 | Bikramjit S. Sekhon | Guru Nanak Dev University, Amritsar | | ■ | ■ | | | ■ |
| ROI11 | D.Thirumalaivasan | Anna University | ■ | | | | | |
| ROI12 | Eric Denis | French Institute of Pondicherry | | ■ | ■ | | ■ | ■ |
| ROI13 | George Varghese | National Institute of Technology Calicut | | ■ | | | | |
| ROI14 | Gitakrishnan Ramadurai | National Institute of Technology Calicut | | ■ | | | | |
| ROI15 | Hippu Salk Kristle Nathan | National Institute of Advanced Studies | ■ | ■ | | | | |
| ROI16 | Isher Judge Ahluwalia | Indian Council for Research on International Economic Relations | | ■ | ■ | | | |
| ROI17 | Jai Asundi | Center for Study of Science, Technology and Policy | | ■ | | | | |
| ROI18 | Kasturbha A.K. | National Institute of Technology Calicut | | | | ■ | | |
| ROI19 | K. Balaji Rao | CSIR Structural Engineering Research Centre | ■ | | | | | |
| ROI20 | K. Krishnamurthy | National Institute of Technology Calicut | | ■ | | | | |
| ROI21 | K. Muthumani | CSIR Structural Engineering Research Centre | ■ | | | | | |
| ROI22 | K. Ramanjaneyulu | CSIR Structural Engineering Research Centre | | ■ | | | | |
| ROI23 | K. Gunasekaran | Anna University | | ■ | | | | |
| ROI24 | Krishna Raj | Institute for Social and Economic Change | ■ | ■ | | | | |
| ROI25 | Krishne Gowda | Institute of Development Studies, University of Mysore | | ■ | | | | |
| ROI26 | Kshama Gupta | National Remote Sensing Centre, Hyderabad | | | | ■ | | ■ |
| ROI27 | Ligy Philip | Indian Institute of Technology Madras | | ■ | | | | |
| ROI28 | M Vijayabaskar | Madras Institute of Development Studies | | | ■ | | | |

| Researcher Code | Researcher name | Institution of Affiliation | Subthemes | | | | | |
|-----------------|------------------------|--|-----------|----------------|-----------|----------|--------|---------|
| | | | Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
| ROI29 | Manmohan Kapshe | Maulana Azad National Institute of Technology, Bhopal | ■ | ■ | | | | |
| ROI30 | Mayank Mathur | School of Planning and Architecture, Delhi | | | ■ | | | |
| ROI31 | MV Sridhara | Institute of Development Studies, University of Mysore | | ■ | | | | |
| ROI32 | N. Jothilakshmy | Anna University | | | ■ | | | |
| ROI33 | Natraj Kranthi | School of Planning and Architecture, Vijaywada | | | ■ | | | |
| ROI34 | P. Balachandra | Indira Gandhi Institute of Development Research | ■ | ■ | | | | |
| ROI35 | P.S. Roy | National Remote Sensing Centre, Hyderabad | | | | | | |
| ROI36 | P.G. Dhar Chakrabarti | The Energy and Resources Institute | ■ | | | | | |
| ROI37 | Piyali Sur | Jadavpur University | | | | | ■ | |
| ROI38 | P.K. Umesha | CSIR Structural Engineering Research Centre | ■ | | | | | |
| ROI39 | Poonam Prakash | School of Planning and Architecture, Delhi | | | ■ | | | |
| ROI40 | Prasad CSRK | National Institute of Technology, Warangal | | ■ | | | | |
| ROI41 | Rajesh Deoliya | CSIR - Central Building Research Institute | ■ | | | | | |
| ROI42 | Rakesh Ranjan | Integrated Research and Action for Development | ■ | | | | | |
| ROI43 | Ramakrishna Nallathiga | National Institute of Construction Management and Research, Pune | ■ | ■ | ■ | | | |
| ROI44 | Rekha S. Nair | Maulana Azad National Institute of Technology, Bhopal | ■ | | | | | |
| ROI45 | R. Sivanandan | Indian Institute of Technology Madras | ■ | | | | | |
| ROI46 | S. Ravichandran | Anna University | | ■ | | | | |
| ROI47 | Sakshi Saini | Participatory Research in Asia | | ■ | ■ | | | |
| ROI48 | Sameer Deshkar | Visvesvaraya National Institute of Technology, Nagpur | ■ | | ■ | | | |
| ROI49 | Sandeep Maithani | Indian Institute of Remote Sensing | ■ | ■ | | | | ■ |
| ROI50 | Sandip Sarkar | Institute of Human Development | | | ■ | | | |
| ROI51 | Sanjay Srivastava | Institute of Economic Growth | | | ■ | | | |
| ROI52 | Saudamini Das | Institute of Economic Growth | ■ | | | | | |
| ROI53 | Shyamli Singh | Indian Institute of Public Administration | ■ | | | | | |
| ROI54 | S.K. Negi | CSIR Central Building Research Institute | ■ | | | | | |
| ROI55 | Solomon J. Benjamin | Indian Institute of Technology Madras | | ■ | ■ | | | ■ |
| ROI56 | Soorya Vennila | Anna University | | ■ | ■ | | | |
| ROI57 | Sujaya Rathi | Center for Study of Science, Technology and Policy | | ■ | | | | ■ |
| ROI58 | Suresh Chand Rai | Delhi school of Economics | ■ | ■ | | | | |
| ROI59 | Suresh Kumar Rohilla | Centre for Science and Environment | | ■ | | | | |

| Researcher Code | Researcher name | Institution of Affiliation | Subthemes | | | | | |
|-----------------|---------------------|---|-----------|----------------|-----------|----------|--------|---------|
| | | | Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
| ROI60 | T.S. Krishnamoorthy | CSIR Structural Engineering Research Centre | | ■ | | | | |
| ROI61 | Vinod K. Gaur | CSIR Fourth Paradigm Institute | ■ | | | | | |
| ROI62 | Vivek Vaidyanathan | Center for Study of Science, Technology and Policy | | ■ | | | | |
| ROI63 | Wafa Singh | Participatory Research in Asia | | ■ | ■ | | | |
| ROI64 | Yogesh K. Garg | Maulana Azad National Institute of Technology, Bhopal | | | ■ | ■ | | |
| ROI65 | Yoginder K. Alagzh | Sardar Patel Institute of Economics & Social Research | | | ■ | | | |

Institution List & Dossiers

This section provides a full alphabetically organised list of all institutions mapped to the subthemes of interest.

In addition, detailed dossiers on each of the 15 leading institutions have been developed from their websites which provides an overview of the institution, some relevant research projects in the past five years, collaborations, institutional strengths and funders.

List of Identified Institutions

| S. No. | Name of the Institution |
|--------|--|
| 1 | Administrative Staff College of India, Hyderabad |
| 2 | Anna University |
| 3 | All India Institute of Local Self Governance, Mumbai |
| 4 | Arghyam, Bengaluru |
| 5 | Bureau of Energy Efficiency, New Delhi |
| 6 | Center for Infrastructure, Sustainable Transport and Urban Planning, Indian Institute of Science |
| 7 | Center for Study of Science, Technology and Policy |
| 8 | Centre for Policy Research, New Delhi |
| 9 | Centre for Science and Environment, New Delhi |
| 10 | Centre of Excellence in Urban Governance, Indian Institute of Management Bangalore, Bengaluru |
| 11 | Centre for Economic and Social Studies |
| 12 | Centre for Environmental Planning and Technology University, Ahmedabad |
| 13 | CSIR Central Building Research Institute, Roorkee |
| 14 | CSIR Fourth Paradigm Institute, Bengaluru |
| 15 | CSIR Structural Engineering Research Centre, Chennai |
| 16 | Centre for Urban Science and Engineering, Indian Institute of Technology Bombay, Mumbai |
| 17 | Delhi School of Economics, New Delhi |
| 18 | Department of Geography, University of Mumbai, Mumbai |
| 19 | EMBARQ India |
| 20 | French Institute of Pondicherry, Puducherry |
| 21 | Guru Nanak Dev University, Amritsar |
| 22 | IFMR Finance Foundation, Chennai |
| 23 | Indian Institute of Technology Delhi, Delhi |
| 24 | Indian Institute of Technology Kharagpur, Kharagpur |
| 25 | Indian Institute of Technology Madras, Madras |
| 26 | Indian Institute of Technology Roorkee, Roorkee |
| 27 | Indian Council for Research on International Economic Relations, New Delhi |
| 28 | Indian Institute of Human Settlements, Bengaluru |
| 29 | Indian Institute of Public Administration, New Delhi |
| 30 | Indian Institute of Remote Sensing, Dehradun |
| 31 | Indira Gandhi Institute of Development Research, Mumbai |
| 32 | Indo-Global Social Service Society, New Delhi |
| 33 | Institute for Human Development, New Delhi |
| 34 | Institute for Social and Economic Change, Bengaluru |
| 35 | Institute of Development Studies, University of Mysore, Mysuru |
| 36 | Institute of Economic Growth, New Delhi |
| 37 | Institute of Urban Transport, New Delhi |
| 38 | Indian National Trust for Art and Cultural Heritage, New Delhi |
| 39 | Integrated Research and Action for Development, New Delhi |
| 40 | International Institute of Population Sciences, Mumbai |
| 41 | Jadavpur University, Kolkata |
| 42 | Jawaharlal Nehru University, New Delhi |
| 43 | Jindal School of Government and Public Policy, Sonapat |
| 44 | Madras Institute of Development Studies, Chennai |
| 45 | Maulana Azad National Institute of Technology, Bhopal |
| 46 | National Council of Applied Economic Research, New Delhi |
| 47 | National Institute of Advanced Studies, Bengaluru |
| 48 | National Institute of Advanced Studies in Architecture, Pune |

| S. No. | Name of the Institution |
|--------|---|
| 49 | National Institute of Construction Management and Research, Pune |
| 50 | National Institute of Disaster Management, New Delhi |
| 51 | National Institute of Public Finance and Policy, New Delhi |
| 52 | National Institute of Technology, Calicut |
| 53 | National Institute of Technology, Tiruchirappalli |
| 54 | National Institute of Technology, Warangal |
| 55 | National Institute of Urban Affairs, New Delhi |
| 56 | National Remote Sensing Centre, Hyderabad |
| 57 | Participatory Research in Asia, New Delhi |
| 58 | Public Affairs Centre, Bengaluru |
| 59 | Regional Centre for Urban and Environmental Studies, Hyderabad |
| 60 | Regional Centre for Urban and Environmental Studies, Lucknow |
| 61 | Royal Institution of Chartered Surveyors - School of Built Environment, Amity University, Noida |
| 62 | Sardar Patel Institute of Economics & Social Research, Ahmedabad |
| 63 | School of Planning and Architecture, Bhopal |
| 64 | School of Planning and Architecture, New Delhi |
| 65 | School of Planning and Architecture, Vijaywada |
| 66 | Tamil Nadu Institute of Urban Studies, Coimbatore |
| 67 | Tata Institute of Social Sciences, Mumbai |
| 68 | The Energy and Resources Institute, New Delhi |
| 69 | Town and Country Planning Organization, New Delhi |
| 70 | Visvesvaraya National Institute of Technology, Nagpur |

Center for infrastructure, Sustainable Transportation and Urban Planning, Indian Institute of Science



Website:
www.cistup.iisc.ernet.in

| | | | | | |
|---------|----------------|-----------|----------|--------|---------|
| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
|---------|----------------|-----------|----------|--------|---------|

Overview

The Center for infrastructure, Sustainable Transportation and Urban Planning (CiSTUP) was established in 2009 as part of the Indian Institute of Science (IISc). IISc was set up by Jamsetji Nusserwanji Tata, the Maharaja of Mysore and the Government of India. It works primarily on urban issues of infrastructure and city planning. It conducts training programmes and capacity building initiatives. It additionally provides technological and planning solutions for urban renewal and development programmes related to urban transportation and infrastructure engineering. Research in the institute has a special focus on sustainable urban transport as well.

Selected Research Projects

- *Performance Evaluation Of Public Transport Operations In Karnataka By Using Multivariate And Non Parametric Techniques*
- *Feasibility Study of Exhaust Thermoelectric Generator for Urban Buses.*
- *Assessment of Construction Technologies in Transportation Infrastructure for Developing and Managing the Transportation System in Bangalore.*
- *Evaluation of Municipal Solid Waste characteristics of a Typical Landfill in Bangalore*
- *Development of a Robust, Low Cost Traffic Measurement System*

Collaborations

At the national level, CiSTUP has strong connections with the Government, especially with the state government of Karnataka. International collaborations include the Science and Innovation Network, UK-India Education and Research Initiative, Research Councils UK, Science and Media Centre among others.

Institutional Strength

IISc has 39 departments, units and centres, 3500 students, and over 500 academic and scientific staff, supported by 600 administrative personnel. The work concerning urban issues is carried out at CiSTUP, which has a total of 24 associated research staff members.

Funders

CiSTUP run on the revenue generated through course and tuition fees. It also has the support of a corpus fund contributed by Bangalore Development Authority, Karnataka State Road Transportation Corporation, Bangalore Metropolitan Transport Corporation, North East Karnataka Road Transport

Centre for Environmental Planning and Technology University



Website: www.cept.ac.in

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

The Centre for Environment Planning and Technology (CEPT) was established by the Ahmedabad Education Society in the year 1962. The university comprises 5 departments – School of Architecture, School of Planning, School of Building Science and Technology, School of Interior Design, and Faculty of Management.

Selected Research Projects

- *Dynamics of poverty, Inequality and Violence in Indian Cities: Towards Inclusive Policies and Planning*
- *Managing urban logistics in an expanding city - case study of Ahmedabad*
- *Slum Rehabilitation schemes in Ahmedabad*
- *Monitoring and implementation of Social Security for Urban poor-Case of Gujarat*
- *Promoting Sustainable Urban Growth in Indian Cities*

Institutional Strength

There is a total 69 faculty across the five departments of the University.

Collaborations

In the area of different themes of urbanisation the University has extensive tie-ups with many universities and institutions from various countries. These include the Academy of Fine Arts and Design, Slovakia; Bezalel Academy of Arts and Design, Israel; Delft University of Technology, Netherlands; and Ecole Nationale Supérieure D'architecture de Paris-Belleville, France. In addition it has collaborations with Indian institutes such as the Institute of Human Development.

Funders

Research projects are backed primarily by internal sources of funding. In the past 5 years, CEPT has also received funding from Indian institutes and non governmental organisations as well as international institutes. The important funding sources from India are Rajkot Municipal Corporation, SEWA Ahmedabad, Prayas Centre for Labour Research and Action, and Centre for Development Studies, Trivandrum. International funding sources include International Development Research Centre, UK's Economic and Social Research Council and Department for International Development.

Centre for Policy Research



Website: www.cprindia.org

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

The Centre for Policy Research was established in 1973. CPR is a not for profit, independent institution dedicated to conducting research that contributes to a more robust public discourse about the structures and processes that shape life in India.

Selected Research Projects

- *Comparative Study on Patterns of Urban Violence in Cape Town and Hyderabad*
- *Scaling City Institutions - For India Sanitation*
- *Cities of Delhi Project*
- *Alternative Approaches to Governance in India's Mega Cities*
- *Subaltern Urbanisation in India*

Institutional Strength

The Centre for Policy Research has 5 thematic clusters and urbanisation is one of these. The urbanisation division has 20 faculty members and research staff.

Collaborations

In the area of urbanisation, CPR has collaborations with various universities and research institutes in India and abroad. At the national level, it has collaborated with Centre de Sciences Humaines, India, Indira Gandhi Institute for Development Research, and National Institute for Urban Affairs. Internationally, it has collaborated with Hunter College, USA, University of New South Wales, Australia, South Asia Policy and Research Institute (SAPRI), Sri Lanka and Yunnan University, China amongst others.

Funders

In the past 5 years, CPR has received funding from India and abroad for research in urbanisation. Within India the important sources of funding are Ministry of Urban Development and Indian Council for Social Science Research. International funding sources include the Ford Foundation, French National Agency for Research, Collaboration for Research on Democracy and Brown University.

Centre for Urban Science and Engineering, Indian Institute of Technology Bombay



Website: www.cuse.iitb.ac.in

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

Centre for Urban Science & Engineering (C-USE) was established in 2013 at the Indian Institute of Technology Bombay (IIT-B) campus in Mumbai. C-USE is an interdisciplinary centre for research, teaching and skilled manpower development with the primary mandate of creating innovative and holistic solutions to deliver urban services related to housing, infrastructure, energy, and health while mitigating the effects of natural disasters and climate change. The centre combines the latest advances in science and technology with sustainable, equitable and human friendly design, to create new products and solutions that would ultimately lead to the betterment of life for the rapidly increasing urban population in the developing world. IIT-B is placed at no.9 in the Careers360 ranking of the top 100 universities in India and no.15 in the QS ranking for top 200 universities in the BRICS countries.

Research Projects

- *Urban Form and Extreme Precipitation Events: Are Compact Cities More Vulnerable to Flooding?*
- *Effects of Real Estate Dynamics on Urban Forms and its Emergence as Growth Machine in Indian Cities*
- *Empowering Citizens to/and Monitoring Urban Spaces*
- *Optimising Location and Capacity of Emergency Response Infrastructure for Megacities*
- *Exploiting Solar Energy in Urban Areas: Potential and Approaches*

Institutional Strength

C-USE is linked to many departments, centres and groups at IIT-B. It has 30 faculty members working at its Centre.

Collaborations

At the international level, C-USE has collaborated with New York University, University of Warwick, University of Toronto and City University of New York amongst others. Besides being a member of the international consortium Centre for Urban Science and Progress based in New York, C-USE is also a part of McDonnell Academy Global Energy and Environment Partnership, a consortium of 28 universities and corporate partners working together in Energy, Environmental and Sustainability research, education and operations.

Funders

Being a part of IIT-B, C-USE primarily receives funds from the government of India.

EMBARQ India



Website: www.embarqindia.org

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

EMBARQ India (WRI Center for Sustainable Transport) is a non-profit initiative of the World Resources Institute (WRI), an environmental think tank based in Washington DC. It was set up in 2006 in Mumbai, and has spread its presence to Bengaluru and New Delhi. It is part of the international EMBARQ network with offices in Mexico, Brazil, India, Turkey and the Andean Region. These work together with local transport authorities to reduce pollution, improve public health, and create safe, accessible and attractive urban public spaces. It has a specialisation in urban transport systems and planning.

Selected Research Projects

- *Bus Karo - City Bus Systems, Bus Rapid Transit, Bus Karo Plus*
- *Connecting the Last Mile - Auto-rickshaws, Public Bicycle Schemes*
- *Sustainable Transport Saves Lives - Road Safety Audits, Public Health Linkage*
- *Designing Built Environments for Better Accessibility - Station Accessibility, Road Safety Audits, Station Area Development*
- *Sustainable Mobility & Housing - Pedestrian & Bicycling Mobility, Road Safety*

Institutional Strength

EMBARQ India has 29 research staff on its team, with specialisations in urban and environmental issues, particularly transport management.

Collaborations

At the national level, EMBARQ India works with a variety of government and non government organisations, including a number of urban local bodies, state governments, especially the Government of Karnataka and the Ministry of Urban Development. Being part of an international network, it has connections across the world including with Mexico, Brazil, India, Turkey and the Andean Region. EMBARQ India has also collaborated with private sector companies such as FedEx.

Funders

N/A

Indian Institute for Human Settlements



Website: www.iihs.co.in

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

The Indian Institute for Human Settlements (IIHS) was set up in 2011 as an educational institution committed to the equitable, sustainable and efficient transformation of Indian settlements. It works on the research themes of Urban Systems and Infrastructure, Climate Change, Economic Development, Environment and Sustainability, Governance and Public Policy and Human Development. IIHS, through its research and consulting, provides advisory services to national and state governments, international agencies, parastatal municipal agencies and private firms in the area of human settlements and urbanisation.

Selected Research Projects

- *Re-Framing Urban Inclusion*
- *UNESCO Creative Economy*
- *IGC-JNNURM*
- *IIHS – IDFC Foundation Project on Policy Determinants of Urban Form*
- *Integrated Urban Water Management: Initiating the Next Wave*

Institutional Strength

IIHS has a total of 73 staff in its Academics and Research department, Urban Practitioners' Programme, Operations and Practice departments.

Collaborations

IIHS has partnered with various international organisations and institutes for research. At the national level it has worked with the Planning Commission, Ministry of Human Resources Development, Ministry of Urban Development, Ministry of Housing and Urban Poverty Alleviation, state governments of Delhi, Karnataka and Tamil Nadu as well as urban local bodies such as the Bangalore Development Authority. IIHS has also collaborated with national non governmental organisations like Arghyam, Centre for Equity Studies and SEWA. International collaborations include Urban Knowledge Network Asia; École Polytechnique Fédérale de Lausann; Massachusetts Institute of Technology, Boston; University College London; African Centre for Cities, Cape Town; Universidade Federal do ABC, Sao Paulo; University of Sao Paulo; University of Cape Town; Collegio de Mexico; FLASCO, Ecuador and the global offices of Arup.

Funders

IIHS has received funding support from the Ford Foundation, International Growth Centre and the Rockefeller Foundation for its academic and research endeavours.

Indian Institute of Technology Delhi



Website: www.iitd.ac.in

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

The Indian Institute of Technology, Delhi (IIT-Delhi) is a public research university established in 1960. It was declared as an 'Institute of National Importance' by Government of India under the IIT Act. As one of the pioneering research institutes in the country, IIT-Delhi is mandated to generate new knowledge by engaging in cutting-edge research and to promote academic growth by offering state-of-the-art undergraduate, postgraduate and doctoral programs.

Selected Research Projects

- *The future of Low Carbon Transport in India - Initiative to support a low carbon transport pathway in India*
- *Evolving Campaign Strategies for Promoting Sustainable Transport in Delhi*
- *Institutional and Financial Restructuring of Road works in Delhi*
- *Traffic and Transport Plan for MCD Civic Centre area and Redevelopment of Shahjahanabad*
- *Technical assistance in Urban Transport sector for Phase-2 of the Jawaharlal Nehru Urban Renewal Mission (JNNURM)*

Institutional Strength

IIT-Delhi has 13 academic departments, 11 Centres, 3 schools and 2 Centres of Excellence. Courses are offered in various disciplines of Engineering, Architecture and Planning and Applied Science. The institute runs research and doctoral work in all its departments.

The departments of Civil Engineering and Humanities have worked on several projects in the field of urbanisation. The total faculty strength of these departments is 78.

Collaborations

IIT-Delhi has collaborated with multiple Government ministries, including the Ministry of Water Resources, Ministry of Earth Sciences, and Ministry of Environment and Forests. It has also been involved on projects with organisations such as the Department of Science and Technology, New Delhi Municipal Council, Northern Railways, Power Grid Corporation, Unitech, Konkan Railways and so on. Internationally, it has worked with organisations such as the German Development Institute, UNICEF, International Development Research Centre and the Omidyar Network.

Funders

IIT-Delhi receives regular funding from the Government of India through several ministries including the Ministry of Human Resource Development, the Ministry of Home Affairs and the Ministry of Science and Technology. Apart from regular funding, IIT-Delhi also gains funds through consulting projects for national and international organisations.

Indian Institute of Technology Kharagpur



Website: www.iitkgp.ac.in

Hazards

Infrastructure

Inclusion

Heritage

Safety

Systems

Overview

Indian Institute of Technology Kharagpur (IIT-K), the first IIT, was established in Kharagpur, West Bengal in 1951. It has a vision to be a centre of excellence in education and research producing global leaders in science, technology and management; and to be a place where knowledge is created in frontier areas of national and global importance.

Selected Research Projects

- *Artificial Intelligence for Societal Needs: Knowledge Discovery and Intelligent Decision Making for Solving Problems in Indian Context Related to Energy*
- *Sensor Network and Web-Enablement for Geospatial Technology Based Tools Development and Disaster Management: A Pilot Study*
- *Advanced Research Laboratory on Safety and Uncertainty Analyses of Infrastructure Systems*
- *Seismic Hazard Assessment, Micro Zonation, and Evaluation of Vulnerability, Risk and Socio-Economic Impacts for the City of Kolkata*
- *Preparation of Perspective Plan- Vision 2030 and Comprehensive Development Plans for Planning Areas of Bhubaneswar and Cuttack Development Authority*

Institutional Strength

IIT Kharagpur's departments of Architecture and Planning, and Civil Engineering contribute to work on urbanisation and are home to 46 faculty members.

Collaborations

IIT Kharagpur has over 30 international collaborations through Memorandums of Understanding (MOU), institutional partnerships and exchange programmes. International collaborations include Virginia Commonwealth University, USA; Gwangju Institute of Science and Technology, South Korea; RWTH Aachen University, Germany; University of Tokyo, Japan. It also collaborates extensively with UK through the University of Southampton, University of Warwick and the University of Birmingham. It additionally works with the other IITs such as IIT Bombay on several research projects.

Funders

IIT Kharagpur has receives core funding from the Government of India, supplemented by other private and international funding agencies and enterprises.

Indian Institute of Technology Roorkee



भारतीय प्रौद्योगिकी संस्थान रुड़की
Indian Institute of Technology Roorkee

Website: www.iitr.ac.in

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

The Indian Institute of Technology Roorkee (IIT-R) formerly the University of Roorkee (1948-2001) and the Thomason College of Civil Engineering was established in 1847. It was converted into an Indian Institute of Technology in 2001. It is one of the premier institutes for technical and professional teaching and research. It is placed at no.15 in the Careers360 ranking of the top 100 universities in India and no.37 in the QS ranking for top 200 universities in the BRICS countries.

Selected Research Projects

- *Geo-Environmental Appraisal of Almora for Hazard Assessment as a basis for Planning for Future Urbanisation*
- *Megacities and Global Change: An Integrated Study of South Asian Megacity Emission and their Local-to-Global Impacts on Air Quality and Climate*
- *Development of A Critical Infrastructure Information System in GIS Environment for Maintenance of Bridges on National & State Highways*
- *Universal Design: A Barrier Free Approach for all Categories of the Disabled*

Institutional Strength

IIT-R has 21 academic departments, 1 academic centre, 3 centres of excellence, 5 academic service centres and 3 supporting units, and offers courses at the Bachelor's and Postgraduate level. Postgraduate courses are offered in 55 disciplines of Engineering, Architecture and Planning and Applied Science. The institute runs research and doctoral work in all its departments.

The departments of Architecture and Planning and Civil Engineering have worked on several projects in the field of urbanisation. The total strength of these departments is 68.

Collaborations

At the national level, IIT-R has collaborated with the Ministry of Human Resource Development, Ministry of Home Affairs and the All India Council for Technical Education amongst others. At the international level, IIT-R has collaborations with many countries including UK, USA, Germany, Canada, Portugal and Austria.

Funders

IIT-R receives regular funding from the All India Council for Technical Education, Ministry of Human Resource Development, Ministry of Home Affairs and Department of Science and Technology under the Ministry of Science and Technology, Government of India.

International Institute of Population Sciences



Website: www.iipsindia.org

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

The International Institute for Population Sciences (IIPS) was established in 1956 in Mumbai, under the joint sponsorship of Sir Dorabji Tata Trust, the Government of India and the United Nations. It serves as a regional institute for training and research in population studies for the Economic and Social Commission for Asia and the Pacific region. The Institute is under the administrative control of the Ministry of Health and Family Welfare, Government of India. Besides teaching and research activities, the institute also provides consultancy to the government, non government and other academic institutions. IIPS aims to create competent professionals in the field and strives towards generation and dissemination of scientific knowledge and evidence.

Selected Research Projects

- *Health of the Urban Poor*
- *National Family Health Survey*
- *Major challenges in ensuring health care services for the Urban Poor in India: Issues and strategies for programs and services*
- *District Level Household and Facility Survey*

Collaborations

NA

Institutional Strength

The departments of Migration & Urban Studies; Development Studies; and Population Policies and Programmes work in the area of urbanisation. These departments have 15 faculty members in all.

Funders

In the past 5 years, IIPS has received funding from various Indian ministries, UN agencies and international funding agencies. At the national level, the main funding sources are the Population Foundation of India and the Ministry of Health and Family Welfare, Government of India. International funding sources include UN agencies such as UNFPA, UNICEF and other agencies, namely, USAID, DFID, the Bill and Melinda Gates Foundation and the McArthur Foundation.

Jawaharlal Nehru University



Website: www.jnu.ac.in

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

Jawaharlal Nehru University (JNU) was established in 1969 at New Delhi. JNU is a premier institution of higher learning and promotes research and teaching leading to the increasing engagement of its students and teachers in academic work and national and international policy making. Several centres at JNU have been declared by the University Grants Commission to be 'Centres of Excellence'. It is placed at no.23 in the Careers360 ranking of the top 100 universities in India.

Selected Research Projects

- *Spatial Dimensions of Deprivation and Vulnerability in Kolkata Metropolis: Issues and Challenges to Slum Development Programmes*
- *Kolkata Urban Agglomeration: A Study on Change in Physical and Socio-economic Landscape*
- *SUBURBIN - Subaltern Urbanization in India*
- *Violence-Free Safe Metropolitan Spaces for Girls and Women: A Study in Delhi*
- *Risks and Responses to Urban Futures*

Institutional Strength

JNU has 4 centres working on urbanisation related research – Centre for the Study of Regional Development, Centre of Social Medicine and Community Health, Centre for the Study of Social System and Centre for Historical Studies. There are 79 faculty members across these centres.

Collaborations

At the national level, JNU has worked with a number of government and non government organisations including the Ministry of Human Resource Development, University Grants Commission, Office of the Registrar General & Census Commissioner of India, Centre for Policy Research, Centre de Sciences Humaines and School of Planning and Architecture, New Delhi. Internationally, JNU closely collaborates with universities in the UK such as the University of Sussex, University of Essex, King's College, Queens University, School of Oriental and African Studies, University of Edinburgh and University of Sheffield. It also has international collaborations with leading universities and research centres across the world. Key countries it collaborates with include UK, USA, France, Germany, Italy, Australia and the Netherlands.

Funders

JNU receives funding from government and private sources from India as well as universities and funding agencies from abroad. At the national level, the funding sources include Indian Council of Social Science Research and University Grants Commission. International funding sources include Ecosystem Services for Poverty Alleviation, UK and French National Agency for Research.

National Institute of Disaster Management



Website: www.nidm.gov.in

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

The National Institute of Disaster Management (NIDM), earlier known as the National Centre for Disaster Management, was established by the Ministry of Agriculture and Cooperation, Government of India in 1995. NIDM is responsible for planning and promoting training, research, documentation and dissemination in the area of disaster management, prevention and mitigation measures.

Selected Research Projects

- *The National Cyclone Risk Mitigation Project*
- *Environment and Knowledge Management for Disaster Risk Management*
- *Drought Vulnerability and Mitigation Analysis for Bundelkhand region*

Collaborations

At the national level, NIDM has collaborations with institutes such as the Indian Council for Social Science Research and the University Grants Commission. At the international level, it collaborates with UN agencies such as UNDP and UNEP as well as multilateral institutions such as GIZ, USAID, World Bank and the International Centre for Integrated Mountain Development, Nepal.

Institutional Strength

NIDM has five divisions and one training cell. The divisions of Policy Planning and Cross Cutting Issues, Geo-hazards Risk Management and Disaster Response Division work in the area of disaster management and urbanisation. These 3 divisions have 14 faculty members, consultants and researchers.

Funders

In the past five years the Institute has received funding from Indian as well as from global agencies. National funding sources include Indian Council of Social Science Research, Ministry of Environment and Forest, and Indo-German Environment Program. At the international level, it has received funding from GIZ, USAID and the World Bank amongst others.

National Institute of Urban Affairs



Website: www.niua.org

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

National Institute of Urban Affairs (NIUA) was established in 1976 as an autonomous body under the Societies Registration Act. It works in research, capacity building and dissemination of knowledge for the urban sector in India. NIUA carries out research in the areas of urbanisation, urban policy and planning, urban livelihoods, land economics, transit oriented development, smart cities, environment and climate change and municipal finance and governance. It also publishes *Urban India* a long-running journal on urbanisation issues in India.

Selected Research Projects

- *Urban Green Growth Strategies for Indian Cities*
- *South Asia Urban Knowledge Hub*
- *Sustainable Social Housing Initiatives in India*
- *Demographic, Economic and Social Structures of Different Sizes of Urban Settlements in India*
- *Training and Capacity Building, Knowledge Networking and Documentation Support for Developing Urban Climate Change Resilience in Indian Cities.*

Institutional Strength

There are 6 senior faculty member in the Institute who execute research projects with the assistance of support staff.

Collaborations

Right from its establishment, NIUA has had a strong partnership with the Ministry of Urban Development. Other national level collaborations include the Indira Gandhi Institute of Development Research, Centre for Policy Research and CITYNET. At the international level, NIUA has collaborated with Ecorys, UK, USAID and Cityzenith, USA amongst others

Funders

NIUA receives support from the United Nations Environment Programme, Ministry of Urban Development, Housing and Urban Development Corporation Limited, Cities Alliance and the Rockefeller Foundation.

Public Affairs Centre



Website: www.pacindia.org

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

Public Affairs Centre (PAC), established in 1994 is a not for profit organisation. PAC undertakes and supports research, disseminates research findings and facilitates collective citizen action to improve the quality of governance in India. PAC is known for its pioneering Citizen Report Cards, and benchmarking studies to improve public services.

Selected Research Projects

- *The State of India's Mid-Tier Cities*
- *Monitoring Expenditure and Outcomes To Improve Health Services For Urban Poor Women In Bangalore*
- *State of Karnataka's Cities*
- *Climate Smart Cities: Bangalore*
- *Social Audit of Public Services in Greater Bangalore*

Institutional Strength

PAC consists of 4 groups. The Public Policy Research Group and Participatory Governance Research Group undertake various research and implementation projects on urban issues. These two divisions consist of 8 programme staff and consultants.

Collaborations

At the national level it collaborates with the state government of Karnataka, city governments and urban local bodies. At the international level, PAC has collaborated with Lee Kuan Yew School of Public Policy, National University of Singapore; Centre for Science Technology and Policy, Nepal; and Institute of Environmental Transition, Nepal amongst others.

Funders

In the past 5 years, PAC has received funding from government and private sources from India as well as universities and funding agencies from abroad. At the national level, the funding sources include State Planning Commission, Government of Karnataka; Ministry of Housing and Urban Poverty Alleviation, Government of India; and the Brigade Group, Bangalore. International funding sources include International Development Research Centre, Canada; International Budget Partnership, USA; South Asia Network of Economic Research Institutes; and Lee Kuan Yew School of Public Policy, National University of Singapore.

Tata Institute of Social Sciences



Website: www.tiss.edu

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| Hazards | Infrastructure | Inclusion | Heritage | Safety | Systems |
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Overview

Tata Institute of Social Sciences (TISS) was established in 1936 with its main campus based in Mumbai and other campuses in Hyderabad, Guwahati and Tuljapur. TISS has earned recognition as an institution of repute from different ministries of the government of India, state governments and international agencies. TISS organises teaching programmes to facilitate the development of competent and committed professionals for practice, research and teaching; undertakes research; develops and disseminates knowledge; and reaches out to the larger local, national, regional and international community.

Selected Research Projects

- *Jammu and Kashmir State Disaster Management Plan Preparation Project*
- *Right to the City as the basis for Housing rights advocacy in contemporary India*
- *Safe and Inclusive Cities: People, Places, and Infrastructure: Countering Urban Violence and Promoting Social Justice in Mumbai, Durban, and Rio de Janeiro*
- *Impact of Infrastructure and Governance Transformations of JNNURM on Small, Medium and Large Cities*
- *Governance Challenges for the Implementation of Workers' Rights in Hazardous Industries: A Case Study of Alang-Sosiya Ship Breaking Industries, Bhavnagar, Gujarat*

Institutional Strength

TISS has 4 campuses with 9 schools and 33 centres. Research on urbanisation is largely carried out at the School of Development Studies, Schools of Habitat Studies, Jamsetji Tata Centre for Disaster Management and School of Media and Culture Studies. These have a total of 66 faculty members.

Collaborations

At the national level, TISS works closely with the state government of Maharashtra, as well as a number of national ministries of the government of India. At the international level, TISS has collaborations with the University of Hertfordshire and the London School of Economics in the UK. It has also collaborated with a number of universities in France, Germany, Australia, Sweden and the USA among others.

Funders

TISS's national sources of funding include Sir Ratan and Navajbai Tata Trusts, University Grants Commission, National Human Rights Commission, Planning Commission, Indian Council of Social Science Research and various state governments. Major international sources of funding include Ford Foundation, Max Planck Institute and International Development Research Centre.

Funder List & Dossiers

This section provides dossiers on each of Indian funders mapped that fund research on the subthemes of Sustainable Cities and Rapid Urbanisation. Each dossier provides information on the funder from its website, eligibility for its grant funds, and description of relevant grant windows.

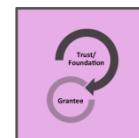
The list is arranged alphabetically.

List of Funders

| S. No. | Name of the Funder |
|--------|--|
| 1 | Arghyam, Bengaluru |
| 2 | Council of Scientific and Industrial (CSIR), New Delhi |
| 3 | Department of Electronics and Information Technology, New Delhi |
| 4 | Department of Science & Technology, New Delhi |
| 5 | Indian Council of Social Science Research, New Delhi |
| 6 | Ministry of Housing and Urban Poverty Alleviation, New Delhi |
| 7 | Ministry of Urban Development, New Delhi |
| 8 | Ministry of Water Resources, River Development & Ganga Rejuvenation, New Delhi |
| 9 | Science and Engineering Research Board, New Delhi |
| 10 | Sir Ratan Tata Trust and Navajbai Ratan Tata Trust, Mumbai |
| 11 | University Grants Commission of India, New Delhi |

Arghyam

Website: www.arghyam.org



Overview

Arghyam is a charitable grant making foundation that was set up in 2005 in Bengaluru, Karnataka. It is largely funded by a personal endowment from Rohini Nilekani. Arghyam is interested in the field of sustainable water management and provides funding support to organisations working in the areas of groundwater and sanitation. Their programmatic focus is on water quality networks, participatory groundwater management, groundwater data repository, urban groundwater and urban sanitation. In the area of urbanisation, it provides funds through its Urban Initiatives Programme, which aims to develop a holistic approach for towns to improve and optimise sustainable management of water.

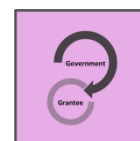
Since its inception, Arghyam has given grants to 81 projects spread over 19 states of India. It primarily works in collaboration with non governmental organisations and civil society organisations (CSOs) for implementation projects. For research initiatives, Arghyam partners with technical groups such as the IITs, think tanks, and with donors such as UNICEF, WaterAid India, Water and Sanitation Programme and Water for People.

Eligible Recipients

Institutions such non government organisations, civil society organisations and government agencies are eligible for grants. Arghyam does not provide funding support directly to individual researchers or universities.

Grant Windows

| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|--------------|--|-----------------------|----------|----------------|
| Grant | For projects and research, advocacy, events, and communication in the areas including Water Quality, Sanitation, and Urban Initiatives | Input | - | NA |



Overview

The Council of Scientific and Industrial (CSIR), India's largest research and development organisation, was established as an autonomous body by the Government of India in 1942. It is primarily funded by the Ministry of Science and Technology. CSIR has a network of 38 national laboratories, 39 outreach centres, three innovation complexes and five smaller units. It has about 4600 active scientists supported by about 8000 scientific and technical personnel. It provides support to research in a large number of fields including earth resources; hazards assessment and mitigation; ecology & environment; and housing and construction.

CSIR has over 50 ongoing collaborations, with both national and international partners. Over 40% of the collaborations are international ones. It has memorandums of understanding/agreements with organisations in 21 countries such as USA, China, France, Australia and about 30 Indian institutes, including Central Road Research Institute, New Delhi and Central Building Research Institute, Roorkee.

Eligible Recipients

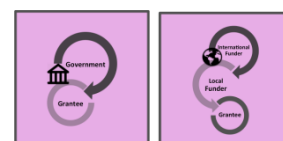
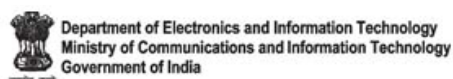
CSIR provides funding to individuals researchers in the form of fellowships and grants. For fellowships, a monthly stipend is provided. It does not fund universities or institutions directly.

Grant Windows

| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|--|---|-----------------------------|----------|----------------|
| Senior Research Associateship | To provide temporary placement to enable an associate to do research/teaching in India while looking for a regular position. The SRA is applicable to Medical Sciences, Social Sciences and Humanities. | Input | 3 yrs | NA |
| Research Grants | To promote research work in the fields of Science & Technology. Funds are provided to Junior Research Fellows (JRF), Senior Research Fellows (SRF) and Research Associates (RA) | Input | NA | NA |
| CSIR-Nehru Science Postdoctoral Research Fellowship Scheme | To facilitate promising young researchers' transition from mentored to independent research careers in the fields of basic science and engineering. | Input | 2 yrs | NA |

Department of Electronics and Information Technology

Website: www.deity.gov.in



Overview

In 2012, the Government of India set up the Department of Electronics and Information Technology (DeitY) in New Delhi. The department functions under the Ministry of Communications and Information Technology. The primary objective of DeitY is to develop and promote the use of new technology for development in the country. It works to provide and promote e-infrastructure for delivery of e-services, electronic hardware manufacturing, security for India's cyber space and enhance India's role in global platforms of Internet governance. A major part of DeitY's work is to encourage innovation, research and design in the sector of e-governance, support e-skills and the development of a knowledge network and promote the use of technology for inclusive growth.

DeitY collaborates with a number of national and international organisations to promote research and development activities in its areas of interest. It has currently has collaborations with Japan, Israel, the Netherlands and USA.

Eligible Recipients

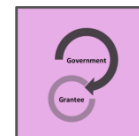
DeitY provides funding support to individual researchers, universities and institutions.

Grant Windows

| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|---|---|-----------------------------|----------|---|
| Pervasive Sensing and Computing Technologies for Energy and Water Sustainability in Buildings | Institutional support for research as part of an India-USA joint research and development project | Input | 2 yrs | IIT-Delhi, Centre for Development of Advanced Computing, Chennai and University of California Los Angeles, USA |
| Designing a Smarter and Greener Electric Grid: A Sensor Data Driven Approach | Institutional support for research as part of an India-USA joint research and development project | Input | 2 yrs | IIT-Bombay, Centre for Development of Advanced Computing, Thiruvananthapuram and University of Massachusetts, USA |
| Multiplier Grants | For academic institutions and researchers to strengthen the linkages between industry and academics | Input | 2-4 yrs | Department of Science and Technology |

Department of Science & Technology

Website: www.dst.gov.in



Overview

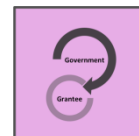
The Department of Science & Technology (DST) was established in May 1971 under the Ministry of Science and Technology, with the objective of promoting new areas of science and technology and to play the role of a nodal department for organising, coordinating and promoting science and technology activities in the country. The head office is located at New Delhi. The Department's mandate includes technology development and support to basic and applied research. The department also aims to foster national and international collaborations in science and technology. It supports entrepreneurship development and promotes socially oriented interventions for weaker sections.

Eligible Recipients

Individual researchers, academic institutions and universities are all eligible to receive funding from DST. The Department primarily offers fellowships and research grants to scientists. The duration of these grants ranges from 3 years to 5 years.

Grant Windows

| Grant Window | Brief Description | Input/ Output/ Findings | Duration | Collaborations |
|---|--|-------------------------------|----------|----------------|
| Swarnajayanti Fellowships Scheme | For young scientists to pursue basic research in science and technology | Input | 5 yrs | NA |
| Women Scientists Scheme (WOS-A) | For women scientists and technologists to pursue research in basic or applied sciences | Input | 3 yrs | NA |
| Kishore Vaigyanik Protsahan Yojana (KVPY) | For career opportunities in science and technology research areas | Input | - | NA |
| Innovation in Science Pursuit for Inspired Research (INSPIRE) Programme | For career opportunities in science and technology research areas | Input | - | NA |



Overview

The Indian Council of Social Science Research (ICSSR) was established in the year of 1969 by the Government of India to promote research in social sciences in the country. It supports a network of 27 ICSSR research institutes across the country. The ICSSR is also a member of the International Social Science Council, Paris, Association of Asian Social Science Research Council, Science Council of Asia, Japan and International Federation of Social Sciences Organisation and also participates in the activities of UNESCO's programme called Management of Social Transformation. From the UK, it has collaborated primarily with the Economic and Social Research Council.

Eligible Recipients

ICSSR provides funding to individuals researchers in the form of scholarships and fellowships and institutions through grants.

Grant Windows

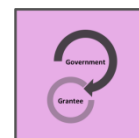
| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|--|--|-----------------------------|----------------|----------------|
| Research Projects Scheme | For scholars to conduct research in various fields of social sciences which have a theoretical, conceptual, methodological or policy orientation on the subject of their choice. | Input | 3 mths - 2 yrs | NA |
| Research Assistance to Young Social Scientists | To assist young college lecturers and researchers (below the age of 40) working in research institutes | Input | 6 mths | NA |
| Study Grant to Senior Social Scientists | For social scientists to enable them to pursue their study and research after retirement. | Input | 3 mths | NA |
| National Fellowships | For scholars to conduct studies in social sciences, generate fieldwork based empirical work and new data, and are policy relevant. | Input | 2 yrs | NA |
| Senior research Fellowship | Senior Fellowships are awarded to established social science scholars for conducting research on specific themes and issues proposed by the applicants | Input | 2 yrs | NA |
| Sponsored Programme | Series of research projects conducted on themes of interest | Input | 3-5 yrs | NA |

Ministry of Housing and Urban Poverty Alleviation

Website: www.mhupa.gov.in



Ministry of Housing and Urban Poverty Alleviation



Overview

The Ministry of Housing and Urban Poverty Alleviation (MoHUPA) was set up in 1952 as the apex authority of the Government of India on urban employment, poverty and housing in the country. It is involved in policy formulation, sponsorship and support programmes, and coordinating the activities of various central ministries, state governments and other nodal authorities, and monitoring of the programmes that come under its purview.

MoHUPA works through various schemes with National Resource Institutes for research, advocacy, monitoring, impact assessment, action research and capacity building relating to urban poverty, slums, housing, building construction and other urban statistics. It provides funding in the form of grants.

Eligible Recipients

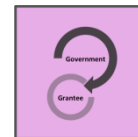
MoHUPA provides funding through grants to institutes such as community based organisations, non-governmental organisations, semi-government organisations, private sector, industry associations, government departments/agencies, urban local bodies, national/state/city resource centres and international organisations. It does not fund individual researchers directly.

Grant Windows

| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|--|--|-----------------------------|----------|----------------|
| Partnering with National Resource Institutions | For institutions in the areas of urban planning and site and architectural design; IT and e-governance; social development and community mobilisation; urban legislation and regulation; housing; infrastructure planning and design | Output | - | NA |

Ministry of Urban Development

Website: www.moud.gov.in



Overview

The Ministry of Urban Development (MoUD) was constituted in 1952. It is the apex body for the Government of India for the formulation and administration of rules, regulations and laws relating to housing and urban development in the country. The ministry provides grants-in-aid to various organisations/institutions under its auspices for research projects, seminars, workshops, training programmes and so on.

MoUD has collaborations with a number of countries including Germany, France, Japan, USA, Israel, China and the Netherlands. It also has a partnership with the UK government's Department of Business, Innovation and Skills for the purpose of knowledge exchange and cooperation on urban regeneration.

Eligible Recipients

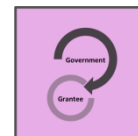
MoUD provides funding to a variety of institutions constituted under it that carry out research work. It rarely funds independent institutions and universities or individual researchers directly.

Grant Windows

| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|--|--|-----------------------------|----------|----------------|
| National Institute of Urban Affairs | Set up as an autonomous body supported by the MoUD, it conducts research on urbanisation, urban policy and planning, municipal finance and governance, land economics, transit oriented development, urban livelihoods, environment & climate change and smart cities. | Input | - | NA |
| Town and Country Planning Organisation | As the technical wing of MoUD, it undertakes empirical research studies in areas of interest. It provides knowledge support and technical advice and assistance to various Central Ministries, State Governments, Development Authorities, Urban Local Bodies etc. | Input | - | NA |

Ministry of Water Resources, River Development & Ganga Rejuvenation

Website: www.wrmin.nic.in



Overview

The Ministry of Water Resources, River Development & Ganga Rejuvenation is an apex body for formulation and administration of the rules, regulations and laws relating to the development and regulation of the water resources in India. It was established in 1980 in New Delhi and has the responsibility for laying down guidelines and programmes for the development and regulation of the country's water resources. It heads the responsibility of overall planning, policy formulation, coordination and guidance in the water resources sector. It provides technical guidance, scrutiny, clearance and monitoring of the irrigation, flood control and multi-purpose projects across the country.

The ministry strives to provide central financial assistance for specific projects and assistance in obtaining external finance from World Bank and other agencies. In addition to a collaborative assignment with World Bank, the Ministry has established international collaborations with other major players including the Asian Development Bank and the Japan Bank for international cooperation.

Eligible Recipients

The ministry provides grants to academic institutions and universities. Individual researchers are not eligible for funding.

Grant Windows

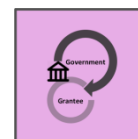
| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|-----------------|--|-----------------------------|----------|----------------|
| Research Grants | To promote research work in the field of water resources engineering | Input | - | NA |

Science and Engineering Research Board

Website: www.serb.gov.in



Science and Engineering Research Board (SERB)
Department of Science and Technology (DST)
Govt. of India



Overview

The Science and Engineering Research Board (SERB), was set up by the Department of Science and Technology under the Science and Engineering Research Board Act of 2008. It is located in New Delhi and works to promote basic research in science and engineering and to provide financial assistance to persons engaged in research and development activities.

Eligible Recipients

SERB provides funding to individuals researchers in the form of scholarships and fellowships with durations ranging between 2 years to 10 years. It does not fund universities or institutions directly.

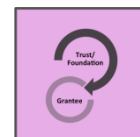
Grant Windows

| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|---|---|-----------------------------|----------|----------------|
| Extra Mural Research Funding (Individual Centric) | To undertake research in frontier areas of science and technology in areas including Chemical Sciences, Engineering Sciences and Earth and Atmospheric Sciences | Input | - | NA |
| Start-Up Research Grant (Young Scientists) | To encourage research potentials of young minds to enhance the research and development system | Input | 3 yrs | NA |
| Utilisation of the Scientific Expertise of Retired Scientists (USERS) | To utilise expertise and potential of eminent scientists involved in research activities even after their retirement | Input | 2 yrs | NA |
| Track Based Research Funding (Under Formulation) | To promote originality in research for high impact and long term research goals | Input | 10 yrs | NA |
| Ramanujan Fellowship | Career opportunities for scientists and engineers across the world | Input | - | NA |
| JC Bose National Fellowships | Recognition for active scientists and engineers for their outstanding performance and contributions | Input | - | NA |

Sir Ratan Tata Trust and Navajbai Ratan Tata Trust

Website: www.srtt.org

SIR RATAN TATA TRUST &
NAVAJBAI RATAN TATA TRUST



Overview

The Sir Ratan Tata Trust (SRTT) was established in the year 1919 in Mumbai. It works along with the Navajbai Ratan Tata Trust to bestow grants, which was set up later in 1974. The trusts seek to be a catalyst in development through giving grants to institutions in various areas.

They focus their grants towards organisations that they can partner with to undertake innovative and sustained initiatives with the potential to make a visible difference. They also provide grants for endowments, have a separate programme for small grants and give grants to individuals for education and medical relief. Key areas of their funding are in the areas of rural livelihoods and communities, education, health, governance, arts and culture.

The trusts have collaborations with the Indian government at both the national and state level as well as a number of national and international development agencies and universities.

Eligible Recipients

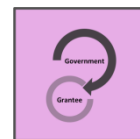
SRTT and the Navajbai Ratan Tata Trust provide funding to institutions directly to carry out research activities in their fields of interest including urban issues.

Grant Windows

| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|--|---|-----------------------------|----------|----------------|
| Sir Ratan Tata Small Grant Programme (SGP) | For small welfare oriented institutions to conduct several activities including focused research activities | Input | - | NA |

University Grants Commission

Website: www.ugc.ac.in



Overview

The University Grants Commission of India (UGC) is a statutory body set up by the central government in 1956. Its headquarters are in New Delhi while other 6 regional centres are in Pune, Bhopal, Kolkata, Hyderabad, Guwahati and Bangalore. UGC is charged with coordination, determination and maintenance of standards of university education. It monitors developments in the field of collegiate and university education and provides recognition to universities in India. It also disburses funds to such recognized universities and colleges. UGC serves as a vital link between the union and state governments and institutions of higher learning.

Eligible Recipients

UGC provides funding to individuals researchers, universities and institutions.

Grant Windows

| Grant Window | Brief Description | Input/ Output Funding | Duration | Collaborations |
|---|---|-----------------------------|-----------|----------------|
| Rajiv Gandhi National Fellowship for SC/ST Candidate for the year | For higher studies and research to SC/ST candidates | Input | 2 yrs | NA |
| Post doctoral Fellowship to SC/ST Candidates | For SC/ST candidates to undertake postdoctoral research in Indian universities/institutions | Input | 2 yrs | NA |
| Research Awards | To encourage research opportunities for permanent teachers | Input | 2 yrs | NA |
| Raman Fellowship for Post Doctoral Research for Indian Scholars in the United States of America | For international collaborative research opportunities | Input | 6-12 mths | NA |
| Emeritus Fellowship | For teachers to pursue research | Input | 2 yrs | NA |
| Junior Research Fellowship in Engineering & Technology | For research scholars to undertake advanced study and research | Input | 2 yrs | NA |
| Rajiv Gandhi National Fellowship for Students with Disabilities | For disabled Individuals to avail research opportunities | Input | 2-5 yrs | NA |
| Major Research Project | To promote research excellence | - | - | NA |

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Annexure I

UK Science and Innovation Network

UK's Science and Innovation Network (SIN) consists of 93 staff, based in 28 countries and 47 cities around the world, who work with the local science and innovation community in support of UK policy overseas. It is jointly funded by UK's Department for Business, Innovation and Skills and the Foreign and Commonwealth Office.

SIN teams in-country act as the first point of contact and gateway to science and innovation opportunities for UK and host country research institutions, universities and research and development intensive business. They provide Policy insight to improve science and innovation policy in the UK and partner countries. SIN events and networking activities aim to identify new partnership opportunities, often acting as a catalyst for new projects. SIN officers work at the heart of the UK's overseas Posts and work closely with UK partner organisations e.g. Research Councils, Innovate UK, researchers from universities and a range of other bodies including the Royal Society and learned societies, to promote a coherent UK engagement. Among its strategic partners within the UK, is the Research Councils UK.

Research Councils UK

Research Councils UK (RCUK) is a strategic partnership of the UK's seven Research Councils which invest close to £3 billion annually in research. RCUK has overseas teams in several countries that work with research funding organisations in their respective countries to facilitate collaboration between researchers in the UK and abroad. SIN and RCUK work closely together across the globe.

Research Councils UK India

Since its launch in 2008, RCUK India has supported an impressive portfolio of research in collaboration with the Government of India totalling over £150 million. RCUK India aims to enhance the impact of UK-India research collaborations and works towards a stronger, deeper UK-India research relationship that contributes to key global challenges through high quality research partnerships. RCUK India is playing a key role in enhancing collaboration in high priority areas. There are over 60 UK-India co-funded collaborative research projects facilitated by RCUK India and over 90 industry partners involved in these projects. RCUK India is actively involved in co-funded research activities with seven major Indian research funders on a wide array of research themes addressing global challenges such as energy, climate change, social sciences, healthcare and life sciences.

RCUK India proposes to achieve the following important goals through its joint work with India:

1. Influence: Increase RCUK influence in UK-India international research strategy and policy development



2. Excellence: Provide opportunities to enable excellent researchers to flourish through UK and Indian research collaborations.
3. Impact: Enhance the value and impact of joint research through UK-India international collaboration.
4. Responsibility: Show RCUK's commitment to key global responsibilities in a world where challenges cross national boundaries.

The Newton Fund

The Newton Fund is a UK initiative intended to strengthen science, research and innovation partnerships between the UK and emerging knowledge economies. It was launched in April 2014, and will deliver £375 million of funding over the course of five years.

The UK has allocated £50 million over five years for such collaborations with India, where it's known as the Newton Bhabha Fund. Under an MoU signed by UK and Indian ministers at the last Science and Innovation Council, held in November 2014, India has committed equivalent resources to the UK's contribution. Activities under this fund are managed by a core group of Delivery Partners and is guided by priorities identified by a UK-India Task Force set up with participation from key research and innovation funders and decision makers from both countries. The Task Force has identified three grand societal challenges for research and innovation programmes between the UK and India:

1. Sustainable Cities and Rapid Urbanisation
2. Public Health and Well Being
3. Energy-Water-Food Nexus

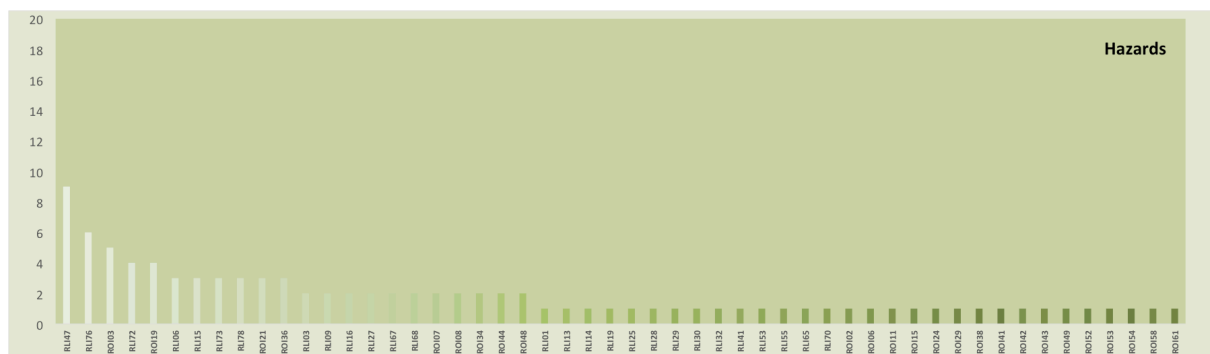
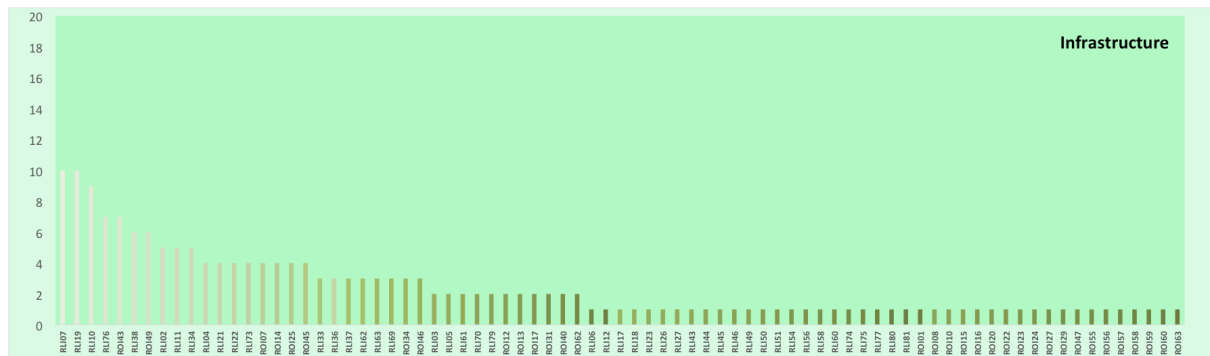
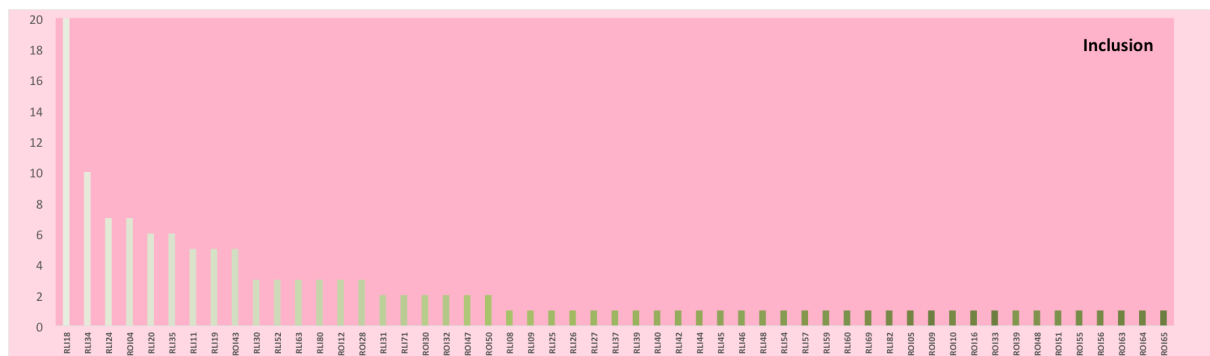
And two underpinning capabilities, namely high value manufacturing and big data.

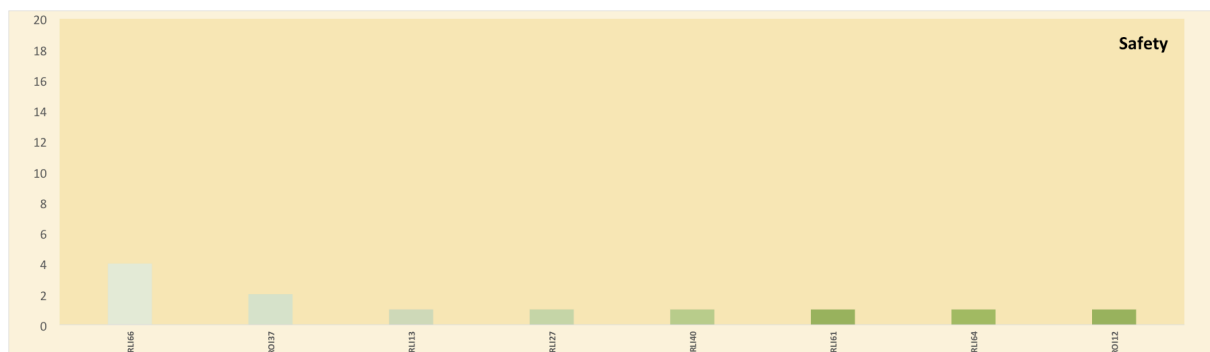
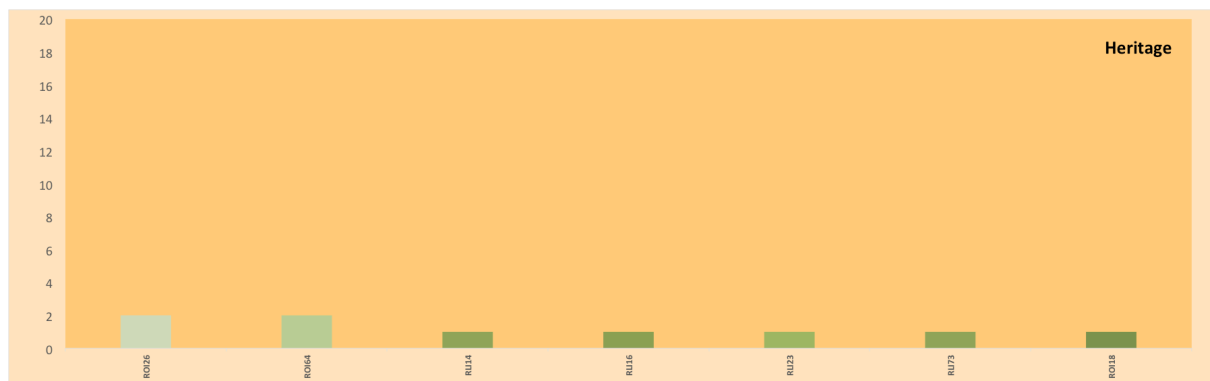
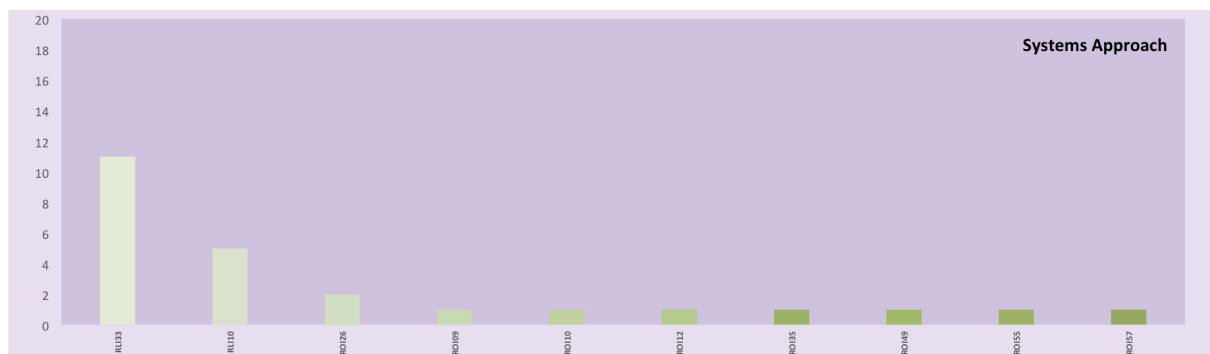
The Newton Bhabha fund will be delivered through three broad categories of activity:

1. People: Building research and innovation capacity in natural sciences, engineering, social sciences and humanities, and clinical sciences through programmes including PhD exchanges (e.g. Newton PhD Programme), Post-doctoral training and mobility schemes (e.g. International Collaboration Programme, Newton Advanced Fellowships; Newton International Fellowships) and professional development (e.g. Innovation Leadership Programme, Professional Development and Engagement Programme, STEM Education Programme).
2. Programme: Collaborative research through Joint Centres, Joint Research Projects and access to Research and Innovation Infrastructures. Collaborations will be based on research excellence, in areas that make the maximum contribution towards jointly approved grand societal challenges.
3. Translation: Building UK-India research and innovation partnerships and capacity to address major societal and economic challenges, including through programmes to build partnerships between business and academia to accelerate the deployment of research knowledge (e.g. Research and Innovation Bridges) and innovation capacity building (e.g.

Global Innovation Capacity Building Programmes for Government and Innovation Agencies and for Entrepreneurs).

Annexure II





Acronyms

| | |
|------|----------------------------------|
| R&D | Research and Development |
| RCUK | Research Councils United Kingdom |
| SIN | Science and Innovation Network |
| ITPI | Institute of Town Planners India |

Research Councils UK India

British High Commission
Shantipath, Chanakyapuri,
New Delhi - 110021

www.rcuk.ac.uk/india



UK Science
& Innovation
Network



RESEARCH
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INDIA