



# Sustainability assessment of a slum upgrading intervention in Bangladesh



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## ABSTRACT

Equitable provision of physical infrastructure must be seen as a prerequisite for achieving the sustainability of human settlements. Infrastructure provision needs to consider both the product (physical services) and the context in which the services will be provided and maintained in order to be sustainable. This article presents a holistic methodology for evaluating sustainability and poverty reduction impact of infrastructure projects in developing countries through societal, economics, institutional and environmental dimensions. ASPIRE toolkit uses qualitative evidence which feeds into 96 indicators producing visual outputs which can encourage users to consider contextual issues and develop valuable trade-offs between the four dimensions.

The methodology and toolkit are applied to the evaluation of an infrastructure upgrading project in Korail, Bangladesh. The Urban Partnership for Poverty Reduction Project (UPPRP) in Korail supports a twin-pronged approach of provision of infrastructure (water, sanitation, roads and drainage) improvement through the Slum Improvement Fund and improvement of socio-economic conditions through the Socio-Economic Funds. The ASPIRE assessment allowed the authors to interrogate strengths and weaknesses of the UPPR project thereby demonstrating the value added by ASPIRE. Overall, the project was deemed successful in Korail. Socially, it allowed access to all types of services to the slum's residents with strong community engagement. Land security however was noted to be a challenge, which needs to be addressed by institutions in Dhaka.

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## 1. Introduction

With high rates of population growth and urbanisation it is crucial to ensure that cities grow sustainably with equitable access to basic services (Parikh, Fu, Parikh, McRobie, & George, 2015). The proliferation of slums in major urban centres in developing countries reflects a failure of mainstream development strategies to accommodate urbanisation and population growth in cities. The global population will increase by 2 billion by 2030, with most of the increase occurring in the developing world, and predominantly in urban informal settlements (Bhattacharya, Romani, & Stern, 2012).

Currently 2.5 billion people lack access to sanitation, 1.8 billion people use a source of drinking-water that is contaminated and 1.3 billion people lack electricity to light their homes (Sustainable Energy for All, 2013; WHO/UN-Water, 2014). The infrastructure gap is predominant in developing countries in settings such as slums which comprise of limited resources. The provision of infrastructure which is sustainable and equitable has the potential to reduce poverty and improve living

conditions (Jahan & McCleery, 2005; Parikh, Parikh and McRobie, 2012). Equitable provision of physical infrastructure must be seen as a prerequisite for achieving the sustainability of human settlements and thereby enabling future cities to maintain a balance with their environment (Choguill, 1996). A different approach is required to ensure that infrastructure developments are sustainable and contribute to reducing poverty. This requires consideration of both the product (water supply, road etc.) and the process by which it is conceived, implemented and operated based on criteria which determine project success in terms of outcomes rather than outputs (Arup and Engineers Against Poverty (EAP), 2009). In practice, developing infrastructure that supports poverty reduction and well being through sustainable processes requires tools that support the integration of these core characteristics in to the project throughout the entire infrastructure project life cycle, and help those funding, commissioning, designing and implementing infrastructure projects to consider a wider range of issues and stakeholder concerns (Arup and EAP, 2009).

This article demonstrates the use of ASPIRE toolkit to assess the sustainability of the UPPR project for Dhaka city in Korail which is the largest slum settlement in Bangladesh. The UPPR initiative seeks to enhance the livelihoods and living conditions of at least three million poor people within informal settlements. Throughout its duration, the project supports settlement infrastructure improvement, socio-economic

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development, community mobilisation, education, local government capacity building and pro-poor policy advocacy (UN-HABITAT, 2014).

## 2. The conceptual framework

For the developing country context, poverty alleviation combined with equitable distribution of resources and access to basic services is crucial to develop sustainable cities. A review of 57 different tools (Nielson, 2010) highlights a strong focus on economics and/or environmental concerns with limited attention paid to complex social and community challenges such as social equity, capacity building and human development. A comparative assessment of toolkits (Arup and EAP, 2009) highlighted that there was a gap in relation to frameworks which addressed both poverty reduction and sustainability effectively through different stages of project life cycle and was directly applicable to infrastructure projects in developing countries. In response to this gap, the ASPIRE assessment tool was developed and launched by Arup and EAP.

ASPIRE's conceptual framework acknowledges that the planet has limited resources and a limited capacity to support an ever increasing population that seeks for a higher quality of life. The resulting conflict between societal needs and environmental impacts encourages needs to be balanced at both local and global level to achieve sustainable development. The enablers of strong international structures and processes (Fig. 1) along with well-proportioned economic development play a critical role in brokering the interplay between environmental resources and societal consumption (Arup and EAP, 2009).

The ASPIRE conceptual framework uniquely has four dimensions: society, environment, economic and institutions. These are presented as inter-locking keystones forming a circle in recognition of their dependence on one another (see Fig. 2). The inclusion of the institutional enabler was a key finding of the comparative analysis of assessment frameworks and mirrors the four core dimensions of social, environmental, economic and institutional used by the United Nations Commission on Sustainable Development (CSD). The four dimensions of ASPIRE also reflect the DFID Sustainable Livelihoods approach assuming that the fifth dimension of physical assets is the project itself (Arup and EAP, 2009).

Each keystone within ASPIRE represents a theme or heading which is constructed of multiple indicators (sub-themes). The software's interface guides the users through a series of questions for each sub-theme and aggregate scores for each theme. The user interface also provides guidance on the best and worst case scenario for each indicator so that users can make a judgement of how their project would sit between the best and worst case scenario for each indicator. The scores are represented visually through a traffic light system where dark red and dark green represents worst and best performance on projects based on the scenario guidance and user scores. The visual output not

only provides strength and weakness of the project but also enables users to make trade-offs between societal improvements, economic considerations, institutional capacity and environmental factors.

## 3. Case study

### 3.1. Bangladesh

Bangladesh's capital city of Dhaka is the fastest growing megacity in the world with an estimated population of 12 million out of 28% live in poverty (World Bank, 2013). The rapid growth of Bangladesh with about 500,000 migrants (Cities Alliance, 2014) every year has resulted in Dhaka city now housing 3.4 million slum dwellers, the third largest population in the world after Mexico and Mumbai (Davis, 2007; World Bank, 2013). Coupled with the population increase, the rising threats of climate change and a poverty rate above 20% (Bangladesh Bureau of Statistics (BBS), 2010) planning truly sustainable urbanisation becomes a pressing need as it encompasses a solution that holds the potential to minimise both environmental and social threats.

The Urban Partnerships for Poverty Reduction Project (UPPRP) built on the experience of an earlier United Nations Development Project (UNDP) project, the Local Partnerships for Urban Poverty Alleviation Project (LPUPAP, 2000–2007) (UNHABITAT, 2014). Building on the previously successful LPUPAP initiative, UPPRP was then set up in 2008 with the ambition of lifting residents out of poverty through a community based approach (UPPR, 2013a, 2013b). Given the multi-dimensional nature of poverty UPPRP set up two distinct funding streams to provide holistic inputs. The first funding stream titled the Settlement Improvement Fund (SIF) provided direct financial support for the provision of physical infrastructure in slums (UPPR, 2013a, 2013b). The second funding stream title Socio-Economic Fund (SEF) provided funds for livelihood creation, access to training and education for children (UPPR, 2013a, 2013b).

An evaluation of the project in 2014 through sample evidence captured from 2479 settlements in Bangladesh noted significant improvement in the provision of water, sanitation and infrastructure as compared to the year of 2010. From 2008 to 2014, the project has financed circa 5334 contracts for provision of physical services such as latrines, water points, improved access and drains (UPPR, 2015). Within the 23 towns where community development committees were set up, around 51% of settlements reported significant improvement in water and sanitation infrastructure conditions (UPPR, 2015). Around 85% of women who were supported through SEF in 2012/13 were still operating their businesses in 2014. The Government of Bangladesh is now reformulating the UPPRP into the National Urban Poverty Reduction Programme (NUPRP) which has the ambition to reach 9 million citizens (UPPR, 2015).

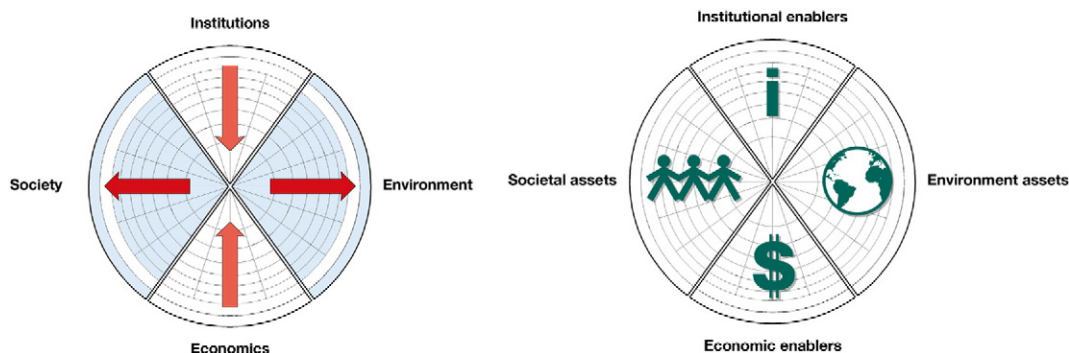


Fig. 1. ASPIRE conceptual framework. Source: Arup and EAP (2009).

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