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Securing safe roads

The politics of change

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Cover photo: Motorbikes and taxis speed through Mumbai's streets © Aashim Tyagi/WRI India, 2015

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Contents

Acknowledgements	3
List of boxes, tables and figures	5
Acronyms	6
Executive summary	7
1 Introduction	10
1.1 The 'Safe System' approach	11
1.2 The research	12
1.3 Methodology	12
2 Evidence from Nairobi, Mumbai and Bogotá	14
2.1 Nairobi	15
2.2 Mumbai	15
2.3 Bogotá	16
2.4 Linking the case studies to global trends	17
3 Key findings: challenges to road safety reform	20
3.1 Lack of political prioritisation	20
3.2 Focus on individual responsibility	21
3.3 Lack of coordination	21
3.4 Inadequate data	21
4 The way forward: strategies to improve road safety	22
4.1 Bundle with other issues	22
4.2 Reframe the debate	23
4.3 Build alliances	24
4.4 Take advantage of reform	25
4.5 Sequence and prioritise	26
4.6 Work around data limitations	26
5 Conclusion	28
References	29

List of boxes, tables and figures

Boxes

Box 1	Road safety in the 2030 Agenda for Sustainable Development	11
Box 2	The principles of a 'Safe System' approach to road safety	11
Box 3	Opportunities for further research	28

Tables

Table 1	Case study summaries	14
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Figures

Figure 1	Population, road traffic fatalities and registered motor vehicles by country income status, 2013	10
Figure 2	Mode share as a percentage of total trips and traffic fatalities in Bogotá, 2016, and Mumbai, 2015	17
Figure 3	Top ten causes of death among people aged 15–29 years, 2012	18

Acronyms

BRT	bus rapid transit
GDP	gross domestic product
GRSF	Global Road Safety Facility
JICA	Japanese International Cooperation Agency
KARA	Kenya Alliance of Resident Associations
MCGM	Municipal Corporation of Greater Mumbai
NAMATA	Nairobi Metropolitan Area Transport Authority
NMT	non-motorised transport
ODI	Overseas Development Institute
VKT	vehicle kilometres travelled
WHO	World Health Organization
WRI	World Resources Institute

Executive summary

Each year, traffic collisions kill an estimated 1.25 million people and injure up to 50 million. Of the fatalities, 90% occur in low- and middle-income countries, and most are among poorer working-age males – a group that tends to use vulnerable modes of transport such as walking, cycling and motorcycling. Traffic collisions are also the leading cause of death among children and young people globally (Wales, 2017: 10). Fatalities have increased in most low- and middle-income countries over the past 10 years, with such countries constituting the overwhelming majority (84%) of the 68 countries worldwide in which absolute numbers of traffic fatalities have grown since 2010 (WHO, 2015).

The social and financial impacts of both fatalities and injuries are substantial, and compounded for people living in poverty. For some households, the loss or injury of a family member in a road traffic collision can be the difference between financial stability and poverty (Wales, 2017). Children may suffer trauma and miss educational opportunities, resulting in lost potential. At the city level, already burdened health care and policing systems are struggling to cope. In total, the World Health Organization (WHO, 2015) estimates the annual economic cost of traffic fatalities and injuries to be around 3% of global gross domestic product (GDP). The effect in low- and middle-income countries is likely even more severe. Recent estimates in five such countries (China, India, the Philippines, Tanzania and Thailand) found that if a country could halve traffic fatalities, and sustain this for 24 years, they could generate increases in GDP per capita from 7% to 22% (WB GRSE, 2018).

Over the past 10 years, road safety has also been escalated to an issue of international concern. The 2030 Agenda for Sustainable Development has two targets related to road safety:

***Target 3.6** By 2020, halve the number of global deaths and injuries from road traffic accidents.*

***Target 11.2** By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.*

Based on current projections, neither target is likely to be reached.

Some countries have proven considerably more effective than others in addressing road safety challenges. Where

significant progress has been made, a systemic approach to road safety has been integral (Welle et al., 2018). This approach sees road safety as a public health outcome, resulting from the interaction of all the elements of the transport system including transport options, land use, street design, regulation, vehicle standards, emergency response and other factors. Yet, for all the accumulated knowledge about what such a ‘Safe System’ looks like, developing and implementing it remains an enduring challenge for many countries – particularly those of low and middle income.

As fatalities continue to increase in much of the world (WHO, 2015) and road traffic collisions continue to exact an enormous social and financial toll, it is critical to examine and understand what is hampering progress and what can be done to reverse these trends.

The research

The Overseas Development Institute (ODI) and the World Resources Institute (WRI) have undertaken a research project to identify the challenges to improving road safety in low- and middle-income countries, learn from stories of progress, and provide a series of strategies that can help decision-makers and practitioners working on road safety reform.

The project began with a literature review (Wales, 2017) that considered the overall scale of the problem, the main elements of the global response and the state of evidence on interventions to resolve the challenges. The review revealed a relative paucity of explicit attention to the challenges and opportunities associated with road safety issues, as well as an evidence gap around how reforms happen.

To address this gap, three middle-income cities were selected for more detailed case study analysis: Nairobi, Mumbai and Bogotá. The three cities represent a broad range of challenges and opportunities across three different countries and continents, and they represent uneven progress. Of the three, Nairobi has perhaps achieved least traction on securing safer roads to date, while Bogotá has come furthest. In collaboration with local partners, we studied diverse data to review the status of collisions, fatalities and injuries in the city, the key actors involved in addressing road safety, as well as the challenges and opportunities for improvement.

This report presents the findings of both the literature review and the case studies. It aims to inform road safety decision-makers and practitioners about the political barriers to change that they may be encountering, and to identify ways forward to improve road safety globally.

Case study highlights

The findings from the Nairobi, Mumbai and Bogotá case studies reinforce trends identified in the broader road safety literature (Wales, 2017). In all three cities, pedestrians account for more than 50% of fatalities, with working-age males making up between 65–80%. Motorcycles display a startlingly high level of risk in Mumbai and Bogotá, making up only 5% of the mode share¹ but more than 30% of fatalities. The wider economic impacts of poor road safety in these cities (such as loss of income and opportunity for families) are likely substantial.

All three cities have made efforts to improve road safety, but progress has been uneven:

- **Nairobi.** Politicians focus on large-scale, car-oriented projects that generate short-term political rewards. Legal or regulatory changes to improve road safety are strongly resisted by powerful interest groups. Recently created institutions dedicated to road safety present an opportunity for better coordination and proactivity. A recent plan for non-motorised transport also shows a promising shift in the attention it pays to vulnerable road users.
- **Mumbai.** National calls for road safety reform have had little impact at the local level. Politicians focus on new major road projects, without integrating road safety considerations – an approach that is seen as more tangible and politically feasible. A Supreme Court ruling that requires states to create road safety plans may improve things but the need to advance other reform avenues remains.
- **Bogotá.** In just 10 years (1996–2006) the city halved traffic fatalities. This was due to a combination of institutional and public transport reform, the reframing of road fatalities as a public health issue and investment in safe infrastructure. Fatality numbers have since plateaued. The city is seeking to catalyse further improvements through the application of a system-based approach to road safety.

1 Mode share refers to the proportion of people travelling by different forms of transport – for example, by foot, bicycle, motorcycle, car or public transportation.

Key findings: challenges to road safety reform

To date, road safety research has largely focused on the technical aspects of the ‘Safe System’ approach, such as street design, urban planning and vehicle standards, and on calling for the associated interventions. Instead, we ask *why* sound, technical reforms are not being embraced, particularly in low- and middle-income countries.

1. **Road safety is not a political priority.** Currently, road safety lacks political salience. It is often subordinated to other priorities, and is perceived to be in direct conflict with efforts to reduce motor vehicle congestion. Therefore, while there is little opposition to improved outcomes, the reforms that are needed can be controversial. Instead, politicians deploy their influence and funding where they think they will be able to get greater visibility and recognition from other politicians, interest groups and the public.
2. **Road safety is seen as an issue of personal responsibility, rather than government (in)action.** Both decision-makers and the public tend to blame individual road users for collisions, rather than systemic issues such as infrastructure (or the lack thereof), weak regulation and planning or safe vehicles. Individuals often don’t think *they* will be affected by collisions, and often aren’t aware of the full array of options available to improve their safety. As a result, they tend to support short-term solutions and reactive measures, such as the simple expansion of a road network. These do not necessarily improve long-term road safety outcomes.

3. **There is little coordination between relevant government bodies.** Improving road safety outcomes relies upon the coordination of different government bodies at different levels, such as national ministries (particularly transport and health), local government structures, highways authorities and the police. Despite this, such bodies often have limited interaction, and those tasked with implementing road safety reforms often lack the knowledge, financial resources and power to do so – especially when faced with competing priorities or outright opposition. Bogotá, in particular, has shown the effectiveness of well-coordinated government bodies, working towards the same goal.
4. **Data is lacking.** In the three cities studied, and around the world, the true scale of the road safety problem is rarely understood and likely to be underestimated. This is due to the lack of basic information about victim demographics, transport modes and geographic distribution of collisions, as well as the impacts of fatalities and injuries. The ‘Safe System’ approach emphasises the importance of data to better understand collision risks and current road safety performance; the lack of it can serve as a disincentive or excuse for inaction.

These challenges show that underlying political factors can help explain why road safety reforms have proven more tractable in some places than in others: understanding and addressing them is critical to ongoing efforts to improve road safety.

The way forward: strategies to improve road safety

Our research demonstrates that progress on road safety is possible, despite uneven outcomes and setbacks. The key is to focus on what *good enough* reforms might look like in a particular setting, and how different reforms may gradually build on and reinforce one another (Grindle, 2004). Those trying to improve road safety, whether they are in government, the private sector or civil society, should focus as much on building the *political* case for road safety as on its *technical* solutions. Doing so means grappling with incomplete and imperfect data and information; stakeholders with diverse interests and motivations (licit or illicit); varied institutional settings that afford autonomy and discretion to different stakeholders at different levels; and a political tendency to favour car owners over people who rely on walking, cycling and public transport. We identify six key strategies that have the potential to enable improvements in road safety:

1. **Bundle road safety with more prominent or popular issues.** Identify stakeholders with an interest in road safety reform, even if for other motivations, and work together. This helps make the public case for reform and improve the political salience of the issue. For example, if making a street or public transport system safer will also reduce congestion issues, or help make businesses on the street more accessible, it matters little if road safety is not the primary objective of those business owners. This approach was inadvertently taken in Bogotá, where reform of the public transport system to improve travel options also significantly improved road safety. Where alignment of interests does not generate sufficient support for reform, advocates may find it useful to bundle road safety objectives with other (potentially unrelated) content via policy processes rather than treating it as a standalone issue.
2. **Reframe road safety in the public and political debate.** Road safety is a public health issue, but it is also an economic, social, education, equality, law and justice issue. This allows reformers to link road safety to issues with local resonance, thereby garnering political salience. It can also change the way road safety is viewed by the public: shifting the full onus away from road users themselves. For instance, reformers in Bogotá linked traffic fatalities to homicides, emphasising different benefits for different audiences. For example, in Bogotá, the Mockus administration successfully linked road safety challenges to the city's high homicide rate by focusing broadly on the issue of violent and avoidable deaths. The Kenya Alliance of Resident Associations (KARA) appealed to politicians' reputations in their successful lobbying for the 2015 Non-Motorised Transport (NMT) Policy.
3. **Seek opportunities and build alliances at all levels of government.** Both support for and opposition to road safety can exist at all levels: national, regional and local. Despite the fragmentation challenges identified, there

is not one form or extent of decentralisation required for progress. For example, Colombia has empowered directly elected mayors, but in Mumbai, the Municipal Corporation of Greater Mumbai (MCGM) holds the power and decision-making autonomy. Nairobi's Governor and county assembly have more power than the city council. Depending on the ideas they hold, the incentives they face, the autonomy they have and the ambitions they harbour, local actors may have the power to drive reform from within cities or block it. Those seeking to make progress on road safety must understand and respond to the political and institutional dynamics at play in their cities and countries.

4. **Take advantage of wider institutional and governance reform.** Many cities, including Mumbai and Nairobi, find it hard to improve road safety due to fragmented responsibility or a lack of ownership. As a result of national decentralisation and other reforms, Bogotá established an elected mayor and improved institutional coordination and accountability. This boosted public faith in local institutions and created a willingness to follow local regulations. Specific reforms to the police, public transport, city finances and the transport department all increased the city's ability to influence, control and monitor people's mobility and safety. That being said, it is not necessary to wait for governance improvements: in India, at both the national and city level, citizens have used the courts to mandate weakly coordinated institutions to take action on road safety.
5. **Sequence actions, prioritising an integrated approach.** More integrated efforts can generate faster and greater road safety impacts, but also additional allies or resistance. In Bogotá, reforming mobility systems, underpinned by innovative education and improved enforcement, contributed to road safety improvements. However, balancing the benefits of more comprehensive approaches with the political implications of choosing a given set of interventions can be a challenge. Prioritising 'quick wins' may be more politically feasible, but such reforms may end up being short-lived, as can be seen in Mumbai. A dedicated road safety plan that groups actions within strategies and divides them into the short, medium and long term, will greatly increase the potential for road safety interventions to have lasting impact.
6. **Don't wait for perfect data.** While comprehensive and robust data is always desirable, progress is possible even where reliable systems for the collection and use of detailed road safety data do not yet exist. Basic investments in basic data are sufficient to identify the most urgent road safety needs. For example, Bogotá's improvements occurred prior to its most recent investments in consistent and reliable data systems. Of course, investing in better data systems can help governments more efficiently target investments more effectively – prioritising proven high-fatality roads for example. But a word of caution: the political case for such investments will not be made by data alone; a strong, locally resonant narrative is also required.

1 Introduction

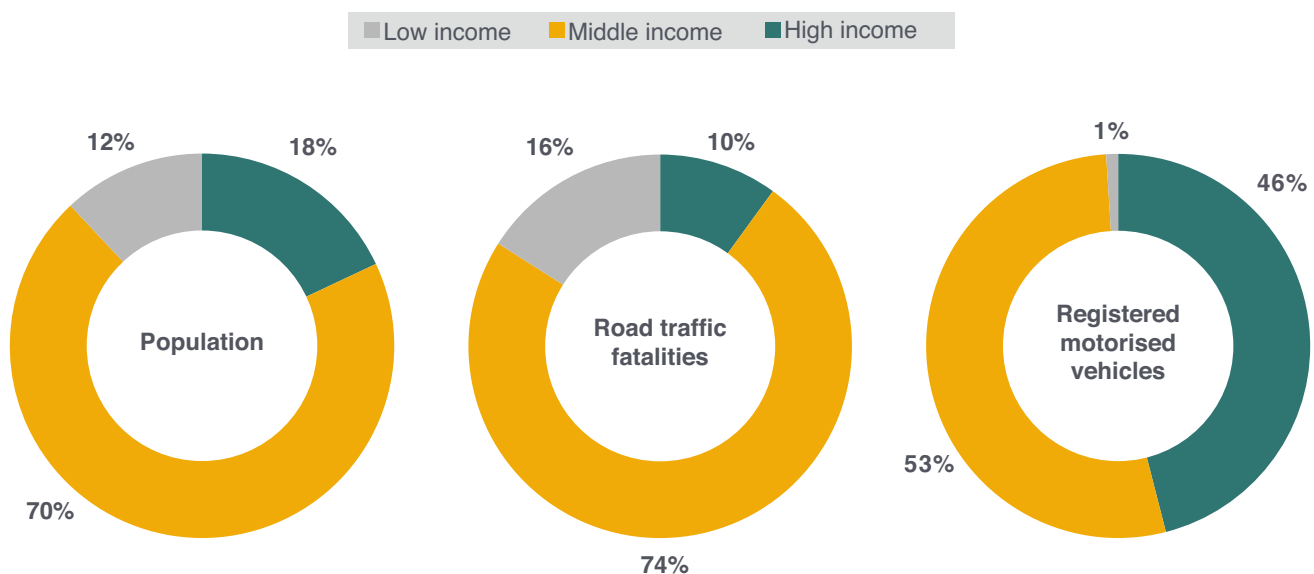
The provision of safe and effective transport is fundamental to human wellbeing. Even so, it remains a challenge in countries around the world, particularly in urban areas, where an increasing proportion of the world's population lives. It is a dynamic challenge, shifting as cities change over time, often very rapidly. It is also a complex challenge, made up of numerous interrelated factors, involving a wide range of stakeholders. It often requires responses that cross the sectoral boundaries that structure much of policy-making and programming. Many wealthy countries with advanced motorisation – such as Sweden, Norway and Spain – have already made rapid road safety gains through measures such as improved urban street design, reduced speed limits and safe vehicle technology. Yet low- and middle-income countries that are rapidly becoming urbanised and motorised face a significant challenge to adapt their streets and regulations to protect road users (Welle et al., 2018).

A disproportionately high number of fatalities, compared to both population and registered vehicles, occur in low- and middle-income countries (Figure 1). Among the estimated 1.25 million annual road fatalities, 90% occur in these countries. And among these, 50% are vulnerable road users – pedestrians, motorcyclists and cyclists. In urban

areas where there are high concentrations of vulnerable road users, the effects of poor road safety are acutely felt as exposure to dangerous vehicle speeds affects accessibility and quality of life. Road collisions also injure up to 50 million people each year. The economic costs of fatalities and injuries caused by traffic crashes are estimated to be in the region of 3% of global gross domestic product (GDP), a figure rising to an estimated 5% of GDP in low- and middle-income countries each year (WHO, 2015). Globally, fatalities and injuries tend to be concentrated among working-age males, a factor with significant economic impacts for families and communities. Furthermore, traffic collisions are the leading cause of death among children and young people (Wales, 2017: 10).

During the last 10 years, road safety has been escalated to an issue of international concern by multilateral organisations, which have quantified the scale of global traffic fatalities and have begun an international discourse. For example, the UN Decade of Action on Road Safety (2011–2020), the UN High-level Advisory Group on Sustainable Transport and Special Envoy for Road Safety (2015), the Brasilia Declaration on Road Safety (2015) and the Sustainable Development Goals have targets related to halving the number of traffic fatalities globally (Box 1).

Figure 1 Population, road traffic fatalities and registered motor vehicles by country income status, 2013



Source: WHO, 2015: 4.

Box 1 Road safety in the 2030 Agenda for Sustainable Development

Goal 3 Ensure healthy lives and promote well-being for all at all ages (*target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents*).

Goal 11 Make cities and human settlements inclusive, safe, resilient and sustainable (*target 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons*).

In addition, major funds and initiatives have been established such as the Road Safety Fund, the Global Road Safety Facility (GRSF), the Bloomberg Initiative for Global Road Safety and the Global Initiative for Child Health and Mobility led by the FIA Foundation.

1.1 The ‘Safe System’ approach

These international declarations and partnerships are increasingly focused on taking a proactive, systemic approach to road safety. This is because analysis suggests that such an integrated, system-based approach has the greatest potential to save lives. For example, countries that have taken such an approach to road safety have reduced traffic fatalities at a faster rate and to a lower level than other countries (Welle et al., 2018). This approach, known as the ‘Safe System’ approach, emphasises complementary actions to address road safety in a coherent manner. This

requires a stronger focus on factors at all levels of the system – including land use planning, public transport, street design, regulation, enforcement, education, vehicle quality and emergency response – and coordination between different bodies.¹

The ‘Safe System’ approach prioritises the safety of vulnerable road users, understands safety as a shared responsibility between government and citizens, and recognises that even people following the safety rules can make errors (Box 2). It takes the perspective that the immediate causes of road traffic crashes and injuries cannot be viewed in isolation from the broader context. Road user behaviour is influenced by the design of the road as well as the other components of the system mentioned above. Overall exposure to risk on the roads is also related to the local rate of private motor vehicle use because the level of risk for both car occupants and other road users is related to vehicle kilometres travelled (VKT) and time spent travelling. The outcome of collisions also depends on

Box 2 The principles of a ‘Safe System’ approach to road safety

A study of 53 countries found that those that have taken a ‘Safe System’ approach to road safety have been able to reduce traffic fatalities faster and to a greater degree than other countries (Welle et al., 2018). The ‘Safe System’ approach is based on a set of key principles that establish a guiding perspective for technical experts and policy-makers. They represent a significant shift in perception, away from road safety as a personal responsibility to a public health issue for which governments have the responsibility and power to address.

The principles are summarised below (WHO, 2015; ITF, 2016; Welle et al., 2018):

1. People make mistakes that can lead to road crashes.
2. The human body has a limited ability to tolerate crash forces before harm occurs.
3. A shared responsibility exists among the people who design, build, manage and use roads and vehicles, and who provide post-crash care to prevent crashes that result in serious injury or death.
4. A proactive approach should be taken to making the mobility system safe, rather than waiting for events to occur and then reacting. All parts of the system must be strengthened to multiply their effects, so that if one part fails, road users are still protected.
5. No fatality or serious injury should be accepted in the mobility system. Lack of safety should not be a trade-off for faster mobility. Rather, the mobility system should be both safe and efficient.

¹ A contrast can be drawn between this ‘Safe System’ approach and the ‘traditional’ car occupant-oriented approach to road safety, which has an emphasis on individual road user responsibility. In the latter, road safety approaches tend to rely on mass media education campaigns. Some efforts may also be made towards enforcement and better infrastructure, although these still tend to be oriented towards car occupants, for example enforcing seatbelt laws or installing pedestrian bridges which create detours for people walking in urban areas, while prioritising high-speed vehicle movement (Welle et al., 2018).

the safety level of the vehicles involved, and the response time and quality of emergency medical care. The way that these interact should form a forgiving system – one that reduces the chance for errors to occur, but also minimises the impacts when they inevitably do (ITF, 2016).

The ‘Safe System’ approach is not new: it emerged 20 years ago in the Netherlands and Sweden. But it has only achieved widespread recognition among health and road safety practitioners in recent years. In 2017, Mexico City and Bogotá became the first middle-income cities to formalise this approach. States in India such as Haryana have also begun to include ‘Safe System’ concepts in new road safety plans mandated by the Supreme Court. This is a promising step, but it also demonstrates that much of the world is not yet taking this approach, and ‘that genuine political commitment may be lacking’ (WHO, 2015, in Wales, 2017) – a point that this work begins to unpack. The apparent consensus around road safety at the international level may be masking a lack of understanding at the national and local levels. Indeed, in many contexts, despite emerging evidence on the efficacy of a ‘Safe System’ approach, the adoption and implementation of its component parts is absent. In this sense, it is understandable that the literature review found that road safety ‘... is best understood as a governance challenge rather than a technical problem’ (Andrews, 2014, in Wales, 2017). Even as the content of reform becomes clearer, how to achieve a ‘Safe System’ remains a work-in-progress.

1.2 The research

This report aims to balance the utility of technical insights regarding traditional approaches to road safety and the more recent emphasis on a ‘Safe System’, with the position that the form and process of reform tend to unfold differently in different contexts. Its approach is in line with a growing literature in the broader development community that advocates for ‘best fit’ approaches that work towards identifying and pursuing technically sound, politically achievable reforms rather than ‘one-size-fits-all’ approaches that seek to impose ‘best practice’ (Fritz et al., 2014; Rocha Menocal, 2014). This literature describes reform processes as moving in ‘fits and starts’, acknowledging that reform often unfolds in steps over time, building on imperfect, *good enough* solutions.

This report considers the degree to which those components have contributed to improved road safety outcomes. The case studies used are not judged as successes or failures based on the degree to which they have completely and explicitly pursued a particular approach; rather, all three cases demonstrate a mix of progress and continuing challenges (that is, none should be seen as a complete ‘success’ or ‘failure’). The most interesting findings in fact relate to the *how* and *why* of the reform process rather than to the *what*. How do reformers position road

safety issues relative to other priorities? How do they build support? Why does opposition to reform exist when the objectives of improved road safety are largely uncontested?

The approach needed to explore the answers to these questions is one that identifies and understands the political factors that are affecting progress. Delving into the realities of ideas, incentives and power certainly adds a layer of complexity to technical analysis, but it can also help reformers to understand why implementation has lagged in many contexts and to develop strategies and identify opportunities for advancing important elements of a reform agenda that is capable of making a difference in improving road safety outcomes.

This paper synthesises findings from a collaborative project between the Overseas Development Institute (ODI) and the World Resources Institute (WRI) that seeks to improve understanding of whether and how political economy factors are contributing to this state of affairs. The project aims to inform road safety decision-makers and practitioners about the political dimensions of the barriers they may be encountering, and to highlight ways forward. It draws on a policy-oriented literature review (Wales, 2017) and three city case studies to identify common themes and key differences in relation to the political economy of road safety.

1.3 Methodology

This paper takes a political economy perspective to consider the underlying barriers and opportunities to improving road safety. While there is no single accepted definition for political economy analysis, the following definition has been widely used in international development circles:

Political economy analysis is concerned with the interaction of political and economic processes in a society: the distribution of power and wealth between different groups and individuals, and the processes that create, sustain and transform these relationships over time. (Collinson, 2003, in DFID, 2009)

Other sources provide some nuance and variations in emphasis, highlighting, for example, the role played by ideas or the disaggregation of different forms of power (e.g. Hudson and Marquette, 2015). However, there is a common analytical core among guidance documents on applied political economy analysis that is fundamentally concerned with the way in which stakeholders with different levels and forms of power contest and bargain over developmental outcomes in response to their interests and the incentives they face.

In the context of road safety, this means focusing on competing visions for a wide variety of areas, including roads and transport, the use of urban space and the resources necessary to deliver better road safety outcomes.

Indeed, while

... literature directly examining the political economy of road safety is relatively sparse ... relevant literature can be found on the periphery of research on a range of tangentially related issues, such as urban planning, corruption (particularly amongst police forces), perceptions of risk and data systems. Drawing together these separate strands gives us the opportunity to generate a more complete picture of when, how and why it may be possible to generate reforms that will reduce the number of injuries and deaths on the road. (Wales, 2017)

Decisions on these issues are contested and made in multiple venues, ranging from local city and municipal administrations, up to the national and international levels. In all cases, the outcomes generated are a function not only of the formal and informal institutional arrangements that govern these levels and the relationships between them, but also the ways (more or less strategic) in which different actors pursue their objectives in complex and dynamic political contexts.

It is necessary to add to this focus on politics an understanding of emerging thinking on technical approaches to improving road safety outcomes. As indicated in the introduction, this project seeks to recognise what has been learned about the ‘Safe System’ technical approach, without advocating for its implementation according to a specific blueprint. There are many reports and guidelines that outline the components and actions that make up a ‘Safe System’ approach (WHO, 2015; ITF, 2008; 2016; Welle et al., 2018). But understanding the underlying mechanisms of politics and power that affect the ability of a city, state or country to undertake such an approach is key in identifying and overcoming the barriers to improving road safety. Where road safety is being directly addressed, ‘there are also broader questions regarding how well implemented these programmes are and the factors that lie behind their effectiveness’ (Wales, 2017: 22).

To explore these ideas in a range of regions, city contexts and stages of addressing road safety, the research team selected three cities in rapidly evolving urban settings across the developing world – Nairobi, Mumbai and Bogotá – for additional case study analysis. This selection reflected a number of priorities: a focus on urban contexts, particularly in low- and middle-income countries, where issues of road safety are acute and fatalities remain concentrated; coverage of contexts seen to have achieved significant progress as well as those where significant challenges remain; and the opportunities for better analysis where the team had existing networks that could be drawn upon as a starting point for the research.

These cases are not necessarily representative of the experiences of all cities. Simplistic comparisons or translations of findings across contexts are not possible

due to important differences among the cases (see Table 1) and between these cities and other urban contexts, and there are limitations on the extent to which an inductive approach can determine the way forward. The approach does, however, allow for a set of propositions regarding the political challenges and strategies that shape road safety outcomes and the potential for reform. It aims to go beyond the ‘every country is different’ refrain to provide some reflections on features of an emerging theory of change, but does not necessarily claim to be universally applicable or ‘best practice’.

The methodology for the case studies was set out by Wales (2017). It broke down the approach into four phases:

1. Review of the existing data on road safety to identify key trends in terms of geographies, demographics and modes.
2. Identification of the key proximate causal factors behind road safety challenges, or the key ways in which policies and programmes to address this operated.
3. Identification of the underlying systemic drivers of the causal factors identified in phase two, including the interests and influence of different actors that relate to the problem identified, whether they have been able to take effective action through different institutional channels, and how these dynamics have facilitated or blocked progress.
4. Identification of potential strategies or lessons learned.

Taking into account the different progress that has been made with road safety in each case, and particularly the distinct progress already made in Bogotá, these phases were interpreted as five key research questions:

1. What is the current status of road safety internationally and in our case studies?
2. How is road safety in Nairobi, Mumbai and Bogotá, influenced by processes of political economy?
3. What are the underlying challenges to improving road safety in the case study cities?
4. What were the underlying contributors to a reduction of traffic fatalities in Bogotá?
5. How can other cities use the experiences of these cases to overcome barriers to improving road safety?

Information was gathered through analysis of local traffic fatality data collected via a variety of context-specific institutional arrangements, reviewing existing literature on the local transport and road safety context, and interviews. In each case, interviewees were identified through a process of stakeholder mapping provided for in the methodology. In total, more than 40 interviews were conducted with technical experts, government officials, current and former politicians, civil society representatives and transport operators. The full case studies are provided in the appendix, and the key findings are summarised within the body of this report.

2 Evidence from Nairobi, Mumbai and Bogotá

This section sets out the lived experience in each of the three case study cities as it relates to the global context. It first presents a summary of the road safety situation in each of the three cases. It then uses the literature review to provide the broader context in which the reader should

see the cases as well as identifying evidence from the case studies that confirms or conflicts with the broader findings. The cases demonstrate some important variations, with Bogotá in particular having already achieved significant reductions in traffic fatalities.

Table 1 Case study summaries

	Nairobi	Mumbai	Bogotá
City context	<ul style="list-style-type: none"> Capital of lower middle-income country of Kenya and economic centre for the East Africa region. Population of 4 million. Reported fatality rate of 11 per 100,000 inhabitants. 	<ul style="list-style-type: none"> Commercial and financial centre of lower middle-income country of India. Located in the State of Maharashtra. Population of 12 million. Reported fatality rate of 5 per 100,000 inhabitants. 	<ul style="list-style-type: none"> Capital of upper middle-income country of Colombia. Population of 8 million. Reported fatality rate of 7 per 100,000 inhabitants.
Current road safety status	<ul style="list-style-type: none"> Reported fatalities are available since 2010. They grew slightly 2010–2013 and then dropped 2013–2016. Vulnerable users make up more than 90% of fatalities. 	<ul style="list-style-type: none"> Over the last 15 years that data is available for, reported fatalities have varied but increased overall. They increased consistently 2013–2015, then dropped in 2016. Vulnerable users make up more than 90% of fatalities. 	<ul style="list-style-type: none"> Rapid reduction of reported fatalities (>50%) over 10 years (1996–2006), subsequent plateau (2007–2017). Vulnerable users make up more than 90% of fatalities.
Road safety progress	<ul style="list-style-type: none"> Recent formation of the Nairobi Metropolitan Area Transport Authority. Establishment of National Transport and Safety Authority. New policy on non-motorised transport for Nairobi. Planned construction of BRT system and associated redesign of major roads. 	<ul style="list-style-type: none"> Supreme court ruling that all states must develop a road safety plan, instigated by citizens. Amendment to Motor Vehicles Act that increases focus on vulnerable user safety currently in progress. Road safety actions at city level mandated by city court. Increased attention at a national level due to international commitments, and the traffic death of a government minister. Road safety actions required based on Mumbai Court ruling instigated by concerned citizens. 	<ul style="list-style-type: none"> Institutional reform of police, mobility and city taxation and financing. Spatial and transport system reform including implementing BRT, bicycling and pedestrian infrastructure. Linking road safety to general public health and safety, shifting perceptions about value of human life, and expectations of safe behaviour. Alignment of national and city level attention to road safety regulation and enforcement. Newly adopted integrated road safety plan. High quality of data collection and analysis supports planning and evaluation of road safety interventions.
Road safety challenges	<ul style="list-style-type: none"> Very poor data collection and availability. Limited enforcement of regulations, corruption. Rapid increase in motorcycles and motorcyclist fatalities. Fragmentation of government and lack of accountability between institutions hinders planning and action. Resistance to legislation to improve safety by states and business lobbies. Focus on car-oriented mobility projects without integrating safety considerations. Perception of road safety as a personal responsibility. 	<ul style="list-style-type: none"> Very poor data collection and availability. Limited enforcement of regulations, corruption. Rapid increase in motorcycles and motorcyclist fatalities. Lack of ownership of road safety by decision-makers. States and business lobbies resistant to legislation to improve safety. Weak institutional structure for road safety, legislative focus on motor vehicles. Focus on car-oriented mobility projects without integrating safety considerations. Perception of road safety as a personal responsibility. 	<ul style="list-style-type: none"> Rapid increase in motorcycles. 'Low-hanging fruit' already addressed. Tensions between national coordination and local goals for both road safety and mobility. Saturation of current public transport system leading to unsafe operating practices and overcrowded vehicles. Reorganisation of national road safety fund creating uncertainty about future resources.

Note: In 2015, the average rate for high-income countries was 9.2 fatalities per 100,000 inhabitants (WHO, 2015).

2.1 Nairobi

Nairobi is the capital of Kenya and the economic centre of the East Africa region. It has a population of 4 million and a reported rate of 11 fatalities per 100,000 inhabitants. Vulnerable users make up more than 90% of fatalities. Data is lacking and likely to be under-representative for Nairobi, in particular recent information about mode share (the last study was conducted in 2005). However, the data that is available shows that the most common type of road traffic collisions are between vehicles (often motorcycles) and pedestrians. Pedestrians constitute the greatest mode share but there is little to protect them from the motorised vehicles that encroach on all available road space. The problem is exacerbated by heavy traffic flows, limited safe crossing areas and poor traffic regulation for speeding, drink-driving and unsafe vehicles. Car ownership continues to be a common aspiration among those who otherwise must rely on cramped and dangerous buses, motorbike taxis or walking. Consequently, citizens may see car ownership as a private solution rather than collectively demand investment in public transport. Road traffic collisions also only affect individuals occasionally, unlike congestion and poor quality public transport, which affect almost all Nairobi residents daily. Therefore, in the historical absence of political leadership on road safety and mobility, people's personal interests override the public need for a more efficient, equitable and safer urban mobility system.

Underlying these issues is the lack of strategic spatial development of Nairobi, which is driving many people to live on the city's outskirts and travel into the centre and back each day. This inevitably creates a challenge for accessibility, makes providing transport to all areas more costly, and results in the poorest being unable to travel to work in an affordable and safe manner. Public demand for road space for private cars and the appealing political and physical tangibility of road construction contracts skews government investment towards expanding roads rather than improving the safety of existing roads for pedestrians and cyclists. Likewise, politicians may find little to gain from improving the regulation of driver behaviour, particularly where some motorists and police officers find the current lack of regulation an opportunity for corruption that works to their advantage.

Those working on road development in Nairobi rarely spot the connections between urban land use, road development, mobility and traffic-related injuries. Nor do politicians, policy-makers or commuters view the problem of congestion in terms of the need for safer modes of mass urban transit. Road traffic collisions and resulting injury are seen as the fault of the individual. This perception of road safety is reflected in government regulation and interventions that focus on driver behaviour, including the construction of physical barriers to force behaviour change, whether railings or speed humps. Attempts to regulate or

improve the safety of privately operated public transport such as *matatu* minibuses have been strongly resisted by operators. Government fragmentation in the planning and implementation of road construction, land use, urban transport and road safety has reinforced these problems.

There are indications, however, that road safety is being given more consideration, if not priority, in public policy and planning. The Nairobi Metropolitan Area Transport Authority (NAMATA) and the National Transport and Safety Authority were both recently established, and a new non-motorised transport policy was created for Nairobi. Reported fatality numbers in the city have been dropping since 2013, and this may be related to these changes.

2.2 Mumbai

Mumbai is the commercial and financial centre of India, and has population of 12 million. In Mumbai, data on road safety is often poor, decentralised and difficult to access, suggesting a lack of prioritisation. Even so, trends can be identified. Mumbai is ranked seventh in India in terms of absolute number of fatalities. Although the rate of road traffic fatalities is relatively low at 4.9 per 100,000, this represents a considerable number of people. Crash data obtained from the police shows that more than 5,700 people died on the roads of Mumbai between 2006 and 2016, with 611 of these fatalities occurring during 2015 and 2016 alone – a rate of almost two people per day (ADGP, 2015; RTO, 2015). The limited data available shows that over the past 15 years, traffic fatalities have had peaks and troughs, but have increased overall. In recent years, fatalities increased consistently from 2013 to 2015, with a promising drop in 2016. The experts interviewed suggested that there may be a relationship between spikes in fatalities and the implementation of new flyovers and high-speed roads, although no data is available to confirm this. However, if this is the case, there is the risk that recent gains in road safety may be counteracted by the construction of more high-speed roads. Furthermore, vulnerable users – pedestrians, cyclists and motorcyclists – account for more than 90% of fatalities. In the case of motorcyclists, this is vastly out of proportion with their low mode share (reported at under 5%), even considering the rapid growth of motorcycle ownership in recent years.

Experts interviewed explained that any attempts to address road safety in the city must grapple with the perception among many policy-makers that individuals do not value their own lives. The prevailing view is that being safe on the roads is a personal responsibility independent of the local regulatory, transportation and infrastructural conditions. Given this, risky behaviour by road users and a lack of expressed demand for safety are seen as confirmation of this perception rather than as a failure of the system to facilitate safe behaviour.² Among other public entities, beyond the

2 Globally, in many places with the highest fatality rates, traffic collisions, fatalities and injuries are seen as an inevitable twist of fate, or an unavoidable risk of daily life, and thus there is little public demand or political motivation to tackle it (ITF, 2008).

obligation of the police to enforce traffic regulations, there is no sense of ownership for road safety or perception of a public demand to address it. Experts interviewed noted that political will is strongly oriented towards large-scale, car-centric projects as the perceived solution to public concerns about congestion and poor transport connections. Road safety is seen as something separate to this. The opportunity is being missed to integrate safe design and planning principles into new road construction, or to improve road safety and reduce congestion through public transport improvements.

In recent years, India's national government has paid increasing attention to road safety due to international commitments, and also to domestic factors, particularly the death of a prominent government minister in a traffic crash. Studies have been undertaken and proposals made to improve existing laws or implement new ones. However, these have generally been resisted by states and private interest lobbies such as trucking companies. The laws and policies that do exist have a history of not being implemented. For example, although laws mandate the existence of road safety councils at the national, state and district levels, these do not have any decision-making authority, nor do they have the required statutory backing, or adequate financial resources. Since political representatives head up these councils, their effectiveness is dependent on the priorities of the government in power. Given that the Motor Vehicles Act of 1988 mandated their creation, the focus is on motor vehicles, not on other road users such as pedestrians and cyclists. A proposed amendment to this Act, to give status to pedestrians and cyclists, is currently under consideration.

Partially in response to this sense of inattention to road safety among executive and legislative actors, concerned citizens filed a public interest litigation. In 2015 the Supreme Court accordingly issued directives requiring all states to prepare road safety action plans. However, there is still no national framework for developing such plans, and the quality of the plans is unknown. In response to a 2010 national road safety policy that also required plans, states simply copied the sample plan with little effort to review or tailor it to local needs. A public interest litigation demanding action on road safety was also filed at the local level in Mumbai in 2010. Some impacts are now being seen as some of the resulting recommendations are being implemented. Fatalities dropped in 2016 for the first time in four years. However, it is notable that so far only the recommendations related to enforcement (traffic cameras) and regulation (licensing processes), and a few street design changes have been acted upon, while matters of institutional coordination and capacity remain unaddressed. This lack of cohesive vision and practical coordination on how road safety is interrelated with street design, connectivity and mobility remains the greatest challenge for Mumbai, but it is also a great opportunity. The national momentum and city-level rulings on road safety may offer useful entry points for

reformers to attract funding, coordinate institutions related to road safety and change perceptions among both public services and the wider public about improving road safety.

2.3 Bogotá

Bogotá is the capital and financial centre of Colombia with a population of 8 million people. Between 1996 and 2006, the city of Bogotá reduced its traffic fatality rate by more than 60%. Since then the fatality rate has plateaued, which is still an achievement in contrast to the national rate that has climbed over the same period. However, the rate of fatalities per 100,000 people remains high, and the city has not managed to achieve a consistent downward trend in fatalities since 2006. The reduction in fatalities most profoundly affected motor vehicle occupants, likely related to seatbelt and other laws introduced in the 2000s. There is still a great need for attention to the safety of people who walk or ride bicycles and motorcycles, as they are disproportionately affected by poor road safety. There are approximately 15 million trips a day in Bogotá with most people walking or travelling by bus, and an increasing amount travelling by motorcycle.

The case study found that the dramatic drop in traffic fatalities could be linked to many factors prompted by constitutional changes that gave greater autonomy to cities and empowered directly elected mayors. In Bogotá, as a result of these changes, there was a fortuitous convergence of ongoing investment in sustainable transport. This included reform of mass transit operations and infrastructure, implementation of cycling infrastructure, land use planning and public space improvement. The impact of infrastructure improvements were underpinned and likely magnified by the institutional reform of the police and mobility departments, and by an effort to address public violence (including road safety) by directly targeting citizen perceptions and behaviour (highlighting the importance of understanding and engaging with social norms). The impacts were further enhanced by the national reform of traffic regulations and traffic education funding. This collection of investments and reforms was not initially designed as a single cohesive package. The balance between the various components over time reflects the strength of different visions for the city and of how reform happens. Even the basic technical elements (e.g. decisions to prioritise bus rapid transit (BRT)³ over rail systems, complete-street approaches) were – and in some cases still are – contested locally and nationally using a variety of political strategies. In this respect, the case study also found that road safety was made more politically salient in Bogotá when tied to a broader narrative about the value of human life and reducing violent fatalities. In addition, mobility reforms that also substantially improved road safety were tied to addressing problems with congestion and transportation options.

3 'Bus rapid transit (BRT) is a high-quality bus-based transit system that delivers fast, comfortable, and cost-effective services at metro-level capacities. It does this through the provision of dedicated lanes, with busways and iconic stations typically aligned to the center of the road, off-board fare collection, and fast and frequent operations' (www.itdp.org/library/standards-and-guides/the-bus-rapid-transit-standard/what-is-brt).

The reason for the plateau in fatalities over the past decade is more challenging to unpack. It could be related to the fact that many ‘low-hanging fruit’ had already been addressed, such as improved regulations and policing of drink-driving and seatbelt use, and an improved institutional framework. A reduction in the pace of new, safer infrastructure implementation such as BRT and cycle lanes has also been linked to the slowing of improvements in road safety. Furthermore, there has been a rapid increase in motorcycle use, a mode with a disproportionate amount of fatalities. Pedestrian fatalities have remained consistently high, demonstrating the need for better protection for vulnerable road users. An integrated, system-based plan for road safety in Bogotá is currently in development, and it is hoped that with such a framework to guide interventions, traffic fatalities will once again begin to drop.

Even so, there are many lessons to be learned from Bogotá’s progress that could inform the approach taken in other contexts. Road safety improvements were catalysed by the introduction of an elected mayor as the head of the city. Significant changes in institutions, public behaviour and infrastructure have been attributed to the leadership visions of particular mayors, and in many cases given continuity by their successors. Actions based on visions related to institutional and fiscal responsibilities, public values and mobility all generated positive, if sometimes unintended, political action that had a positive impact on road safety. Primarily, major impacts were achieved thanks to the political and technical integration of road safety into many different elements of public policy, institutions and infrastructure, consistently over time and across political administrations. Improvements in the approach to public safety, public institutions and public fiscal responsibilities

all contributed, as did the integration of infrastructure, enforcement and education consistently over time.

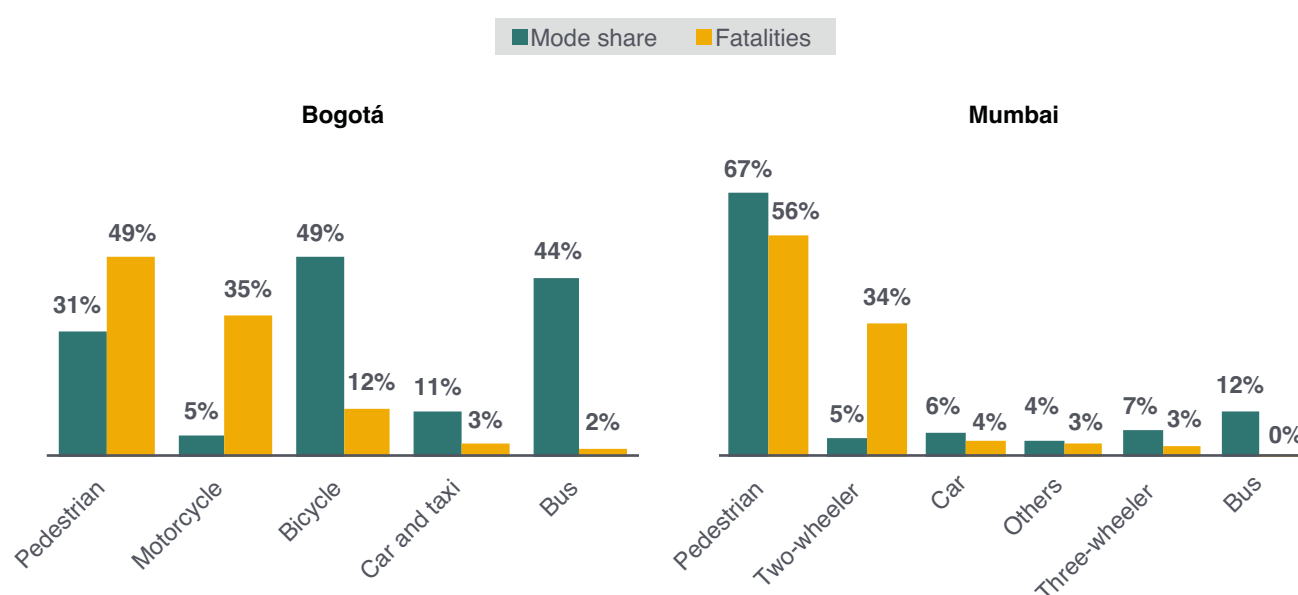
2.4 Linking the case studies to global trends

The literature review notes the significant challenge presented by a lack of reliable data on traffic collisions, ‘with limitations to reported data including under-reporting ... poor linkages between reporting agencies, inadequate sampling techniques, varying case definitions and exemptions from reporting requirements’ (Wales, 2017: 11). As anticipated, data at the case study level also presented limitations in terms of reliability. It is likely that collisions, fatalities and injuries are significantly under-reported, even in Bogotá, which has the most well established programme for collecting and analysing data of the three. Even so, it is informative to consider the case study data to give some context. While the absolute numbers may not be wholly reliable, they can still provide insights into changes over time and variations between different types of road user travel and fatality rates.

2.4.1 Fatalities by mode share

It is well established that more people are killed or seriously injured in low- and middle-income countries (accounting for almost 90% of the global total), that globally ‘vulnerable road users’ – pedestrians, cyclists, and motorcyclists – make up nearly half of those killed, and that people from lower socioeconomic levels are disproportionately affected by traffic fatalities and injuries in countries of all incomes (Wales, 2017).

Figure 2 Mode share as a percentage of total trips and traffic fatalities in Bogotá, 2016, and Mumbai, 2015



Note: There is no non-motorised transport percentage in the CMP for Mumbai, so it was not included in this graph.
Source: Secretaria de Movilidad, 2016 (data processed by Segundo López); ADGP, 2015.

These findings were echoed in the three case study cities. While the share of people travelling by each mode varied (31% are pedestrian trips in Bogotá, 67% in Mumbai and 41% in Nairobi), and the fatality rates by city also varied (49%, 56% and 64% respectively), pedestrians made up the highest proportion of fatalities in all locations. Of particular concern in Bogotá is the extent to which the rate of pedestrian fatalities outstrips the mode share. Motorcyclist fatalities are even more alarming in this regard. In Bogotá, Mumbai and Nairobi motorcyclist fatalities are increasing faster than their rapid uptake as a daily travel option. The statistics are nearly identical for the two very different cities of Bogotá and Mumbai (Figure 2). In both, motorcycles make up only 5% of mode share but 35% of fatalities in Bogotá and 34% in Mumbai. Cycling mode share data was not available for Mumbai or Nairobi and cyclists made up only 1% and 2% of fatalities respectively. However, in Bogotá cyclists are overrepresented in terms of fatalities, comprising 4% of mode share yet 12% of fatalities.

The data from both Bogotá and Mumbai demonstrates that public buses are by far the safest mode of transport in these cities (more recent mode share data from Nairobi was not available for comparison). Despite this, the literature review notes that ‘... privately operated forms of public transport are often a major source of road casualties, particularly minibuses and other low-cost public transportation disproportionately used by poorer socio-economic groups’ (Wales, 2017: 21). This finding is contradicted by the case of Mumbai, where three-wheeler auto rickshaws account for a lower fatality rate than their mode share. The data is not disaggregated for the other cases to enable analysis of the safety impact of such

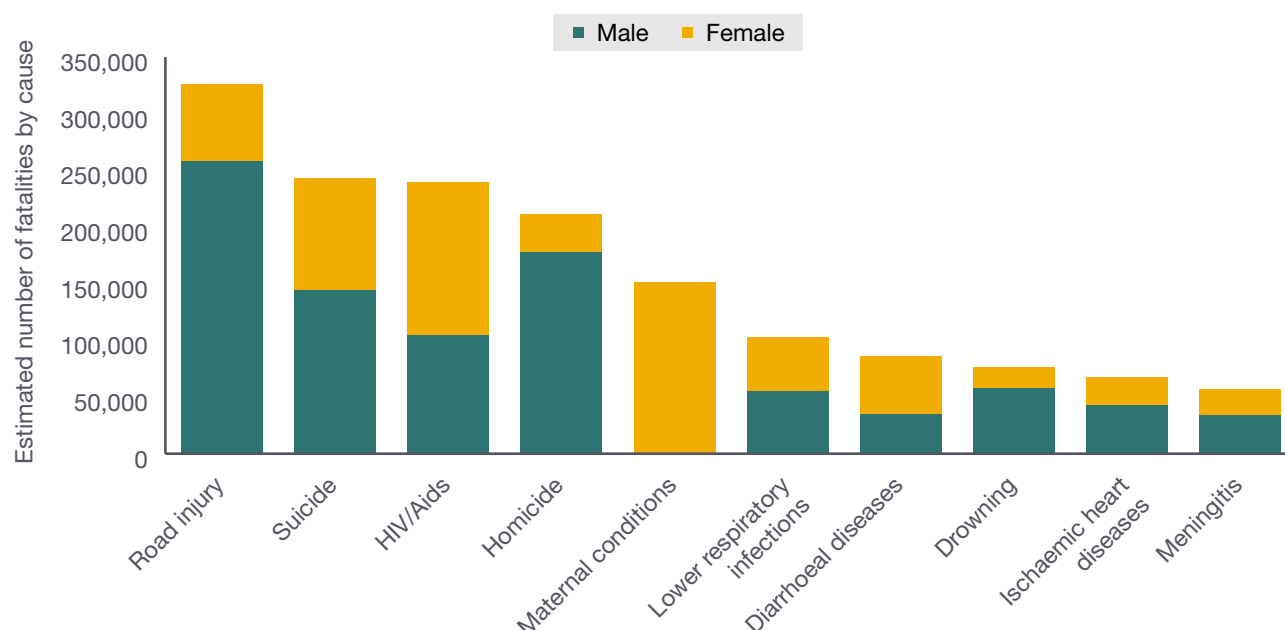
public or group transportation on passengers or vulnerable road users. It is worth noting, however, that in the case of Nairobi, where the public transport service is dominated by privately operated *matatu* minibuses, public transport passengers make up a much larger proportion of fatalities (14%). Even so, this still may be the safest way to travel given the number of trips taken via *matatu*. In the case of Bogotá, the literature and additional analysis undertaken for the case study finds that there have been significant safety impacts following reforms to the public transport system. These reforms enabled the transport system to transition from a privately operated model of individually run buses to a network of publicly coordinated BRT lines.

2.4.2 Fatalities by demographics

Globally, the available evidence suggests that people of working age (15 to 44 years), and particularly working-age males, are most likely to be killed or injured in road traffic collisions, with traffic collisions constituting the leading cause of death among young people aged 15 to 29 years (Figure 3) (Wales, 2017; WHO, 2015).

This was reflected in all three cases. In Bogotá, 80% of fatalities are male and 50% of people killed are aged between 20 and 50. When this is broken down by gender, the highest risk age group for traffic fatalities among both men and women is 20 to 30 years. The next largest group for men is the 30 to 40-year age group, while women aged 60 to 70 years are also a proportionately high-risk group. In Mumbai, a similar trend was identified. Men made up 80% of fatalities; the age group 25 to 64 years made up 58% of fatalities – a slightly larger percentage than their share of the population. Men aged 25 to 64 years and women

Figure 3 Top ten causes of death among people aged 15–29 years, 2012



Note: For more information, see www.who.int/healthinfo/global_burden_disease/estimates_country_2000_2012/en/
Source: WHO, 2015.

aged 65 years and above were the most disproportionately represented groups in terms of their total share of the population. In Nairobi, 65% of fatalities are male and 50% of people killed are aged between 20 and 44. A cross-analysis of mode and gender was not available.

The literature review points out that although children generally make up a smaller proportion of traffic fatalities, 'globally, traffic collisions are the leading cause of death amongst children aged 5-17 years' (Wales, 2017: 10). Although it is difficult to document, traffic fatalities and injuries, or even just the threat of these, can lead to children losing access to education and future potential, particularly in low-income countries (ibid.). In Mumbai, the statistics suggest a stark gender imbalance: girls under 14 make up 14% of total female road fatalities compared to boys in the same age group who make up only 4% of male fatalities. Further research is necessary to understand the causal factors behind this. The impact on children was difficult to compare between cases, due to variation in the age groups analysed. In Bogotá, children under 10 make up only 2% of fatalities, and those aged 10 to 20 years make up 8%, with no difference between genders. In Nairobi, children aged five to nine years make up 6% of fatalities.

2.4.3 The cost of traffic fatalities

The literature review found that although it is difficult to calculate the costs of traffic fatalities and injuries, they are likely to be very high, with estimated economic costs totalling up to 3% of global GDP (Wales, 2017).

The lack of accurate and full data on the economic cost of road traffic collisions may be one factor that contributes to low political saliency and a failure to fully implement reforms in some contexts. Politicians, policy-makers and citizens may lack an understanding of the scale of the loss and how its

distribution affects the population. This reduces the understanding of the potential gains that could be made from resolving the challenges and so further minimises the urgency or pressure to do so. (ibid: 13)

Other non-economic costs were also identified in the literature review. These include the burden on the health care system and on households, particularly women, to care for injured traffic victims. Impacts on children included missed educational opportunities, trauma, financial burden and lost potential. There are also policing, congestion and air quality costs related to poor street design and a lack of safe public transport options (ibid.).

This finding about the lack of data was borne out in the case studies, where little information was available aside from estimates of costs to overall national or city GDP. The wider impacts have been explored by a few road safety professionals and academics, but have not been quantified. For example, studies have found that road crashes cost India close to 3% of its GDP (\$8 billion) every year (Mohan, 2004; Balachandran, 2016). However, a study on the social costs of traffic crashes in India (Mohan, 2004) found that typical economic analyses fail to take in many of the costs incurred at an individual and family level, particularly for poor families and communities, effectively underplaying the impacts of a lack of road safety.

Carrying out analysis on the economic and social cost of road traffic collisions was beyond the scope of this research. Of interest, however, is that cost data does not appear to have been a central driver of the politics of reform in Bogotá; narratives of public health and safety proved more politically salient. Likewise, available cost data did not emerge as an influential driver of road safety reforms in Nairobi or Mumbai. It may well be relevant in other contexts, or in future reform efforts, but more work would be necessary to identify and document such processes.

3 Key findings: challenges to road safety reform

The wealth of guidelines and information on a ‘Safe System’ approach to road safety shows that there are many technical approaches to road safety, with well-established and evidenced impacts when appropriately adapted to local contexts. These can be loosely categorised in terms of street design and urban planning, regulation and enforcement, and education and capacity-building. However, the availability of technical guidelines and the evidence of their benefits are not sufficient to generate change without addressing underlying challenges. By analysing the findings of the case studies and comparing the outcomes with the trends identified in the literature, this report attempts to bridge the gap between the technical measures required, and the ‘messy reality’ of implementing them. Four underlying challenges that must be addressed are outlined below.

3.1 Lack of political prioritisation

Many challenges remain to making improvements to land use and the built environment that would also improve road safety. The cases of Mumbai and Nairobi made clear that addressing congestion by designing and building roads is still considered in isolation from road safety and other transportation needs. A significant opportunity to capitalise on existing infrastructure funding, and to integrate safer design into new construction is being missed in both Nairobi and Mumbai as politicians prioritise roads oriented to private vehicles, based on the perception that this will ease congestion. In the case of Mumbai, this was linked to a sense of economic urgency to complete the road as fast as possible, and to the perception that safety measures would increase congestion and negatively affect constituents wealthy enough to own cars. In fact, experts interviewed suggested that the construction of new flyovers and high-speed roads may have contributed to an increase in traffic fatalities. The literature review found that ‘... the most effective measures can be put in place more easily and cheaply if they are designed into new roads before construction’ (Wales, 2017: 18). In Nairobi, decision-makers lacked an understanding of the opportunity to address congestion by offering safe and reliable public transport and pedestrian and cyclist accessibility. This failure was also identified as a barrier to improving road safety through transportation planning.

This challenge of road safety being treated as a ‘rival good’ resonates with experiences documented in other contexts in which,

... interventions designed to improve safety may be perceived as having negative externalities for some groups – for example automobile associations and users may oppose speed limits that are lower or more vigorously enforced as they view them as creating unnecessary inconvenience for drivers ... this comes with resulting actions, or lack of actions, being determined by groups’ relative ability to mobilise and exert influence on public authorities. (ibid: 25)

This is also a barrier to improvements in legislation and enforcement. In Mumbai, specific interest groups, such as trucking companies and vehicle manufacturers, have resisted new regulations on vehicle safety and liability. In Nairobi, development and implementation of government regulation on road safety is often directly opposed by the *matatu* and bus sector. When road safety is perceived as rival to other concerns, it presents a barrier to improvements. Both the public and decision-makers often perceive design or regulatory efforts to improve safety and improve public transport as likely to negatively affect trip times, congestion and car travel, even though the evidence shows that safety investments are more likely to improve these factors (ibid.).

The available literature points to a link between lower overall private motor VKT and road safety. Higher levels of VKT cause higher levels of exposure to the risk of a crash, for both car occupants and other road users. VKT levels are shaped by a variety of factors, including land use patterns and the availability of other transportation options (Welle, 2018). This was evident in Bogotá, where the case study found that reforms to public transport coordination and infrastructure, and expansion of bicycle infrastructure have been linked to reduced vehicle travel and improvements to road safety across the entire city. However, VKT remains a significant challenge for the sprawling mega city, which has witnessed an increase both in motorbike VKT and road-traffic fatalities in recent years. The challenge of urban sprawl and the complex travel patterns that result were also identified in Nairobi, where personal car ownership is a strong aspiration, and in Mumbai, where public transport connections from north to south are very strong, but are lacking from east to west, generating increased demand for vehicle trips.

3.2 Focus on individual responsibility

In all three case study cities, decision-makers and experts interviewed generally attributed risky or illegal behaviour to individual road users not valuing life, rather than seeing it as an outcome of a dangerous or poorly regulated mobility system. Road safety was generally perceived as a personal responsibility rather than something that could be influenced by government action. In Bogotá, policy-makers sought to address this perceived lack of value placed on life, and a sense of fatalism, through the *Life is Sacred* campaign. This campaign is considered a contributing factor to the significant road safety gains achieved during the 1990s and 2000s. But the full story of progress in Bogotá is more nuanced, with complementary investments that depended on the government taking ownership of road safety as a public health issue and making system reforms, alongside efforts to shift road users' perceptions and expectations of others. In Nairobi and Mumbai, the narrative of personal responsibility continues to undermine public demand for explicit investments in road safety. It contributes to a lack of political incentives to tackle the issue and of public buy-in when efforts are occasionally made. Without a shift in these perceptions, the foundation for proactively addressing road safety is very weak and these norms undermine the potential for those forms of reformist collective action that depend on widespread public support.

This challenge persists despite international promotion of the 'Safe System' principles. At the international-national level, the UN Decade of Action on Road Safety and related declarations have led to national-level commitments to reduce traffic fatalities by a dramatic 50% by 2020 in all three case study countries – a goal unlikely to be reached at this point. While such commitments can support agenda setting, mobilisation and coordination for stakeholders working on these issues, they generally have no direct and binding impact on governments. It is worth noting that in the case of Bogotá, dramatic progress was made in the absence of such a commitment or road safety-specific international guidance; in the cases of Mumbai and Nairobi, it is evident that the actions necessary to achieve such an ambitious goal have not been undertaken. This is consistent with the literature, which found that '... despite this increasing focus internationally, the level of demonstrated commitment remains relatively low' (Wales, 2017: 15) and relates back to the previous point about the perception of road safety as a personal responsibility. This points to a concerning finding from the three studies – the apparent consensus at the international level on the approach necessary to combat traffic fatalities can mask a lack of knowledge, understanding or will at the local level.

3.3 Lack of coordination

Andrews (2014) states that:

Effective governance requires having effective government organizations plus authority to bring a host of other agents (across government, nonprofit,

business and the international arenas) together as needed, when needed, in the appropriate way, to solve problems that undermine the achievement of key social objectives.

The literature review highlighted the way that issues of governance could undermine the coordination necessary to improve road safety outcomes. It points out that 'sub-national and metropolitan governments may be well placed to coordinate within their jurisdictions, but may lack the capacity, knowledge and financial resources to do so in many cases' (Wales, 2017: 23). This was a noted challenge in Mumbai, where a lack of ownership over road safety and an absence of coordination between entities were observed. In Nairobi, fragmented planning and implementation of road construction, land use, urban transport and road safety efforts have contributed to unsafe transport systems. Poor governance and resulting weak institutions can also inhibit specific types of effort to address road safety. For example, issues such as police underfunding, corruption or lack of capacity can limit enforcement of traffic regulations. In both Mumbai and Nairobi, a lack of trust in the police was identified as undermining public willingness to obey traffic laws. This issue was also faced in Bogotá, and addressed through the replacement of city traffic agents with metropolitan police, and the establishment of a cooperation agreement between the Mobility Department and the Metropolitan Police Department.

3.4 Inadequate data

The lack of information and data about road safety in specific contexts represents a significant challenge, and is a constant theme throughout the literature and case studies. In addition to basic information about victim demographics, modes and geographic distribution of collisions, there is a lack of data on the impacts of traffic fatalities and injuries, for example, the financial and health costs to the economy and the burden placed on families of victims (Wales, 2017: 13). Where data does exist, there are issues concerning its reliability, completeness and timeliness of availability. Indeed, prior to these case studies, there had not been a published analysis of road safety demographics at the city level for Mumbai, although the police collect and hold this information.

This lack of information may contribute to a lack of political salience, as the true scale of the problem is rarely understood. It can also limit cities' abilities to plan interventions that target the most vulnerable demographics or locations, to justify investments in safety programmes or safer designs, as well as limiting the ability to target and monitor such interventions when they do occur. Yet, it is worth noting that in the case of Bogotá, the major fatality reduction there took place at a time when data was not readily available. While the 'Safe System' approach emphasises the importance of data to informing the road safety strategy, this emphasis may serve as a disincentive or an excuse for inaction in places where reliable data is scarce (the majority of places, including case study cities of Nairobi and Mumbai).

4 The way forward: strategies to improve road safety

Following the inductive approach of the project, this section draws together our findings on what the case studies reveal about how to address these underlying challenges. It discusses the types of strategies that can generate the commitment necessary to deliver improved outcomes, through use of the various technical options. It also considers how advocates for reform can be strategic, keeping in mind competing interests and gaining the commitment of key stakeholders.⁴

This project did not set out to test a particular theory of change for how improved road safety outcomes are achieved, nor does our analysis suggest a single ‘theory’ or framework that could apply in all cases. The nascent state of the literature demands a degree of humility in this respect. However, it is possible to make observations about characteristics of the change (or lack thereof) regarding road safety in the three case studies. Most fundamentally, there is a lack of political prioritisation attached to road safety as a stand-alone issue in most domestic contexts. While there is little opposition to improved road safety outcomes, the components of reform are often controversial and therefore require negotiating local politics and power.

In each case, there are a variety of arenas in which reform efforts are contested, from shifting social norms to formal institutional processes (e.g. budgets and legislation). The institutional context, balance of power and constellation of interests are different in each arena and each context. The implication of these differences is that the room for manoeuvre is therefore different, and that the strategies for working within that room or for creating additional room will also vary. Thus, change is indeed local, and political tactics and rhetoric need to be locally resonant. This vision of how change happens shares some similarities with the power and systems approach (Green, 2016) and with other approaches that emphasise the need for politically informed understandings of change processes that are essentially

locally driven (Booth and Unsworth, 2014) and ‘best fit’ approaches to reform (Fritz et al., 2014). What follows is a set of six potential strategies that are consistent with this vision and may help to advance road safety reforms despite the apparent lack of political salience that the issue can hold.

4.1 Bundle with other issues

In the case study contexts, efforts to improve road safety face the challenge that road safety per se does not necessarily capture the attention of policy-makers or the public at large. This appears to be related, at least in part, to the absence of strong demand from road users. In contrast to public mobilisation around the delivery of services in health and education, there was a pervasive sense among the experts interviewed that road safety reforms are undermined by a generalised belief that ‘no one thinks it’s going to be them in the crash until it happens.’ As the Nairobi case illustrates, even within the transport sector, issues like road construction and optimising journey times for motorised transport users tend to be more politically important than addressing road safety, thus undermining efforts like a proposed reduction in the speed limit outside schools during entry and leaving times.

How then is a constituency for reform built? A simple framework outlined by Harrison and Kostka (2012) provides some useful insight into the strategies available to reformers to help them overcome this challenge.⁵ The authors describe two *non-mutually exclusive* strategies – interest bundling and policy bundling – which capture important elements of the reform efforts in the case studies.

4.1.1 Interest bundling

The emphasis in this strategy is on understanding the interests and incentives that different stakeholders have

⁴ The case studies demonstrate significant variation in terms of progress on the spectrum of road safety, with particular recognition of the achievements made so far in Bogotá and the lessons they offer. Each case shows promising signs and offers important insights.

⁵ Harrison and Kostka initially developed their insights on bundling through an analysis of the different political strategies used to address climate change in India and China, but this is applicable to any policy or reform issue for which political support must be generated.

specifically in relation to road safety, and on identifying alignment of interests that might bring different stakeholders together in support of reform. In their simplest form, such strategies suffer from the weak user demand noted above. However, the cases highlighted instances where stakeholders were given more scope to achieve reform. This has led to new options for achieving improved road safety outcomes. One prominent example from Bogotá is the effort to engage insurance companies with a financial incentive to reduce claims associated with newly required third-party insurance. The Colombian Federation of Insurers funded and managed the *Fondo de Prevención Vial*, which supported a range of road safety interventions. These included educational campaigns supporting the local transportation authority, thereby complementing investment and improved enforcement, and contributing to successful behaviour changes such as increased seatbelt use. Such approaches do not require all stakeholders to share the same principles (e.g. in the Bogotá case, the insurers' profit motive was different, though complementary, to campaigners' public safety motives), only that they align in terms of their support for the reform objective. Similar conclusions regarding the potential alignment of interests without the need for common motivations can be drawn from the Nairobi case. There, progress on the regulation and enforcement of seatbelt use reportedly depended on the personal financial interests of a particular Minister of Transport.

4.1.2 Policy bundling

There appear to be fewer clear examples of Harrison and Kostka's alternative strategic approach of policy bundling, in which issues or policies that may not be sufficiently politically attractive in their own right are linked to other issues with more traction (or at least with support from a different constituency). Such approaches, when applied to legislative, budgeting and institutional reform processes, either create formal links by ensuring that new regulations or budget allocations consider the two issues together, or they rely on reciprocal agreements to increase the constituency in favour of reform. Rather than isolating road safety issues by focusing attention directly and exclusively on those issues, policy bundling approaches would aim to ensure that there is enough support for the whole package of reform to placate potential opposition to any given part of it.

The evidence presented in the case studies tends to highlight two scenarios. One concerns initiatives targeting specific road safety behaviours such as seatbelt or helmet laws. The other discusses efforts (or the potential) to establish national frameworks for road safety that seek to respond to the complex multi-sectoral nature of road safety challenges, by designing systems to address a variety of components of the problem. This makes intuitive sense given the focus of the cases and the many issue-based campaigns on road safety. However, it can imply choices to bundle several road safety reforms together, while isolating those from other issues that may have more political salience. It may well be worth considering whether a

broader approach to bundling might be useful, as appears to have been the case with efforts to include road safety as a part of broader efforts to address violent fatalities and promote Citizenship Culture in Bogotá.

4.2 Reframe the debate

The ability to adopt and present a framing of road safety as a part of a larger, socially resonant idea can form a complementary component of successful political strategies for reform or investment. For example, in Bogotá, the Mockus administration successfully linked road safety challenges to the city's high homicide rate by focusing broadly on the issue of violent and avoidable fatalities, thus giving road safety additional political weight that it might not otherwise have had. Successfully framing road safety as a public health issue enabled it to be integrated as a priority in the mayor's vision of 'Citizenship Culture', guided by the *Life is Sacred* principle, and by the policy framework that emerged from that vision. In this case, the framing narrative thus supported the policy bundling efforts noted above.

While the Bogotá case describes a framing that focused on the value of life, this is by no means necessarily the framing that would be most relevant universally. In other contexts, it may be more strategic to frame road safety as a part of other issues, which could include the productivity of the city, safe access to education or jobs, global competitiveness, nationalism and world leadership, freedom of movement, or religious values. The key is simply that the framing must be locally salient and effectively maintain a focus on road safety.

In contrast, the Nairobi case makes clear the way in which Kenyan officials as well as international donors tend to view road investment decisions through the lens of economic development. This, in itself, is not necessarily problematic. However, advocates have been unable to integrate road safety considerations into the economic development discussion that guides planning, feasibility studies and support for engineering design and road construction. This lens therefore currently presents a barrier to improving safety. It is nonetheless important to note that the diversity of economic, social and political interests involved in road safety means that even in such contexts it may be possible to identify and develop different ways of framing the issue when making the case to different stakeholders. What is important is that the framing resonates with the interests and ideology of the audience. In Nairobi, the Kenya Alliance of Resident Associations (KARA) appealed to politicians' reputations in their successful lobbying for the 2015 Non-Motorised Transport (NMT) Policy. Rather than simply emphasising the road safety outcomes, advocates also attempted to persuade assembly members to support the policy on the basis of NMT contributions to improved air quality, reduced car usage and even the political standing and legacy of the members.

This insight regarding the importance (and variability) of local salience should also guide the approach of supporters of international and global movements. These include the UN Decade of Action on Road Safety (2011–2020), the UN High-level Advisory Group on Sustainable Transport and Special Envoy for Road Safety (2015), the Brasilia Declaration on Road Safety (2015) and the two Sustainable Development Goals related to road safety. The cases make mention of the influence of international efforts, for example, the role of the Japanese International Cooperation Agency (JICA) in shaping urban mobility planning in Bogotá. However, if those efforts fail to resonate with local priorities and ideologies, such movements risk generating technical agreement without the necessary political backing or local capacity. Evidence from other sectors and contexts indicates the way in which efforts to increase pressure for reform driven by the ideological commitments of an outside actor to a particular way of doing things can generate form without function. This can produce questionable statistics or short-term reactive efforts with little long-term impact. Such a dynamic emphasises the need for links between whatever practical changes are being considered (e.g. budgeting, institutional reform, etc.) to try to make a difference in behaviour and, ultimately, improve outcomes and locally salient concepts (e.g. violent fatalities in Colombia).

4.3 Build alliances

Cities do not exist in isolation. Although each of our case studies was defined in terms of ‘a city’, it quickly became clear that all cities are embedded in wider contexts that shape the challenges they face and the opportunities they have to respond to those challenges. In some cases, defining the boundaries of the city itself was a matter of some debate, but in all cases, even the broadest definition pointed to a territory that was connected physically, administratively and politically, to the space around it. This connectivity and a city’s relationship with the region and country in which it is located have important consequences for the political economy of road safety.

4.3.1 Connecting physical, administrative and political contexts

At a basic level, cities are connected to surrounding areas via extensive networks of transport infrastructure (road, rail, etc.). These physical connections to the wider world have produced complex administrative structures for management of road infrastructure that complicate efforts to mobilise political support for road safety. With the connection of cities to the broader national environment, administrative structures tend to divide roles and responsibilities between relevant national authorities and local authorities. For example, in the case of Nairobi, road safety and transport matters reside at the national level primarily with the National Transport and Safety Authority, an organisation under the Ministry of Transport,

Infrastructure, Housing and Urban Development. However, the Kenya National Highways Agency is responsible for highways and the Kenya Urban Roads Authority for urban roads. Responsibility for smaller roads rests with the relevant county government.

Similar divisions exist in the other cases, leading not only to technical coordination and planning challenges, but also to important political implications. In addition to tensions between levels of government, whether due to partisan differences or simply different priorities, the administrative complexity itself can lead to confusion among citizens over roles and responsibilities, undermining the potential for political mobilisation.

4.3.2 Decentralisation and decision-making

The form and extent of decentralisation shape the space for reform. This occurs not only with managing different components of the road network and other sector-specific features, but also with wider institutions of governance autonomy and leadership. The three cities present different institutional configurations with respect to the timing, form and extent of decentralisation and democratisation. Colombia’s 1991 constitutional reform and decentralisation empowered directly elected city mayors (though prohibiting the re-election of mayors to consecutive terms). In Nairobi, reforms designating the city as a county in its own right led to its first county elections in 2013, granting far more power to the current governor and county assembly than was previously devolved to the former mayor and city council. Mumbai’s urban governance is led primarily by the Municipal Corporation of Greater Mumbai (MCGM), which has considerable decision-making autonomy. However, the elected head of MCGM, the mayor, does not have a significant role in the city’s development, which lies instead with the appointed executive head, the Municipal Commissioner.

The political economy of decentralisation reforms has been examined elsewhere, clarifying the contested nature of decentralisation itself (Eaton et al., 2010). As expected, based on the review of the wider literature, the level of autonomy that the case study cities have in decision-making and resource allocation is critical in determining whose agenda will be prioritised in practice. For example, the Bogotá case makes much of the leadership of the city’s mayors as drivers of the progress achieved; however, the potential for this relies on the ability of the mayors and their administrations to contest the vision of the national government and to direct funding. This finding is aligned with previous findings on Surakarta and Lagos, cited in the literature review. However, more detailed analysis suggests the relationship between different levels of administration is often dynamic and contested, as the Bogotá case makes clear. The decision to proceed with a BRT approach (and World Bank financial support) has often been contrasted with the heavy rail project preferred by the national government at the time. The national government subsequently used Bogotá’s BRT as the foundation of its National Urban Transport Policy, but even then contested

the city's vision for a complete-street approach in phases 2 and 3 of the Bogotá BRT, consenting to use of national government funds only after significant debate and bargaining over the way in which the investment would be defined.

While the Bogotá case places the local administration at the forefront of road safety improvements, it is important to note that the cases do not support the conclusion that lower (more local) levels of public administration are always more supportive of efforts to address road safety. Road safety challenges may be described at a city level, but it is not necessarily the case that reformers need to work exclusively at the city level. In some contexts, reformers may be better off considering opportunities to use higher-level mechanisms to leverage road safety improvements at a local level, such as occurred in Mumbai. Despite the formal presence of the mayor of Mumbai's democratic electoral accountability, the relative weakness of that channel to demand improvements to road safety prompted reformers in India to identify alternatives. While the failure of the Road Transport and Safety Bill of 2014 highlights the potential for local opposition to undermine national efforts (and the need to account for such opposition in reform strategies), entry points at the national level should not be overlooked. The recent use of public interest litigation brought before the Supreme Court in India is encouraging in this respect.

4.3.3 Interests, incentives and ideology across levels of administration

Once cities are placed in a broader context, the cases also paint a more complex, nuanced picture of the relationship between electoral democracy and improvements in road safety – one that requires readers to consider the potential national political ambitions of city-level officials, their ideas and ideology and the political power they hold in that time and place. In Bogotá, Mayors Mockus and Peñalosa were able to push ahead with a vision for road safety and sustainable mobility that prioritised investments in mass transit over extension of the road network, even though the latter tends to be the local public demand in response to congestion (as in the Nairobi case). However, not only were the mayors in a relatively strong position at the time, both also aspired to run for the presidency of Colombia. Their desire to appeal beyond the narrower short-term interests of local motorists aligned with the vision they held and this created space for investments in the BRT. It freed them from a simplistic interpretation of democratic accountability in which voters tend not to prioritise road safety. This in turn emphasises the importance of understanding dominant narratives rather than assuming a simple responsiveness to immediate financial interests.

4.4 Take advantage of reform

The literature review clearly demonstrates the link between governance, a 'Safe System' and road safety, and the importance of road safety-specific regulation and credible enforcement. It found that:

... there is strong empirical evidence that countries with well-functioning and capable state institutions experience lower levels of road traffic collisions, deaths and injuries compared to those that are weaker and less coherent. (Wales, 2017: 7)

It also highlights the closely related issue of democracy and political credibility, which is often missing in places where '... politicians rely on patron-client relationships, and there are short time horizons and rent seeking is common' (ibid: 23). As a result, citizens have little expectation that politicians can address issues such as road safety, nor do they feel obliged to support the government in any efforts it may undertake. In all three case studies, a lack of faith in public institutions, particularly the police, undermined public willingness to respect traffic regulations, presenting the cities with this challenge.

In Nairobi and Mumbai, significant hurdles also remain in terms of fragmented responsibility, or a lack of ownership for road safety, although the recent creation of a new road safety entity in Nairobi, and court mandates for the preparation of state road safety plans in India may help to address these.

All of these issues arose in Bogotá in the 1990s – experiences that bear out the position that improved governance is related to improved road safety. The period of rapid reductions in traffic fatalities in Bogotá was also the period during which successive mayors reformed public institutions in the city, beginning with the property tax system, and extending to sectors directly relevant to road safety, namely the police and the public transportation system. This was partly in response to a new level of public accountability that was introduced to city government with the establishment of the position of elected mayor. Conversely, successive mayors also worked to strengthen informal social institutions and encourage informal social regulation of safer behavioural norms. At the same time, national-level reforms resulted in establishing a source of finance for road safety education, a national roundtable and legal reform to improve traffic regulations related to road safety. Finally, work by JICA to develop an urban mobility plan for the city coalesced transportation professionals in the city around a common project, overcoming institutional disconnections.

These changes have benefited road safety in Bogotá in many ways. Institutional reforms related to finance

established a secure source of funding for infrastructure and education investment, while reorganisation of institutions allowed for better coordination and agreements between entities. Apparent efforts to tackle corruption and reduce political patronage improved public willingness to obey tax requirements and traffic regulations.

Strengthening and coordinating road safety and mobility institutions takes time and resources. Even when they are achieved, in no case are there perfect institutions. The other strategies presented in this report do not necessarily depend on strong institutions to be feasible, however, stronger institutions may make it easier to apply the approaches. While this is taking place, specific contexts may present opportunities for other institutions to contribute to improving road safety. For example, in the case of Mumbai, citizens were able to use both the city and national courts as a tool to require tangible action on road safety at a state and city level.

4.5 Sequence and prioritise

Integrating different types of approaches has been proven to increase the impact of road safety interventions (Wales, 2017; Welle et al., 2018). This was borne out in the case study of Bogotá, although the strength in relationship between variables remains difficult to quantify. The significant gains in road safety in that city are associated with a period when education, enforcement and infrastructure improvements were all being pursued proactively and were supported by underlying institutional reforms, which further enhanced their impact. Although education and enforcement processes have continued, and been further strengthened through an institutional cooperation agreement between the police and transportation departments, the fatality rate has since plateaued. During the same period, sustainable mobility infrastructure construction rates have slowed. In the cases of Nairobi and Mumbai, the lack of an integrated approach can be linked to a failure to reduce fatalities. There has been no coordination between entities related to road safety and transport, infrastructure construction is vehicle speed-oriented, and there is limited enforcement of traffic regulations.

The case of Bogotá also shows the influence on safety of strong investment in a network of public transport and non-motorised transport (NMT) infrastructure. The contribution of rapid infrastructure expansion to improved road safety between 1996 and 2006 is attributed both to the direct impact of better street design (including a complete-street approach to phase 2 of the BRT) and safer operational practices, but also by avoiding potential vehicle trips. This phenomenon is also identified in the literature review: ‘Public transport ... may encourage the use of safer forms of transport and reduce the actual numbers of vehicles and pedestrians on the road’ (Wales, 2017: 20). Even though the interventions were an initial response to demand for better transport options rather than safety explicitly, the statistics demonstrate the impact on safety. Conversely, in Mumbai, investment in high-speed, high-volume, car-oriented infrastructure to confront the same

issue of congestion is speculated to have increased risk and fatalities. This shows that the opportunity exists to reorient infrastructure investments towards safer modes that also reduce congestion, such as public transport. It also shows that a lack of dedicated funding may not necessarily be a barrier to road safety. If the funding is already available for major transportation infrastructure, the opportunity exists to reorient the design of that infrastructure to be safer for all road users and to reduce VKT and overall exposure to risk.

It is important to note, however, that an emphasis on the value of taking an integrated approach does not mean that every road safety action must be tackled at the same time, which can be a barrier to achieving change. The rapid gains in Bogotá also demonstrate the value of targeting road safety interventions to first tackle the most urgent and addressable matters. Another likely contributing factor to the rapid reduction and subsequent plateau in Bogotá’s traffic fatalities, is that during the initial 10-year period, regulation and enforcement targeted ‘low-hanging fruit’ – highest risk behaviours that were contributing to a significant proportion of fatalities and were not politically challenging to address – drink-driving, seatbelt use and motorcycle helmet use. Now that these behaviours have been addressed to a significant degree, further gains must be made by tackling less politically popular issues, like speed, and working on more technical approaches, such as safer street and intersection design. While this is a challenge for Bogotá, it does highlight an opportunity for cities facing similar challenges to Mumbai and Nairobi, where strategic actions targeted towards addressing the highest risk behaviours could yield fast results.

Achieving an approach which manages to be both integrated and targeted, and to yield fast impacts as well as maintaining long-term change, can be facilitated by developing a dedicated road safety plan such as Bogotá has recently undertaken. Such a plan can group actions within different strategies, divide them into the short, medium and long term, and establish metrics to monitor impacts and progress.

4.6 Work around data limitations

Evidence from the case studies suggests that while good data can be helpful in efforts to address specific road safety challenges, it is not absolutely necessary to mobilise support for effective positive changes, nor sufficient to guarantee attention to road safety issues where other aspects of the necessary political narrative are missing.

This finding is, perhaps, counterintuitive given that evidence finds that road safety targets based on data make it easier to implement effective countermeasures and set priorities (Elvik, 1993). Yet, the bulk of Bogotá’s progress on road safety came at a time when the systems for the collection and use of road safety data (as well as media attention to and public knowledge of that data) were weaker than they have been in recent years, when progress appears to have plateaued. There is no doubt a variety of

factors contribute to this set of outcomes. However, the findings across all three cases suggest the feasibility of working around data limitations is not an aberration:

- In the case of Nairobi, the authors conclude that public frustration over poor driving and inadequate vehicle maintenance, demand for faster journey times, opportunities for personal money-making and political credibility, and pressure from international organisations have been stronger drivers of recent improvements in road safety than data on collisions.
- The Mumbai case provides an example in which an anecdotal trigger event (the death of a minister) appears to have been more effective at catalysing (national-level) interest in road safety issues than more comprehensive planning/analytical efforts (GOI, 2007).
- The Bogotá case makes clear that those involved in the design and implementation of the first phase of the BRT only began to collect data in order to monitor the road safety impacts of the system *after* they started to receive reports about reduced collision numbers.

To be clear, the cases do not suggest that improved data is without value where transport authorities and city administrations are seeking to improve road safety by targeting actions and measuring impacts. They do, however, confirm the crucial strategic insight that cities need not wait for expensive and elaborate data systems to start making progress on road safety. The basics of a narrative that resonates with the public and with policy-makers are enough to trigger interest in important investments and reforms, even as efforts to improve the quality and specificity of information are under way. What matters is whether proposed changes connect with the lived experiences of people using the transport network and with the various incentives facing those with a stake in reform. In other words, while data may help make the technical case for reform, making the political case to turn those reforms into reality does not necessarily require agreement on data (e.g. the selection of indicators). Given the concerns expressed explicitly in Nairobi and Mumbai regarding the quality of available data, and at numerous times in the review of the broader literature, this finding provides encouraging guidance for potential reformers.

5 Conclusion

Advocates of road safety reforms must grapple with the fact that in many cases road safety outcomes are not in themselves politically salient. Approached on their own, initiatives to improve road safety can be side-lined in favour of more appealing investments in road construction or other more popular priorities, driven by the broad electoral appeal of highly visible investments, the need to reward a narrow subset of political supporters, or even outright corruption. Even where improvements might rely at least in part on non-financial commitments, as with improved enforcement of regulations, city leaders are faced with difficult decisions about how best to expend limited political capital. However, the evidence from the city case studies, as well as the wider literature, suggests that there are a number of approaches that help reformers of all types to manage this challenge.

Solving this complex, multifaceted problem requires approaches that are both technically sound and politically feasible. Reformers, whether they are in government, the private sector or civil society, should therefore focus as much on constructing the political case for reform as on its technical merits. This means grappling with incomplete and imperfect data and information; with stakeholders with

diverse interests and motivations; and varied institutional settings that afford autonomy and discretion to different stakeholders at different levels. Utilising the strategic approaches outlined in this report will help reformers to identify opportunities to work with potential allies both within and outside the mobility sector (even with those that care little about road safety outcomes), whether through formal coalitions or informal working relationships.

The precise combination of actors and required next steps varies in each of the cases explored and inevitably will do so in other contexts facing the high social and economic costs of road collisions. Additional research and experimentation with different strategic approaches to reform will be necessary in each of those contexts, particularly as institutional arrangements continue to shift. In the absence of an identifiable universally applicable roadmap, this report can only be a contribution to developing technically sound, politically feasible pathways to reforming road safety. Taken together with the sort of technical guidance provided in Welle et al. (2018) and the creativity and local knowledge of reformers working in and outside government in each context, progress is possible – even where the challenges remain complex and great.

Box 3 Opportunities for further research

While these findings and the associated recommendations may be of interest to policy-makers, the research, synthesis and review process of this project also pointed to substantial room to broaden and deepen the findings of this project in ways that can facilitate more politically savvy efforts to improve road safety. In particular, the interviews with authors, reviewers and experts have identified the following areas for further exploration:

- Investigation of the applicability to other contexts of the types of political strategies identified in the report (e.g. interest bundling, policy bundling, issue framing). Are there other strategies that can help reformers to push forward road safety reforms that tend not to be politically salient?
- More detailed exploration of the particular sources of opposition encountered by reformers in different contexts. This could include examination of the way in which illicit interests and motivations work against reform, though this would require good data on such practices that can be hard to obtain.
- A clearer picture of what ‘good enough’ data looks like for different types of road safety challenges. Namely, what specific forms of data are technically necessary (vs ‘nice-to-have’) and/or politically influential?
- More data about the socioeconomic impacts of road safety at the individual, family, community and city level, and their impact on the potential for building reform coalitions.
- Investigation into the way that mobility and road safety contracts are designed, and awarded, and how road safety investments change over time in cities.
- Further information and examples of other opportunities to systemically improve road safety even when institutions are weak.

Data on the evolution of the perception of road safety and the ‘value of life’ in different contexts over time. How does or can perception of road safety shift from fatalistic, to personal responsibility, to shared responsibility for a public health issue over time?

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