

Evidence Summary Title Registration Form

Funder: The UK Department for International Development (DFID)

Title of review originally requested from funder:

How effective are interventions which seek to improve access and quality of civic infrastructure and amenities? What are the key characteristics of successful interventions in urban areas?

Title of review agreed at time of confirmed funding:

How effective are interventions which seek to improve access and quality of civic infrastructure and amenities? What are the key characteristics of successful interventions in urban areas?

Host organisation(s) for review team:

Indian Institute of Technology Madras (IITM)

Review team members

Surname	First name	Email address*	Role
Annamalai	Thillai Rajan	thillair@iitm.ac.in	Principal Investigator
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Situate the question in the literature, including describing the existing systematic reviews on the topic and your familiarity with it.

The low and middle income countries (LMICs) are undergoing rapid transformation with the growth in population, urbanization, and citizens' demand for improved civic infrastructure. The pivotal role played by civic infrastructure for economic and social wellbeing of citizens is unquestionable. However, the governments in LMICs are facing daunting challenges in the provision of basic civic services. The policy makers have been formulating and implementing variety of policy interventions for improving delivery of civic services. Researchers have been studying the effectiveness of these interventions in different contexts in the form of primary

studies. Several systematic reviews that synthesized the evidence from such primary studies have also been completed. Many of these reviews focused on one or two sectors or interventions. A holistic view of different sectors or the effectiveness of the gamut of interventions that could help policy makers is absent. There is a clear need to take forward the policy discourse by consolidating and summarizing findings / body of knowledge created by these systematic reviews. This evidence summary is a step in this direction. The objective of this evidence summary would be to summarize the available systematic reviews on different interventions that seek to improve access and quality of civic amenities and infrastructure.

We have conducted a preliminary search in systematic review databases like Cochrane, EPPI, DFID, PLOS ONE and KfW. The indicative list of systematic reviews that can be included for this Evidence Summary are given in Table 1.

Table 1: Indicative list of systematic reviews that could be included in the Evidence Summary

Citation & Database	Sector	Methodology	Outcomes
Urban Planning Interventions			
Annamalai et al (2016) <i>EPPI Centre</i>	W,S,E	Exploratory analysis, Meta analysis, Textual narration	Connectivity, adequacy, affordability, effort and time, durability
Institutional and Regulatory Interventions			
Annamalai et al (2012) <i>EPPI Centre</i>	W,S,E,T, TR	Numerical summary and meta analysis	Changes in Access, Cost, Efficiency, Price and Quality
Private Sector Participation			
Annamalai et al (2013) <i>EPPI Centre</i>	W,S,E,T	Count of evidence, Meta analysis, narrative synthesis	Access, product quality and service quality
Ministry of Foreign Affairs (2013) <i>OECD</i>	W, E, E*, S, T	Count of evidence	Access
Spratt &Collions(2012) <i>DFID</i>	W, S, E, ICT, T, HI	Count of evidence	Financial mobilization, Access, Quality, capacity building, changes in legal and regulatory framework
Water, Sanitation and Hygiene interventions			
Dangour et al (2013) <i>Chochrane Database</i>	W,S, H	Meta analysis	Anthropometric indices: weight-for-height, weight-for-age, or height-for-age
Fewtrell & Colford (2004) <i>World Bank</i>	W, S, H	Meta analysis	Diarrhoea morbidity
Stocks et al (2014) <i>PLOS - Medicine</i>	W, S, H	Meta analysis	Trachoma elimination
Gundry et al (2004) <i>University of Bristol</i>	W	Meta analysis	Reduction in general diarrhoea and cholera
Clasen et al (2007) <i>EPPI Centre</i>	W	Meta analysis	Occurrence of diarrhoea in adults and children
(Birdthistle et al 2011) <i>EPPI Centre</i>	S	Qualitative – In-depth review	Enrolment, Attendance &Completion, occurrence of infectious/vector borne diseases, menstrual management
Jasper et al (2012) <i>EPPI Centre</i>	W, S, H	Qualitative – In-depth review	Rates of diarrheal and gastrointestinal diseases, and absenteeism
Ejemot-Nwadiaro RI (2016)	H	Meta analysis	Prevention of diarrhoea episodes
Ramesh et al (2015)	W,A,S,H	Qualitative synthesis	clinical admission, use of soap, self reported diarrhoea and laboratory confirmed outcomes
Infrastructure Interventions			
Turley et al (2013) <i>Chochrane Database</i>	W,S, E, T, WM, HI	Meta analysis	Mortality, morbidity, Financial poverty , Employment and occupation
Knox (2013) <i>DFID</i>	TR, E, T	Narrative synthesis, Count of evidence	Farmer access to agricultural markets, Crop prices, response to market demands, feed and fertilizer supply and costs
(Grimm et al 2014) <i>KfW-Research</i>	TR,E	Numerical summary	Employment effects, Firm performance

Environmental related interventions			
Bowler et al (2010) <i>Sciencedirect</i>	GI	Meta analysis	Air temperature of an urban area
E: Electricity, E*: Education, GI: Green Infrastructure, H: Hygiene, HI: Housing Improvement, ICT: Information and Communication Technology, S: Sanitation, T: Telecom, TR: Transportation, W: Water, WM: Waste Management.			

The above reviews indicate the diversity in terms of sectors covered, geographical focus, methodology adopted, intervention and outcomes analyzed. This preliminary search indicates that meta-analysis is widely adopted for consolidating evidences from primary studies and majority of these studies focused on water sector, followed by sanitation and hygiene sector. The data available in primary studies analyzed by these systematic reviews resulted in major focus on immediate outcomes (access, quality, price, and so on) followed by long term outcomes. Most of the reviews reported the investigation of process and procurement interventions as compared to behavior changes and institutional interventions.

Please describe the limitations of the systematic review, including issues of evidence type, issues resulting from different methodological approaches to studies and issues arising from contextual challenges.

First of all, the number of systematic reviews on different infrastructure sectors is limited as compared to that of sectors such as Health and Education. While the initial search indicated a number of systematic reviews pertaining to civic services and infrastructure, these systematic reviews have synthesised the evidence across different outcomes, and the evidence summary will indicate the breadth of research.

Secondly, the studies included in the systematic reviews are likely to be characterised by considerable heterogeneity. The selection of sample in the primary studies is unlikely to be controlled as in sectors such as health, where Randomised Control Trials (RCT) is possible and has been carried out due to the nature of the field of research. While proper identification of the causal effectiveness of civic infrastructure in improving quality of life is important, experimental evaluation, it is difficult to adopt RCT in the context of large-scale infrastructure. Also, while micro studies so far have focused on the nexus between infrastructure and certain types of socio-economic outcomes, to better interpret a wide variety of micro-level infrastructure evaluation results using either experimental or non-experimental methods, the role of infrastructure should be placed in a broader context. Usage of qualitative, quantitative or a combination of research methodologies in addition to the variation in demography and geographies adds to the variation in context.

Thirdly, proposed study seeks to synthesize the evidence for a wide range of interventions that aims to improve outcomes in access and quality of civic infrastructure. To that extent the evidence summary would synthesize the evidence on diverse interventions. While this may not be a limitation, resolving contradictory findings for similar interventions could be difficult.

Methodology

What type of systematic reviews would be included in the evidence summary? How would they be identified?

A. Search methodology

- The present study will involve identification and research of systematic reviews pertaining to the research question and the PICOS framework. To this end, a thorough search will be conducted on the existing systematic review databases like EPPI center, Cochrane, PLOS ONE etc. Other relevant websites like World Bank and the Sustainable Development Goals (SDGs) would also be thoroughly researched.
- Potentially relevant studies would then be passed through three stage filtering process of title, abstract and full-article screening. Protocols about the inclusion criteria and the exclusion criteria would be developed to this effect.
- Relevant published and un-published systematic reviews will be requested from key researchers and funding agencies in the area
- Certain criteria include the presence of protocol, the population of studies considered for the review, whether grey literature has to be included, synthesis methods used, etc.

B. Quality assessment & summarizing of reviews

- The quality of the SRs included will be diligently checked to ensure that quality of SRs are considered for this summary. To this end, a coding protocol/quality assessment framework would be developed to assess the quality of SRs considered for the evidence summary.
- The protocol would explicitly incorporate four principal types of validity viz. measurement validity, internal validity, external validity and reflexivity in the study design.
- Summarization: Appropriate coding tool would be used to extract data from the reviews.

C. Report Writing

- Evidence summary reports would be prepared to summarize the main evidence obtained from the documents collected and analyzed. These reports would highlight the common patterns of findings across the systematic reviews.
- The report would be organized in the following sections - Executive summary of key implications for policy and practice as evident from the documents, Background and introduction to the key objectives of the summary report, Methods adopted for the study with emphasis on assumptions and the gaps found in the existing review studies, Sample size and other characteristics of the systematic reviews summarized, Key findings from the documents, Contextualization parameters for South Asia, Key highlights and implications to policy and practice.
- Appropriate conceptual frameworks would be used to effectively summarize the information and highlight the implications. Apart from the main report, a supplementary document would be created to aid the contextualization of the results to South Asia region, with specific reference to Nepal.

D. Contextualization of findings

- From the team level, important parameters for contextualization would be developed from extant literature and then the results would be mapped on to these dimensions to understand their applicability in the contexts of relevance.

- The contextualization of the findings could be carried out with help of the advisory group. The need for the policy makers would be assessed and the results of the evidence summary would then be contextualized .
- Depending on the feasibility, the research team would explore other methods of contextualization suggested by the funding agency to improve the usefulness of the results.

Experience of systematic reviewing	
Name	Experience
Thillai Rajan.A, Principal Investigator	<p>Principal investigator for 4 systematic review studies in infrastructure and related sectors. Three studies have been completed and the final report for fourth review has been submitted to the funding agency after incorporating the comments of peer reviewers. Details of the systematic review studies are given below. All the studies focused on South Asia.</p> <ol style="list-style-type: none"> 1. To what extent have the Water, Sanitation and Hygiene (WASH) sub-sectors incorporated the life-cycle approach into policies, programmes and projects during the MDG period? 2. What is the evidence on top-down and bottom-up approaches in improving access to water, sanitation and electricity services in low-income or informal settlements? 3. Impact of private sector participation on access and quality in electricity, telecom and water sectors. 4. Evidence of impact of changes in the transparency of infrastructure procurement and delivery on infrastructure quality, costs, and access – A systematic review of the evidence in developing countries.
Ganesh Devkar, Co-investigator	<p>Involved in 3 systematic review studies on infrastructure and related sectors. Two studies have been completed and the third is in the final stages of completion. The final report is being prepared based on the peer review comments to the draft submission. Details of the systematic review studies are given below.</p> <ol style="list-style-type: none"> 1. To what extent have the Water, Sanitation and Hygiene (WASH) sub-sectors incorporated the life-cycle approach into policies, programmes and projects during the MDG period? 2. What is the evidence on top-down and bottom-up approaches in improving access to water, sanitation and electricity services in low-income or informal settlements? 3. Impact of private sector participation on access and quality in electricity, telecom and water sectors.
Venkata Santosh Kumar Delhi, Co-investigator	<p>Involved in 2 systematic review studies on infrastructure sectors. One study is completed and one is in the final stages of completion. Details of the systematic reviews are given below.</p> <ol style="list-style-type: none"> 1. To what extent have the Water, Sanitation and Hygiene (WASH) sub-sectors incorporated the life-cycle approach into policies, programmes and projects during the MDG period? 2. What is the evidence on top-down and bottom-up approaches in improving access to water, sanitation and electricity services in low-income or informal settlements?

Communications plan and user engagement

Describe plans to engage with potential users of the research, to communicate the results of the research to such users, and the potential value of the research to users outside the research community. You will be expected to work closely with the EPPI-Centre and other stakeholders that initiated the review questions.

The communication and user engagement plan has been divided into 6 segments

1. Potential end users of the review findings: Policy makers at the federal and state governments; planning and implementation agencies at the federal, state and local governments; Multilateral and bilateral agencies involved in international development; NGO's, other development organizations; research organizations, consultancies and think tanks; and academia and research scholars.
2. Involving and informing the potential end users: An advisory board would be constituted to represent potential end users, who would provide inputs on making the study findings more policy relevant.
3. Online and print media platforms a. The evidence summary would lead to articles in print and news media to highlight the important findings b. The team would also identify relevant online platform to make the findings available to policy makers. This could be based on a blog created for this study. c. The complete report would also be made available online
4. Dissemination workshops a. A dissemination workshop would be conducted where representatives from the target audience will be invited for a day long workshop (physical or virtual) to discuss the implications to both policy and practice. b. A policy brief would be prepared and circulated along with the evidence summary report to various levels of policy makers
5. Conferences: Results from the evidence summary would also be presented in relevant conferences
6. Journal publications: Findings of the evidence summary would also lead to some research publications in journals which would be of interest to policy and practice in the areas relevant to the study.

Timetable (some review methods do not include these stages in this order)

Stage of review	Start date	End date
Preparing the protocol	01-Mar-2017	31-Mar-2017
Peer review of protocol (allow 2 months)	31-Mar-2017	26-May-2017
Searching for studies	14-Apr-2017	05-May-2017
Assessing study relevance	28-Apr-2017	02-Jun-2017
Extracting data from studies		
Assessing study quality	02-Jun-2017	02-Jul-2017
Synthesising studies	07-Jul-2017	04-Aug-2017
Preparing draft report	07-Jul-2017	04-Aug-2017
Disseminating draft report (allow 3 months)	14-Sept-2017	24-Sept-2017
Revising report	14-Sept-2017	24-Sept-2017
Submission for publication with the EPPI-Centre	24-Sept-2017	29-Sept-2017

Do you have any particular concerns about preparing this review?

None at the moment

Do you have any particular requests for support when preparing this review?

- **Access to database:** The study team has access to most of the systematic review databases such as 3ie, Cochrane Collaboration, Campbell reviews, EPPI-Centre Evidence Library, Research for Development, and so on. Any additional relevant databases that EPPI could provide access to would be helpful.
- **Access to EPPI Reviewer:** Setting up access to EPPI reviewer in case we plan to use for the study
- **Training needs:** Training to the team on Managing the search process, Use of EPPI reviewer, Quality appraisal of included studies, and tools for synthesis would be helpful.