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# Asian Cities Climate Resilience

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## **Climate change, vulnerability and adaptive social protection**

### **Innovation and practice among migrant workers in Indian cities**

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# Abstract

This paper explores the significance of adaptive social protection in building urban resilience in the context of vulnerability to climate change and health inequities among migrant workers in the urban informal sector India. Through case studies of three Indian cities — Kochi, Surat and Mumbai — the paper analyses the status of vulnerability and social protection among these workers. It further examines the nature of innovative projects that have emerged in the context of risk reduction, climate change adaptation and public health care systems in the respective cities. This paper then outlines the scope and role of social work in addressing the challenges of climate change and health inequities. A mixed methodology approach organised in three phases was designed to carry out the study. In the first phase, data from 50 migrants in each of the three cities were collected using a semi-structured interview schedule. In the second phase, data from 42 experts comprising medical practitioners, social workers, government officials and activists were collected. In the third phase, the findings from the first two phases were presented in workshops to social workers, community workers, academicians and research scholars. The suggestions provided by the participants of these workshops were incorporated into the larger discussions of this paper. The findings demonstrate that social workers and development practitioners have a very important role to play in strengthening urban resilience to climate change and social vulnerabilities.

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# 1 Introduction

Cities are characterised by uneven resilience, often due to varying socio-economic and infrastructural disparities (Vale, 2014). Resilience in the context of climate change and poverty could be understood as the ability of poor individuals and poor communities to recover or ‘bounce-back’ from climatic shocks and stresses (Leichenko and Silva, 2014). It refers to a dynamic process encompassing positive response strategies within the context of significant adversity (Luthar *et al.*, 2000) and should have space for adaptation to bounce forward and continuously innovate (Shaw, 2012).

Resilience can evolve as a progressive practice only if it is explicitly associated with the improvement of the well-being of vulnerable groups, such as the migrant workers in the informal sector (Vale, 2014). Migration needs to be planned and supported to build resilience (Kartiki, 2011). The answers to improving the conditions of migrant workers lie in civil society participation, social auditing and the enforcement of local governance through institutions (Menon, 2012). A major strategy that has proven successful in reducing disease burden has been to design intervention strategies that draw on the existing social capital and self-sufficiency of the community (Kovats *et al.*, 2014). There is also an important need for establishing a proactive legal aid scheme for migrant workers (Menon, 2012).

**Adaptive social protection** refers to a series of measures which aim to build resilience of the poorest and most vulnerable people to climate change by combining elements of social protection, disaster risk reduction and climate change adaptation in programmes and projects (Arnall *et al.*, 2010). By combining these three elements, the approach aims to simultaneously tackle unsafe living conditions, counter the underlying causes of vulnerability, and promote people’s adaptive capacities (Davies *et al.*, 2008; 2009). Some of the characteristics of adaptive social protection are that it: (i) helps in risk reduction through multi-disciplinary approaches; (ii) enables a focus on the poorest and most vulnerable groups; (iii) places the emphasis on rights-based approaches; and (iv) aims at transforming, promoting and protecting livelihoods (Davies *et al.*, 2009).

This paper explores the significance of adaptive social protection in building urban resilience with specific reference to climate change and infectious diseases. Taking the case of three Indian cities, namely Kochi, Surat and Mumbai, the research analyses the status of vulnerability and social protection among migrant workers in the informal sector. It further examines the nature of innovative projects that have emerged in the context of risk reduction, climate change adaptation and public health care systems in the respective cities. The paper then outlines the scope and role of social work in addressing challenges of climate change and health inequities. This paper is part of a larger study that examines the vulnerability contexts of migrant workers to climate change and health inequities in three cities of India (see Santha *et al.*, 2015a and Santha *et al.*, 2015b). Organised into three parts, the larger study looks at: a) vulnerability contexts of migrant workers in the informal sector to climate change and health inequities; b) adaptation strategies of migrant workers exploring diverse strategies such as informal entrepreneurship; and c) adaptive social protection.

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## 2 Methodology

This paper is based on extensive research carried out amongst migrant workers in Surat, Kochi and Mumbai. These cities were selected based on a certain primary understanding of migration characteristics, health challenges and climate uncertainties. Mumbai city in the state of Maharashtra is characterised by a very high rural-urban migration rate, and most of the migrant workers are found in the informal sector. The city of Surat in the state of Gujarat is also characterised by a very high migration rate, attracting rural populations from poor and remote regions of the country to the diamond and textile industries in the city. The third city - Kochi in the state of Kerala - is a young, growing city compared to Mumbai and Surat. It has witnessed a rapid rate of inter-state migration since 2005. All the three cities are vulnerable to extreme climatic events such as heavy rains, floods and water logging, and outbreak of infectious diseases.

A mixed methodology approach organised across three phases was designed to carry out the study. In the first phase, data from 50 migrants in each of the three cities were collected using a semi-structured interview schedule. A total of 150 interviews with migrant workers were carried out. A two-stage purposive sampling strategy was used to identify the respondents. Firstly, we identified the hazard prone wards or areas of the city, which also had a considerable migrant population, using information from the municipal corporation and district disaster management cells. We then identified a few key informants, such as representatives from the state government departments, NGOs and other civil society organisations, to collect more information on the location of the migrants' workplaces in these wards of the city. Based on this information, we began to identify the respondents amongst the migrant workers using snowball-sampling techniques. Most of the participants we interviewed were men. We were able to interview only 26 (17 per cent) women migrants across the three cities, which in itself is a limitation, apart from the ability of the study to generalise across migrant populations in all the three cities. Interviews focused on migrant perceptions of climate change health risks, informal initiatives to adapt to these risks, and knowledge of social services available to them.

In the second phase, interviews were carried out with 42 social work-related professionals comprising of medical practitioners, social workers, government officials and activists (See Appendix 1 for the tool). In the third phase, the findings from the above two phases were presented through workshops to social workers, academicians and research scholars for verification and dissemination of findings. The suggestions provided by the participants of these workshops were incorporated into the larger discussions of this paper.

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## 3 Vulnerability contexts of migrant workers in Indian cities

Vulnerability, defined as the propensity for individuals and households to be adversely affected by climatic and other environmental shocks and stresses, has both exposure and social components (IPCC, 2012). The ‘exposure’ component primarily reflects location in an area that is subject to climatic hazards. The ‘social’ component depends on a range of individual and community characteristics, as well as economic, cultural, and political factors, which may increase susceptibility to harm and reduce capacity to respond to climatic shocks and stresses (Leichenko and Silva, 2014).

Economic growth triggers migration to cities, and in the case of India, it has been mostly rural to urban migration (Bhagat, 2012). This is due to the fact that most economic production is concentrated in Indian cities, and many of the unemployed poor migrate to the urban areas in search of jobs and better income opportunities (Mitra and Murayama, 2012).

Unfortunately, these jobs are relatively limited and not easily accessible, resulting in the continuous population flow to urban areas where most migrants find work in the informal sector (*ibid.*).

Migration impacts both the practices and the institutional arrangements that define territorial resource use and management, both in the city and in the rural areas (Robson and Nayak, 2010). Short-term migration from rural to urban areas in India is the result of increasing inequalities, agrarian crises, hazards or extreme climate events and livelihood insecurity in many parts of the country (Korra, 2012). Some of the characteristics of vulnerable employment are inadequate earnings, lack of formal work arrangements, low productivity, unavailability of decent working conditions, limited social security, and lack of effective representation by trade unions and similar collectives (Srivastava and Shaw, 2014). Reviewing a range of studies, Kovats *et al.* (2014) notes that most of the urban poor are unable to stay in safe locations due to low, irregular income and debt repayments. Thus, the urban housing of the poor is located in high-risk sites specifically exposed to hazard events such as floods, landslides and epidemic outbreaks. The inability of the state to provide protective public infrastructure and services such as clean drinking water, sanitation and health care, increases the health and livelihood burden of the urban poor (*ibid.*). The insecure asset base of the urban poor and lack of social insurance also result in poor coping capacities.

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### 3.1 The vulnerability of migrant workers in Kochi

An economic historian we interviewed described his understanding of migration in Kochi as follows (February, 2015):

*“The present form of interstate migration in Kochi commenced during the immediate post-independence years with the construction of the naval base. This necessitated the demand for migrant labourers to construct the port and associated public sector infrastructure. The migrant workers who came to the city during this period were mainly people from Tamil Nadu, who later settled in migrant colonies, such as Vathuruthi. However, in the later stage of the city’s development, this demand for migrant labour shifted to the private sector. The neo-liberal era that we witness today is characterised by the absorption of migrant labourers in projects governed by public-private partnerships (PPP) such as the Kochi metro-railway project, Goshree bridge and Vallarpadom terminal. As of today, the Kochi metro rail project is one of the largest employment sectors for migrant casual workers. There is also a simultaneous demand for these labourers in the construction/plywood and tourism industry. The outskirts of the city also witnessed a demand for migrant workers in the agriculture sector.”*

Key informants in the health care sector were of the opinion that most of the migrant workers were located on the outskirts of the city, such as Alwaye, Perumbavoor, Kalamassery, Eloor and Costal Ernakulam. In the city centre, there were migrant colonies such as Vathuruthy Colony, Kadavantra, Kaloor, and market junctions on Banerjee Road, Edappally and Thrikakkara (The Hindu, 2007a). All these locations were prone to epidemic outbreaks, for reasons health care experts identified as high population density and morbidity. In addition, these locations were prone to flooding and water logging during the monsoons because geographically these locations were surrounded by wetlands or close to water bodies. Also, most of these habitats were polluted by industrial waste and sewage disposed by the chemical and allied industries in the city.

Interviews with the migrant workers who participated in our study revealed the fact that most of them did not have access to basic assets including safe housing and sanitation facilities (Santha *et al.*, 2015). In Kochi, 30 migrants (70 per cent) we surveyed stay together on a shared accommodation basis, often arranged by the work contractor who hires them (*ibid.*). However, the living conditions of migrant workers in these rooms are inadequate. The district medical officer posted in Kochi made a similar observation to the media, upset with the deplorable conditions of the latrines at the campsites of the migrant workers in the city.

*“The latrine does not have a septic tank and the fecal matter flows into an open drain, which is close to a posh residential colony. There is only one latrine at the camp, and around 60 labourers from Assam stay in the camp. The rooms are crammed, made of polythene sheets and do not have a lighting facility, and the workers use a small portion of the room to cook food. The water they use is unhygienic and cannot be consumed even after boiling.”* (The Hindu, 2014).

We also came across observations from our key informants that many migrant families in the colonies depend on the nearby railway tracks for sanitation, while potable water was often provided by house-owners located at farther distances. Nevertheless, such reports on the vulnerability contexts of migrant workers are common these days. For instance in 2013 there was a media report stating that

*“The State Human Rights Commission had received several complaints from locals against the pollution caused by labour camps where hundreds were accommodated in small huts without toilets.”* (NIE, 2013)

Leichenko and Silva (2014) reviewed numerous studies on climate change and poverty and explain that, though climate change is never seen as a sole cause of poverty, there are diverse direct and indirect channels through which climatic variability and change may exacerbate poverty. In addition, the observed climate change-poverty linkages are complex, multifaceted, and context-specific (*ibid.*). The vulnerability of the poor is exacerbated by the fact that their day-to-day survival is dependent on climate sensitive sectors or on low-income informal work with little protection against climate shocks and stresses (Leichenko and Silva, 2014). In addition, they are more likely to live in areas with higher exposure to climate extremes, with minimum or practically no social protection (*ibid.*). In the absence of strong unionisation, migrant workers are at the mercy of unscrupulous contractors who operate in collusion with officials (Menon, 2012). Health impacts due to extreme climate events can be reduced only if we understand the processes that shape risk (Kovats *et al.*, 2014). In an urban context, driving factors of risk include aspects such as poverty, weak governance, unplanned urban development and ecosystem decline (*ibid.*).

The key informants opined that the city is vulnerable to infectious disease such as water-borne and food-borne diseases. The emergence and re-emergence of certain infectious diseases such as chikungunya, dengue and malaria were a serious matter of concern. They also felt that there is an observable association between climate variability and the outbreak of infectious diseases. In this context, the key informants also felt that the city has become exposed to climate-induced hazards such as heat stress and hydro-metrological hazard events such as heavy rains, floods and water logging.

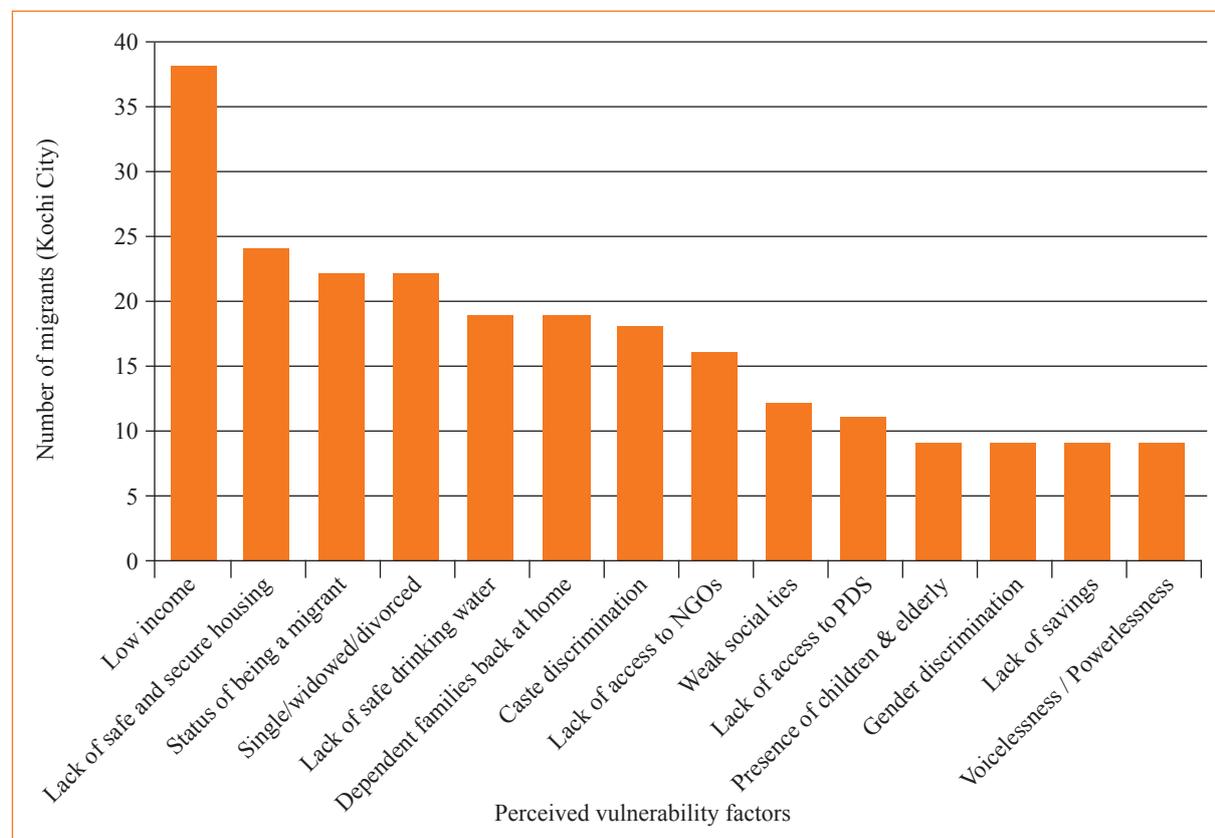
Within a span of five months since January 2011, the city reported 168 cases of chicken pox, 15 cases of typhoid, 20 cases of imported malaria, 21 cases of leptospirosis, 9 cases of dengue, 5 cases of hepatitis, 118 cases of diarrhoea and 2 cases of chikungunya. (The Hindu, 2011; IBN, 2011). In a similar vein, around 11,035 people were reported to have suffered from diarrhoea from January to May in 2014 (Times of India, 2014). Every time an incidence of malaria or dengue was reported, there was a sense of panic setting on the health care administrators, government and sections of the civil society. Malaria was eradicated from the state years before. However in 2007, two cases of indigenous malaria were reported among the migrant workers in Kochi.

*“This was the first time the cases of indigenous malaria were being reported in the state. So far it was only imported malaria and it has created panic among the officials.”* (The Hindu, 2007b).

Once eradicated diseases, like malaria and leprosy, have re-emerged in the state and the media report blames it on the heavy influx of migrant labourers. Migrant workers are believed to act as carriers of these diseases, which were already eradicated in Kerala (NIE, 2014). Moreover, large shares of poor migrant workers were deemed to be highly vulnerable to climate hazards events and infectious diseases in the city. Doctors among the key informants also pointed out that people in the low socio-economic group – specifically those who are sick due to chronic medical conditions – and their dependents, including infants and children, were vulnerable to infectious disease outbreaks. In addition, those migrants who work outdoors were also deemed to be vulnerable to extreme climate variability. The doctors observe that migrants working in the construction sector have reported heat stress, skin rashes and fatigue due to extreme variations in temperature and humidity. Some of the migrants were also prone to infectious communicable diseases due to highly congested housing (such as shared accommodation) and lack of hygiene. Due to such housing conditions, both medical practitioners and social workers observe that these migrant workers have greater chances of getting infected with diseases including HIV. Some of the perceived factors contributing to the vulnerability of migrant workers in Kochi are given in Figure 1.

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Figure 1. Perceived factors inducing vulnerability among migrant workers in Kochi



### 3.2 The vulnerability of migrant workers in Surat

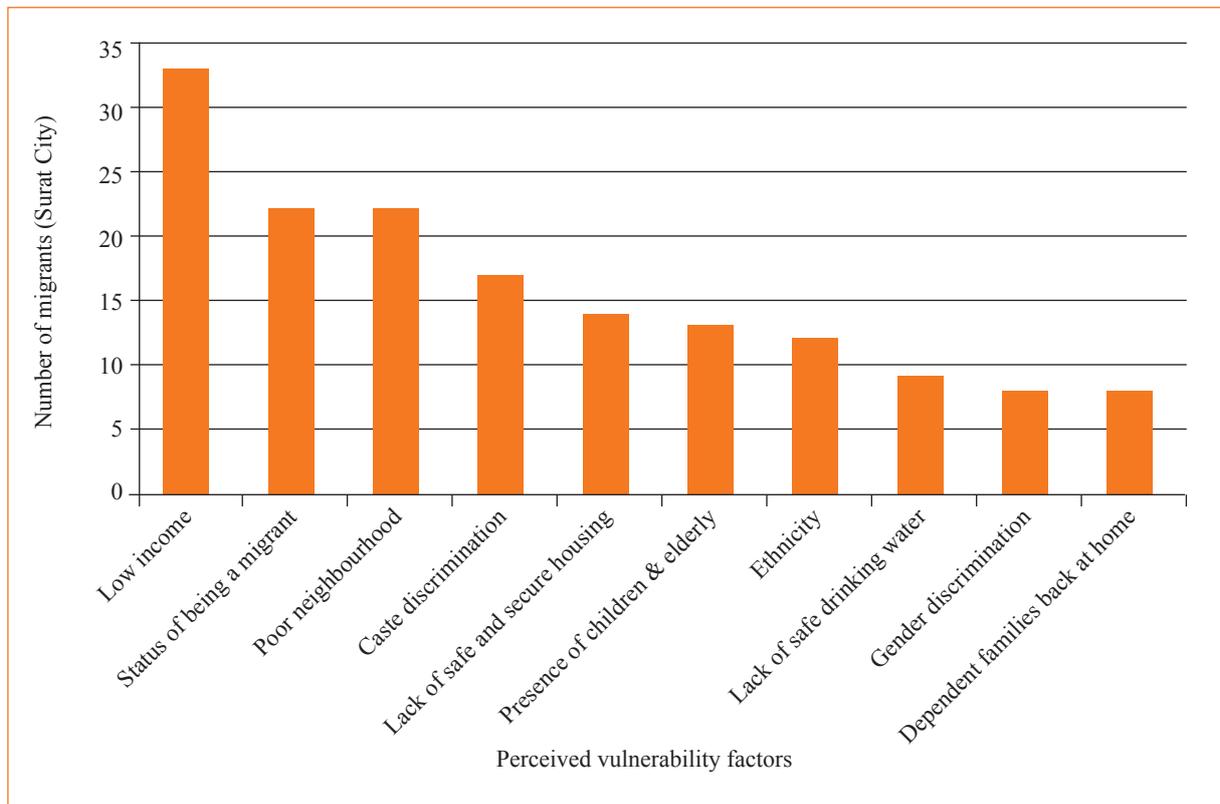
Experts we interviewed were of the opinion that Surat was worst affected due to air pollution, water pollution and food-borne diseases. A considerable number of key informants also felt that malnutrition was a matter of concern in Surat. Climate experts opined that people who are working outdoors in the open and congested factory environments are prone to heat stress. Some of the city spaces that were vulnerable to infectious diseases were the south zone, southeast zone and east zone. Pandessara, Udhna, Varacha and Limbayet were some of the most vulnerable places in the city. Most of these places are low-lying areas and are close to the river. These places are also characterised by high levels of industrial pollution, air pollution and noise pollution, which have resulted in respiratory infections and stress among the population residing in these areas.

None among the migrant workers we surveyed had basic privileges such as provident funds, gratuities, bonuses, pensions or insurance (Santha *et al.*, 2015). Neither did they have identity cards nor access to the basic minimum wage, standard working hours, safe dwellings, clean drinking water, health facilities, basic education for their children, nor job security (*ibid.*). Most of these migrant workers do not have access to safe and secure houses and sanitation facilities. Our findings show that around 29 (19.33 per cent) migrants were homeless in the three cities. Out of which, 18 (36 per cent) migrants surveyed in Surat reported that they were homeless and 13 (26 per cent) people responded that they stay in rental homes.

Health is a major area of concern in Surat city. Medical practitioners we interviewed felt that the low-socio economic groups among migrant workers were largely vulnerable to infectious diseases in Surat city. Infants, children and outdoor workers were identified as other vulnerable groups. Pregnant women and people with chronic medical conditions were also considered to be vulnerable. Experts working with migrant workers in the city opined that even those migrant workers in the textile and diamond industry are highly vulnerable to infectious diseases owing to the cramped, polluted and poor work site conditions. Factors such as late working hours, inadequate shelter, poor nutrition, unclean drinking water, and poor sanitation expose the migrants to a number of illnesses such as typhoid, leptospirosis, cholera and viral fever. Some of the medical practitioners did observe that the prevalence of HIV/AIDS and other STDs among migrants in Surat is also very high.

Some of the perceived factors contributing to the vulnerability of migrant workers in Surat are given in Figure 2.

Figure 2. Perceived factors inducing vulnerability among migrant workers in Surat



### 3.3 The vulnerability context of migrant workers in Mumbai

Mumbai is very much vulnerable to infectious diseases, water-borne, food-borne diseases and vector-borne diseases. Experts pointed out that malnutrition was also an important matter of concern. And at the same time, the city was highly exposed to hydro-metrological hazards. Some of the urban areas that are vulnerable during the monsoons are Sewri, Mahalaxmi, Byculla, Chembur and Ghatkopar. Other areas include Reay Road, Mahim Causeway, Dharavi, the airport area, Santacruz and Vikhroli. These areas are characterised by a large number of construction sites, frequent water logging during monsoons, stagnant water, a large slum population and a number of dilapidated mills and other structures. Most of

the experts were of the opinion that M-ward is the most vulnerable ward in Mumbai city. In the words of a social worker engaged in development projects with slum communities in this ward:

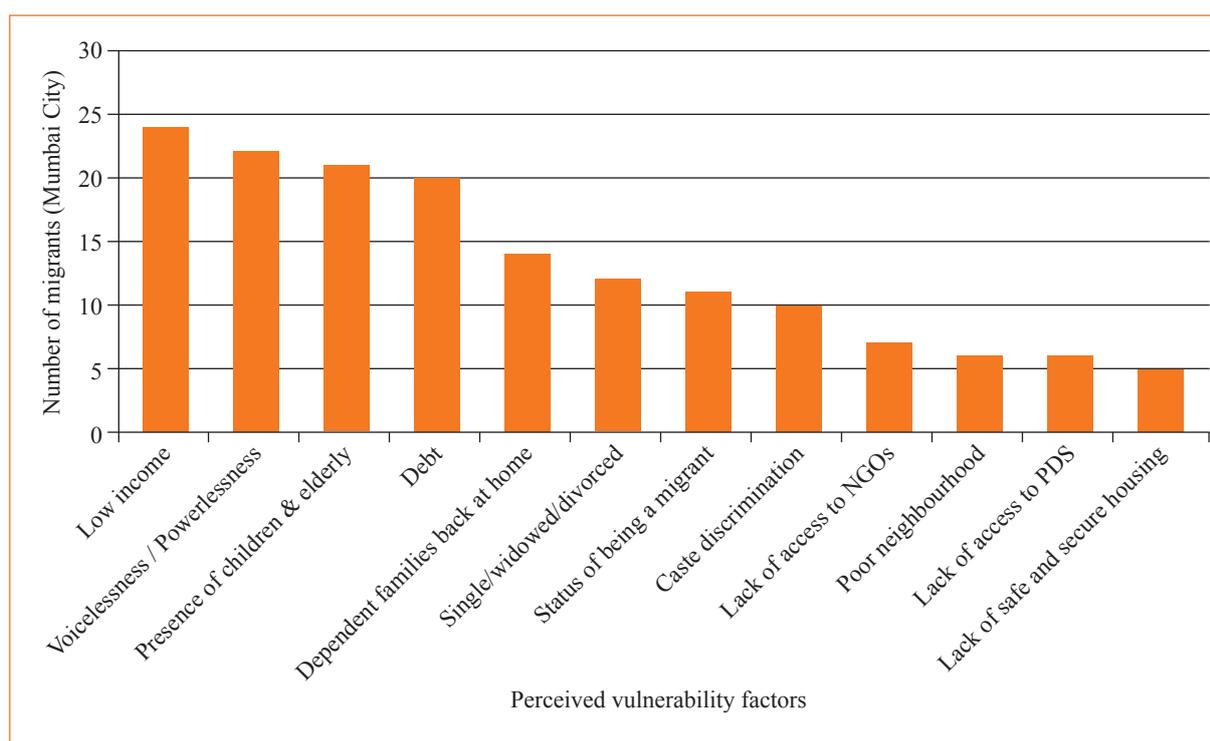
*“M-ward is one of the most vulnerable wards in the city to both health inequities and climate change. Slums and waste dumping grounds surround the M-ward. Around eight percent of the Mumbai slums are in M-ward. All the people displaced due to development projects, communal riots and the new migrants to the city come to M-ward. The building structures are highly unsafe and there is no security for migrant workers and their families in this area.”*

Among the migrant workers, infants and children, the elderly population and pregnant women, apart from those having low socio-economic status, were considered to be highly vulnerable to climate hazards and infectious diseases. During the monsoons in 2010, it was found that about 83 per cent of those who tested positive for malaria were construction workers or slum dwellers (ENS, 2010). Our findings show that most of the 50 surveyed migrants in Mumbai did not have their own home in their native place or own one in the city, and a majority of them (62 per cent) stay in rental places in the slums (Santha *et al.*, 2015). The experts we interviewed cautioned the need to look at the vulnerability context of the city from a poverty-cum-social exclusion perspective. In the words of a social activist we interviewed:

*“Poverty and discrimination of migrant workers in the informal sector is a serious matter of concern. Mumbai has lot of wealth, but there is a huge gap between the rich and the poor. The availability of space per person has also considerably reduced in the city. For example, take the case of A-ward. In this ward, the resident population during the night is approximately two lakhs. However, during the day the population is approximately 45 lakhs. Thus, approximately 43 lakh people commute daily to this ward for their livelihoods. And majority of these population work in the informal sector. This raises numerous challenges to the city infrastructure such as transportation, traffic congestion or crowded trains. Crowd management and providing basic necessities to this population becomes a serious challenge. The threat of rapid outbreak of infectious diseases, environment pollution and accidents always lingers around.”*

Some of the perceived factors contributing to the vulnerability of migrant workers in Mumbai are given in Figure 3.

Figure 3. Perceived factors inducing vulnerability among migrant workers in Mumbai



## 4 Social protection of migrant workers

Social protection involves all initiatives that transfer income or assets to the poor, protect the vulnerable against livelihood risks, and enhance the social status and rights of the marginalised (Devereux and Sabates-Wheeler, 2006). Social protection can be understood in terms of four key categories of objectives namely, **protective** measures, which provide relief from deprivation; **preventive** measures, designed to prevent deprivation; **promotive** measures, aimed at enhancing income and capabilities; and **transformative** measures, which seek to address concerns of social justice and exclusion (Devereux and Sabates-Wheeler, 2006). Examples from India include cash transfers, asset building and food for work schemes. Most of these schemes are implemented during times of climate variability and extreme hazard events including drought, floods or crop loss due to heavy rains and hailstorm. One needs to distinguish between social protection and social security.

*“Social protection is the broadest, signifying the full range of protective transfers, services, and institutional safeguards supposed to protect the population ‘at risk’ of being ‘in need’. Social security is the term that covers the state-based system of entitlements linked to what are often called contingency ‘risks’”* (Standing, 2007: 512).

Social protection also denotes a range of programmes, namely social insurance, social assistance, and labour market regulation (ILO, 2001). Thus, they refer to a set of entitlements that are to be provided to individuals and households through public and collective measures so as to protect against low or declining living standards arising out of a number of basic risks and needs (van Ginneken, 2000: 23). A definition that also reflects the need to look at the social protection of migrant workers in cities is that provided by the UN Economic and Social Council. Accordingly, social protection can be broadly understood as:

*“A set of public and private policies and programmes undertaken by societies in response to various contingencies in order to offset the absence or substantial reduction in income from work, provide assistance for families with children; and provide people with health care and housing.”* (United Nations, 2000, p. 3).

Social protection as a policy framework could address poverty and vulnerability in cities, and help to identify and evaluate the impact and effectiveness of policy interventions aimed at reducing poverty and vulnerability (Barrientos, 2010). In addition, social protection and vulnerability reduction measures, if effective enough, could bring people out of the poverty trap (Leichenko and Silva, 2014).

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## The Interstate Migrant Workmen Act

The Directive Principles of State Policy in the Constitution of India has demarcated clear-cut obligations for the state to ensure that exploitation is avoided and equal rights are secured for all workmen (Menon, 2012). The Interstate Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 extends certain minimal protection against the exploitation of interstate migrant workers. Accordingly, an interstate migrant workman (ISMW) is defined as one who is recruited by or through a contractor in one state under an agreement or arrangement for employment in another state whether with or without the knowledge of the principal employer (Menon, 2012: 103). The act insists that contractors who employ or supply workmen to establishments have to be licensed and all establishments who employ interstate migrant workmen have to be registered (Menon, 2012). Nevertheless, a large number of interstate migrant workmen presently employed in all types of menial unskilled jobs are excluded from its scope. Many of them may or may not be recruited through contractors as envisaged by the act (Menon, 2012: 106).

The act also says that “it is the duty of the contractor to ensure regular payment of wages to ISMWs which shall be equal for equal work for both the sexes, provide and maintain suitable residential accommodation and any protective clothing and medical facilities free of charge to them as may be prescribed. If there is failure to pay or if the payment is short of what is due, it is the duty of the principal employer to make the payments and recover the amount paid from the contractor. The act also obliges the principal employer to extend all the statutory benefits to the ISMW in case of the contractor failing to fulfill his duties in relation to workmen which he may eventually recover from the contractor” (Menon, 2012: 104). However, our study has revealed that the majority of the migrants are denied such benefits. A full list of legislation that applies to interstate migrant workers stated in the act are given in Table 1.

Table 1. Laws applicable to local workers and interstate migrant workers

Legislation	Key purpose
Minimum Wages Act	Meant to determine the minimum wages in industry and trade where labour organisations are non-existent or ineffective.
Contract Labour (Regulation and Abolition) Act	The act applies to every establishment in which 20 or more workmen are employed. The act has laid down certain amenities to be provided by the contractor and to make arrangements for sufficient supply of wholesome drinking water, latrines and urinals, washing facilities and first aid facilities.
Equal Remuneration Act	Stipulates payment of equal remuneration to men and women workers for same or similar nature of work.
Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act	The act is meant for regulation of employment and conditions of service of building and other construction workers and also of their safety, health and welfare measures in establishments employing ten or more building workers. Under the act, the employers have to provide temporary living accommodation to all building workers free of charge.
Workmen’s Compensation Act	To provide compensation for workers in case of industrial accidents/occupational diseases in the course of employment resulting in disablement or death.
Payment of Wages Act	Meant to ensure regular and prompt payment of wages and to prevent the exploitation of a wage earner.
Factories Act	An act to ensure adequate safety measures and to promote the health and welfare of the workers employed in factories using power and employing 10 or more workers.

Source: Kumar (2011: 15-16)

It has often been argued that integrating non-formal with formal social protection strategies could enhance the delivery of social protection services (Mupedziswa and Ntseane, 2013). Non-formal initiatives depend on traditional forms of social protection such as self-help, self-organisation, reciprocity and obligations, and membership of a social group and cultural norms related to community solidarity (*ibid.*). On the other hand, formal social protection systems are guided and supported by statutes and laws, and institutionalised at the policy level (*ibid.*). However, in the context of migrant workers' vulnerability, one needs to thoroughly reflect whether such integration is possible in the first place.

In cities, the non-formal social protection strategies are weak among the migrants and the formal social protection mechanisms were found to be ineffective. It is in this context we need to look out for innovations as well as identify appropriate roles for social workers and development practitioners. This paper proposes that adaptive social protection could evolve as an effective, innovative strategy to enhance the adaptive capacities of the urban poor to deal with climatic and livelihood uncertainties. Before elaborating the innovations that signify adaptive social protection, it is essential to analyse the status of social protection among migrant workers in each of the three cities. Existing social protection mechanisms are an indicator of the adaptive capacities of the vulnerable population to diverse risks and uncertainties, including those impacts related to climate change.

## 4.1 Status of social protection among migrant workers in Kochi

Experts point out that there is adequate legal protection to migrant workers with the enactment of The Interstate Migrant Workmen Act of 1979. As discussed earlier, the act assures equality of wages, displacement allowance, suitable residential accommodation, free access to medical facilities, compensation for workplace injury, and other workplace rights for all interstate migrant workers (Kumar, 2011: 15). Nevertheless, researchers and social activists working with migrant workers in the city are of the opinion that the act is neither appreciated in its scope and vision, nor implemented effectively. For example, the act mandates the appointment of safety officers in every worksite. However, these provisions are not being followed in most of the work sites.

The experts we surveyed were of the opinion that when it came to interstate migrant workers, most of the provisions required by the act were violated. The employers and contractors often abstain from providing decent work and living conditions. Migrant workers are usually provided accommodation in labour camps that are too congested for a large population and are often denied minimum wages. Firms involved in recruiting migrant workers do not maintain wage registers, muster rolls and other particulars as mandated by the act. Other welfare clauses in the act, such as free medical care, proper living conditions and journey and displacement allowances are seldom provided. Yet another important response was that most of the provisions of the promised legislations were applied only to the resident population of the state and were not implemented in the case of interstate migrant workers. According to a researcher-cum-activist in this sector (February, 2015):

*“A unit using power and employing more than ten workers are covered under the Factories Act and the employer is required to register all his/her workers with all relevant social security benefits, whereas dependents of migrants meeting with fatal accidents in the workplace are entitled to one lakh rupees under the Interstate Migrant Workers' Welfare Scheme. But in reality they hardly receive any of these benefits. Their employer and contractors exploit the vulnerability of migrant workers and never are informed of their rights. In case of death of a migrant worker through work site accidents or infectious diseases such as malaria, the employer through the concerned contractor resorts to informal and illegal payment and settles the issue by merely paying for the transportation of the body of the migrant worker back home. Due to the illegality involved in the employment of migrant workers, the employers often go into hiding as soon as something goes amiss.”*

There are several government agencies to enforce the legal rights of the workers. They include the labour department, police department, department of factories and boilers, health department and different welfare boards (Kumar, 2011). Nevertheless, cooperation between these departments is very weak and response is often only to situations of epidemic outbreak, accident or death of a migrant worker.

A major thrust towards social protection is facilitated by the presence of proactive trade unions. Trade unions in the state have played a very important role in bargaining for the welfare and rights of local workers. Nevertheless, a major critique from activists we interviewed was that the state trade unions did not care for the rights of interstate migrant workers. Some among the key informants opined that there is a very recent enthusiasm among trade unions like the Centre of Indian Trade Unions (CITU) to organise some sections of the migrant workers in the state.

Studies have shown that interstate migrants lose their entitlements and welfare benefits when they cross the borders of their native state (Kumar, 2011). For instance, a migrant labourer who has been receiving rice or wheat and other provisions at a subsidised price through the Public Distribution System (PDS) in the home state is unlikely to benefit from the PDS in Kerala (*ibid.*). The inability to obtain a ration card also prevents the migrant worker to receive other benefits provided by the state under the subsidised PDS. Our study revealed that out of the 50 migrants surveyed, 37 had ration cards in their native states. However, none among them had ration cards in Kerala. Thus, the migrants end up paying more for essential commodities in the open market.

We observed similarities in the case of state-sponsored insurance schemes as well. An innovative health insurance scheme implemented across the country by the central government for poor families is the Rashtriya Swasthya Bima Yojana (RSBY). Each household has to register with an annual fee of 30 rupees (approximately US\$ 0.5). It provides annual coverage for inpatient care of up to 30,000 rupees (approximately US\$ 500) to five members of a family. Under the scheme, there is a provision for families of migrant workers to receive the card at the time of first issue or subsequently at a district level office. However, studies reveal that migrant workers and their family members in Kochi were unaware of such a provision and did not claim benefits of the scheme (Kumar, 2011). Observing that the RSBY did not cover all poor families, the state government launched the Comprehensive Health Insurance Scheme (CHIS). The scheme benefits the 'additional poor' as identified by the Kerala government. They have to pay 30 rupees as a premium. However, migrant labourers are not covered by this scheme.

The experts we interviewed informed us that some of the migrants received benefits from the health insurance schemes under the auspices of the labour department and health department. There were also provisions as mentioned above in the welfare fund scheme for accident benefits and compensations in times of hazards events. Our survey with the 50 migrant workers reveals that 12 of them had access to insurance, which in most cases was provided by the employers. However, some activists we interviewed were of the opinion that most of the migrants were unable to avail themselves of such benefits, as their names were not registered by the employer/contractor.

The presence of a proactive public health care system, which is responsive to the needs of the migrant workers, is a strong indicator of effective social protection. As of today, those migrant workers who have access to primary health centres (PHC) need to pay only a minimum amount of 2 rupees (approximately US\$ 0.03), as outpatient consultation charges and medicines are provided free of cost. However, our findings reveal that most of the migrants surveyed did not go to the PHCs or other government hospitals. This is because they have to buy medicines and spend money on diagnostic tests from labs outside the hospital. Yet another reason was their inability to lose a day's work. If they have to consult a doctor in the government hospital, they have to forgo a day's wage. Language is yet another barrier to communication with the doctors and health staff. In this regard, the District Medical Officer (DMO) opined that most of the migrants depend on private clinics. The other health experts in the city observed that the preparedness approaches and public health surveillances systems are very traditional in nature and have not shaped or evolved to deal with the crisis associated with climate change, rapid migration and epidemic outbreaks. Public health preparedness and surveillance measures are restricted to vector density monitoring, health education classes and maintenance of fogging machines. A project that is innovative in this regard is the 'Migrant Suraksha Project' aimed at curtailing the spread of HIV/AIDS through targeted intervention among migrant workers. The state-funded AIDS Control Society implements it with support from non-governmental organisations. The key informants also raised the need for effective participation of local governing bodies in public health surveillance and risk reduction.

## 4.2 Status of social protection among migrant workers in Surat

The key informants in Surat believed that the migrant workers in their city are denied their civil and political rights. They opined that the Interstate Migrant Workmen Act of 1979 is not being enforced effectively. Migrant workers employed in the textile mills mentioned that their employers do not encourage them to join labour unions. Though the Factory Act is applicable to the textile and diamond industries, migrant workers are seldom aware of its provisions. Only two migrant workers among the 50 people we surveyed were aware of the Employee State Insurance (ESI) scheme.

The experts we interviewed were of the opinion that no significant social pension or other social security schemes were available for migrant workers in Surat. The government had implemented some urban community developing schemes that focused on skill building and creating employment linkages. Nevertheless, none among the migrant workers we surveyed were benefitting from such programmes. It was also noted that though some of the employers did establish charitable trusts, the welfare services of these trusts were unavailable for migrant workers. It was noted that in Surat, 12 migrant workers (out of a sample of 50) who were registered by the employer did get some insurance benefits. However, this number is still incredibly low, as most of the employers preferred not to register their employees. We also observed that most of the workers rarely have any proof of their job.

Health experts we interviewed felt that the urban health systems in the city are not sensitised to the relationship between climate change and public health challenges. Moreover, the health system needs to be strengthened to deal with the rapid outbreak of diseases, despite ongoing surveillance efforts to control them. They also opined that scarcity of resources was a major challenge to climate change adaptation and health risk reduction. Though public health policies and programmes exist for the general population, they are not effective among the migrant workers. Experts point to the failed implementation of the Pulse Polio Programme in the city as confirmation of their point of view. Experts were of the opinion that programmes such as the National Vector Borne Disease Control Programme were effective to control malaria and other vector-borne diseases. However, they were skeptical of their success as their planning and implementation often lacked community participation. In this regard, experts mention that the advocacy steps need to be strengthened further. However, the challenge is that there are millions of migrants and the arm of the health department is very minimal. There is a need for a National Urban Health Policy that also integrates health outcomes as a result of climate change in cities into consideration, which does not exist at present. There were visibly no campaigns for the rights of migrant workers in the city.

## 4.3 Status of social protection among migrant workers in Mumbai

Just as for Surat, most of the experts we interviewed in Mumbai were of the opinion that social protection measures for the migrant workers in the city were either absent or completely ineffective. As far as public health and climate change are concerned, there is no emphasis on climate variability in sustainable urban development at the policy level. The expert opinion was that the present level of public health policies and preparedness strategies are not effective enough to deal with major shocks such as climate-induced outbreaks of infectious diseases.

A social worker engaged with migrant workers observed that there are reliable health services provided to migrant workers in government hospitals. However, these hospitals are overcrowded and their capacities are highly overstretched. His observations (February 2015) continued as follows:

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*“The migrant workers are a vulnerable lot. For instance, the city population is very much threatened by the H1N1 virus (swine flu). However, it will be very difficult for the migrant workers to deal with it as the medicines for treating the same are very costly and are not affordable by many. The malice towards the homeless in the city is even more vulnerable. In spite of Supreme Court order that 128 shelters have to be constructed, the municipal corporation says they have built seven shelters. They have technically not constructed any shelters. The seven shelters that they been mentioned are actually meant for children and not the homeless men, women or elderly. Thus they are not following the Supreme Court order... There are issues of urban planning and infrastructural development as well. For instance, the Bandra-Kurla Complex is constructed upon the Mithi river. This used to result in floods and water logging. Now, the authorities have de-silted and widened the river resulting in lower incidence of flood in the area. However, the migrant workers who reside along the Mithi river remain threatened.”*

A strong observation was that the capacities and scope of existing public health care systems are not effective to deal with such a large stretch of migrant population. According to a social worker (January 2015):

*“Preventive programmes are the need of the hour. That requires us to revisit the basics of urban planning. For instance, let us take the case of Maharashtra Nagar. This slum settlement is itself built in the top of a wetland. And it results in flooding and water logging in this locality and outbreak of vector-borne diseases is very rampant. Preventive measures are not taken, the municipal corporation puts bleaching powder in selected areas, but construction of safe house and appropriate sanitation facilities is not given emphasis. In a city-system, there needs to be an integrated intervention and not a piece-meal approach.”*

There are no pension schemes available for migrant workers in the city. However, the experts commented that some discussions are happening in this regard at the policy level. It is also expected that with schemes like the Jan Dhan Yojna, migrants will also be able to receive the benefits of weather-based insurances and the like. There are also no employee guarantee schemes for migrant workers in the city, nor any social insurance. Out of the 50 migrant workers we interviewed, 48 people did not have any form of social insurance. In a similar vein, none of the migrant workers had access to any welfare schemes. There are also no laws that are implemented effectively for the safety and protection of migrant workers in the city. When compared to Kochi and Surat, there are numerous campaigns that are happening to protect the rights of migrants. Movements or people's struggles, such as Ghar Banao, Ghar Bachao Andolan, and Ann Adhikar Abhiyan, were more visible in the city and are consistently striving to claim the rights of migrant workers in the city.

Medical practitioners during the interview responded that the lack of human resources affects the health system preparedness capacities. A media feature that describes similar concerns is given below:

*“The dip in patient numbers may be a relief for the civic body but these figures tell another story - a story of bad planning and a lack of pro-active measures on the part of the country's richest municipal body. 274 Class IV workers' posts are lying vacant at the peak of the malaria outbreak. This is the staff that is responsible for the hygiene in hospitals.” (NDTV, 2010)*

Amidst the human resource challenges, a special task force is being set up during the monsoon and specifically during times of infectious diseases and epidemic outbreaks. The urban health centre coordinates the task force. In recent years, the civic body issued health cards to migrant workers and claimed that they periodically monitor them with doctors' field visits. The ward officers are entrusted to carry out surveillance along with medical officers and in-charge officers and a report is to be submitted within 24 hours. In papers, micro mapping and radical action is to be done in the areas where positive cases are found. The municipal corporation has a disaster management and mitigation cell that looks after disaster management in the city. It have developed a disaster preparedness plan for the city and has a 24x7 disaster response team.

# 5 Adaptive social protection as innovation in climate change adaptation

Innovation towards urban risk reduction can happen in infrastructure provision, ensuring access to land and enhancing the quality of settlements, livelihood promotion, ecosystem conservation, strengthening collective action at the micro level, and guaranteeing social insurance to vulnerable groups (Kovats *et al.*, 2014). Tyler and Moench (2012) have introduced an urban resilience framework, which has three major components, namely systems, agents and institutions. The systemic characteristics of a resilient urban system are that it is able to perform essential tasks and at the same time innovate in transforming assets or structures both spatially and functionally (*ibid.*). Innovations are needed in designing multiple pathways and diverse options for service delivery. Agents or actors in urban systems include individuals, households and organisations that are capable of changing behaviour through strategy, experience and learning (*ibid.*). In a resilient urban system, agents need to be responsive, resourceful and should have the capacity to learn and innovate (*ibid.*). Aspects such as rights and entitlements, decision-making, information and application of new knowledge are the institutional characteristics that facilitate resilience (*ibid.*). In a similar vein, other characteristics of a climate resilient urban governance system include (a) decentralisation and autonomy, (b) accountability and transparency, (c) responsiveness and flexibility, (d) participation and inclusion, and (e) experience and support (Tanner *et al.*, 2009). Our study shows that there are some innovative steps that have emerged in the respective cities signifying elements of adaptive social protection in relation to health and health service provision. These innovations, which also have implications with respect to the social protection of migrant workers, are summarised in the case studies presented below.

## 5.1 Suraksha project (Kochi)

Concerned actors in the health sector of Kochi city have proposed the interlinking of health projects to deal with crises such as the emergence of infectious diseases among vulnerable groups. One such intervention has been on certain occasions to extend the scope of the Suraksha project from HIV/AIDS to other infectious diseases. The Suraksha project is a programme aimed at countering the spread of HIV/AIDS through organising medical and health camps, HIV diagnostics and awareness creation. The Suraksha project was being implemented by the Kerala State Aids Control Society (KSACS) in association with some of the NGOs functioning in the city. To deal with the crisis of infectious disease outbreak among migrant workers, KSACS, normally focused on HIV-related projects in migrant camps, developed innovative strategies to link five of its projects with ongoing projects of other NGOs that deal with diseases such as malaria, leprosy, and tuberculosis. In this regard, social workers with the Suraksha project observed that they have began to intervene among migrant workers in providing appropriate health care information with respect to climate-based disease outbreaks such as flu, dengue and chikungunya. They were of the opinion that such interventions were effective to a certain extent. However, they observed that more systematic interventions on a preventive mode rather than a curative mode should be offered.

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In the context of an outbreak of an infectious disease, the KSACS had increased the number of Targeted Intervention (TI) Projects since May 2014. The organisation identifies peer leaders, who are usually volunteers from the community. They have better access to the migrant labourers and can speak to the workers in their language. Moreover, being insiders, they can easily identify high-risk individuals and facilitate direct intervention aimed at them. The social workers, as field officers identify the peer leaders to run the campaign effectively.

## 5.2 Awareness campaigns on health and labour laws (Kochi)

We observed that officials in the health and labour departments, activists and NGOs are all involved in awareness campaigns on health and labour laws. Some of the NGOs carried out awareness classes on the rights of migrant workmen as stipulated in the Interstate Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979. However, these campaigns cater to a very limited population and those migrants who do not come under the purview of this act are left out.

The health department officials were periodically involved in organising awareness programmes and activities to reduce cases of vector-borne diseases. The Directorate of Health Services (DHS) organised health camps for migrants. A key strategy of the DHS was to encourage migrant workers to seek medical aid in the initial stages of fever, so as to reduce the morbidity/mortality levels. As symptoms of monsoon-related infectious diseases emerged, special fever clinics were set up in the government hospitals and the primary health centres (PHCs), using strategies such as ‘speedy medical check-ups’ to prevent the outbreak of an epidemic. The Indian Medical Association provided free samples of medicine to the camps and also sought the support of employers and contractors in organising them. Preventive medicines for monsoon-related infectious diseases were also distributed through the 31 homeopathic dispensaries of the municipal corporation. The department of homeopathic medicine also established a rapid action epidemic control cell.

The government also launched multilingual education campaigns for health and hygiene among migrant workers in the city, for example the DHS organised an innovative door-to-door campaign. Social work students were involved in enacting street plays aimed at educating migrant workers on infectious diseases such as HIV/STI, tuberculosis, leprosy, and filariasis. Local governing bodies such as the municipal corporation in association with the DHS organised intensive pre-monsoon cleanliness drives in select locations of the city. Women members of the Kerala State Poverty Eradication Mission (Kudumbashree) were involved in these initiatives. Special squads were also formed during the monsoon season with flood control measures to attend to emergency calls from residents during the monsoon period.

## 5.3 The interstate migrant workers’ welfare scheme (Kochi)

In 2010, the government of Kerala introduced the interstate migrant workers’ welfare scheme, implemented through the Kerala construction workers’ welfare fund board (Kumar, 2011). This is considered to be India’s first welfare scheme for migrant labour. The migrant worker pays an annual contribution of 30 rupees (approximately US\$ 0.5). The welfare board, which is financed mainly from the cess (tax) on construction activities, credits twice that amount into her/his account. The government provides the rest of the money needed for the welfare measures (*ibid.*). Accordingly, a membership card has to be issued to any migrant worker who opts to enroll in the scheme, which ensures that the registered migrant worker receives health care assistance of 25,000 rupees (approximately US\$ 416) for inpatient care in designated hospitals to deal with case of accidents or chronic diseases. The worker is eligible to receive only 100 rupees (approximately US\$ 1.66) per day and the maximum limit fixed per episode of disease is 2,000 rupees (approximately US\$ 33.33). The scheme also has provisions to help those labourers who tend to become incapable of undertaking jobs for more than six months due to accidents or chronic diseases, by providing a special assistance of up to 25,000 rupees (approximately US\$ 416.66).

In addition, those labourers who are registered in the scheme continuously for three years are eligible for a retirement benefit of 1,000 rupees (approximately US\$ 16.66) per year subject to a minimum of 10,000 rupees (approximately US\$ 166.66) and a maximum of 25,000 rupees (approximately US\$ 416.66). The dependents of these migrant workers receive financial assistance of 50,000 rupees (approximately US\$ 833.33) in the event of death as a result of accident at the work site, and 10,000 rupees (approximately US\$ 166.66) in the event of natural death. An additional assistance ranging between 5,000 rupees (approximately US\$ 83.33) to 15,000 rupees (approximately US\$ 250) is also provided to transport the corpse to their native places. There is also a clause to provide educational assistance of 3,000 rupees (approximately US\$ 50) per annum for the education of the children of migrant labourers who are studying beyond Class X in Kerala.

An advisory committee chaired by the state labour commissioner and representatives of various trade unions monitors the welfare fund scheme. Nevertheless, studies show that very few migrant workers had registered with the scheme, because most of them are unaware of it (Kumar, 2011). In addition, registration requires the submission of proof of identity, which many migrant workers do not possess. Many employers are also unwilling to register the migrant workers and do not provide the necessary proof that the workers are employed by them. Out of the 50 respondents, only one migrant worker was registered with the scheme. The remainder was not even aware of such a scheme. The response of an official in the labour department was that a large section of the migrant workers still remained as a floating population and therefore they are not included in the welfare scheme. However, this gap remains a contradiction, as more than 4.5 million of the state's labour force are covered under various social security schemes, while the migrant workers to the state are largely left out (India Today, 2012). Since its commencement in 2010, only 8,200 labourers in Ernakulam district had registered with the scheme. Efforts need to be made to enhance the reach and effectiveness of this scheme.

## 5.4 The urban health and climate resilience cell (UHCRC) (Surat)

Surat municipal corporation (SMC) established an urban health and climate resilience cell (UHCRC). The UHCRC provides supportive services to the health department of SMC, such as documenting health and climate challenges. It is also involved in taking up advocacy issues related to health, gender and equity aspects in urban and climate resilience. An end-to-end early warning system has been established in Surat city to forecast floods. This in turn has helped to reduce flood impacts in the city and reduce hardships for the migrants as well. A significant feature of this initiative was the institutional partnership that has emerged with TARU, SMC and the Surat Climate Change Trust (SCCT). The Rockefeller Foundation funded this initiative as part of the Asian Cities Climate Change Resilience Network (ACCCRN) programme.

## 5.5 M-ward east transformation project

The M-ward east is one of the least developed regions of Mumbai city. The percentage of the slum population in this ward is 77.50 per cent (TISS, 2011a). Infant mortality is very high, up to 66.47 per 1,000 live births. The average age of death is 39.30 years. The population per hospital is 27,438 and the population per dispensary is 66,881 (*ibid.*). As part of its platinum jubilee celebrations, the Tata Institute of Social Sciences (TISS) initiated an ambitious development project to address issues such as infant mortality, malnutrition, and maternal mortality. The M-ward project in Mumbai is a 'communiversity' partnership to bring social justice to the migrant community in Mumbai. To begin with, the M-ward project is planned for a period of five years. As part of the planning phase, a baseline survey covering 9,000 households with an average of six members per household was completed. The project also aims to work with 1,000 young people every year in terms of building their skills.

The M-ward project aims to achieve its goals through building partnerships between different actors such as communities, NGOs and health institutions. It works to build rapport with vulnerable communities, identify community leaders, organise community-level meetings and build the capacity of community volunteers. The project devises its action plans through micro-planning in the most vulnerable areas, generating community-wide reports that are easily accessible and verifiable

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by each community and intervention on evidence-based health education and livelihoods. Some of the key strategies of the M-ward project are discussed below (TISS, 2011b).

- a) **Visibility to the ‘invisible’:** Making the presence of low-income communities visible and enabling them to articulate their aspirations for development acquire strategic value. The project aims to make these grassroots realities visible through geographically-mapped data and information, media and research. The information so generated is being used for a comprehensive situation analysis of poor communities in M-ward (*ibid.*).
- b) **Shared vision and ownership:** The project believes in collective visioning, understanding of key issues and in identifying those need and demands articulated by communities and other stakeholders. This collective visioning will be then embedded within the larger development plan of the city. The process followed will adhere to bottom-up approaches and area-based decentralised micro planning (*ibid.*).
- c) **Empower communities and develop leadership:** This strategy aims to empower vulnerable communities within M-ward to be aware of their rights and entitlements, recognise the difference they can make, and motivate them to play a role in achieving a better future. Community resource centres would be established and run by local community youth who would be trained in using RTI and other empowering sources of knowledge and information. The project will also actively engage community youth through fellowships to work in their own communities as agents of change (*ibid.*).
- d) **Enabled environment - advocacy and communication:** An integrated communication strategy is envisaged to inform, enroll and engage people in the transformation of M-ward. Such a strategy would inform communities about government schemes and policies and their rights and entitlements (*ibid.*).
- e) **Equitable access to government programmes and schemes:** This project believes in multi-stakeholder partnerships and works together with local politicians, government departments, the municipal corporation and Mumbai Metropolitan Region Development Authority (MMRDA) officials to ensure that people have access to the resources meant for them (*ibid.*).
- f) **Partnership to enable measureable results:** The attempt here will be to link community demands to convergent programmes and government schemes (*ibid.*).

## 5.6 Information, education and communication (IEC) (Surat and Mumbai)

Some health practitioners associated with the government in Surat are developing information, education and communication (IEC) projects on radio and television about diseases caused due to climate change. Experts felt that from the lessons learned in the aftermath of the plague outbreak, Surat has transformed as a city with the best health system on forecasting health risks and even better policy-cum-practice based outcomes to that end. The SMC was also able to reduce risk to infectious diseases in partnership with the different NGOs, volunteers and civil society organisations. Such partnerships helped to make people aware of the diseases and ways to reduce them. However as the experts in Surat cautioned, the capacities of the existing health systems are suited to manage only mild and moderate calamities and not extreme climatic events. Neither do they address the health concerns of the migrant population.

Experts observed that after the 2006 floods, the health system improved their preparedness levels and there is continuous updating of databases on the variations in public health indicators. Mock drills are being conducted among vulnerable populations and information on preparedness is disseminated through television and newspapers. The SCCT is involved in public health surveillance during monsoons and organises training for hospital staffs on epidemic outbreaks. They also develop plans to identify and rope in specialists to deal with crisis situations.

The Urban Health Centres in Mumbai train community volunteers to visit and carry out the primary analysis of the health conditions of the people during epidemic outbreaks such as malaria. This is because people do not visit hospitals as soon as they get ill. So the community volunteers are trained to identify the symptoms and if it is likely to be an infectious disease, they are to be referred to the Urban Health Centre.

# 6 Recommendations towards strengthening adaptive social protection

The experts we interviewed gave some important suggestions to strengthen adaptive social protection, with specific reference to public health preparedness and climate change related hazard events. These suggestions are discussed below.

## 6.1 Health programmes

Surveillance and intervention designs of public health programmes should be strengthened and integrated into a long-term, self-sustaining design. Most of the public health programmes are currently designed as short-term projects, but there is a need to expand the curative capacities of government hospitals and PHCs in the city and suburbs respectively. Furthermore, these projects are heavily dependent on funds from central and state government. However, in practice, fund allocation and disbursements are often delayed, affecting the effectiveness of the project. Local self-governing bodies need to be called for action, as projects have limited scope to deal with lots of migrants. The DHS also needs to be strengthened with better surveillance mechanisms and regulations. There need to be more campaigns and awareness programmes on the preparedness level of diverse actors to deal with extreme climate hazard events and epidemic outbreaks.

City-specific programmes to deal with infectious diseases should be introduced. As of now, these are cutting into the larger public health interventions, irrespective of rural and urban differences. Regular medical check-ups in all labour camps, with a specific emphasis on communicable diseases, would benefit the health of migrant workers and the community as a whole. Public health preparedness programmes should be designed in such a way that health professionals and social workers are able to access the houses of migrant workers or the labour camps to analyse the nature of intervention that is required and develop suitable action plans.

There is a need for an effective public health system supported by private health care providers. It is not enough that health systems are available only in time of crisis; they should be able to deal with the day-to-day medical challenges as well. Lessons can be learned from rural health systems. For example, relevant health policies such as the National Rural Health Mission (NRHM) can be applied in urban areas as well. Information related to climate change and infectious diseases needs to be consistently updated, and the resulting policies should be based on evidenced-base practices. There is also an opportunity to introduce PPP-based health care programmes, if they are integrated with accurate and updated information, technology and action. This may help to organise and implement much needed health check-up camps with adequate facilities for migrant populations in the informal sector. Additionally, there is a need to set up more dispensaries in migrant settlements, and improved access to health screening facilities and diagnostic procedures for the poor. Lastly, experts that were interviewed proposed fever surveillance in climate-sensitive areas and the strengthening of IEC activities.

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## 6.2 Policy and planning

With the rise in migrant populations, the host (native) population in cities such as Kochi has become hostile to migrant culture. This is specifically with respect to the migrant culture of spitting in public places, resulting in native populations demanding stringent rules to prevent spitting. In this regard, health and health care should be considered as a right for both the migrant workers and the host or native population. The issues of public health, sanitation, water supply, housing, urban environment, educational and infrastructure needs, law and order needs to be given greater attention.

General workplace safety needs to be inspected regularly and adherence to specific standards needs to be maintained. Closure of labour camps has to be mandated, if health and hygiene are not maintained. There should be concrete action towards the closure of environmental polluting firms and industries (emphasis on corrective measures). Additionally, the disaster management cell should begin functioning proactively and guidelines and capacity building programmes should be issued to handle crisis situations.

As envisioned by the M-ward project, urban planning should mandate the participation of migrant workers. Their participation should also be ensured in local governance and urban development projects such as the Jawaharlal Nehru Urban Renewal Mission (JNURM) and the forthcoming 'smart city' projects.

For policy innovations relating to health services, fiscal investments should be encouraged for both preventive and curative care. Active spending and leadership by the public sector are required and there should be more fund allocation for human resources and infrastructure in preventive health care. At a national level, doctors identified the need for fiscal advocacy for health system preparedness in the context of climate change. This may require the strengthening of evidence-based health policy, reform and action. Locally, there is a need for integrated, health-focused urban planning and for strong inter-departmental convergence in the municipal corporations to provide adequate, timely health care support to the poor in the city. Finally, it is critical that there is effective implementation of various acts and legislations pertaining to the safety and rights of labourers and migrant workers.

## 6.3 Strengthening the provision of public services

Health initiatives for migrant workers in the city could be improved with the provision of adequate and appropriate public services. Examples identified in expert interviews include ensuring that sanitation facilities are available for all poor households, establishing effective waste management systems, provisioning drinking water systems, and providing safe and secure housing for the homeless. Toilet construction and provision of accessible and hygienic sanitation facilities are important. Additionally, migrant settlements will benefit from access to clean drinking water. Housing is key, and health maintenance will improve if authorities can facilitate the construction of safe low cost houses.

## 6.4 Technology

Recommendations for health innovation also include updating technologies that could facilitate rapid, fast treatment for use in health programmes, such as web GIS-based Public Health Surveillance Systems. Participatory GIS can also be used in risk and hazard mapping. Other internet-based participatory infectious diseases surveillance systems were also suggested. Experts quoted examples from other countries such as FluTracking (Australia), Reporta (Mexico), Flu Near You (United States) and Dengue na Web (Brazil). However, enhancing access to basic health care services remains the most important objective of any technological innovation and this demands consistent maintenance and updating of relevant databases. Experts also suggested technology-aided services such as mobile diagnostic laboratories to enable migrant workers to access the right diagnosis on their doorstep.

## 7 Role of social workers

Resilience from an evolutionary perspective needs to be understood as a continually changing and dynamic process, spanning multiple scales and timeframes (Davoudi, 2012). This highlights the role of institutions, leadership, social capital and social learning – all key components of social work, thus accounting for the significant role of social workers in enhancing resilience (*ibid.*). Resilience approaches are characterised by two important elements. Firstly, the approaches should have a focus on understanding and managing systemic feedback processes (Chapin *et al.*, 2009; Haider *et al.*, 2012). Secondly, uncertainties and unpredictability should be addressed through the capacity building of people to adapt in flexible and innovative ways (*ibid.*). Both these scenarios require the enhanced role of social workers.

Climate change is yet to be integrated into mainstream social work in India. This paper seeks to demonstrate that the social work profession, alongside health services, has an important role to play in adaptive social protection to promote vulnerability reduction and climate change adaptation, and to challenge social inequities. Dominelli (2011) envisaged that social workers could play a mediating role in helping people understand the issues affecting their daily life, and in promoting sustainable energy production and consumption, and mobilising people to protect their future through community social work. Such a conceptualisation has been however critiqued by social work scholars such as Peeters (2012). Instead, he emphasised that social work has a role to play in challenging the social, political and economic structures and processes that cause climate change. Social workers need to be considered as agents of systemic change and resilience building that are beyond the role of mediating adaptation to the consequences of climate change (*ibid.*). In this regard, Peeters (2012) viewed that the most important strategy was to build social movements that rely on the strengths of people and their communities and become part of a worldwide movement for social and ecological justice.

The experts we interviewed also gave some important suggestions on the role of social workers in strengthening adaptive social protection, with specific reference to climate change and health inequities. The two workshops that we carried out to disseminate data findings from this research also helped in drafting the potential role of social workers in addressing the impacts of climate change on the migrant population. As of today, the health and health care of the poor is not a priority in urban planning. Social workers will have to work towards changing such a development approach. One idea from experts was converging development programmes with health care to ensure access to cheap diagnosis, consultation and treatment. It may also be good development and health practice to organise medical camps in association with the health department in areas with high concentrations of interstate migrant workers. Peer leaders could then be identified to run these campaigns effectively.

Making health service more affordable and accessible is a crucial goal for India's public sectors. Important tasks for social workers regarding health services include assisting with the design of community-based programmes to immunise children from families of settled migrants, and strengthening people-centric public health surveillance and hazard forecasting measures, including information dissemination and early warning. Simply put, social workers inputs and priorities are essential to micro planning in the health sector.

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There is a role for education within social initiatives for health. Educating migrants about proper nutrition and hygiene, along with awareness creation on early diagnosis and proper treatment may prevent illness and delayed treatment. The same thinking applies when experts proposed greater awareness on proper antenatal care and contraception. Designing innovative IEC materials and pedagogy on such issues as health education and sanitation, aimed at low socio-economic groups among the migrant population, will also help overcome health and climate change challenges.

Migrant workers need access to non-emergency medical services as well. For example, experts recommend providing psychosocial care for migrant workers facing stress and mental depression. Social workers have a role to play in counselling populations at high risk, so as to decrease the emotional vulnerability of migrants to diseases associated with climate change.

Moving forward, social workers need to evolve applied designs of inclusive, gender-sensitive risk reduction projects for health care amongst migrant workers. As these initiatives play out, more investment and support should be given to promoting and strengthening evidence-based research on health issues and climate trends.

Climate variability affects the urban poor. Social workers have to work together with the system to facilitate, design and implement adaptive social protection strategies in cities. The migrant poor require better social security systems, and social workers can facilitate this process between the state and the communities. Social workers can provide other forms of protection as well, such as monitoring workers' rights violations on issues related to non-payment of salary and insurance, preventing exploitation by employers, and ensuring the registration of migrant workers at labour and health departments. For this kind of protection, there is a need to strengthen the collective bargaining capacity of migrant workers. This can be done through the strict implementation and monitoring of the Interstate Migrant (ISM) Act and Employee Compensation Act.

Implementing subsidised social welfare programmes with the active participation of local governing bodies would be beneficial to migrant populations. To do this, experts suggest providing training and capacity building to multi-disciplinary teams, and strengthening the reach and effectiveness of the interstate migrant welfare schemes. In addition, the design and implementation of state-specific migrant policy development, planning, and advocacy, with further monitoring and evaluation of the schemes, are required. Another strategy is to organise migrant workers into trade unions. The strong migrant voice that this will provide should generate trust and professionalism among multiple actors

Migrant workers can benefit from social workers' assistance with basic legal and human rights tasks. For example, social workers can help migrants to obtain proper documents like ID cards and voters' ID cards, provide legal aid, address language or cultural barriers in accessing services and entitlements, improve financial literacy or open bank accounts, and make migrants aware of their rights. The more vulnerable children of migrant workers require special assistance from social workers, such as basic care and support (especially for those whose mothers also work), so as to prevent child labour, and ensure access to education.

Future goals for social protection focus on transforming policy in paper to practice in action. Projects and initiatives moving forward should centre around disseminating policies to the end user. One vein of this is to build migrants' knowledge of climate change impacts, workers' rights, and precautionary and safety measures in the workplace. More effort is required to facilitate the enforcement of environmental norms, and ensure food security. For migrant populations, having shelter, food and insurance is important. Ration cards will insure food availability, but food security and PDS for migrant workers needs to be strengthened.

The experts interviewed suggested enhancing the proactive participation of civil society and the third sector, or nurturing meaningful PPPs. The government and private sector should work in collaboration with social workers. Social workers have an important role as all the above-mentioned are governance issues, education, employment, safe water, hygiene – and health does not come in isolation. There are many such sectors that need to be integrated through appropriate forms of governance. Social workers need to work with the state and the Brihanmumbai Municipal Corporation (BMC) towards improved provision of housing, water, etc., and better living conditions.

In summary, social workers have an important role in coordinating between the governments in the host state, the states of the migrants' origin and the central government to make sure that the entitlements of interstate migrants are not lost on account of migration. As climate threats loom over these already vulnerable populations, social workers need to equip themselves with the knowledge and skills related to climate change and adaptation to better serve the migrant worker populations.

To conclude, social workers have an important role in operationalising resilience, so as to directly engage with practice (Shaw, 2012). One needs to understand that interventions in vulnerability reduction can indeed diminish, sustain or enhance resilience (Davoudi, 2012, Santha, 2015). Moreover, such interventions are mostly based on normative judgements, and often a bounded approach to vulnerability reduction could lead to exclusionary practices (Davoudi, 2012). Enhancing resilience will be beneficial to some people or places and it may be a loss to many others (*ibid.*). Rebuilding resilience, therefore, needs to pay attention to issues of justice and fairness (*ibid.*). Social workers therefore have an important role to play in strengthening resilience.

Social workers also have plenty to learn and can evolve from the ongoing studies on social protection and urban resilience. Studies have shown that social workers working towards strengthening social protection services could play important roles (Mupedziswa and Ntseane, 2013). Social workers can evolve and shape methods to properly understand non-formal and formal types of social protection arrangements and innovate ways to integrate them (*ibid.*). However, they need to appreciate that non-formal initiatives are not a substitute for formal measures and devise innovative steps to strengthen the effectiveness of formal social protection measures (*ibid.*). Social capital is a suitable indicator to strengthen adaptive capacities and sustain community health (Sherrieb *et al.*, 2010). Social workers can play a role in identifying diverse elements of social capital and strengthening them at different levels, namely social support, social participation and community bonds (Norris *et al.*, 2008). There is a need in development practice to promote the resilience of poor populations, and strategies should emphasise non-monetary dimensions of poverty (Leichenko and Silva, 2014). Physical health and psychological dimensions of poverty may also play a role in influencing both climate change vulnerability and the resilience of poor populations (Leichenko and Silva, 2014).

Porter and Davoudi (2012) have emphasised the need to take into consideration the political questions of power, institutions, and resource inequities, while reframing planning from a resilience perspective. Contemporary risk management approaches to deal with climate change lack an evolutionary understanding of resilience (Fünfgeld and Mcevoy, 2012). Firstly, these approaches do not take into consideration the fact that socio-ecological systems are always in flux and that transformation is an important part of the process. Instead, climate risk management considers profound transformation as a system failure rather than part of a healthy process of maintaining resilience (*ibid.*). Secondly, contemporary risk management approaches have a linear focus in identifying sources of risk and devising strategies to deal with them. These approaches are thus incapable of dealing with chaotic system changes that occur without any sign of warning or external disturbance (*ibid.*). Therefore it is imperative that social workers work with an evolutionary understanding of resilience.

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# Appendix 1: Semi-structured interview schedule

[ID No. FI\_\_\_\_Koc/Mum/Sur]

1. Name:
2. Designation:
3. Organisation:
4. Could you please elaborate on your organisational mandate?
5. In terms of your professional work, are you associated with any of the following categories?
 

a) Informal Migrant Workers	b) Provision of Health-care Services
c) Climate Change / Disaster Risk Reduction	d) Other.....
6. According to your observations, what are the climate-related vulnerabilities in the city?
 

a) Heat stress	b) Air pollution
c) Water-borne/food-borne diseases	d) Vector-borne diseases
e) Malnutrition	f) Extreme weather events
g) UV light exposure	h) Other _____
7. According to your observation, which are the migrant groups with increased vulnerability to infectious diseases in the city?
 

a) Infants and children	b) Pregnant women
c) Elderly people	f) People with chronic medical conditions
g) Impoverished / low socio-economic status	h) Outdoor workers
i) Other _____	

## Institutional Support for Migrant Workers in the Informal Sector

8. Are you aware of any social service provisions that exist for migrant workers in the informal sector in the city?  
Yes / No.  
If yes, kindly illustrate the provisions.
9. Are you aware of any social transfers (food/cash) existing for migrant workers in the informal sector in the city?  
Yes / No.  
If yes, kindly illustrate the provisions.

10. Are you aware of any social pension schemes existing for migrant workers in the informal sector in the city?  
Yes / No.  
If yes, kindly illustrate the provisions.
11. Are there any public works programmes in which migrant workers in the informal sector are involved?  
Yes / No.  
If yes, kindly illustrate the provisions.
12. Do migrant workers in the informal sector have access to any kind of social insurances?  
Yes / No  
If yes, kindly illustrate the provisions.
13. Are there any weather-based insurance for the migrant workers in the informal sector in the city?  
Yes / No  
If yes, kindly illustrate the provisions.
14. Do migrant workers have access to formal credit structures?  
Yes / No  
If yes, kindly illustrate these.
15. Are you involved in any kind of campaigns for the rights of migrant workers in the informal sector in the city?  
Yes / No  
If yes, kindly illustrate these campaigns.
16. Is there any employment guarantee scheme for the migrant workers in the informal sector in the city?  
Yes / No  
If yes, Kindly illustrate the provisions.
17. Are there any laws, regulatory and legal frameworks that exists for the safety and security of migrant workers in the city?  
Yes / No  
If yes, kindly illustrate the provisions.

## Health Adaptation and Climate Change

18. Which wards in the city are the most vulnerable to climate variability and climate change?
19. How effective are current health or other sector policies and programmes in managing climate-sensitive health outcomes?
20. How well is the health system prepared for changes in demand due to changes in the geographical distribution, incidence or timing of climate-sensitive health outcomes?
21. What additional public-health policies and programmes are likely to be needed for effective health management?
22. What policies and programmes are needed in other sectors to protect health?
23. Could you please elaborate on the few steps that you have taken to deal with issues of climate change/ disaster risk reduction in your city?  
(What/ Who / How?) Any kind of innovative practices?
24. Could you please elaborate on the few steps that you have taken to deal with issues of infectious diseases and epidemic outbreak in your city?  
(What/ Who / How?) Any kind of innovative practices?
25. What are your suggestions to social work practitioners and other development practitioners towards facilitating effective climate change adaptation to better health contexts?



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# Climate change, vulnerability and adaptive social protection: innovation and practice among migrant workers in Indian cities

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## **Asian Cities Climate Resilience Working Paper Series**

This working paper series aims to present research outputs around the common theme of urban climate resilience in Asia. It serves as a forum for dialogue and to encourage strong intellectual debate over concepts relating to urban resilience, results from the ground, and future directions. The series is also intended to encourage the development of local research capacity and to ensure local ownership of outputs.

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