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# Asian Cities Climate Resilience

WORKING PAPER SERIES 34: 2016

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## **Building a resilient city for whom? Exploring the gendered processes of adaptation to change**

### **A case study of street vendors in Hanoi**

NOZOMI KAWARAZUKA





# About the author

Nozomi Kawarazuka, International Potato Center (CIP) and International Center for Tropical Agriculture (CIAT), Hanoi, Vietnam. N.Kawarazuka@cgiar.org

# Acknowledgements

I would like to thank the street vendors who kindly participated in this study for their time and cooperation and Nguyễn Thị Ngọc Diệp for her assistance during the fieldwork. I am grateful to Diane Archer and Paolo Cravero from IIED, and Brice Even, Christophe Béné and Dindo Campilan (CIAT) and Gordon Prain (CIP) for their insightful feedback on an earlier version of this paper. Responsibility for the views expressed in the paper and any errors therein remain mine

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# Abstract

Drawing upon examples of street vendors in Hanoi, this study explores gendered strategies to adapt to change and transform, and how street vendors' responses, in turn, shape the current informal food systems in Hanoi. To do this, the study employs gender analysis drawn from critical social theory. The findings show that a vast majority of these street vendors are women, and for those women, informal food systems are operated based on social, rather than economic, mechanisms through which those women are able to sustain their livelihoods in the face of policy and/or economic changes. In contrast, male street vendors' activities are closer to the formal market systems in the sense that their business is based on capital and economic interactions rather than social relations. Most of the female vendors also often allow their regular customers to buy their produce on credit or purchase low-value or leftover items at lower prices, facilitating poor people's daily access to micro-nutrient-rich food meanwhile minimising food waste. In that context, and without a clear appreciation of these gendered adaptive strategies, policy which encourage the formalisation of food systems, run the risk to exclude or marginalize further urban and rural poor female smallholders and low-income consumers. The analysis also shows that some street vendors target not only urban poor but also rich and middle-class people by investing in livestock or fruits production to meet the increasing demand from middle-class for those products. Other vendors grow and sell local vegetables, remaining with limited provision for future change. The study concludes with a series of policy recommendations for building a climate resilient city for the poor.

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# 1 Introduction

## 1.1 A resilient city for whom? The dynamics and diversity of people living in the city

Lụa, 50, sells green vegetables grown on her small plot of land. She always sits at the same place on the corner of a street in Hanoi. Her business is based on the pavement, where she has regular customers and peer vendors who support her in times of need. She has been engaged in this business for ten years since the vast majority of her family's land was taken by a private development agency to build new villas under the municipal government's urban planning scheme. This was the biggest change that her family experienced in their lives. The compensation fee she received for the expropriated land quickly ran out since her husband started drinking, playing cards and gambling with his neighbouring villagers. Lụa explains that her husband could not adapt to change: he had been a farmer for a long time, and he feels extremely ashamed at having to start learning new things and work under the supervision of somebody in the city. The vegetables she grows are quick-growing local varieties that are tolerant of heat and cold, and which require little labour and financial input. This low-risk, low-return business enables Lụa and her family to cope and 'bounce back', although profits are limited compared to investing in fruits and livestock.

Like Lụa and her husband, poor women and men tend to be further marginalised in the processes of adaptation to change. In Hanoi, as in many other cities in Vietnam, the socialist-oriented macro-economic reform, *đổi mới*, of 1986, and the subsequent land privatisation program implemented in the 1990s, dramatically changed land uses as well as trading and marketing systems (Quang and Kammeier, 2002). A range of formal and informal economic opportunities was created by subsequent urbanisation and rapid economic growth (Tuyen *et al.*, 2014). However, as Lụa's case shows – and as we will see in greater detail below – the impact of change on individuals varied with their capacity to adapt and their gendered livelihood strategies negotiated within the family. Understanding poor people's experiences of adapting to change, and the consequential social and economic inequality, can strengthen city development policies including those for climate adaptation. This study explores how poor people adapt to ongoing socio-economic changes and how informal food systems and family institutions strengthen the resilience of the poor in this process. The study looks at street vendors who support Hanoi's informal economy and play a key role in feeding an increasing non-farming population.

### Understanding resilience

The concept(s) of resilience has increasingly been used in city development planning, in particular in relation to climate change adaptation. Its scope has expanded from mitigating disaster risks and sustaining urban eco-systems to improving governance systems and institutional arrangements. The latter notion of resilience includes political dimensions, moving beyond seeking infrastructural or ecological solutions to considering underlying political challenges (see Béné *et al.*, 2014 for a review). In rapidly growing Asian cities, urban populations include poor people and socially marginalised groups,

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who will be most affected by the impacts of climate change (Moench *et al.*, 2011: 11). Some city resilience approaches, therefore, pay particular attention to the urban poor and marginalised people. Arup International Development, for example, explicitly shows its consideration to the poor in the concept of city resilience as ‘the capacity of cities to function, so that the people living and working in cities – particularly the poor and vulnerable [our emphasis] – survive and thrive no matter what stresses or shocks they encounter’ (2014: 3). However, an abstract concept/goal itself does not automatically help address the issues that are more political than environmental or technological. This is partly because the conventional concept of resilience does not have a strong theoretical framework for analysing power dynamics and agency (eg Hornborg, 2009; Davidson, 2010; Duit *et al.*, 2010). As a consequence, resilience approaches tend to be disconnected from the underlying socially and politically constructed challenges that continue to marginalise the urban poor (Béné *et al.*, 2014). The concept of resilience is not necessarily pro-poor, and so runs the risk of contributing to sustaining the current social inequality and marginalisation that characterises most cities (Béné *et al.* 2012). Urban resilience policies and analyses should, therefore, consider the critical question of ‘a resilient city for whom to what?’ (Friend and Moench, 2013; Béné *et al.*, 2014).

Asking this question helps researchers to pay particular attention to actors and power relations among them. Marginalised people are not passive but active agents who respond to change through their own networks and social relationships available within (informal) systems to which they belong (ISET, 2011). The impacts of change on individuals vary with how adaptation strategies are negotiated within these systems. It is, therefore, a first entry point for city development policy to understand how and which (informal) systems work for the poor. This approach can help policies address underlying structural dimensions that sustain social inequality.

## The concentration of poor people in the informal economy

In many cities in developing countries, poor people are mainly engaged in the informal economy. But the informal economy is often overlooked in discussions on city resilience (Brown *et al.*, 2014). The informal economy is defined as all enterprises, workers and activities that operate outside the legal regulatory framework of society, and the output that they generate (Meagher, 2013; Chen, 2014). In the structuralism literature, the informal economy is understood as being subordinate to the formal economy operated by, for example, the powerful capitalist firms (Moser, 1978; Portes *et al.*, 1989). Phillips (2011) explains that the concentration of poor people in the informal economy is created not only through the power of capitalist economies but also by the strategies of poor households who rely on informal systems to fulfil their short-term practical needs. As a result, poor people are incorporated into, rather than excluded from, markets on adverse terms. At a global level, gendered marginalisation to the informal economy is evident since women make up a substantial share in the informal sector (Chant and Pedwell, 2008; Charmes, 2012; Moghadam, 2015). In Hanoi, in particular, many poor women are involved in informal food systems, working as retailers and street vendors (eg Agergaard and Thao, 2011). This process of marginalisation driven by poor people’s gendered strategies is particularly relevant to understanding their adaptation strategies and consequences.

Gender analysis drawn from critical social theory helps provide a framework to explore gendered negotiation processes for adaptation to change. A close engagement of gender analysis with resilience analysis, while preserving the strengths of each approach, can offer more nuanced understandings of the diverse processes of adaptation in which gendered agency plays a significant role (Kawarazuka *et al.*, 2016). This study therefore employs gender analysis drawn from critical social theory (Connell, 2009) as a central framework to understand men and women’s gendered adaptation strategies grounded in informal food systems and family institutions.

Studies in Asian cities have identified collective vulnerability and climate-related risks at city level, and many actions are proposed such as developing infrastructure and public facilities, mitigating health-related risks and strengthening governance (Kovats and Akhtar, 2008; Tanner *et al.*, 2009; Brown *et al.*, 2012; Dodman *et al.*, 2013; Reed *et al.*, 2013; Katzschner *et al.*, 2016). However, the potential impacts of these infrastructure and policy changes on the informal economy have not been discussed enough. Insights from this study will help strengthen current development planning for building a climate resilient city with pro-poor policies by providing an explanation of gendered adaptation processes and

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illuminating the role of city residents in informal systems. It will move beyond offering gender-neutral technological and infrastructural solutions to addressing underlying challenges of gendered social inequality in the city.

## Research questions

Against this background this research was structured around three questions:

- 1) How do male and female street vendors mobilise resources to benefit from Hanoi's urbanisation? This question focuses on understanding urban and rural smallholders' response to urbanisation, which shapes and reshapes the social structure of the city. It explores street vendors' different capacity to respond to change and highlights the opportunities and challenges they face to adapt to ongoing urbanisation and change.
- 2) To what degree, and for whom, do street vendors contribute to food security and nutrition in Hanoi? This question looks at the role of street vendors in sustaining urban food security. It highlights street vendors' diverse strategies to meet urban consumers' different demands and discusses what this means for the current food policy on the formalisation of food markets in relation to sustaining urban (and rural) food security.
- 3) How can informal food systems be supported and sustained for building a climate-resilient city for the poor and marginalised? This third question links findings of gender analysis to the wider discussion on building resilience of Hanoi in relation to urban food security and to low-income urban dwellers.

Overall this research will provide insights for building a climate resilient city by providing qualitative information to help address structural challenges and develop urban planning that facilitates the adaptation of the poor and marginalised.

## 1.2 Street vendors an essential part of the city

Hanoi is the capital city of Vietnam with a population growth of 3.5 per cent per year (UNdata, 2016). It consists of 12 urban districts and 17 rural districts with a total population of 7.2 million. Agricultural land in Hanoi's rural districts has played a significant role in feeding the increasing population of non-farming urban residents, and some farmers have shifted from subsistence agriculture to more intensive farming and horticulture, thereby benefitting economically from urbanisation (van den Berg *et al.*, 2003; CIP, 2007; Lee *et al.*, 2010). Meanwhile, about one-third of the agricultural land has been converted to urban buildings over the past two decades (Pham *et al.*, 2015). Some farming areas have been sold to the city development agency for either residential or commercial development, putting thousands of farmers out of work (Lee *et al.*, 2010) and shifting their livelihoods to non-agricultural sectors. Hanoi's urbanisation thus influences both food systems (at a city level) and agriculture (in urban and rural areas), providing different opportunities and challenges to individuals living in both rural and peri-urban areas.

In Hanoi, there are two distinct food systems, sometimes described as: the formal and informal food systems; modern retail services and traditional markets; or supermarkets and local wet markets. The informal food systems are the primary access point of city residents for fresh vegetables, fruits, fish and meat, with more than 95 per cent of vegetables distributed through it (Wertheim-Heck *et al.*, 2014). Freshness, price and convenience are three key factors that encourage many city residents to use informal food systems (Maruyama and Trung, 2007). Also, the Vietnamese strongly prefer to buy unrefrigerated meat (van Phuong *et al.*, 2014). According to a survey (Mergenthaler *et al.*, 2009), more than 90 per cent of residents in Hanoi and Ho Chi Minh are concerned about food safety. But this has not strongly pushed them to change their shopping practices toward supermarkets or organic shops (Wertheim-Heck *et al.*, 2014). Reasons for not buying 'safe' vegetables are their higher prices, no trust in the safety of vegetables with 'safety vegetable' labels, and having a long relationship with a present retailer in the informal food system (Van Hoi *et al.*, 2009). Thus in Hanoi, the informal food system remains a dominant food distribution channel, which is sustained through residents' strong demands and preferences.

There were around 400 traditional markets<sup>1</sup> in the city in 2010. The number of supermarkets was 24 in the same year but increased to 63 in 2014 (Wertheim-Heck *et al.*, 2015). Although this represents a significant rise in numbers, local wet markets still dominate Hanoi's food systems. In addition, street fresh-food vendors are an important part of the informal food system.

In this paper, the term 'street vendors' refers to food sellers who do not have a fixed legal space in the local wet markets, and who can either be mobile within certain neighbourhoods (using a bicycle or a motorbike) or sitting on pavements along the streets. Street food vendors sell a variety of agricultural produce such as vegetables, including sweet potatoes and cassava, fruits, pork, live fish and seafood, live poultry, fresh rice noodles, tofu, boiled or roasted maize, ground nuts, dried fish and many other kinds of processed food. It is extremely hard to estimate their contribution to the food supply with accuracy since they are not officially registered and their activities are often seasonal. According to a survey in 2013, there are around 12,000 fruit and vegetable street vendors – the number nearly doubled in four years from 2009 (Nguyen *et al.*, 2013). In the literature, the sellers who have a fixed place are referred to as 'retailers'. In Hanoi, retailers tend to be Hanoians whose families have lived in the city for a few generations at least. In contrast, street vendors tend to be migrants from rural areas who temporarily stay in Hanoi, or peri-urban residents who visit Hanoi on a daily basis (Jensen *et al.*, 2013).

Like many other urban cities in Asia, the Vietnamese municipal government is concerned about informal food systems, including street vending activities, for various reasons. These include poor hygiene, the creation of traffic jams or ruining fine city views (Wertheim-Heck *et al.*, 2015), difficulties in controlling food safety (Cadilhon *et al.*, 2006; Wertheim-Heck *et al.*, 2015) and the municipal government's view of vendors as symbol of underdevelopment (Lincoln, 2008).

In fact, street vending was completely banned in central Hanoi's 62 streets in 2008 (see a map in Turner and Schoenberger, 2012: 1,030). In other streets, vending activities are illegal: vendors are not allowed to sit, stand or stop to sell goods and/or food. However, they are free to walk along streets with things to sell. This unclear regulation allows vendors to interpret the meaning in their own interest and negotiate with the police to reduce their fine (Jensen *et al.*, 2013: 112–113). Another urban policy related to vendors is reducing the role of informal markets by, for example, restricting the establishment of new local wet markets, up-grading the existing wet markets to a more systematic and formalised management system, and supporting the establishment of new supermarkets (Wertheim-Heck *et al.*, 2015:99; Daniel *et al.*, 2015: 17 Figure 1). Street vendors will be affected by the complete ban of vending activities (including walking along streets) in many more streets. They will also be affected by an ongoing municipal policy on the formalisation of food systems, which may make it more difficult for them to sustain relationships with food producers, wholesalers and consumers.

However, the current policy interventions and regulations are not the first challenge for Hanoi's street vendors in their long history of vending since the 1950s. The vendors – the vast majority of which were women, in the past – survived various political and economic changes during the American war period and after the macro-level reform in the 1980s (Thao and Agergaard, 2012; Jensen *et al.*, 2013). The vendors have, in fact, a significant ability to resist the changes and to sustain their livelihoods through social networks and support relations (Turner and Schoenberger, 2012).

Thus, street vendors have their own adaptation strategies based on their social relations, and agency appears to be central. Understanding how poor and marginalised people respond to economic and political change allows researchers to understand the complex internal processes of social and economic transformation. It also enables policymakers to include informal (food) systems in the urban planning for climate resilient cities. In this respect, the case of street vendors can provide useful insights in developing inclusive urban policy.

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<sup>1</sup> Traditional markets include 67 permanent markets, 213 semi-permanent markets and 113 temporary sheds markets (Wertheim-Heck *et al.*, 2015: 98–99).

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## 1.3 Paper structure

The paper consists of five sections. This section highlighted how the study will explore poor people's adaptation to socio-economic changes in the city of Hanoi from the perspective of gender relations, and presented the three key research questions which have guided the research. Section 2 will present a conceptual framework that explains how the study has put gender at the centre of the analysis and how it will explore the social power relations that lead to street vendors' different responses and their consequences. Section 3 introduces the methods used in the study, including reflexivity and subjectivity, which are central to gender research. Section 4 addresses the research questions by drawing from the data collected in the fieldwork. In particular, section 4.1 looks at street vendors' responses to urbanisation and their gendered strategies for sustaining trading and selling. It highlights the diversity of street vendors and the hierarchy therein. Section 4.2 shifts the focus from individual street vendors to the city's demand for food, and discusses the contribution of street vendors to urban food security and nutrition. Section 4.3 draws on insights from the findings to critically discuss the question of a 'climate-resilient city for whom?' from the perspective of urban food security. Section 5 concludes by considering how gender analysis could be integrated in policies and in interventions aimed at building a climate resilient city with specific attention to the poor and marginalised.

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## 2 Integrating gender in research on adaptation to change

### 2.1 Conceptualising gender

Socio-economic and policy changes affect city residents' livelihoods on different scales in complex ways since resources and labour usually tend to be relocated in the favour of those who have power. Gendered power relations, created through gendered practices and discourses, have long been considered a significant cause of unequal processes of adaptation between men and women as well as among men or women both at societal and household levels. Since the early 2000s, they have increasingly been discussed in relation to climate change policy. In the field of climate change, however, gendered power relations are often simplified as an issue of women's lack of (economic) capacities – this is mainly due to the global policies on women's economic empowerment preceding actual research on understanding underlying social structures that produce and reproduce gendered power relations. The recent focus of gender still remains on women as a vulnerable group to be addressed in the climate change policy (Dankelman, 2010; Arora-Jonsson, 2011; Alston, 2014). This tendency to focus on strengthening women's economic capacities, rather than understanding gendered adaptation processes, may also be the result of quantitative gender research on climate change that sees men and women as conflicting binary groups and assesses men's and women's vulnerability separately by using the same indicators – such as asset ownership and educational levels – without considering gendered interdependent relationships in which resources and risks are shared and redistributed in complex ways (see Care and Thompson, 2014 for a critical review). There is a need to theorize gender in research on climate change to understand the gendered adaptation processes to address underlying structural challenges that continue to marginalise women and some men based on their gender positions (MacGregor, 2010; Cote and Nightingale, 2012; Kaijser and Kronsell, 2013).

Critical social theory helps us to 'see' hidden invisible power dynamics based on gender and gives a framework to explore how power influences the processes of adaptation and transformation. Power in gender is not fixed: either based on sex or on the economic status of individuals. Rather it is discursive, constructed and sustained through the everyday gendered practices that create perceptions as to what men and women should be (Connell, 2009). It even shapes the emotions of pleasure, shame and guilt, affecting the ways women negotiate with men (Kabeer, 2000), blinding power and naturalising our gendered behaviours.

In Vietnam, Confucian beliefs and practices influence current social expectations of women and men. Women are expected to play a care-giving role, be obedient to all men including their father, husband and sons, and be self-sacrificing for the family to maintain its harmony (Schuler *et al.*, 2006). Such practices allow men to sustain their power over women in conjugal negotiations. But during the economic reform, *đổi mới*, of the late 1980s, the socialist state advocated that

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women should be equally involved in economic activities to contribute to nation and family. Khuat *et al.* (2010) calls it ‘the rapid feminisation of the labour force’ in which women are assigned additional tasks of income-generating activities.

Women’s involvement in street vending activities is a good example of this shift. In rural Vietnam, some women are sent to Hanoi to earn cash for their family through petty trade. In Confucian values, petty trade is viewed as an easy way to make money by being dishonest to customers, and thus has a low social status. Men let women do this work to save their own face (Leshkovich, 2005 cited in Thao and Agergaard’s study, 2012: 1,093). Thus, power in gender plays out in the process of adaptation as a result of intra-household negotiations and relocation of labour. Women are not only assigned an additional task to their domestic responsibilities, but they are also allocated more difficult and socially less respected work. These women are then further marginalised because the informal economy does not offer proper social protection, unlike the (male-dominated) formal sectors and legal private companies (Phillips, 2011).

An individual’s capacity to respond to change is thus built on gendered negotiations over relocation of labour and resources. However, power is invisible behind gendered social expectations. Power in gender neither deprives women of opportunities to negotiate, nor physically forces them, rather it leads men and women towards gendered social expectations in natural ways (Connell, 2009). When revisiting the concepts of vulnerability and resilience from the perspective of gender relations, it is clear that the indirect impacts of (climate) change can vary with how adaptation strategies are negotiated within the family and society.

## 2.2 Gendered negotiations and access

Although power plays out in the processes of adaptation, there are many ways in which marginalised people negotiate over the power and change their circumstances (Kabeer, 2002). An individual’s vulnerability and resilience are therefore not straightforward to understand, and the concept of interdependency in gender relations is useful to identifying gendered resource mobilisation strategies, and hence how the marginalised groups adapt to change.

In the patriarchal society, men depend on women in some domains of everyday life. Marginalisation, paradoxically, creates space for women’s independence, giving them a certain authority (Connell, 2009). Marital cooperation, therefore, enables women to negotiate with men to utilise men’s assets and authority to fulfil women’s own material needs and to ensure their long-term security (Jackson, 2007). In their study on the theory of access, Ribot and Peluso (2003) define access as dynamic instead of fixed. Poor people often access resources through developing social relations with those who have resources. Social relationships have various forms, such as friendship, trust, reciprocity, patronage, dependence and obligation (2003: 172). These interdependent social relations are subject to ongoing negotiation processes; therefore, the ability to access resources is also subject to the ever-changing complexities of power within these social relationships. The notion of access as dynamic power relations is highly relevant to gendered access to markets and provides a useful frame for exploring how gendered power relations influence the ways men and women maintain access to a wide-range of resources thereby resisting or adapting to change. In this respect, adaptation is partly collective and joint actions.

The marginalisation of Vietnamese women into vending activities as lower-status work paradoxically allows them to dominate this sector and, consequently, increase men’s dependency on them for household income. Vending women’s capacity to gain economic independence is derived not only from their own assets but also from the support of their family and kin gained through their interdependent relationships. The literature shows the resistance of female street vendors, who continue to dominate Hanoi’s food market sector despite the many political and economic challenges they face. These include the macro-economic reform and subsequent urbanisation and migration that made vending activities more competitive, and the prohibition of street vending activities in some streets and strengthened regulations by the police. These female street vendors use their mutual support relations within the family and relatives in their village and negotiate with policemen and market managers who also partly depend on them (Agergaard and Thao, 2011; Hoang, 2011a, 2011b; Turner and Schoenberger, 2012).

Women vendors' connectedness with their home village creates long-term security for themselves and their families. It also shapes resilient informal food systems grounded in gendered social relations. At a city level, society depends highly on food systems operated by such marginalised women because purchasing fresh food from street vendors is deeply embedded in Hanoi food culture and everyday practices. This makes it difficult to change the existing informal food systems. The vendors establish unique social organisations of food trading without depending on the financial and political power required in the formal and legal processes of registration. This means that the strength and weaknesses of this informal food sector (in terms of its adaptive capacity) cannot be assessed within the same framework used for formal food systems. We propose to rely on a framework centred on gendered power to better understand how these women adapt to change.

## 2.3 Linking gender into discussions on building climate resilience in cities

What implications can gender analysis offer for building climate resilience in cities? This qualitative gender study does not focus on the direct impact of single or intermittent extreme weather event(s) on city's systems or on individual street vendors. Instead, it explores how street vendors have adapted to socio-economic changes, looking at, in particular, gendered adaptation strategies. The starting point of the analysis is individuals and the socio-economic changes occurring around them – rather than the city and an extreme weather event. This will enable us to explore and document how men and women respond differently to changes and how their gendered responses reshape the city's unequal social structures. Through this approach we shall address the critical question: 'resilience for whom to what'.

In general, the risk of future climate-related natural hazards in Hanoi may not be as high as other cities located along the coast of Vietnam. However, climate change will affect the city in complex ways through a growing social inequality that makes it difficult for the city to collectively respond to change (Adger, 1999; Chaudhry and Ruyschaert, 2007). City residents who depend on small-scale agriculture and the informal economy will be more affected by socio-economic changes subsequent to climate change in other regions. However, those more seriously affected people will respond to change through their own networks and social relationships available to them (ISET, 2011). As a result, they may be further separated from the city's collective resilience mechanisms existing within the formal system. Current research and policy on climate change in Vietnam does not challenge structural issues that sustain vulnerability of the poor (Fortier, 2010; Bruun, 2012).

The insights from gender analysis on street vendors inform policymakers as to how building resilience in one dimension can impact others, highlighting, in particular, the underlying challenges of marginalisation that push farmers from peri-urban and rural areas to the informal economy in Hanoi. The study also critically considers how policies affect people differently by drawing from the concept of power developed for stakeholder power analysis (Mayers, 2005). This will help identify the winners and losers in the aspect of gender relations. This study seeks to offer the implications for building a climate resilient city in ways that illuminate political dimensions to move beyond providing infrastructural and technological suggestions to politicise gender and address underlying socially constructed challenges facing rapidly growing Asian cities.

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## 3 Research methodology

Having provided the theoretical basis of this study, this section presents the research methodology. Fieldwork was undertaken from late September 2015 to early January 2016 in a selection of Hanoi's street markets. The field study consisted of four activities: the initial observation of Hanoi's markets for site selection and sampling; in-depth interviews with 52 vendors; the observation of activities; and follow-up interviews with ten selected vendors including visits to their home and/or farm. In the field a female interpreter was used to communicate with vendors. The section below describes the ethical issues we encountered and approaches we took to address them.

### 3.1 Ethical issues

Interviewing street vendors is a sensitive issue. Many vendors are scared of policemen and market managers and are reluctant to talk about their work. Therefore, we needed to approach them carefully, having identified the best times and locations to talk with them. We first visited the potential interviewees a few times to buy their food items and to have a chat with them to build trust. We took time to explain the purposes of the study and the issue of confidentiality before obtaining a verbal informed consent from them. We then carefully determined the times for interviews. Despite this care, in several cases we had to stop the interviews. In low-income residential areas, some vendors agreed to be interviewed but then they started to suspect that we were newspaper reporters, Chinese spies, fraudulent customers or even swindlers. In such cases, we simply gave up since we were less likely to get reliable information. In other cases, the interviewees suddenly ran away after being alerted by colleagues that policemen were approaching – we had to rearrange the interviews for another date. Our respondents were sometimes upset with their customers or passers-by who had mistreated them. In such cases, we waited and chatted with them briefly before starting the interviews, or otherwise we rearranged the interviews.

These examples indicate the sensitivity of vending activities, their level of social interactions and every day experiences. During the interviews, we did not record the respondents' full names to protect their privacy, and all names of respondents present in this paper are fictitious. Moreover, to protect the privacy of the vendors, in this paper we do not give the exact address and street names where they work, unless the information is absolutely necessary.

### 3.2 Methods

#### a) Site selection

We selected eight field sites from four districts in Hanoi to cover the diverse characteristics of informal food systems (Table 1). Cầu Giấy district was selected as I live and work in this area, which allowed me to observe on a daily basis and pay frequent visits. A range of people with different economic statuses live in this area, so we carefully observed how consumers of different economic backgrounds engaged with street vendors. Two big markets in Hoàn Kiếm district were selected due to their long history of migrant vendors from rural regions. There, the vendors tend to have close ties with

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their colleagues from the same region. The third district, Ba Đình, has many government offices, and residents living there tend to be relatively wealthy compared with neighboring districts, making it attractive for vendors who sell high-value fresh produce. However, vending activities have been banned in a total of 26 streets of this district, which is the largest prohibition area in Hanoi. This makes it a challenging area for vendors. Finally, Nam Từ Liêm District was also selected because this area and its neighboring districts, including the former Hà Tây province, have experienced major economic and environmental changes over the past ten years, as the city has urbanised. Many farmers in this area grow fruits for selling to the new urban residents in Hanoi.

Table 1. Fieldwork locations

	Location	District
1	Đặng Thùy Trâm street	Cầu Giấy
2	Trần Cung street	Cầu Giấy
3	Around Nghĩa Tân market	Cầu Giấy
4	Near Long Biên market	Hoàn Kiếm
5	Around Đồng Xuân market	Hoàn Kiếm
6	Around Ngọc Khánh market	Ba Đình
7	Around Thành Công market	Ba Đình
8	Around Nhôn market	Nam Từ Liêm

## b) Sampling

A variety of food vendors were selected to capture the diversity of street vendors. In the literature on street vendors in Hanoi, researchers have often focused on female vendors, since in the past the vast majority of street vendors were women. But our fieldwork has found that male vendors are not uncommon. In Đặng Thùy Trâm Lane, for example, at the time of the research there were 25 street vendors of which seven were men. To reflect a full picture of this petty trade with no aspects obscured by gender bias, we included male vendors as a minority gender group in this sector. A total of 50 vendors – 28 females, 13 males and nine couples – were selected from the eight sites. A couple means that a wife and her husband work together in the same place. Although it is the wives who sell the produce, their husbands are often sitting behind them, or they sell in the off-peak hours when their wife takes a break. We interviewed the wives and husbands separately since their roles are different.

As well as gender and age, the means of transport was a selection criterion. Some street vendors carry their fruits or vegetables by bicycle or motorbike, while others sit on a pavement or walk around the streets carrying two baskets hanging from a bamboo pole. In addition to these mobile street vendors, for a comparison purpose the study included five retailers who have a fixed legal space in a wet market. These five retailers were all Hanoians whose families have lived in the city for at least three generations. Their adaptation strategies and their experiences with changing market conditions were helpful in understanding the diversity of vending activities.

Most mobile vendors we interviewed were visiting their selling sites on a daily basis. The distance travelled varied from 1.5km to 110km each way. Twelve respondents were migrants from different provinces who were renting a room in Hanoi and were going back to their villages occasionally. The interviewees included 20 fruit sellers, 12 vegetable sellers, 13 fish or meat sellers (six fish and seafood sellers, four chicken and/or dog meat sellers, and four pork sellers), three sweet potato and/or cassava sellers, one tofu and one young-rice seller. Around half the vendors used wholesale markets, while the remaining half sold their own produce or their relatives' or neighbours' produce (Table 2). Appendix 2 shows the details of the list of respondents.

Table 2. The number of respondents by agricultural produce

Agricultural produce	The number of respondents			
	Men	Women	Couples	Total
Fruits	4	15	1	20
Vegetables	2	8	2	12
Meat (fish, pork, chicken, dog)	4	3	6	13
Sweet potato, cassava	1	2	0	3
Tofu, fresh rice noodle, young rice	2	0	0	2
Total	13	28	9	50

### c) In-depth interviews

In-depth-interviews were conducted with the vendors outlined above. We visited them once or twice on the date and time each interviewee specified. An interview lasted around one hour per person. The questions were framed and structured around the research questions presented earlier and influenced by the theoretical frameworks discussed above (see Appendix 1 for the list of interview questions). Although the questions were set as a guide, the actual interviews were conducted in an informal and flexible way so that respondents could feel at ease and we could collect more in-depth information beyond superficial answers. We also offered them time to ask us questions during and/or after interviews to build trust.

### d) The additional interviews

After conducting in-depth interviews, we selected ten interviewees (five females, three males and two couples) for a series of additional interviews. During these additional interviews we adopted a life-history approach to structure the discussion. We also asked more personal questions relating to their families, their lives and future goals, gender relations and negotiations. Since their working places were noisy and busy, we needed to find somewhere quieter to talk. However, many vendors preferred to be interviewed at their workplace instead of their home or farm. In particular, female migrant vendors hesitated to invite us to their tiny rooms, while those who live with their family worried about their husband's and in-laws' reaction to a foreign guest. To avoid creating difficult situations, we visited their working places at less busy times and talked with them for between two to four hours. We visited one male trader's home and one female trader's farm located around 15–20km from central Hanoi. This enriched our understanding of their real lives, and enabled us to build closer relationships with them, which helped us gather more in-depth information.

## 4 Key findings and discussion

This section addresses the research questions proposed earlier by drawing from the male and female street vendors' stories we collected. The first sub-section begins with exploring street vendors' actual responses to urbanisation and gendered access and strategies for sustaining trading and selling with a specific focus on gendered social relationships. It highlights the diversity of street vendors and the hierarchy therein, and explores how marginalised vendors mobilise resources to sustain their activities. It then shifts the focus from individual street vendors to the city's demand for food, and discusses the contribution of street vendors to urban food security and nutrition. The final sub-section discusses a climate-resilient city for marginalised people from the perspective of urban food security. It argues that policies, without considering social dynamics and social inequalities, may end up supporting urban people who are already resilient enough while excluding urban and rural smallholders and a certain group of street vendors and their families who have already been marginalised by past policy changes.

### 4.1 The diversity of street vendors and hierarchy therein

How do male and female street vendors mobilise resources to benefit from Hanoi's urbanisation? This sub-section looks at the diverse processes through which urban and rural smallholders responded to urbanisation entering and sustaining street vending activities in gendered ways. It argues that the street vendors' capacity to respond to change is neither determined by gender nor individuals' own assets, but is more related to social networks within family and village in which women's and men's gendered exercise of agency for negotiations is central. It highlights the importance of 'informality' in the city for the poor, especially for women, as a space for leveraging their limited capacity to adapt to socio-economic changes and discusses implications of these for city policy on climate resilience.

#### a) The diversity of street vending activities and vendors' access to markets

As mentioned above, Hanoi's rapid urbanisation provided many economic opportunities for urban and peri-urban smallholders. However, street vendors' various strategies rely essentially on their ability to seize the opportunities and respond to the various challenges that have emerged in the rural and urban context of Vietnam. Some women and men take advantage of the expanding population of the capital city by turning their land from subsistence farming to cash crop farming, selling their produce to an increasing number of non-farmer urban residents. But others have a narrow adaptation strategy for coping with their difficult situations due to their family's limited social connections as well as financial capacity.

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### Smallholders' response to urbanisation

Nam cycles 25km from his relative's farm to the city every day. He carries 100kg of cassava and sells it on different streets of Hanoi. His relative switched from growing sweet potatoes on his farm to cassava in 2006 because the price of sweet potatoes went down after new varieties from Central and South Vietnam became widely available in Hanoi. During the cassava off-season, Nam purchases sweet potatoes from a friend, so although he does not have enough land, he still carries out street vending activities through his relationships with his relative and friend who have access to resources.

Similarly, Lan sells 150 pomelos (a large citrus fruit) per day. The business was initiated in 2005 by joint investment among her seven siblings. Her brother, who has a direct connection with producers in South Vietnam, purchases the pomelos. Lan sells them in the area where her sister-in-law lives. Her six siblings also sell pomelos in different areas of the city. Thus, connections with family and friends can play a significant role in entering vending activities and being a successful vendor.

Better-off families have turned their land into fruit cultivation that requires higher investment and takes a long time to generate returns. In this study, seven female fruit vendors were selling fruits grown in their village. All of them have male relatives who earn cash income from off-farm employment, which enables the households to take a risk in fruit cultivation whose production depends highly on weather conditions. For example, Diêu's family took advantage of city development policy to transform the family's livelihoods. Her family land was taken by a development agency for building new villas, and her family invested the compensation fees in guava production. She sells 60kg of guava per day. Diêu told us that when it is an extremely hot summer or cold winter, her guava trees blossom but do not bear fruits. When it rains too much, the fruits are less sweet. Her husband and son, however, have additional income sources so her family can cope with the uncertainty of fruit cultivation. Similarly, Huyền, a woman from peri-urban Hanoi benefitted from her husband's decision to turn their land from rice farming to papaya cultivation in 2004. She sells around 80kg of papaya every day. Before that she used to sell salt in the city, the profit of which was far lower than that of selling her own fruits. She was also released from subsistence farming work. Her family's adaptation strategy was thus successful. While fruit cultivation is considered as a positive adaptation strategy for peri-urban farmers, it requires support from male kin as well as enough capital and alternative stable income sources.

Livestock and/or meat trading is also a growing activity in which smallholders in peri-urban areas engage. As a result, the livestock sector in Hanoi has been operated by individual smallholders and traders in informal food systems (Van den Berg *et al.*, 2003). However, not everyone can easily enter the sector since the relationships between producer and traders are based on men's social networks. Trúc's parents and her brother's family shifted their livelihoods from subsistence farming to pig farming and trading. She buys pork meat from his brother, who always keeps her the cuts that are most popular with customers – in this way she manages to avoid purchasing unpopular parts that are likely to remain unsold. She then sells pork in the area where her sister married and lives. Similarly, Cường, a vendor from Hòa Bình, carries and sells 10–15 live chickens every day in Hanoi after a 70km drive. In his village, some households invested in raising chickens (local species that are tolerant to heat and cold as well as diseases) but he did not have sufficient money to do the same. He therefore became a trader, purchasing chickens from his neighbour on credit on a daily basis. Another vendor, Hùng, also makes a daily trip to Hanoi to sell vegetables and chickens from his village in Phú Thọ, driving his motorbike 110km each way. His vegetables come from his own and his neighbours' farms while he purchases chickens from his relative in the same village. Thus, while there is a growing demand for meat in the city, meat trading appears to be dominated by more men than women throughout its value chain processes. The connection with men is important to have a stable supply, even through the sellers on the street are their wives or female kin.

### Female vendors' response to urbanisation and changing consumer demands

While a growing demand for fruits and livestock in the city offers economic opportunities for peri-urban and rural smallholders, changing livelihoods from subsistence farming to these new activities requires men's support and social networks as well as capital. This suggests that responding to the rapid changes in consumer demands is not easy for everyone, especially for women with little support from male kin. However, some women have still initiated new agricultural production by responding to the new consumer demands from a growing middle class. Phuong, a young mother, started growing sprouts three years ago by learning from her sister, and now, by the end of the morning, she normally sells 8kg of her own sprouts that she grows in her home. Growing sprouts requires little labour input, uses a small space and has a stable supply throughout the year. Therefore, her husband and in-laws agreed she could start the new activity, since it does not affect their everyday responsibilities. Similarly, Thuý dedicated part of her family's farm to growing ginger seven years ago to benefit from the increasing meat consumption in Hanoi. Before that, she used to sell rice cakes made by her mother-in-law. Growing ginger uses only a small space and does not affect other agricultural production on the farm, making it easy for her husband to accept this change. She uses her own consumer networks for her rice-cake selling to sell ginger. Currently, Thuý sells 30kg of ginger every day together with 100 homemade rice cakes. Thus, street vendors are also catching up with changing demands even more efficiently than the formal food markets. Both Phuong and Thuý, young mothers, mentioned that growing sprouts or ginger requires little labour and financial input, so it was easy to get their husband's and parents-in-law's agreement. This indicates that gender relations shape street vendors' capacities to respond to changing demand.

### Expansion of vending activities

While many successful adaptation strategies outline above remain in the informal economy with limited prospects for expansion, some better-off Hanoian female vendors sell their produce to local food courts or restaurants. Loan, a tofu and fresh rice noodle seller, and Hồng, a bamboo shoot seller, sell their produce on credit to local canteens in addition to their regular customers and passers-by. Since the volume of food ordered by the canteens each time is high, this business helps to increase their income, but it also involves a risk. Local canteens only pay back the money to them every three to six months, and so vendors only sell to the restaurants whose owners they know well. Loan had a bad experience of being unpaid by a restaurant owner with a debt of USD\$2,000. Her husband blamed her for this loss. Since then, she only sells to restaurants connected to her husband's friends and relatives so that he cannot blame her in case of future losses. This group of female Hanoian vendors is relatively rich and their living standard is high. Their children go to universities, their husbands have proper stable businesses and they have their own houses. Vendors' strategies to sell their produce to restaurants is therefore an option only for those who have family connections and enough financial capacity that allows them to sell a significant amount of food on credit and take a risk of no return.

### Poor smallholders' responses to urbanisation

In contrast, those who have limited social connections and capital are forced to implement different adaptation strategies. Ngân, a widow, grows and sells green vegetables in state-captured land for new buildings that is still unused and empty. She negotiated with security guards who have empathy for the poor widow. Similarly, Đức grows green vegetables in his garden and sells them in the city together with some additional vegetables he buys at a local market in his village. His wife is unwell and his family depends on his income from vegetable selling. He cannot invest in other cash crops that generate higher returns but take longer to grow.

In the above cases, some women like Lan, Trúc and Diêu had better access to resources through their family support and connections. In contrast, others like Ngân (who had lost her husband) had a narrower adaptation strategy for coping with her difficult situation. This shows that vendors are not a homogeneous group, and they have a different degree of capacity to 'benefit' from Hanoi's urbanisation. Seizing opportunities and responding to these new challenges requires relocating labour and time among household members. Implementing adaptation strategies with radical change involves risks, and it is essential to have men's support, labour, and their social power to access resources as well as sufficient financial assets. Ribot and Peluso's theory of access (2003) is relevant in this context since social connections enable some people to positively adapt to urbanisation. But this capacity is often not explicit but implicit, embedded in the vendors' gendered

social relationships. Access to producers, wholesale markets, streets and pavements is, in fact, determined by a vendor's gendered social position. This is what White (1993) describes as the politics of social 'embeddedness' in which various forms of social, cultural and gendered ideological powers play out in the processes of access to markets, and shape the ways in which markets are operated (1993: 10). While White may be one of the first scholars who pointed out the politics of access to market in relation to gender, the studies that followed White tended to understand gender as variables and constraints, while women's relationships and their agency to negotiate with those who have access were understudied. How do women and men with different social positions mobilise resources to sustain their access to markets? What does this mean for individuals' capacity to respond to change and for the resilience of informal food trading sectors? The following sub-section examines women's and men's agency to access resources by negotiating with their existing social relationships within their village and family.

## b) Women's gendered livelihood strategies and negotiations

There are distinct gendered practices in trading and selling agricultural produce. Women are embedded in a village's and/or a family's collective institution based on gaining access to resources and sharing risks and rewards. Men, on the other hand, prefer more capital-based access and have limited social interactions with co-villagers, family members and/or peer vendors. The section begins by analysing a case of a migrant worker, Hoa.

### Village and family connections

Hoa, 60, from Nam Định province (around 150km south of Hanoi on the coast), has been sitting on the same pavement for more than 20 years to sell vegetables. There are some vendors who sell shoes, clothes and fruits around her, and all of them come from the same village. Village members have occupied a certain part of the street for at least 25 years. The villagers' collective support system, accumulated through a long history of rural-urban migration, protects her business. Hoa describes the life in her home village as miserable. Agriculture in her village is always affected by typhoons and floods, and there are no cash crops that could lead the village's economic growth. Response to unstable weather conditions is not impromptu, but villagers have rather solid social ties through which rural-urban migration works well to cope with uncertainty and change in their agricultural-based livelihoods. It is common in Hoa's village, for instance, that husband and wife migrate to Hanoi together while their parents look after their children. But Hoa's husband was physically weak, so she migrated alone while depending on co-villagers who live in Hanoi.

In this case, her capacity to respond to change was not determined by her or her household's economic condition, but her capacity includes intangible resources gained through her village networks and villagers' experiences. News from the village travels fast and the migrants from the same community support each other when a member needs help or needs to return to the village for urgent family obligations, such as funerals. The pavement is a place where Hoa can nurture her relations with her rural village, which is a foundation of her social identity and social relationships. Currently, 70 per cent of her customers are regulars, whom she allows to buy her vegetables on credit. She has no intention to move from her spot – not because she does not have enough money to pay for a legal wet market that is recognised by the authorities, but because her relations within this 'society' and her customers serves as a foundation of her security.

In another case, Hương sells dried fish caught and processed by her family in a coastal village in Thanh Hóa, 150km from Hanoi. She stays in a hostel in Hanoi with her migrant co-villagers, and they carry dried fish from her family when they travel from the village to the city.

The last case, Ngân, had a difficult time in the past ten years: her husband passed away two years ago after a being sick for seven years. She and her husband had moved from Nan Dim province in 1996, following their relatives' success in migrating to Hanoi. After her husband became sick, she quit her full-time job to look after him. She started growing vegetables in state-captured but still unused land for building new villas in Mễ Trì, near to her house, by negotiating with the security guards. The quantity and quality of vegetables vary with weather conditions, and her income increases or decreases accordingly. To diversify her income and offset the challenges of growing vegetables in urban areas, she also sells boiled sweet potatoes. Ngân has a co-villager from Nan Dim who also sells sweet potatoes on a street, who gave her

half her space. She even helped Ngân to sell vegetables when she was busy caring for her husband. After Ngân's husband died, she did not return to her full-time job because growing and selling vegetables was more profitable and allowed for more autonomy.

The above three cases show that female migrant workers are embedded within a village's institution base with which they share resources, risks and rewards, as well as access to markets, skills, knowledge and information. The capacity to respond to change is, in this context, partly related to individuals' gendered family relationships. They receive support from villagers in return for remittances supporting rural agriculture.

### **Support from family and friends**

The vendors from peri-urban areas also access resources by utilising social connections with family members or friends. For example, Quỳnh buys dog meat from her brother and sells it on a busy street. She started this work after she gave birth to a second child because her husband urged her to start earning an income. She said that in her village women who only do housework and farming are considered useless. Her husband could beat her if she did not earn money in Hanoi. However, she had limited time to work because she was also in charge of farming and caring for her children and parents-in-law. She asked her brother, whose work is catching stray dogs, to provide meat for her. He always secures the largest dog for her and prioritises her over other traders, even during high-demand periods. She sells the meat on the pavement near the house of her husband's relatives. She asks the relatives to keep her business tools – such as a table, chairs and a scale – in their house at night. Working close to them also allows her to take a break during lunchtime. Her vending activities are fully supported by her relationships with her brother and her husband's relatives.

The data suggest that these women also often share labour work with friends and sisters. Ngọc, 36, sells more than 20 kinds of fruits – a total of 20–30kg per day – by collaborating with her elder sister. Her sister travels to a wholesale market near her village and, after purchasing the various fruits, she delivers it to the street where Ngọc sells them. Her sister also helps with selling fruit when Ngọc's children are sick or when she has other family obligations.

Ngọc started her street vending activities when she was 24 years old, because her husband's income from construction work was unstable and he often spent his income on drinking and gambling. It was her sister who guided her to this business and supported her when she was pregnant. The business was successful. She borrowed money from the black market, which enabled her to buy a motorbike and since then, her mobility and capacity for fruit selling increased, both in terms of volumes and varieties. She negotiated with the owner of an electrical store so that she could sell her fruits in front of his store. She displays her fruits beautifully around an electric pole. The store owner helps her to sell her fruits when she is absent, and he helps to clear them when policemen arrive. Additionally, she often works with other neighbouring fruit sellers to exchange fruits to meet her customers' demand.

Similarly, Hiền, a migrant vendor, sells her pineapples and sugarcanes in front of the café owned by her relative who married a Hanoian. When sales are not strong, she walks around the streets with half of her fruits in her two baskets, while the café owner sells the rest of her fruits. Hiền started her business by learning from co-villagers and staying in the same hostel with them, but she eventually became independent from the group when she gained access to the café and her own support system.

Some women work with other street sellers. Vãn, 50, buys sugarcanes and pineapples with her eldest daughter and two other relatives, and they sell them in the same place sitting next to each other. By doing so, they can purchase produce at a lower price since they buy in bulk (a total of 200 canes and 60kg pineapples every day). When one of them is absent from trading due to family obligations or other issues, the other two sell her portion by spending extra time moving around busy streets, gaining the profit that can be used for the next purchase. Similarly, Nhung, 30, a migrant vendor, works with her three co-villagers who go to a wholesale market together and buy and share 60kg of prawns to increase their bargaining power.

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### Unpaid labour work shared within household

Women's business is also sustained by their husbands' unpaid and hidden labour input. This is an important finding given the historical and cultural context where street vendors' activities are often perceived as low-status jobs based on the Confucian beliefs discussed earlier (Leshkovich, 2005 cited in Thao and Agergaard's study, 2012: 1,093). Hạnh sells 150 sweet potatoes every day. Her husband wakes up at 2am to wash and boil the potatoes. Although he does not join her in selling them, his labour is essential for sustaining her business. Diệu asks her husband to sell guavas grown on their farm during the peak production season. Hải uses her husband, who does not have a stable job, as her assistant. He goes to buy fish in a wholesale market, sends their children to school, cooks meals, and delivers some fish to customers' houses. She sometimes asks him to return to the fish market in the afternoon when the fish sells out in the morning. Lý, 73, sells young green rice (considered as a valued snack or used as an ingredient in special dishes). Her son-in-law roasts the rice and prepares it for sale since he is a construction worker but his contracts are brief and sporadic, often leaving him jobless. She relies on his help to reduce her workload significantly.

Similarly, Thanh migrated from Nam Định to Hanoi with her husband. Both of them visit together the Long Biên wholesale market early in the morning to buy around 20 different varieties of vegetables. Thanh sells them on a pavement while her husband sells them in front of a shop owned by one of his relatives. They meet up with each other at lunchtime, and Thanh carries the leftover vegetables and sells them in the streets, while her husband works as a motorbike taxi driver until early evening. His presence in the Long Biên market in the early morning protects her from men with drug addictions.

The above hidden and unpaid labour work shared within the household not only helps to reduce female vendors' labour and time, but also determines the scale of business, making informal trading activities cost-effective, although in very different ways from those of the formal sector.

Women's resource mobilisation strategies are thus partly collective, grounded in family and village relationships. Labour and time, as well as risks and rewards, are shared with each other. This also shows that street vendors' activities are more or less self-regulated, since access to streets and pavements is not free but requires 'membership' and connections. The choices of agricultural produce, the locations at which to sell, and the scale of business are not simply driven by consumer demands and financial capacity, but embedded within the social networking available to them, shaping an informal food trading sector in a particular form under implicit rules and invisible regulations.

## c) Men's street vending activities, opportunities and challenges

The literature and information on male street food vendors in Vietnam is scarce since most of the studies available have focused on migrant female vendors. Our study finds that male vendors, a minority gender group in this sector, have distinct gendered practices in trading and selling agricultural produce.

### Independent activities with limited mutual support relationships

Thắng, 60, grows green vegetables alone on his farm in the Gia Lâm district and sells them by cycling to central Hanoi, which is about 15km from his house. When we first met him, he was pushing his old bicycle with 50 bunches of green vegetables in a narrow and crowded street near the Đồng Xuân market. When we stopped him to greet him, a female shopkeeper asked him not to stop in front of her store because it disturbs her business. When he tried to move, his bicycle knocked against a motorbike and the driver blamed Thắng for his carelessness. Later, during the interview, he said, "I am an ugly, short man, so I am often bullied by both men and women on streets. I had lots of bad experiences, but I now know how to manage it." He grew up in a poor family and he had health problems, which delayed his marriage. He still cannot retire because he has three school-aged children. His wife has been weak after the birth of their third child. He started vending around five years ago when he lost his job in a factory because of his age. He learned the vending business by observing neighbours who do similar work.

Similarly, Đức is another man who sells green vegetables grown on his farm, 25km from central Hanoi. His wife is weak and cannot work in the city. He purchases additional vegetables from his village market to add some variety and sells them at a higher price in the city. He does not tell his villagers where he goes to sell his vegetables to prevent many other men from the same village copying him.

Thắng and Đức's business depends fully on their own labour, knowledge, information and skills without any collaboration or mutual support relationships – unlike female vendors with difficulties like Lua and Ngân. Đức even keeps his business confidential from co-villagers. Such men's behaviour may be associated with masculine traits – a topic that is beyond the scope of this study. However, this confirms gendered behaviours that create gendered strengths and challenges in this informal food-trading sector.

### Location, tools and facilities

Men do not seem to seek access to pavements and streets as women do. They tend to decide their selling location based on demand and economic considerations, choosing the streets with fewer vendors and more consumers. This differs from female traders who use their family connections to secure a space on a pavement. Cường parks his motorbike with chickens on a wide street where no permission and negotiation are required. He does not want to sit on the pavement, because this is considered feminine behaviour. Instead, he sits on the saddle of his motorbike. In fact, he would not even know how and with whom he should negotiate if he decided to get a space. Cassava seller, Nam, and poor vegetable sellers, Thắng and Đức, do not have any particular places to sell. They are mobile and work in several streets to avoid paying extra charges for their selling locations. This means they do not have much interaction with other vendors and have a limited number of regular customers.

Men tend to invest in selling tools and equipment, because using bamboo baskets looks as if they are poor women. Sáng carries sugarcane on a tricycle, which occupies a narrow street causing traffic jams and making it difficult for him to run away from policemen. A typical male fruit seller sets an iron basket on his motorbike to place fruits within. By so doing, he may distinguish himself from female vendors and sustain his masculine identity.

### Capital-based strategies

Men's vending activities are similar to the formal food trading system in the sense that trading takes place based on economic interactions rather than social connections and negotiations. Đình, for example, hires a man who purchases fruits for him and delivers them to his hostel every morning. Sáng, a sugarcane seller, does the same. He pays for the delivery service to save time in the morning. Tuệ stands in front of a school gate near a wet market and sells around 100kg of oranges per day. His negotiated fees with policemen to secure his current place are three times higher than those of other women we interviewed, and even higher than the rental fees for a legal wet market. Unlike women who often beg policemen for mercy and negotiate a bribe, men do not beg the police and they have to pay a formal standard bribe.

Migrant men spend more money on accommodation, food and drink compared with female migrants, who share a room with co-villagers to save as much money as they can. They return home less frequently than female migrants and do not necessarily live close to other co-villagers. Đình, 38, for example, left his wife and children in his home village in the Thanh Hoá province, 140km away. He has worked in Hanoi since he was 14, and only returns home three times per year. Sáng comes from the Hòa Bình province, around 90km from Hanoi. He only travels to his home once every two to three months.

Thus, men's vending activities tend to be capital-based, and they rarely ask for support from peer vendors or family members. They are more mobile than female vendors, so they can change location at any time if any new regulation is issued. At the same time, their activities are vulnerable, in the sense that they depend heavily on their own capital and labour with little support from family, co-villagers and friends. They have a limited buffer capacity to cope with shocks.

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Accordingly, both men and women encounter different challenges in sustaining their activities. However, men may be more adaptable than women to the formalisation of the food sector, because their activities are already based on capital and similar to the formal trading systems. Women, on the other hand, may be more able to cope with economic shocks and recover quickly since they have support and connections through which they could restart their business without capital. While some women's businesses, like those of Hài and Lan, are successful, men's power facilitated their business, indicating that it is difficult in this sector to create a resilient business model to apply to other people's cases. The findings suggest that informal systems may help women with limited financial assets cope with potential climate-related shocks, since the ability to respond to change is not simply determined by economic capacity – which may be one significant reason why they remain in informal systems. But this system also creates gender-based marginalisation and hierarchy, which materialise in different ways than those in the formal system. The implications of these in city policy on climate resilience are that poor people's capacity to respond to change cannot be assessed in the same way as that of those who are in the formal system; and if the policy is intended to strengthen resilience of the poor, there is a need to address underlying political mechanisms that continue to marginalise women and poor men into informal systems.

## 4.2 The role of street vendors for urban food security

The social organisation of local food markets in developing countries differs from supermarkets and has some positive aspects such as providing fresh food at low prices, being flexible in product standards, and selling produce at convenient locations for consumers (see Gomez *et al.*, 2013: 143). But there is also a concern over food safety in informal food trading sectors, which is one critical reason for policies on the formalisation of informal food systems (Wertheim-Heck *et al.*, 2015). There is also a growing concern over the modernisation of local food systems in South East Asia threatening the food and nutritional security of low-income populations who depend heavily on local markets (Isaacs *et al.*, 2010; Banwell *et al.*, 2013; Kelly *et al.*, 2015).

To what degree, and for whom, do street vendors contribute to food security and nutrition in the city of Hanoi? This subsection explores how the informality of food systems facilitates urban consumers to sustain a nutritionally efficient diet. Three key aspects are highlighted: urban consumers who benefit from street vendors include high-income, middle-class and low-income populations; street food offered by vendors is an important source of micronutrients for the poor; and street vendors' activities produce little food waste and support smallholders whose produce's quality is not as high as that required for the formal markets. It confirms that while urban food security is a key challenge under the threat of climate change, currently pro-poor food distribution systems and safety nets in terms of every day diets exist outside formal food systems. If the city policy on climate resilience continues to focus on technological challenges existing in formal systems, women and poor men will continue to rely on their own support systems within informal systems. The city policy therefore needs to address marginalisation mechanisms that sustain informal systems.

### a) Delivering fresh food to both rich and poor

Who are the targeted consumers of street vendors? In Vietnam, low-income consumers strongly prefer to purchase vegetables and fruits at local markets (Mergenthaler *et al.*, 2009). But our findings show that street vendors often diversify their targeted populations from wealthy Hanoians to the income-poor, providing different services and varieties of produce to meet these groups' differing needs.

Hài, a female fish seller, offers her fish to different socio-economic groups. She delivers the most expensive part of large, fresh fish to relatively wealthy regular customers in the Ba Đình area, while the low-value fish and unpopular parts of large fish are sold to low-income households in the Cầu Giấy area. She allows her customers to pay on credit since manual workers' payments are often delayed. By so doing, she also avoids food waste and maximises her profit. She states that 20 per cent of her customers are rich, while 40 per cent of them are low-income and middle-class groups, respectively.

Pork sellers target a specific social group. In our study, four pork sellers coexist on the same street by differentiating their targeted customers. Two of them target wealthier consumers and sell pork grown by identified individual farmers from Northern Vietnam, Yên Bái and Phú Thọ provinces, respectively. They have direct social connections with a trader and farmers respectively, while the other two have pork meat from unknown sources purchased from a slaughter man in their village at lower prices. The price of the former group of vendors is 20–30 per cent higher than the latter. The demarcation of consumers was obvious from our observation that customers for the former have expensive motorbikes.

Pork sellers often operate delivery services, as well. For instance, Trúc's husband delivers a specific cut of pork meat to their regular customers' houses who call for their orders; meanwhile, Trúc sells the rest of the pork to individual customers on the street. Similarly, Hùng, a man who sells live chickens, has many booking orders in advance, especially during the Lunar New Year and the first day of each month of the lunar calendar. He offers three different varieties: the normal male chicken (gà trống); the fighting chicken (gà chọi); and the most expensive chicken with thick legs (gà Đông Cảo or gà Đông Tảo). The last one costs US\$40 to US\$60 per chicken, indicating that he is targeting a wide range of consumers, including the very rich. According to our respondents, the demand for live chicken in Hanoi seems to be growing, and selling live poultry appeared to be a successful business for street vendors who have connections with producers. Rich and middle-class Hanoians often do not trust already slaughtered chickens sold in supermarkets or legal wet markets, suspecting that these might have been imported from China, and are considered to be unsafe.

The finding shows that poor consumers benefit from street vendors who are willing to sell their produce on credit. Hoa, a migrant vegetable vendor, has known 70 per cent of her customers for more than ten years, and she often sells her vegetables on credit to migrant manual labour workers who pay her back on the day they receive their salary. She also makes pickles from vegetables that poor male manual workers preferentially purchase since they are cheap. During our interviews, we observed that she lent around US\$20 to one of her regular customers, indicating that it was a trusted relationship. Inexpensive local green leaves grown by poor smallholders are also attractive to poor urban consumers. Some poor smallholders, like Lụa, Ngân, Thắng and Đức, sell only a few kinds of green vegetables grown on their farms, such as young leaves of sweet potatoes, Chinese cabbages, mustard greens and water spinach. Ngân grows these on state-controlled unused land, while Đức collects different greens from his village. Production and size vary with weather conditions, but the demand appears to be high. Thắng sells his 50 bunches of greens within three to four hours; Đức sells 70–80kg of greens per day.

One key challenge of fresh food sold by vendors is food quality and safety. Although the demands of less expensive fresh food are high and Ngân, Thắng, Hùng and Đức grow and sell green vegetables without paying much attention to the quality, the level of food safety of this produce is unknown to consumers and not easily controllable by local authorities. For example, Thắng's and Hùng's vegetables are unwashed, because he does not have the time to do this. Đức sells vegetables grown on his own farm and on unknown land by unknown farmers in his village. From our observation, many consumers who purchase those less expensive unwashed green vegetables with irregular sizes seem to be low-income residents who cannot afford fresh vegetables with at least a little bit better quality at legal wet markets. Thus, it is clear that in this context, the marginalisation of the informal economy is sustained by poor people's strategies: poor farmers grow local vegetables with limited care to fulfil their short-term practical needs, while poor consumers purchase this inexpensive produce, sustaining the marginalisation of the poor from the growing arguments of food safety in the city.

## b) Limited food waste

The issue of food waste has been a global environmental concern and a key challenge for food security in the face of climate change. At a global level, it is estimated that 30–40 per cent of food is lost to waste (Godfray *et al.*, 2010), although the food waste in developing countries is thought to be lower due to shorter food supply chains (Parfitt *et al.*, 2010). Our data suggests that food waste from the vendors' business is remarkably low. Vegetables, fruits, meat, and fish of lower quality are sold at lower prices that attract, in particular, low-income households. The leftover meat, fish and vegetables are delivered to local canteens and sold by these vendors at low prices at the end of their working day.

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Some vendors, especially men, work until late to sell all produce. Kiên, a migrant man who sells 100 sugarcanes per day, usually closes his business at 9pm. He aims to sell all his sugarcanes within three days and controls supply according to the weather forecast. Trúc closes her pork shop on a street at noon in summer and 2pm in winter, and sells the remaining meat to a small local street food court two blocks away. Dung moves to a busy large road at night and sells until 10pm, at the latest, under streetlights. Lý moves from streets to a legal wet market in the evening when some retailers have left. In this way, vendors flexibly change the location, time and targeted consumers and effectively engage in vending activities without creating waste, thereby ensuring a return on investment.

Furthermore, vendors appear to adapt their selling strategy to the quality standard of the produce –which is variable. For example, Vân Anh, a female migrant fruit vendor, sells apples year-round. In a wholesale market, she has to buy apples in a sealed box, so she does not know the quality of produce before purchasing. When the quality is not good, she goes to a low-income residential area and sells the apples at lower prices. This provides opportunities for the poor to consume fruit that is generally expensive, meanwhile permitting her to minimise food waste and loss of profit.

The variability of the quality of produce also helps smallholders to reduce waste. For example, Luợt's family grows guavas and sapodillas and sells to middlemen who export them to Cambodia. Despite this, she still sits on a street to sell some of the leftover fruits that are below the quality standard for export. Thus, food waste from the vendors' business is small but it is not simply because value chains are shorter than formal systems (Parfitt *et al.*, 2010) but because of the ways informal food systems are operated in negotiable and flexible ways based on livelihood strategies of vendors, traders and consumers, contributing partly to sustaining urban food security and reducing environmental stress.

### c) Implications for urban food security and nutrition

The findings show that a wide range of urban residents purchases a variety of vegetables, fruits, fish and meat from street vendors, since they offer various services and the diverse quality of food to meet different consumer needs. As shown by the cases of Hoa and Hải, vendors offer fish and vegetables to the poor on credit, and there are many inexpensive green vegetables, although their quality in terms of food safety is unknown. Street vendors, in turn, build trust with customers from a long-term perspective while minimising food waste and loss of profit. This indicates that the informality grounded on flexibility and negotiable relationships functions as a safety net in terms of sustaining everyday diet for agricultural producers, traders and city consumers. The present study, therefore, is in line with the findings of other recent studies which suggest that local fresh food markets play an important role in offering nutrition-rich fresh food for the income-poor (Issacs *et al.*, 2010; Banwell *et al.*, 2013; Kelly *et al.*, 2015).

Moreover, in the study sites, street vendors contribute to healthy habits of consumers by selling nutritionally rich and healthy breakfast produce such as boiled sweet potatoes, maize, sticky rice and fruits. In the literature, local fresh food markets are often thought to be helping to sustain healthy diet patterns for city residents. In Thailand, for instance, where the formalisation of food systems was implemented earlier than Vietnam, the modernisation of food markets has taken a healthy food custom away from urban people, in particular the poor (Isaacs *et al.*, 2010).

Furthermore, locally operated informal food systems are considered as more resilient to climate change and national disasters compared to formal systems that deliver food to consumers through longer food value chains in which the system depends highly on global and national transport systems, infrastructure, energy and storage (Prain and Dubbeling, 2011; Ziervogel and Frayne, 2011). During the 2011 floods in Thailand, for example, local wet markets continued to operate their business, while supermarkets ran out of stock quickly since distribution networks stopped (Banwell *et al.*, 2013). This has implications for building pro-poor climate resilient cities in Vietnam. Street vendors' strategies indicate that informal systems are operated in different ways to formal systems in terms of actors involved, capacities required and strategies for recovering from shocks. Therefore we cannot use the same resilience provision offered for the formal systems. For informal systems, it is more about intangible and social mechanisms than material and economic elements, which structure resilience.

## 4.3 Building a climate-resilient urban city for whom?

Having described the diversity of street vendors and their important roles in feeding the growing Hanoi population, the final sub-section discusses the implications of these factors for urban planning for a climate-resilient city from the perspective of urban food security and for the poor and marginalised.

### a) Diversity and power hierarchy among the street vendors: urban policy for whom?

The present findings show that those women and men who are successful in their vending activities are not simply succeeding because of their own (financial) capacity or business skills and knowledge, but because they have strong social connections, because of their family's labour support and/or a cooperative conjugal relationship at a household and/or a village level. Lan's earnings from the family-operated pomelo trading is around two to three times higher than that of fruit traders whose fruits come from wholesale markets. With these higher profits her children study at universities. Trúc can get the best-selected cuts of pork meat from his brother's slaughterhouse, while other pork sellers have no choice. Hoa, Ngọc, Quỳnh, Hiền and Thanh's husbands get the best selling places on the pavement not because they paid the 'right' amounts of money for them, but because they have good connections. In contrast, poor male green vegetable sellers like Thắng and Đức do not have a place to sit because they lack connections with women who could negotiate for them.

The social structure of street vendors is therefore complex. Social connections are vital in terms of getting a better place and better produce with a longer and more stable supply. This allows vendors to earn more income, invest in their children's education, provide for future change and, more importantly, gives them confidence in their life and their business as winners. The marginalised vendors cope with unequal economic opportunities by relying on support from their home villages and by mobilising unpaid labour from their family, something that the sellers operating in the formal sectors do not have. The stories of vendors we interviewed confirm that the capacity to respond to change is neither determined by sex nor by an individual's economic status, but is instead based on gendered social relationships.

The quality of products sold on streets is not as high as those of supermarkets and organic shops. The food policy on modernising food markets will severely affect smallholders, such as Lụa, Ngân, Thắng and Đức, who grow green vegetables for selling to Hanoians, and those who carry their own agricultural produce, such as Cường, Hà and Hương, from rural areas to the city.

The findings show that male street vendors' activities are closer to the formal market systems in the sense that their business is based on capital and economic interactions rather than based on social relations and support. Therefore, they may be less affected by the modernisation of food markets or the banning of vending activities for the introduction of flood-resilient road systems. These vendors are more likely to easily integrate into the formal market system. In contrast, for many female vendors access to markets is based on social connections. It is difficult for them to change their location, because their business is operated on a particular pavement or street where social networks work for them. Their system is different from the formal one, and the adaptation to the formal system would be more difficult. In addition, young mothers and female migrant vendors value flexibility in time and workload since they have gendered obligations such as farming and caring for children and elders. Street vending offers a significant opportunity for such women in the current context where public welfare is limited.

There are certain groups of powerful vendors who may be the least affected by, or rather benefit from, the policy change on the modernisation of food markets or urban development planning. These are wealthy Hanoi vendors who have connections with restaurants and rich consumers, and who have a legal space in a wet market or their own or relative's houses from which to sell their produce. The policy, without considering social dynamics and social inequalities, may end up supporting urban people who are already resilient enough while excluding urban and peri-urban poor vendors and their families who have already been marginalised by past policy changes, further lowering their adaptive capacity.

The vendors' and consumers' strategies have implications for city policy on climate resilience in terms of the roles of agency in shaping the city's social structures. ISET's framework for urban resilience (Moench *et al.*, 2011) suggests that 'agents, unlike systems, are capable of deliberation, independent analysis, voluntary interaction and strategic choices' (2011: 35). In this study, the actions of producers, traders and city consumers were based on the opportunities and constraints they found within gendered social contexts, through which they cope with socio-economic changes and sustain livelihoods. Pro-poor policies need to look at the dynamics of actors who actively seek the best ways for adaptation. In the context of Hanoi city, the role of policy could be to address underlying constraints that limit poor people's adaptation strategies instead of addressing outcomes of these (eg. regulating vending activities on streets). In the same way, looking at people's adaptation processes to climate-related changes, rather than predicted outcomes, can inform policymakers of underlying structural challenges.

## b) Rural agriculture and migration

Although food-vending activities lead to organised chaos on the city streets, in-depth interviews reveal that migrant vendors' activities were the result of rural poverty and rural agriculture that have not received much benefit from the *đổi mới* reform. Therefore, the issue of rural agriculture and rural poverty cannot be ignored in urban planning and urban food security.

The present findings show that the capacity of migrant street vendors to respond to change is closely associated with family relationships and negotiations, and gendered agency therein. Migrant women's vending activities are embedded in villagers' connections and support as shown by the case of Hoa, a vegetable seller in a street where co-villagers occupy much of the pavement. In turn, they are tied up with their social relations in the village and gendered obligations therein. For example, Vân Anh, from Hà Nam, introduced herself to us as a farmer. She stays near the bus station and returns home every week to maintain her farm and look after her children. Hương, a dry fish seller, spends four months in her village during planting and harvesting seasons. Nhung, from the Hưng Yên province, stays with co-villagers in a cheap hostel that costs around 60 cents per day to save money for her frequent travels home. Their behaviours are very different from those of male migrants, such as Đình and Sáng, who spend more money on vending tools, hiring deliverers, accommodation and food, and return home only a few times per year, and Cường and Hùng, who do not migrate but instead travel a long distance on a daily basis. Resurreccion and Khanh (2007) argue that gender roles temporarily change when female labour migration takes place, but women still try to sustain their previous gender division of labour to fulfil expected conjugal relationships. The similar tendency is observed in this case study. In this respect, the flexibility in the informal economy supports them to fulfil their practical needs. As a result, the city's unequal gendered social structure in the informal economy is sustained (Phillips, 2011).

Without addressing fundamental challenges in rural agricultural development for smallholders, it is clear that rural women will remain in the marginalised position in the informal economy in the city. Therefore, rural agricultural development can be an important component of city development policy. At the same time, uniform regulations banning street vending activities could bring high costs for rural agriculture in which labour migration plays a central role in coping with and adapting to change. It may also destroy the collective resilience systems of rural smallholders, which would then also affect urban food security.

## 5 Conclusion

In Hanoi, agricultural production and trading systems have changed after the macro-economic reform in the late 1980s, and the subsequent urbanisation of the city influenced livelihoods of smallholders from both peri-urban and rural areas. But the impacts of change are unevenly distributed among urban populations. Some smallholders took advantage of great economic opportunities, while others had few options in their adaptation strategies. The capacities (or lack thereof) of these populations to respond to change can exacerbate further the differences that are already observed among those residents. Drawing upon examples of street vendors in Hanoi, this study has sought to understand the different ways in which men and women respond to change, and how their responses shape current informal food systems in Hanoi.

Using gender analysis, grounded in critical social theory (Connell, 2009), this study has sought to conceptualise the roles of gendered agency and gendered relationships in the processes of adaptation. While issues of access are often considered in relation to economic resources, our study moves beyond economic notions to describe social relationships as a resource (Ribot and Peluso, 2003). We argue that people in marginalised social positions negotiate these gendered social relationships in order to benefit from those who have greater access to resources and assets. This approach differs from conventional gender research on climate change approaches that assume conflicting binary relationships between men and women. The present approach facilitates an exploration of individual adaptability built upon the institutions of family and village through gendered interdependent relationships in which gendered agency is central.

This study has demonstrated that street vendors are not a homogenous group of poor people, and that their scale of business varies with their social and prevailing economic conditions. In particular, vendors' social power influences access to agricultural produce and regulates streets and pavements in highly gendered ways. As a result, both men and women encounter different challenges in sustaining their activities in the face of policy and/or economic changes.

Female vendors often have limited assets, but their gendered social network and connections allow them to access agricultural produce, secure a selling space on a pavement and build relationships with regular customers. They thereby sustain their activities and also mobilise unpaid labour from their family and ask support from co-villagers in times of need. Meanwhile, men's vending activities tend to be capital-based, and they rarely ask for support from peer vendors or family members. Men's activities are vulnerable in the sense that they depend heavily on their own capital and labour with little support and limited buffers to cope with shocks. However, men may be more adaptable than women to the formalisation of the informal food sector, because their activities are already based on capital and are similar to the formal trading systems. Men are also adaptable to change in regulations such as the ban of vending activities on some streets since many of them can move to other streets and engage in their activities at any location. Female vendors, on the other hand, may be more able to cope with economic shocks and recover from shocks quickly since they have support and connections through which they could restart their business without capital. But they will find it more difficult to adapt to change in policies, because their business is operated and sustained by gendered social relationships grounded in a particular street or pavement – this is considerably different from the formal food trading systems.

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There are a small number of successful female vendors, who have powerful male supporters. They ensure a stable supply, secure a better quality of produce and sit in a better location. In turn, they are not only earning more income but also having provisions for future change. Without considering the social dynamics at play and the social inequalities that exist in the system, urban planning and policy-making may inadvertently support those wealthy female vendors who are already resilient enough to survive, while excluding those urban and rural smallholders who have already been pushed into the streets as a result of marginalisation through previous change.

The findings also indicate that street vendors offer food to urban populations in different ways from that of the formal food systems, providing benefits to a wide range of consumers including the low-income population. First, vendors offer a variety of fresh agricultural produce, including live chicken and live fish, boiled cassavas and sweet potatoes, and inexpensive green vegetables and fruits that are directly delivered by smallholders in peri-urban and rural areas. Second, vendors often diversify the targeted socio-economic groups and offer various services to maximise profit. For example, some vendors provide high-quality produce and home delivery services to high-income and middle-class populations. Female vendors often allow their customers to buy their produce on credit, facilitating poor people to access micronutrient-rich meat/fish and vegetables on a daily basis. Third, vendors have various strategies to reduce food waste. Some vendors sell unpopular parts of meat/fish or the leftover low-value vegetables and fruits at low prices in low-income residential areas or sell them to local street food courts at the lowest prices.

We demonstrate that these benefits are based on social, rather than economic, mechanisms such as trust between producers and vendors and between vendors and consumers, and unpaid labour and support by family and co-villagers. Therefore, supermarkets would have difficulty in subsuming these existing pro-poor systems. In this respect, street vendors and urban residents are interdependent upon each other in an informal trading system. In this context, policy changes, such as the modernisation of food markets or the ban on street vendors or wet markets would primarily affect poor vendors and smallholders as well as a range of urban consumers from low-income to high-income populations who are contributing to local and peri-urban agriculture sustained by smallholders. This may then undermine the resilience of local populations, in particular women from poor households, to respond to climate-related shocks, since they will lose coping mechanisms and have limited access to the formal system, where official supports and protections are provided for.

This study has shown that the activities of street vendors are an outcome of gendered responses to wider political and economic changes and challenges induced by macro-economic reforms. Therefore, without addressing the issues of agricultural development in both peri-urban and rural areas, policymakers will not be able to address the challenges the cities are now facing, such as how to control the growth of temporary residents from rural areas and how to continue feeding a growing urban population. In the context of Hanoi, understanding the impact of climate change includes understanding its impacts on the lives and livelihoods of street vendors and their families whose support systems exist outside the legal protection structures, as well as indirect impacts on agriculture and subsequent influences on poor smallholders and poor urban consumers who depend upon each other through informal food trading systems.

Lastly, this study introduces concepts of gender studies drawn from critical social theory to understandings of the diverse processes of adaptation and their consequences, thus providing fresh ideas that might be useful for developing city resilience strategies and implementing resilience-building initiatives at a city level. Qualitative gender analysis has introduced notions of diversity and differences in resilience analysis, illuminating more nuanced processes of adaptation, which is something that quantitative analysis cannot offer. This study has shown that street vendors are active agents who respond to change differently and that their behaviours are highly gendered based on socially expected gender roles and conjugal relationships. This indicates that adaptation is not only a gendered process, but is also context-specific. Gender analysis enables us to see social power and gendered agency play out in the processes of adaptation. This is an important first step for policymakers, who should take into account how the subsequent response of vulnerable people to the changes then sustain social structures that cause further marginalisation and increased vulnerability. Given that poor people respond to climate-associated changes in the similar gendered way as they did for socio-economic changes, understanding gendered adaptation mechanisms within the informal economy can change city resilience approaches toward addressing underlying structural challenges.

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# Appendix 1: The lists of questions

Topics	Potential Questions (and observation)	The purpose of questions
Work	<p><b>Working hours and activities:</b> please tell me your routine activities: what time do you get up and then....</p> <p><b>Work history:</b> how long have you been working as a vendor? When did you start working as a vendor? What jobs did you do before? Why did you decide to become a vendor? Who helped you to become a vendor and find space for you to sell? What was the most difficult/happiest thing/time in your work (better/good experiences)?</p> <p><b>Labour input:</b> how intensive it is (observation), how many kilometres do you move per day (for mobile vendors)?</p> <p><b>Positive aspects of work:</b> what are advantages of your work? What are differences in flexibility between mobile vendors, street vendors and wet market retailers?</p> <p><b>Place to live and work:</b> where do you live and with whom? How often do you go back to your hometown?</p> <p><b>Business:</b> approximately how many customers do you have every day? Do price and profit change over time? Change by season, by weather condition, and/or by economic conditions?</p>	<p>The key characteristics of vendors' work</p> <p>The differences in working conditions and opportunities among retailers, vendors and mobile vendors</p> <p>The vulnerability to climate change</p> <p>Resilience to change, benefits, flexibility, adaptability to economic, institutional and environmental change</p> <p>The characteristics of street vendors (diversities among the vendors)</p> <p>The importance of vendors in maintaining Hanoi's food security; the vulnerability to economic and environmental changes</p>
Interactions and negotiations in trading	<p><b>Whole sellers and producers:</b> from whom do you buy vegetables? Has it been the same person for a long time or different people each time? Are they your relatives or friends?</p> <p><b>Produce:</b> how do you try to get good-quality produce? (Do you have choice or just buy whatever?)</p> <p><b>Customers:</b> do you have regular customers? Do you allow your customers to buy your commodities on credit?</p>	<p>Social and political relationships between vendors/retailers and whole sellers or individual sellers</p> <p>Is the vendors' bargaining power related to their social positions or social connections?</p> <p>How do they maintain their business? (Are there any social/economic strategies?)</p>
Livelihood strategies	<p>How have you been able to continue your work for many years?</p> <p>Why are some other people more successful in their business than you?</p> <p>Do you think you will continue to work in this business or do you plan to stop or change jobs?</p>	<p>The variety of business strategies they take, including social strategies (eg. building a good relationship with those who have power)</p>

Topics	Potential Questions (and observation)	The purpose of questions
Social relations and social positions in their working places	<p>Who helps you when you have troubles with your work?</p> <p>Who do you trust among the friends/other vendors?</p> <p>Who are the people you fear?</p>	<p>Hierarchy and power relations among the vendors: who has power among the vendors? Is it related to their social status, age, gender or economic status? How do they negotiate with those who have power?</p>
Family relations and personal life	<p>Family and village lives (please tell me your family life, where you were born, when you married, your family members, who you live with, where your family live).</p>	<p>We would like to select ten people for deeper interviews from different family backgrounds; this information helps us to select ten people</p>
Climate change	<p>Do you think that weather conditions have changed over the past XX years? If yes, how?</p> <p>Which season/when is it difficult to sell your goods?</p> <p>Do you have experience of ill-health due to the heat or cold?</p> <p>What do you do when the temperature is extremely high or when there is heavy rain?</p>	<p>Their own perceptions of climate change and its influence on their health and business</p> <p>Their coping/adaptation strategies</p> <p>Their vulnerability/resilience to climate change</p>

## Appendix 2: The list of respondents

	Gender	Age	Produce and the variety of produce	Amount sold per day (kg)	Means of transport	*1	Home village <sup>*2</sup>	Distance to travel (km)	Distance to home (migrants)
1	M	36	Fruits 2	30	Motor b	W	Thanh Hóa province		150
2	F	36	Fruits 20	40	Sitting	W	Hà Tây	20	
3	MF	26/24	Live fish 3	50	Sitting	W	Hà Tây	20	
4	MF	60/55	Vegetables 51	N/A	Retailer	W	Hanoi	4	
5	F	42	Sweet potatoes nuts	25	Sitting	W	Phú Thọ		50
6	FM	40/43	Vegetables	N/A	Retailer	W	Hanoi	5	
7	FM	45/45	Live fish 3	20	Retailer	W	Ngọc Khánh Hanoi	1	
8	FM	43/44	Fruits 1	15	Sitting	W	Hưng Yên		60
9	F	72	Young Rice (processed)	N/A	Sitting	T	Mễ Trì, Hanoi	10	
10	F	50	Tofu, fresh rice noodle	N/A	Retailer	W	Nhôn, Hanoi	20	
11	F	50	Fruits 1	150 fruits	Motor b	T	Hanoi	20	
12	F	50	Vegetables 2	10	Motor b	P	Hanoi	5	
13	F	29	Boiled maize	20	Sitting	P	Hoài Đức, Hanoi	20	
14	F	63	Vegetables 10	20	Sitting	P	Phú Thọ	50	
15	F	37	Fruits 1	60	Sitting	P	Đông Anh, Hanoi	16	
16	F	50	Fruits 2	20	Sitting	W	Nhôn, Hanoi	20	
17	M	36	Pork selected parts	150	S/Motor	T	Đô Lương, Nghệ An		300
18	FM	37/40	Pork selected parts	150	S/Motor	T	Mê Linh, Vĩnh Phúc	20	
19	MF	40/36	Pork mixed parts	100	Sitting	W	Yên Lạc, Vĩnh Phúc	40	
20	FM	29/32	Pork mixed parts	100	Sitting	W	Yên Lạc, Vĩnh Phúc	40	
21	F	52	Fruits 1	20	Motor b	W	Hà Nam		80
22	F	50	Vegetables 2	10	Walking	P	Xuân Đình, Hanoi	2	
23	M	43	Fruits 1	40	Motor b	W	Hoài Đức, Hanoi	17	
24	MF	38/38	Dog meat 1	1–2 dogs	Sitting	P	Xuân Đình, Hanoi	25	

	Gender	Age	Produce and the variety of produce	Amount sold per day (kg)	Means of transport	*1	Home village <sup>*2</sup>	Distance to travel (km)	Distance to home (migrants)
25	F	64	Fruits 2	40	Motor b	W	Khoái Châu, Hưng Yên		80
26	F	52	Fruits 2	40	Motor b	W	Vũ Thư, Thái Bình		100
27	M	47	Cassavas	100	Bicycle	P	Đông Anh, Hà Nội	25	
28	F	40	Vegetables 21	20	Bicycle	W	Giao Thủy, Nam Định		90
29	F	43	Fruits 1	80	Sitting	P	Đan Phượng, Hà Tây	25	
30	F	43	Prawn	20	Walking	W	Khoái Châu, Hưng Yên		47
31	F	70	Live fish 15	40	Sitting	PW	Hanoi	1	
32	M	46	Vegetables 8	80	Motor b	P	Đông Anh, Gia Lâm	25	
33	F	28	Ginger Rice cakes	30	Bicycle	P	Văn Giang, Hưng Yên	20	
34	F	64	Bamboo shoots	15	Retailer	W	Hanoi	0	
35	M	60	Vegetable 1	50 bunches	Bicycle	P	Gia Lâm, Hanoi	15	
36	M	52	Live Chicken	12 Chickens	Motor b	P	Thanh Ba, Phú Thọ	110	
37	F	50	Fruit 6	30	Bicycle	W	Hà Tây	4	
38	F	51	Boiled sweet potatoes maize	30	Sitting	P	Hà Tây	3	
39	F	31	Sprouts	8	Sitting	P	Hà Tây	1	
40	F	40	Fruits 1	5–8 jackfruits	Bicycle	P	Hà Tây	2	
41	F	45	Fruits 1	60	Bicycle	P	Hà Tây	2	
42	F	60	Vegetable 42	20	Sitting	W	Nam Định		100
43	F	52	Fruits 1	35	Motor b	P	Nhôn, Hanoi	10	
44	M	56	Live poultry and veggie 10	4–10 chickens	Sitting	T	Lương Sơn, Hòa Bình	70	
45	F	50	Fruits 1	N/A	Motor b	PW	Thanh Hoá		200
46	F	64	Fruits 1	N/A	Motor b	P	Yên Lạc, Vĩnh Phúc	100	
47	F	40	Dried fish, worm prawn	N/A	Motor b	P	Thanh Hoá		150
48	M	49	Fruits 1	100	Motor b	W	Hoài Đức, Hanoi	15	
49	M	35	Fruits 1	100 canes	Tricycle	W	Hoài Đức, Hanoi		90
50	F	40	Fruits 1	20	Motor b	P	Nhôn, Hanoi	1	

\*1 W – purchasing from wholesaler, P – respondents are producers, T – their family member is a trader

\*2 In 2008, Hà Tây was subdivided into 14 district-level sub-divisions in Hanoi province. However, the old name is still commonly used among the residents and in this study some interviewees' home villages are described with this old name.



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# Building a resilient city for whom? Exploring the gendered processes of adaptation to change: A case study of street vendors in Hanoi

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## Asian Cities Climate Resilience Working Paper Series

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Published by IIED May, 2016

IIED order no: 10786IIED  
<http://pubs.iied.org/10786IIED.html>  
ISBN 978-1-78431-354-8

80-86 Gray's Inn Road, London WC1X 8NH, UK  
Tel: +44 (0)20 3463 7399  
Fax: +44 (0)20 3514 9055  
email: [humans@iied.org](mailto:humans@iied.org)  
[www.iied.org](http://www.iied.org)

