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TRAFFIC, URBANISATION & ROAD SAFETY:

A Case Study of Pakistan

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&
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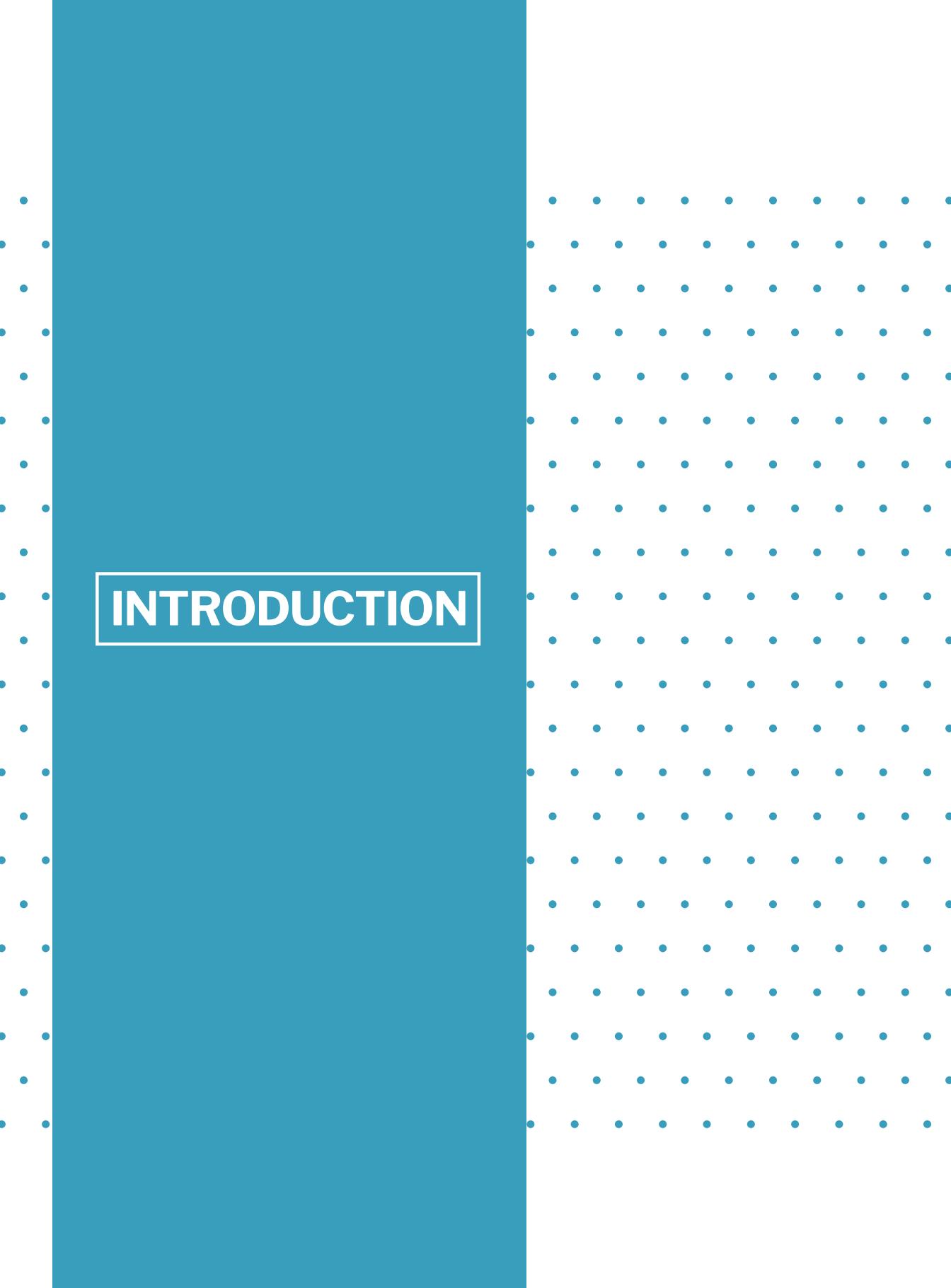
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■ Abstract

Recognising the severe challenge that traffic, urbanisation, and road safety pose for the country, the Government of Pakistan passed the 'National Transport Policy of Pakistan 2018' and 'Pakistan National Road Safety Strategy 2018-2030.' In this context, then, this paper aims to study the problems of Pakistan's road safety in detail and then dissect the government's policy response to them.

The paper discusses the structural problems of Pakistan's road safety which encompass institutional, execution, physical and operational, and attitudinal and behavioural issues; and then highlights the impact of the China-Pakistan Economic Corridor (CPEC) on Pakistan's road and transportation network and its impact on the economy and development. This is followed by specific policy recommendations that are contributory or complementary to the vision of the Transport Policy and Road Safety Strategy. Finally, the paper presents a brief way forward vis-à-vis the design of cities, streets, and roads to make them more citizen friendly.



INTRODUCTION

■ Introduction

The world's urban population is growing at a rapid and unprecedented pace. According to an estimate, 70% of the world's population will be living in cities by 2030 (UNICEF 2012). This growth in the process of urbanisation is followed by a surge in the demand for vehicles and automobiles, resulting in a traffic and road safety problem, especially in the Least Developed Countries (LDCs).

Research shows that approximately 1.35 million people die in road accidents every year, and 93% of the casualties occur in low- and medium-income countries (WHO 2020).

Besides, almost 50% of the injured or dead are either pedestrians or vulnerable road users (VRUs) such as bicyclists, motorcyclists, rickshaw, or a cart drivers hit by motorised vehicles. This is attributable to the low-income of the majority population in the LDCs, who can only afford to have either a non-motorised or a small vehicle.

Moreover, road accidents cost most countries about 3% of their Gross Domestic Product (GDP). Currently, road accident is the 8th leading cause of death worldwide, which is expected to jump to 5th spot by 2030 and is the leading cause of death among children and young adults aged 5-29 (WHO 2018 & 2020).

The situation of Pakistan is no better than the international scenario sketched above. For years, the country had no coherent road safety or traffic policy resulting in massive human and socioeconomic loss.

Like the other LDCs, Pakistan's economy loses 3%-5% of its GDP as a result of road accidents, and according to some estimates, this amounts to USD 9 billion which is lost in treating the injured and repairing the accident vehicles.¹

In addition, the rate of traffic accidents is increasing in Pakistan at an alarming rate.

¹As a reference, Pakistan borrows on average USD 6 billion from the International Monetary Fund (IMF) and other lenders to finance its current account deficit. This means that if Pakistan can only effectively curb road accidents, it can break the proverbial begging bowl!

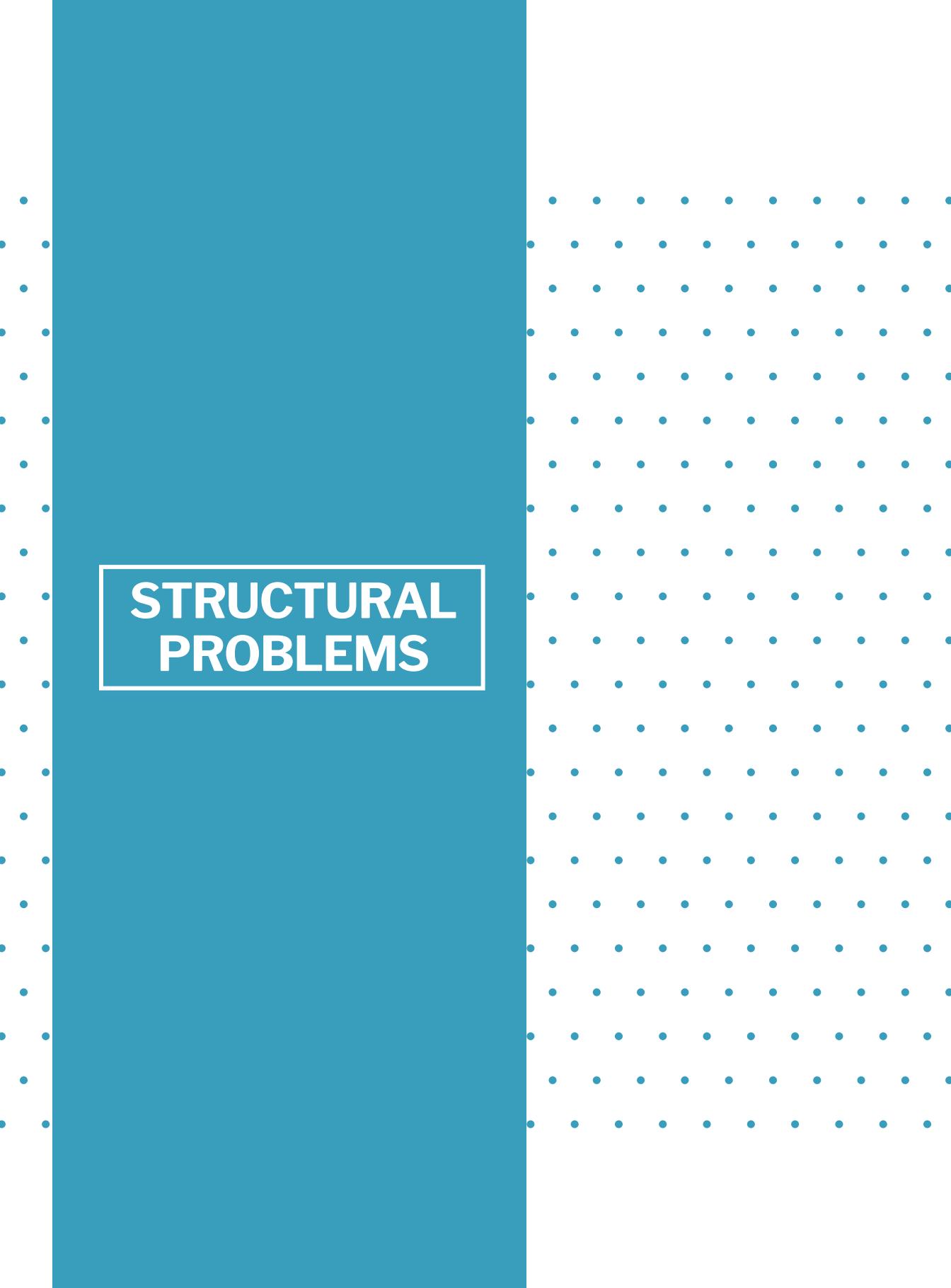
According to government estimates, a person dies in Pakistan every five minutes due to a road accident. These sources also project that these road accidents are set to rise by a whopping 200% by 2030 unless some targeted intervention takes place.

At present, 30,000 people die, and half a million get injured due to accidents on Pakistan's roads each year (Mehboob 2020).

In Pakistan's case too—like many other parts of the developing world—urbanisation is a major factor accounting for the unprecedented rise in traffic and road accidents. Furthermore, Pakistan has one of the highest birth rates in the region, which makes the issue of road safety all the more crucial.

In 2018, the government recognised the severe challenge that traffic, urbanisation, and road safety pose for the country. As a result, it passed the 'National Transport Policy of Pakistan, 2018' (Ministry of Planning, Development & Reform 2018) and 'Pakistan National Road Safety Strategy, 2018-2030' (Ministry of Communications 2018). In this context, then, this paper aims to study the problems of Pakistan's road safety in detail and then dissect the government's policy response to them.

The paper is organised as follows: Section 1 discusses the structural problems of Pakistan's road safety, which encompass the institutional, execution, physical and operational, and attitudinal and behavioural issues; Section 2 highlights the impact of the China-Pakistan Economic Corridor (CPEC) on Pakistan's road and transportation network and its impact on the economy and development. Section 3 suggests policy recommendations that are contributory or complementary to the vision of the Transport Policy and Road Safety Strategy. Finally, the last section presents a brief way forward vis-à-vis the design of cities, streets, and roads to make them more citizen friendly.

The image features a teal background on the left side, which transitions into a white background on the right side. The white background is decorated with a grid of small teal dots. A white rectangular box is centered on the teal background, containing the text "STRUCTURAL PROBLEMS" in a bold, white, sans-serif font.

STRUCTURAL PROBLEMS

■ Structural Problems

Institutional Issues

There are many levels of road safety issues in Pakistan that need to be analysed and discussed separately. The first of these concerns the capacity of Pakistan's transportation and road safety institutions. Considering that Pakistan's population is growing very fast, and the country is urbanising rapidly, one can expect that the government and the relevant state institutions will be working incessantly to deal with the challenge. Unfortunately, however, that is not the case.

The complacency of the government is reflected by the fact that for a country that is the fifth most populous in the world, there is no dedicated road safety department. Although in 2016, the Ministry of Communications (MoC) started a project, in collaboration with the Asian Development Bank (ADB), for enhancing the safety of Pakistan's roads, it is still not a substitute for a permanent liaison dealing exclusively with the issues of road safety. In addition, if history is any guide, the road transport policy is always initiated, guided, and financed by foreign donors, thereby making it both 'path-dependent' and 'resource-dependent' (Imran and Low 2005).

Once the project is complete and the funds dry up, the local stakeholders pay little to no attention vis-à-vis the programme's efficacy and whether it was successful in achieving its stated objectives.

In other words, there is a political penchant for building new roads, but very little appetite for maintaining existing roads. This is because politicians can extract a certain mileage from launching new schemes and road projects, but there are no political points to be scored from maintaining public works that already exist.

Besides, policymakers and politicians of Pakistan have consistently failed in devising policies with a long-term horizon, and their strategies are usually marred with short-termism. According to Batool et al. (2012), most, if not all, road safety policies have been historically devised to serve an immediate purpose, such as satisfying the voters or swaying an electoral constituency, and so on.

Little wonder then that they have failed to sustain and mushroom into truly efficacious strategies saving lives on national and local roads and highways. However, a joint project of the MoC and ADB devised a long-term strategy as enshrined in the document titled 'Pakistan National Road Safety Strategy 2018-2030.' This policy aims to save 6,000 lives by 2030 by following the international best practices of the World Health Organization (WHO). But whether the strategy would be implemented in letter and spirit is an open question.

In addition, the research on the topic of Pakistan's road safety is quite limited and narrow in scope. Besides, all conducted studies, thus far, have been reactive rather than proactive as they were undertaken to deal with a particular problem that arose in a specific time and space. Due to this reason, until recently, there has been no coherent policy that dealt with road safety, construction, enhancement, and so on. Road improvements—such as the addition of lanes, construction of speed breakers, new roundabouts, installation of new traffic lights—were undertaken superficially to magnify urban appeal, and no subsequent mechanisms were installed to check their impact on user safety.

To date, no road safety audit has occurred for any of Pakistan's major or minor roads, as this responsibility simply does not fall in the purview of any of the relevant road agencies (Batool et al. 2012).

However, there is a commitment in the new Road Safety Strategy to deal with this dismal state of affairs by becoming more proactive in research, policymaking, and on-ground implementation. For instance, to enhance the procedure of road audits and follow-ups, the National Highway Authority (NHA) formulated a new document titled 'Road Safety Audit Policy, Procedures & Guidelines' in 2018 that it intends to fully implement by 2022 (MoC 2018: 33). As per this document, road audits are to be conducted during the road/highway construction or expansion to evaluate its safety for all road users going forward (Ibid.). In addition, the MoC is also preparing a national level road audit programme titled 'National Road Safety Engineering Guidelines' that will become the guiding blueprint for all agencies. Besides, the MoC is also laying special emphasis on the training and development of engineers of all road agencies—national and provincial—in the fields of road audit, design, and maintenance, by encouraging them to enrol in courses offered by leading national and international institutes such as National University of Sciences and Technology (NUST) and NTU International.

In this context, it is heartening to note that Pakistan's policymakers have finally started drafting policies concerning road safety and transportation, although it has been long overdue. It appears that the hearts of these policymakers are in the right place, but whether their policies will practically materialise is another matter and is time contingent. For their part, civil society, media, think-tanks, and Non-Governmental Organisations (NGOs) should continually remind the government of their responsibility to make roads safe for all citizens. This would represent public value co-creation (Chohan 2019-21). This way, the aforementioned plans and policies may come to fruition, thus, making Pakistan's road infrastructure better, faster, safer, and inclusive of all users.

Execution Issues

There are many execution issues that persist across Pakistan's road and transportation architecture and its constituent agencies. To begin with, there is a severe lack of qualified and relevant personnel in the federal and provincial departments, which undermines the performance of the entire sector. This is attributable to a couple of factors.

First, policymakers, especially those formulating the Five-Year Plans and devising the Public Sector Development Program (PSDP), do not allocate sufficient funds for institutional capacity building, hiring qualified personnel, and Research & Development (R&D). In fact, according to Imran and Low (2005: 514), the budgetary allocation for capacity building has historically remained below 1% of the transport budget despite massive outlays for roads, railways, and other infrastructure projects.

Second, the Federal Government's employment structure is governed by a set of rules called the 'All Pakistan Unified Grading System.' As a consequence of these rules, non-specialist and generalist personnel, are often deputed in various road and transport agencies. This is especially true of the National Highways & Motorway Police (NHMP) and city traffic police, where the top officers are appointed from the cadre of Police Service of Pakistan (PSP). As is usually the case, these officers are trained in controlling crime and terrorism and do not possess the specialised knowledge that is needed to deal with the problems of transport and urbanisation. While this problem is partly resolved at the junior level by the induction of specialised warden traffic police, the issue persists at the senior levels where policy is formulated, and budgetary decisions are made. Besides, the warden traffic force is only operational in Punjab province, with the rest of the provinces still working with the old traffic police model. Even in Punjab, the Warden Traffic Police is only operational in selective big cities.

Third, the senior personnel in road agencies and traffic police departments are changed or transferred relatively quickly owing to political instability, regime change, and other exogenous factors. As a result, policies are discontinued in quick succession, thus, compromising overall institutional performance.

Fourth, the various road agencies of Pakistan are constrained by a stringent set of rules and regulations, which only add to the red-tape and hinder the timely implementation of projects or reforms on the ground. This problem is compounded by the fact that there is very weak coordination among different agencies and departments such as the NHMP, NHA, National Transport Research Center (NTRC), City Traffic Police, Health Department, and Rescue 1122.

In fact, according to Batool et al. (2012: 39), the lack of coordination and bureaucratic hurdles have been the main culprits in the formulation and implementation of a national-level road strategy. The 'Pakistan National Road Safety Strategy 2018-2030' plans to fix this problem by constituting two new

agencies, National Road Safety Secretariat (NRSS) and National Road Safety Council (NRSC), which will be responsible for better communication, coordination, and response among all road agencies and civil departments (MoC 2018: 5).

While this is certainly a welcome move and a departure from the existing dismal state of affairs, it needs to be seen whether this strategy will be successfully implemented and achieve its stated goals. Besides, this road strategy is formulated and planned in partnership with two external stakeholders, i.e., ADB and the UK Department of International Aid (DFID)², which confirms the point made by Imran and Low (2005) that road strategy in Pakistan is both path- and resource-dependent.

This also shows that Pakistan's road agencies and departments have not evolved or matured to a level where they can independently make policies and start projects which can enhance road safety for all citizens.

Physical and Operational Issues

Pakistan's population is fast-growing with a birth rate of 3.39 babies per woman, which is the highest in the South Asian region (Moore 2021). Moreover, as the process of primitive accumulation intensifies, more and more people are forced to migrate toward cities, hence, accelerating the rate of urbanisation.

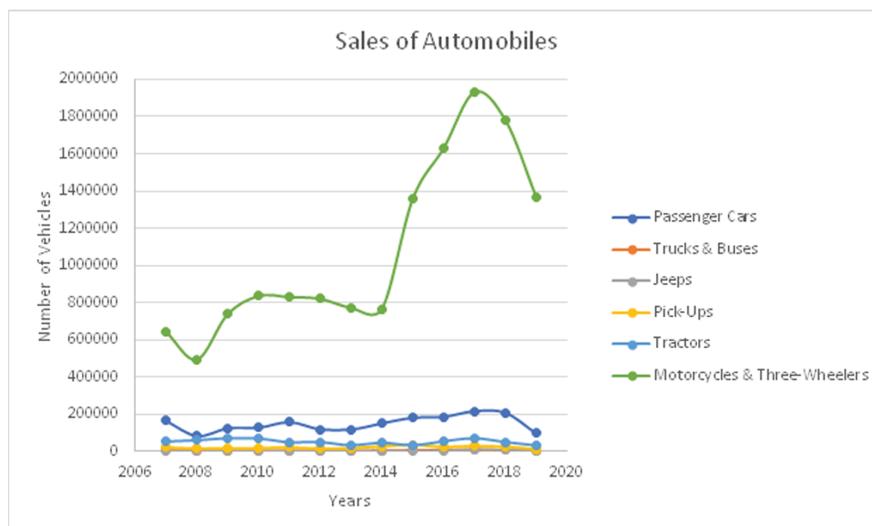
In fact, according to a study by the Pakistan Bureau of Statistics (2017), more than 50% of Pakistan's population would be living in cities by 2050.

This rapid growth in population, coupled with urbanisation, will inevitably increase the inter- and intra-city travel and transportation needs.

According to an estimate by the Pakistan Economic Survey of 2017, the travel on Pakistani roads will increase to 1000 billion passenger-kilometers (pkm) by 2030, from the current 400 billion pkm. Unsurprisingly, the growth in urbanisation is also resulting in a fast increase in the number of motor vehicles as shown in Figure 1:

² Now called the Foreign, Commonwealth & Development Office (FCDO).

Figure 1: Sales of Automobiles (2007-19)



Source: Pakistan Automotive Manufacturers Association (2018).

As Figure 1 indicates, the sale of automobiles is a proxy for the process of motorisation, which is gaining momentum very steeply. As the figure shows, there is an increase in automobile sales across all categories, but the sharpest increase is recorded in the category of Motorcycles & Three-Wheelers. This increase in the latter category can be attributed to two reasons. First, Pakistan is a low-medium income country with a per capita income hovering around USD 1200 (TradingEconomics n.d.). Second, the demographic groups migrating from rural to urban areas belong primarily to agricultural groups which have been affected by ‘primitive accumulation’, i.e., peasants, small farmers, and others who are displaced from their land and labour owing to capitalistic pressures, as well as the brutality and banality of rural feudalism. Such groups are naturally low-income earners and can only afford to buy a motorbike or rickshaw to meet their transportation needs. This is why the increase in sales of motorcycles and rickshaws corresponds to an influx of people from rural to urban areas, hence amplifying the process of urbanisation.³

With a sustained and gradual rise in motorisation and urbanisation, the issue of road safety becomes even more critical. As of now, the roads of Pakistan are not safe, especially for the Vulnerable Road Users (VRUs), which include pedestrians, bicyclists, motorcyclists, rickshaws, and the like. This is because the current design of the roads—inner cities as well as highways—is geared more towards the mobility and safety of cars, vans, and other large automobiles (MoC 2018: 9).

³ It is also important to note the attitudinal problems that accompany a mass influx of rural migrants, who are semi-literate at best, and are used to driving tractors on dusty backroads, attempting to navigate a crowded urban setting.

This becomes a problem on the big city roads and national highways, where the VRUs have to share the space with heavier traffic. Globally, it is well-understood that the VRUs are at a greater risk of injury and death in case of an accident where the road is shared with heavy traffic. For instance, in the United Kingdom (UK), an average motorbike user was 54 times more likely to die in a road accident than an average car user in 2006 (UKDfT n.d.). Similarly, in the United States (US), a motorcyclist was 36 times more likely to die than a car user per kilometer in 2007 (NHTSA 2008).

In this context, road safety becomes a serious challenge for Pakistan as the groups which form part of the VRUs are on the rise. In fact, since 2008, there has been an annual 20% increase in the registration of motorbikes, which also coincides with an increase in their sales as indicated by Figure 1. This growth of the VRU category is alarming as the current roads are not designed to meet their needs and protect them in case of a crash as noted above.⁴

For their part, the policymakers have taken cognizance of this fact and this issue is adequately covered in the ‘Pakistan National Road Safety Strategy 2018-2030.’ According to this strategy, policymakers aim to save the lives of people in the VRU group by instituting strict speed limits in major urban centres—having a population over 1 million—by 2030. However, this study contends that 2030 is too far down the road, and immediate reform or policy measure is the need of the hour.

While restructuring and redesign of roads—to make them more VRU friendly—will certainly take a long time, what this study recommends is that the Government of Pakistan should impose upper-speed limits on all automobiles effective immediately. This should be in line with the international best practice—which is 50 km/h for a car and 30 km/h for a motorbike in urban areas—and should be enforced in all cities irrespective of size and population density.

Research has consistently shown that there is a positive association between vehicle speed and the risk of fatality. In fact, according to the ‘Power Model’ devised by Nilsson (2004), a 5% reduction in maximum speed limit reduces the chance of a fatal road accident by 22%.

⁴ Even in the planned city of Islamabad, roads are not adequately suited to heavy VRU traffic. This flaw in the design is not attributable to planners but rather to the Greek designers of Islamabad (Doxiadis). The Doxiadis firm, building in the 1950s-60s, worked under the assumption that Pakistan would remain a poor country, and therefore one where most people would not be able to afford cars. How wrong they were!

In addition, research also shows that reducing speed limits in developing countries disproportionately benefits the poor and lower-income groups as they use vulnerable vehicles such as cycles, motorbikes, and rickshaws more often than the affluent. Besides, the social benefits accruing from reducing speed limits are at least 1.32 times greater than their costs (Ang et al. 2020). Given this context, this paper urges policymakers and relevant road agencies to immediately reduce maximum speed limits on all national and provincial highways due to large positive externalities.

While other reform proposals in the 'Pakistan National Road Safety Strategy 2018-2030' may take a long time to get implemented, reducing the speed limit is the easiest to institute and involves zero costs.

In addition to the issues of rapid urbanisation and motorisation, there are many other physical and operational bottlenecks in Pakistan's road safety system. For example, non-standardised driving practices are currently a major issue that confuses the driving public and road authorities alike. This problem arises in part due to a lack of clear delineation of responsibilities and rules governing various road agencies, but also owes to the dysfunctions of an illiterate and narcissistic society (this is covered in the next section).

Local road safety and traffic management practices do not fit well with the international standards, thus creating a state of disarray for the general public. Batool et al. (2012: 40-41) report that many drivers complain about incoherence in traffic rules as they cross the geographical boundaries of a particular area such as a local village, town, or province.

Another related issue is the existence of antiquated traffic management, driving license, and challan system. This problem can mainly be attributed to the fact that Pakistan had not set out a comprehensive road strategy earlier. As a result, the road management infrastructure is in a poor state generally, especially in small towns and rural areas.

For example, the traffic lights of many cities—even some big ones—are either non-functional or poorly programmed such that traffic management falls apart. Consequently, traffic has to be managed manually, with the traffic police wardens manually controlling the traffic being a common sight in Pakistan.

Besides, the licensing system is also outdated and prone to severe corruption and irregularities. Although a modern computerised licensing system has been introduced in major urban centres, it is still relatively easy for unscrupulous individuals to secure a valid driver's license from small cities where the old system is still in place. Similarly, it is also relatively easy to bypass the challan and other penalty system using bribery and other nefarious means.

In the ‘Pakistan National Road Safety Strategy 2018-2030’, however, there is a comprehensive action plan to fix these operational issues. First, this strategy plans to streamline the laws about traffic regulation, licensing, challan, and penalties on the framework of ‘Safe System Principles.’ Second, by 2022, the MoC plans to revise and update the penalty system to make it more effective, transparent, and free from graft. Third, the MoC aims to standardise the licensing system in light of international best practices. As per the strategy document, the MoC, in collaboration with local traffic police departments, will make the acquisition of a license contingent on two tests, viz. a theory and a practical. Only those candidates who will pass both tests successively will be able to get a license, and all others will be rejected. This procedure will apply uniformly for all vehicle types and across all cities and provinces of Pakistan.

Many of the above-mentioned physical and operational issues arise because Pakistan does not have a systematic and well-entrenched public transport system.

Although in the last decade or so, the situation has considerably improved in the large urban centres of Punjab province, thanks to the introduction of Bus Rapid Transit (BRT); other provinces and smaller cities are not so lucky. For instance, in most other cities, there is a dearth of public transportation companies and the few that exist have no mutual coordination. These companies operate on abysmally low standards with no follow-up or performance appraisal done by the authorities.

Moreover, there are very few bus-stops or designated points for public vehicles, which results in ill-disciplined traffic. For example, in many cities, public transport vehicles such as vans, motorcycle rickshaws, and coaster buses stop in the middle of the road to pick and drop passengers. Due to these factors, people generally do not prefer to use public transport (Batool et al. 2012). Historically, the percentage of people using private vehicles has also remained high as compared to public transport even in big cities like Karachi and Lahore (Imran 2009). However, with the successful introduction of BRT in selective cities, there appears to be a new promising model of public transport for the entire country. Research conducted on Lahore BRT suggests that since its inception, there has been a 24% increase in the public transport users, with 35,000 people leaving private vehicles to use the Metro Bus (Majid et al. 2018).

While a model like BRT is expensive to copy throughout Pakistan, it needs to be recognised that a well-entrenched public transport system can lead to massive savings in the use and import of oil.

Pakistan is already facing a severe balance of payment crisis, and oil is the country’s main import. If the government can reduce dependence on oil—by extensively using public transport—then not only will it save precious foreign exchange reserves, but it will also protect the environment and enhance road safety.

Another pernicious issue that is slowly but effectively crippling Pakistan’s road and transportation system is the lack of social justice.

There is a common perception among the driving population—especially on the lower spectrum of the socioeconomic divide—that road authorities and traffic police officials do not penalise an influential individual for a traffic violation. This perception of social injustice is further amplified by the fact that many poor localities in different cities are devoid of proper road management such as traffic lights, and the road infrastructure itself is in shambles.⁵

In other words, the resource allocation of numerous road and transportation agencies is class-biased, hence, resulting in uneven safety outcomes. Indeed, research suggests that people in the lower-income groups are much more likely to be in an accident, and as a result get injured or die (Nazir et al. 2016). Besides, the socioeconomic ramifications of such accidents are severe, especially for the families of affected individuals. For instance, to take care of the injured person, a family member has to take time off from work, which takes a toll on her productivity as well as earnings. In the case of a person's death, the grieving family has to arrange for a funeral, and other religious/cultural rites, that drain their financial resources. This situation is further exacerbated when the affected person is the sole breadwinner of the house. This is perhaps the most serious risk from the entire paradigm of road safety: the risk of impoverishment due to incapacitation.

The issue of illegal and unwarranted encroachments is another physical issue that compromises road safety (Tauhidi and Chohan 2020). In Pakistan, it is common to see vending carts, small shops, billboards, and parking lanes extend far beyond their allotted space, thus interrupting the flow of traffic. Similarly, it is also common for ordinary people to block roads and streets for personal events such as a marriage ceremony or to commemorate a religious festival. This also includes the undue blockade of roads caused by protests, strikes, and sit-ins which obstruct smooth functioning and causes unnecessary stress for road users. In addition, the overloading of heavy vehicles such as trucks and buses is another major issue falling in this area. Not only does overloading damage the road, but it also prevents other road users from having a clear vision, which is a potential cause for road accidents, especially on national highways and motorways (Batool et al. 2012).

The final issue under the physical and operational issues concerns the apathetic road and vehicle maintenance standards.

In the urban areas of Pakistan, there is no concept of follow-ups and regular maintenance of roads, which results in poor user experience. Indeed, huge bumps and potholes are visible even on the main roadways of many large urban centres. To compound this problem, there is no standardised vehicle inspection system in the country.

⁵ The counterargument here is that, through rampant encroachment of public lands and through the squalor of ad-hoc settlement, the poor have not allowed anyone to lay down the appropriate infrastructure, and continue to swell their ranks in the slums.

Just like a license, a vehicle safety permit can also be issued by paying a small bribe to a clerk in the relevant department. As a result, poorly maintained vehicles are ubiquitous on Pakistan's roads that pollute the environment and create a nuisance for all road users. In addition, the locally manufactured vehicles—especially cars—do not conform to the safety standards of international vehicle manufacturing laws, although the latter is applicable in Pakistan. For instance, the majority of cars—across all brands—lack the basic safety features which are taken for granted in the rest of the world. They include an Anti-Lock Braking System (ABS), airbags, rear seat belts, child-seats, crumple zone, and so on (Mehboob 2020).

Thankfully, the dismal state of vehicle safety and manufacturing standards can be rectified under the 'National Guidelines on Vehicle Licensing' which has tried to set a uniform standard for all automobile manufacturers by 2030 as per United Nations (UN) safety regulations. This document has also been put together by the MoC and key international stakeholders — ADB and DFID (MoC 2019). Research undertaken in selected countries of Latin America found that by implementing the UN safety regulations for automobile manufacture, more than 25,000 lives could be saved by 2030 while averting an economic loss of up to USD 29 billion (Mohn 2019).

Attitudinal and Behavioural Issues

So far, this paper has discussed the macro-level issues that plague Pakistan's transport and road safety. However, there are a plethora of micro-level or individualistic problems as well that compromise road safety. Among this list, personal attitude and behavioural issues are at the top.

To begin with, it is widely observed in Pakistan that the drivers of commercial and public vehicles are amongst the most reckless and irresponsible road users. For example, in the context of Karachi, two separate studies found that commercial buses accounted for 27% of all road injuries and 43% of total road deaths, although they constitute less than 2% of all registered vehicles (Luby et al. 1997; Mirza et al. 1999). This is attributable to several factors.

First, a significant majority of commercial vehicles and public transport in Pakistan operate on the 'residual income principle.' As per this principle, the drivers are liable to pay the vehicle owners a fixed sum each day. Any other gain over and above this fixed amount, goes into the drivers' pocket, who are the employees of the vehicle owners. This principle means that the greater the passengers, the higher the sum that driver employees can save for themselves. As a result, they drive recklessly, competing with other drivers for passengers, and compromising road safety in the process (Hisam 2006).

Second, since many of the drivers of these commercial vehicles are not the owners, therefore, they care less about the deterioration and wear & tear of the vehicle and, consequently, drive carelessly.

Third, many of these drivers—especially those on truck duties—operate on very tight deadlines, due to which they are compelled to drive near-continuously, or at least without taking adequate breaks or appropriate rest. Little wonder then that driver fatigue is a major cause of road accidents and injuries as it causes the driver to lose his focus and road grip.

In addition to these driver-specific factors, other socioeconomic and demographic factors explain the nonchalant attitude of many road users. For instance, Batool et al. (2012) note that there is a marked difference in the road usage and civic sense of people from different income groups. Generally, people from low-income and low-educated households are less aware of the etiquettes governing responsible road usage and, as a result, are more exposed to untoward road incidents.

The best-selling game 'Grand Theft Auto V' functions on the premise that you are a wild and carefree driver, but the rest of the road users are respectful, logical drivers. In Pakistan, as with other developing countries, you might be the only logical and composed driver, but everybody else is in a Grand Theft Auto mode, with a devil-may-care approach that amplifies the risk of road fatalities.

Moreover, young males are also more likely to be reckless drivers than people from other demographic groups. The situation is even worse when a young man belongs to a relatively well-to-do or an affluent household.

Finally, there is also some controversy but necessary concern regarding driving under the influence of alcohol and drugs, especially in large urban centres of Pakistan. Although alcohol is legally banned in the country—due to its Islamic constitution—it, nevertheless, is consumed by various segments of society. Drug use is especially worse for truck drivers who habitually abuse drugs owing to fatigue (as discussed above) while covering long distances. A study conducted by Mir et al. (2012) found that out of 857 truck and bus drivers, 30% used marijuana regularly, while 10% drove under the influence of alcohol. Little wonder then that these commercial vehicle drivers are more vulnerable to HIV/AIDS and other Sexually Transmitted Diseases (STDs) (de Lind van Wijngaarden and Schunter 2014).

Moreover, since the use of alcohol and drugs are blanket-illegal in Pakistan, there are no proper laws and prescribed punishments for drunk driving or drug-impaired driving. As per the current practice, if the police suspect a person of driving under the influence of a prohibited substance, he/she is apprehended, and his/her blood test is taken and sent to a clinical laboratory. The whole procedure takes two to three weeks to complete, and the costs are to be borne by the police department. As a result, the policemen avoid treading this path as it takes both time and out-of-pocket expenses.

In 2013, the Islamabad Traffic Police (ITP) submitted a proposal to the Ministry of Interior to amend particular laws and ban drivers guilty of driving under the influence of alcohol/drugs. The ITP also requested the Ministry to provide alcohol testing machines and saliva testing strips to test and apprehend drunk drivers on the roads (Dawn 2013). However, several years down the road, this proposal has not seen the light of day and is still pending.

The 2018 'Pakistan National Road Safety Strategy 2018-2030' acknowledged this problem but only concerning the opening up of trade routes courtesy of the China-Pakistan Economic Corridor (CPEC) and the Central Asia Regional Economic Cooperation (CAREC). As for the future, the MoC plans to develop internationally recognised Standard Operating Procedures (SOPs) and pass relevant policies to check the instance of drunk driving but exclusively on CPEC and CAREC roads/highways.

While the official recognition from MoC is a welcome move, this study stresses that there is an urgent need to develop appropriate laws and apply them throughout Pakistan and not just merely in the big cities and international trading routes. This is because the problem of drug and alcohol abuse has increased rapidly in recent years.

According to one study, the number of alcoholics and drug addicts is increasing by 40,000 each year in Pakistan, which is amongst the highest in the world (Ghazal 2019 & 2015; BBC 2013).

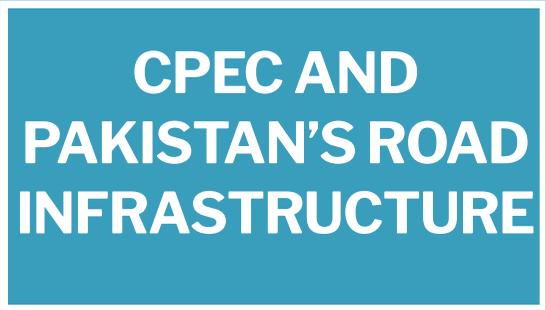
The final problem covered in this theme concerns the lack of data and limited research on road safety, accidents, traffic injuries, and deaths. According to the survey conducted by Batool et al. (2012: 45), the policemen in Pakistan do not fill the post-accident form in the aftermath of a road crash, which is a mandatory legal requirement. This is because a large number are not given the appropriate training and do not even have the knowledge of such a requirement. Among those who are aware of the document's legal status are simply dismissive of it by considering it a *khana puri* (gratuitous form-filling).

Moreover, whatever limited data is available is superficial as it is usually collected to fulfil departmental formality. As a result, there is no insightful analysis of the causes of road accidents and other road safety hazards. Similarly, scholars who wish to study road safety and traffic issues face great difficulty as there is limited research on the topic. To add to their troubles, whatever research is available is not archived and documented, making it difficult to access.

The problem of lack of data and relevant research on road safety is also recognised by the MoC in its 'Pakistan National Road Safety Strategy 2018-2030.' The Ministry plans to fix this problem by setting up a 'National Road Observatory', with the exclusive task of collecting data on road accidents, injuries, and deaths, besides collaborating with the private sector and the academia to facilitate data sharing and research.

While the authors acknowledge and appreciate the government's efforts in this regard, more can be done, especially since no such organisation has been put in place to date.

Also, once set up, the role of the National Road Observatory can be expanded to make it a comprehensive national-level think-tank devoted to research, monitoring & evaluation of all aspects related to road safety, transport, and urbanisation, other than merely collecting data. This will guide policymakers in making better decisions going forward while ensuring that the mistakes of the past are not repeated.



**CPEC AND
PAKISTAN'S ROAD
INFRASTRUCTURE**

■ CPEC and Pakistan's Road Infrastructure

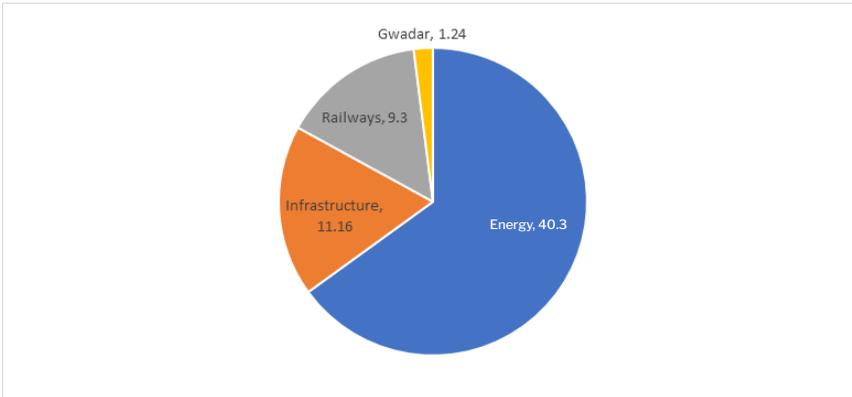
Pakistan is a Low-Income Developing Country (LIDC) with a struggling economy and sluggish growth. To top it all, the country is urbanising rapidly with a huge youth bulge creating difficulties in the labour market. Moreover, the country has an inadequate production capacity as represented by a small manufacturing sector with a share of only 20% in the Gross Domestic Product (GDP).

This is attributable to what researchers call 'premature deindustrialisation': a phenomenon whereby the growth of the industrial sector was prematurely truncated or stunted owing to a shift of resources / priorities / energies from the industry towards the services sector. Consequently, Pakistan does not have a sufficient indigenous industrial/manufacturing base to produce enough consumers, producers, and intermediary goods for local consumption (Rashid et al. 2019). As a result, Pakistan is heavily dependent on imports, which explains its historically high trade and current account deficits. It is, therefore, not surprising that the country has been bailed out 22 times by the International Monetary Fund (IMF) since 1958 (Ellis 2020).

Against this backdrop, the China-Pakistan Economic Corridor (CPEC) is a breath of fresh air for Pakistan's troubled economy and industry (Chohan 2018a and b). CPEC is a network of roads, highways, pipelines, airways, and ports that aims to connect the western Xinjiang province of China with the Gwadar Port in Balochistan. This route is a boon for Chinese trade and commercial activity as it cuts the 12,000 km freight into just 2000 km, yielding enormous savings in fuel and other transportation costs for China (Ali et al. 2017).

The project officially took off in 2015 when Chinese President Xi Jinping visited Islamabad and signed 50 Memoranda of Understanding (MoUs) with the government. As per the MOUs, CPEC entailed an investment of USD 62 billion in the fields of energy, infrastructure, transport, and industry, to be unfolded in three phases beginning in 2015 and up until 2030 (see Figure 2 for detailed Investment Breakdown). Rightly so, the project is often labeled as a 'game-changer' for Pakistan's struggling economy. Originally, CPEC is a flagship project of China's Belt and Road Initiative (BRI), which aims to revive the ancient Silk Road—a historic trading route—that extends from China, all the way through Central Asia and into Eastern Europe. When fully operational, the BRI will facilitate China and its partner countries in having access to trade routes ranging from the north and central Asia to the warm waters of the Indian Ocean and beyond.

Figure 2: CPEC Investment Breakdown (USD Billion)

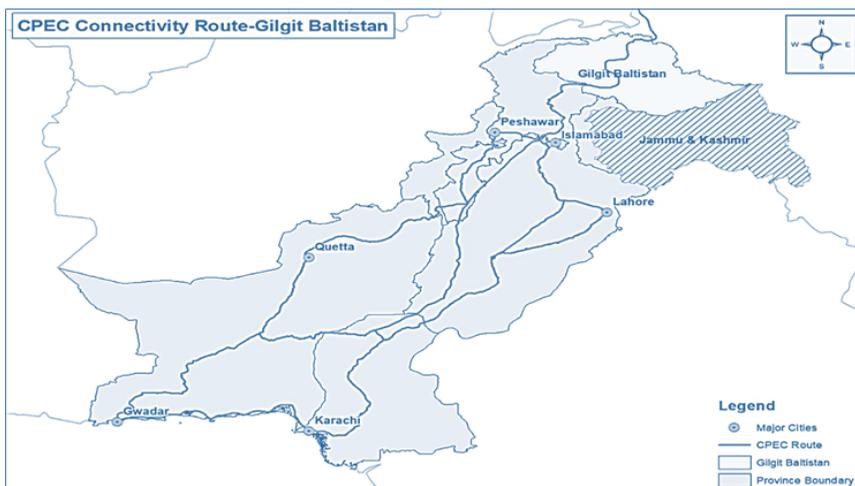


Source: Obortunity Consulting (n.d.).

In this context, CPEC has great potential to give a boost to Pakistan’s dilapidated road infrastructure, besides uplifting its economy and industry. Indeed, as Figure 2 shows, a massive USD 11.16 billion are reserved for investments in road infrastructure out of the total USD 62 billion packages. While CPEC is a long-term project and its exact effects on the economy, infrastructure, and industry will not be realised until 2030 (or beyond), one can still make some observations based on the hitherto available data and research conducted by various scholars.

First, it is an inclusive project with the potential to link remote communities and areas with Pakistan’s mainstream. This is evident in the CPEC’s main routes and infrastructure projects, which start from Khunjerab Pass in Pakistan’s north and end up in Gwadar while passing through all the provinces and large urban centres. This is shown in Figure 3:

Figure 3: CPEC Main Routes



Source: Mahmood et al. (2020).

The straight line in Figure 3 shows the main routes of CPEC, which encompasses and passes through the entire country. This is sufficient to dispel all the debates about the ‘western’ and ‘eastern’ routes of CPEC, which has been creating uncertainty and doubts in the minds of local people—especially belonging to the far-flung Balochistan, Khyber Pakhtunkhwa, and tribal areas—regarding the project’s dividends and ultimate beneficiaries. In fact, there is some evidence that suggests the role of India behind such malicious campaigns that target the collective interests of China and Pakistan, in particular CPEC, as part of its Fifth Generation Warfare strategy (Cheema 2020; Ashraf 2018; Ahmed 2021).

The reality is that the infrastructure projects taken up as part of CPEC are connecting the less developed and peripheral regions of Pakistan with the country’s core. Indeed, this is a step towards making the economy more inclusive as historically marginalised groups will be integrated into the mainstream, and their grievances will also be alleviated. This echoes research in the fields of political economy and development which indicates how construction of roads or improvements in existing infrastructure yield positive and significant economic benefits with the potential to uplift the entire region out of poverty (Puentes 2015; Fan and Kang 2005; Palei 2015; Agénor and Dodson 2006; Aschauer 1989; Shami 2012).

While the exact welfare effects of CPEC cannot be ascertained in advance, existing research on the early harvest projects is already proving its promising economic prospects (Chohan 2018a & b) and public value creation (Chohan 2019). For example, a study conducted by Zia and Waqar (2017) on the employment generated by six CPEC related road projects found that these projects have directly created 52,000 jobs in the open market. Out of these 52,000 vacancies, 47,800 were filled by Pakistani nationals, while the rest (3,780) were taken up by Chinese nationals. This means that in these six projects, the ratio of Pakistanis to Chinese is 18 to 1, meaning that for every one Chinese official, there are 18 Pakistani employees. This study further dispels the propaganda by some quarters.

Turning to the question of transportation, road safety, and road modernisation, it is clear that CPEC will advance, perhaps revolutionise, all these areas. But before this link is analysed in detail, one must discuss the current situation of road infrastructure in Pakistan.

As of now, the total length of Pakistan’s road network is 260,000 km, out of which 176,800km (roughly 68.4%) are high-type roads, while the remaining 83,200 km are low-type roads (PC n.d.).

More specifically, the density of low-type roads in Pakistan is roughly 0.33 km per square kilometer, and the progress on these sections of the road is unsatisfactory. However, with the progress of CPEC, the revamping of the low-type road is taking place at a fast pace, and according to some estimates, this will cut the transportation time by 50% and transportation costs by 10% throughout Pakistan (Ali 2018). In addition, this major overhaul of road infrastructure—courtesy of CPEC—will also enhance road safety as research suggests that road design is a major determinant of road safety (Fecht 2012; Islam et al. 2019).

Besides, the improvement of road infrastructure has major spillover effects for trade, commerce, and other parts of the economy. For instance, research conducted at the Pakistan Institute of Development Economics (PIDE) suggests that CPEC will result in an increase in regional trade flows by 119%. These trade flows will accrue courtesy of CPEC's mega-investment in roads, railways, ICT infrastructure, and Gwadar Port (Mujtaba 2018).

The improvement in road infrastructure will also have secondary effects such as a boost in the logistics sector, freight, and transportation. This will happen when CPEC's physical infrastructure will link major nodes—big cities such as Islamabad, Lahore, Karachi, Peshawar, Multan, Quetta, and Gilgit—with Special Economic Zones (SEZs) and industrial estates with the rest of the country. As a result, the demand for an uninterrupted supply chain will soar, resulting in the growth of the logistics sector.

The decline in transportation costs and shorter travel times will further act as a catalyst for this growth. Moreover, the connectivity of various nodal points with local markets, and the resultant boost to regional trade and economy will also increase the demand for freight services. Currently, Pakistan spends an estimated 25% to 30% of its development sector budget on transport, which is not adequate (PC n.d.). However, as CPEC's infrastructure development gains pace, this percentage can change. In fact, according to a study by Karandaaz, if capital inflows are sufficient, then CPEC will also result in an improved vehicle ownership ratio, effectively changing the present situation, where 80% of the vehicle owners do not wish to expand their fleet citing resource constraints.

It should be noted that, in the post-independence era, there has been a gradual shift from rail usage towards road use for logistics, cargo, and passenger traffic.

For cargo and logistical purposes, railways should have remained the key mode of transport, but a shift to big trucks on the highway system has led to disrepair of the road system and a serial neglect of the railway system, which has not meaningfully improved since the days of the British Raj.

A concerted effort to expand the railway system, upgrade its key elements, and divert cargo and logistics to trains would alleviate a considerable burden on the road network.

Although there is considerable hype in policy circles about the implementation of Electric Vehicles (EVs), given their lower emissions and improved technology, Pakistan is not an immediate candidate for the widespread adoption of EVs at the present time. This is because it lacks a stable, reliable, widespread, and consistent electricity grid on which users can rely. In fact, circular debt compounds Pakistan's domestic economic distress (Tauhidi and Chohan 2019). The mass distribution of EVs with an unreliable electricity grid is a recipe for further chaos on the transport network.⁶

To conclude, CPEC provides a historically unique opportunity for Pakistan to revamp its crumbling road, rail, transport, and ICT infrastructure besides creating a plethora of employment, trade, and other economic opportunities. If Pakistan fully capitalises on this opportunity, then it can catapult itself towards fast economic growth and modern development that draws upon a well-run and well-built transport infrastructure.

⁶ There is a counterargument to this, which is that the supply of electricity in Pakistan is likely, thanks to significant investments under CPEC, to rise significantly. However, a greater output of electricity does not automatically translate into a better system of distributing electricity. EV adoption is a function of both an adequate supply as well as adequate access to electricity in a reliable manner. Therefore, simply increasing the output of electricity is not a sufficient condition for promoting EV usage.



**KEY
RECOMMENDATIONS**

■ Key Recommendations

Institutional

- Establish a dedicated road safety department and make the National Road Safety Secretariat (NRSS) and National Road Safety Council (NRSC) fully operational.
- Set up a mechanism for inter-agency coordination. This is only possible with a fully functional central road safety department, which would then facilitate coordination between NHMP, NHA, NTRC, Provincial/ICT Police, Provincial/Federal Health departments, Rescue 1122, and so on.
- Set clear departmental roles and job descriptions for each road/transport agency to avoid confusion and duplication of responsibilities.

Execution

- Take tough enforcement action against encroachments that hamper road traffic in urban areas.
- Expand the road surveillance camera network to tier-2 cities and automate the challan system to a billing process based on addresses associated with license plates.
- Allocate sufficient funds in the PSDP for the capacity building of road safety and traffic management personnel.
- Hire and train personnel who are specialists in the field rather than recruiting ad-hoc from the generalist administrative groups.
- Constitute an all-Pakistan unified warden police force to handle traffic in all urban centres of the country. These wardens should be inducted by the Federal Public Service Commission (FPSC) through a competitive exam and should at least be graduates. Moreover, these wardens should be well-paid to avoid the problem of bribery and corruption in the traffic police force.
- Establish a standardised set of traffic rules and laws to be applied in all cities and provinces of Pakistan.
- Amend traffic laws to incorporate fines and challans for all types of road violations. For example, if a pedestrian crosses the road directly instead of using an overhead bridge, then such behaviour should be penalised. Moreover, all authority on traffic and road violations should rest solely with the traffic police.
- Set up separate trial courts for road and traffic violations. All the cases should proceed on a clear timeline and be adjudicated with a clear outcome.

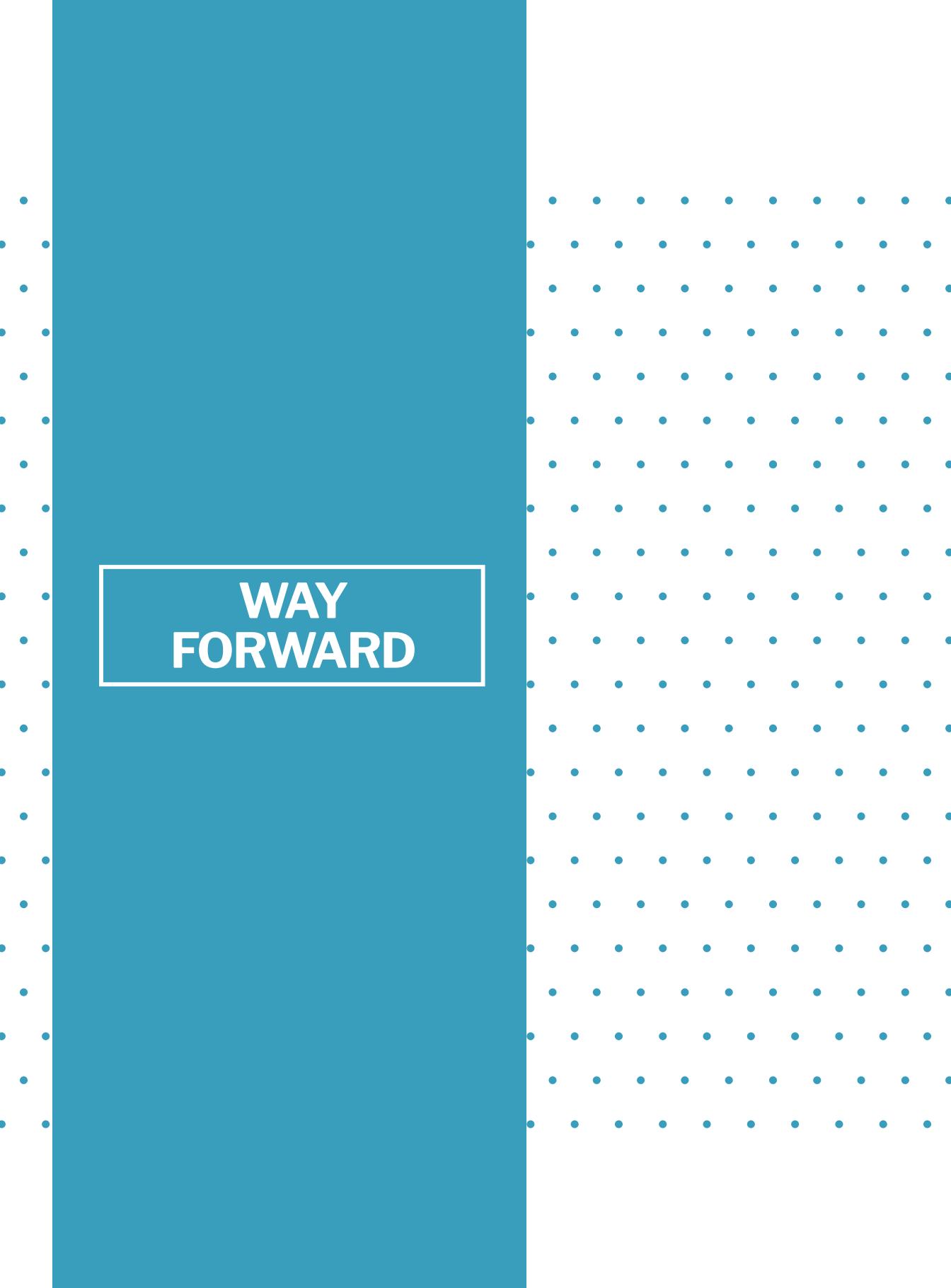
Physical and Operational

- Conduct regular road safety audits for the main arteries of tier-1 and tier-2 cities.
- Shift the burden of land cargo transport back from trucks to railways. Invest in rebuilding the train system and network and reduce dependency on trucking.
- Electric Vehicles should not be exceedingly prioritised until and unless Pakistan has a stable and well-dispersed, cost-efficient electricity grid.
- Set upper-speed limit of 50 km/h for cars and 30km/h for motorbikes on all urban roads throughout Pakistan.

- Set up an extensive public transport system in all major urban centres of Pakistan. While the Bus Rapid Transit (BRT) and Orange Train is certainly helping citizens in large cities, such transit systems need to be replicated in other cities as well.
- Shift priority from political point-scoring through road building towards the more humble, and yet even more important task of road maintenance. Any future repairs and up-gradation of roads and city blocks should be done while keeping the principles of a safe city system in mind: expand the cities vertically, ensure that the streets and city blocks are well-connected, design narrow-road arteries, and avoid urban sprawl.
- Set up a computerised licensing system in all cities of Pakistan and scrap the old system, which is prone to severe corruption and illicit practices.
- Set up a computerised vehicle safety permit system throughout Pakistan. This system will bar poorly maintained and potentially dangerous vehicles from using the roads.
- Make the automobile manufacturers comply with the international standards on vehicle safety by ensuring that all newly manufactured cars include the Anti-lock Braking System (ABS), rear/front seat belts, airbags, child seats, to name a few. Any manufacturer found violating these standards should be punished with license cancellation.

Attitudinal and Behavioural

- Launch an educational awareness campaign apprising people of the rules and laws of traffic and road safety. This campaign should especially target schools, colleges, and educational institutions to infuse traffic and road decorum among the youth.
- To tackle the growing problem of driving under the influence of drugs/alcohol, traffic police and wardens should be provided with saliva testing strips and alcohol testing machines. Any individual found guilty of drunk driving should be banned for life with his/her driving license permanently revoked.
- Make the filing of post-crash forms mandatory for all reporting police officers.
- Set up and expand the role of the National Road Observatory to include comprehensive research, analysis, monitoring, and evaluation of all aspects related to road safety and traffic management. This organisation should act as the premium government think-tank and not merely as a data collection agency.

The image features a teal background on the left side, which transitions into a white background on the right side. The white background is decorated with a grid of small teal dots. A white rectangular box is centered on the teal background, containing the text "WAY FORWARD" in a bold, white, sans-serif font.

**WAY
FORWARD**

■ Way Forward

This Issue Paper has analysed some issues concerning Pakistan's road safety, transportation and how CPEC will impact them. This section will discuss some policies as a way forward that can remedy the existing suboptimal situation. But before proceeding, it is incumbent upon all stakeholders to understand the gravity of the situation and what needs to be done to improve it.

First, it needs to be mentioned that instilling road safety is a challenge for the long-haul, and no single strategy or piece of legislation can magically implement it in a short or medium time frame.

Second, road safety can only be optimised when policymakers focus on 'changing' the road and urban design rather than taking short-term measures to curb accidents on the current road network.

Third, the issue of road safety cannot be exclusively relegated to policymakers or public managers, it needs a 360-degree inclusive approach with the participation of think-tanks, civil society, and the general public – which is to say: public value co-creation from all stakeholders.

In this context, a discussion of global road safety best practices also comes in handy. As of now, four cities (Tokyo, Berlin, Hong Kong, and Stockholm) serve as the international best practice case-studies that other cities/towns can learn from and emulate. These four cities have the lowest accident and road fatality rates globally, which stand at 1.3, 1.5, 1.8, and 0.7 per hundred thousand inhabitants, respectively (Welle and Li 2015). A close investigation of these conurbations reveals that they were specifically designed while keeping road safety in mind.

These four cities share certain common characteristics. First, each of these cities contains separate lanes for pedestrians and cyclists, which is an acknowledgement of their status as Vulnerable Road User (VRU) subgroups. Second, there is an extensive and ubiquitous public transport system in all of these four cities. Third, each of these cities is designed in a way that the private automobile users do not have to travel long distances (Welle et al. 2015). In other words, the urban planners of these four cities took proactive steps while designing the city rather than dealing with the transport and road safety problem with a reactive approach.

This approach is also known as 'Compact Urban Design' and, researchers in the field of urbanisation consider it the gold standard of road safety and modern transport management.

Briefly, a compact city design includes low urban density as opposed to urban sprawl, vertical city expansion rather than horizontal, well-connected city streets, and small inter-connected city blocks.

Research shows that for every 1% increase in the compact design of a city, the traffic fatality rates fall by approximately 1.5%, while the pedestrian fatality rates fall by up to 3.5% (Ewing et al. 2003). The low-density and compact design of a city makes automobile users drive slow and for shorter distances, hence, mitigating the risk for road accidents, especially for the VRUs (Ewing and Dumbaugh 2009).

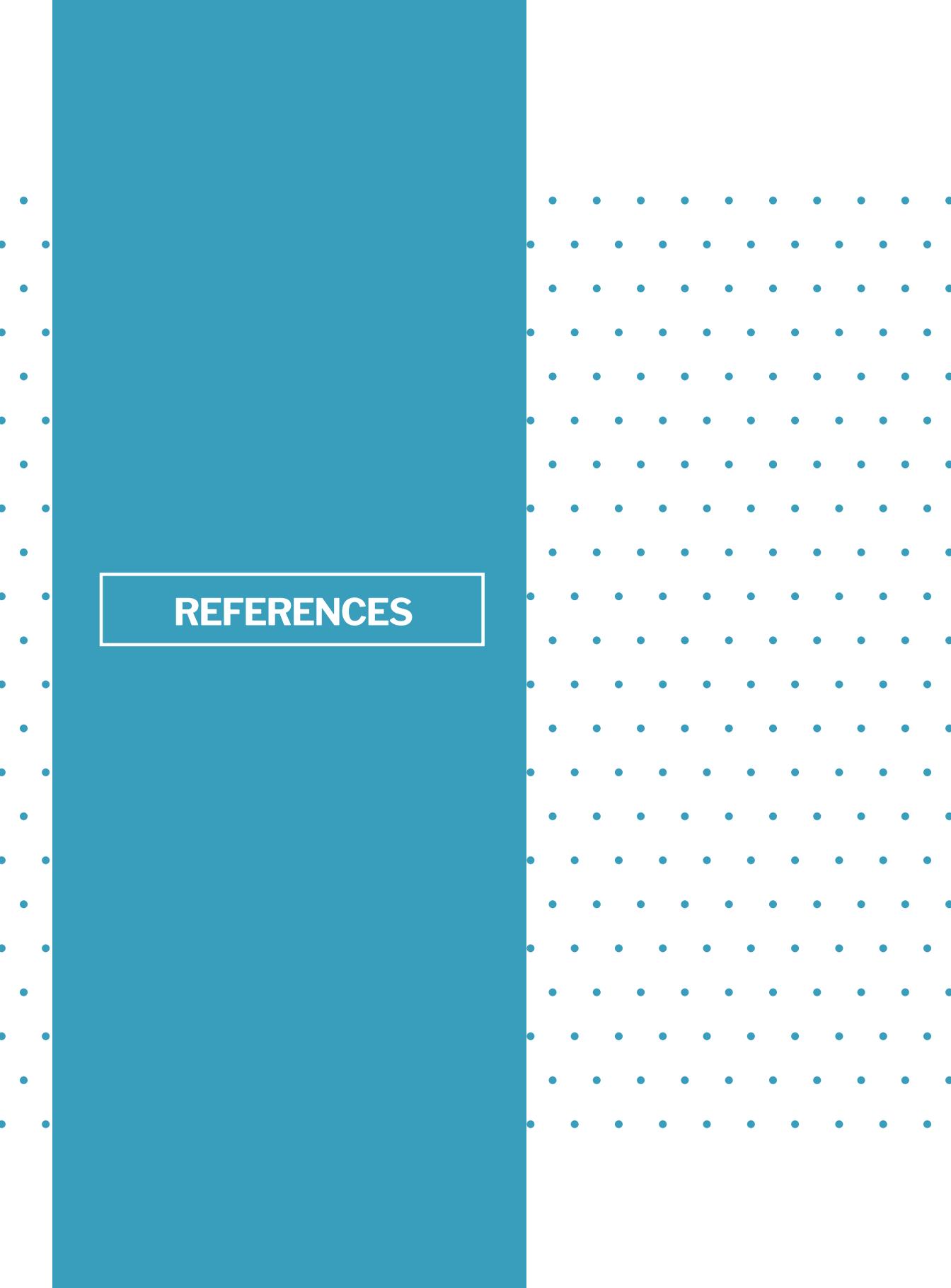
The speed limit is the second critical factor in the safe city system approach. This study has already discussed the impact of lowering speed limits on the vehicle-to-vehicle collisions in an earlier section. According to a study by Rosen and Sander (2009), vehicles traveling at a speed of 50 km/h have twice the chance of killing a pedestrian in case of a collision than an automobile traveling at 40 km/h. For a vehicle traveling at 30km/h, this risk of fatality falls by almost five times. This essentially means that setting or revising speed limits is the quickest and highly effective way to enhance road safety and avoid unnecessary injuries or loss of human life as a result of road accidents.

Another critical factor while designing a safe city is the width and size of road arteries. Wide road arteries facilitate the speedy flow of traffic—especially heavy vehicles—and pose the greatest risk to pedestrians and bicyclists/motorcyclists. Conversely, roads with a safe upper-speed limit, such as 50 km/h, tend to have narrow arteries, which makes over-speeding less feasible. Usually, roads with narrow arteries also have separate lanes for pedestrians and other VRUs. This trend has been confirmed by studies conducted in Mexico City and New York (Chias and Trejo 2008; New York City Department of Transportation 2010), and researchers assert that designing narrow road arteries optimises road safety. On the other hand, if for some reason, wider road arteries have to be designed or higher speed limits are to be set, then pedestrians and bike users should not be allowed on those roads (Welle et al. 2015).

Lastly, it is important to reiterate and emphasise that a safe city system cannot be designed without having an effective and extensive public transport system. Similarly, urban areas that facilitate walking and bicycling witness fewer accidents and road fatalities (Duduta et al. 2013). Although initially, a wide-ranging public transport network may not appear to be cost-effective to public managers, in the long run, it generates enormous savings in terms of fossil fuel use, while at the same time reducing the carbon footprint.

Thus, compact urban design, extensive public transportation, narrow road arteries, and speed limits are the most effective strategies to enhance road safety and prevent accidents.

Beyond the best practices discussed, the analysis presented offer useful recommendations that can assist and complement the Government of Pakistan's 'National Road Safety Strategy.' While some of the measures are long-term in nature, others can be implemented rather quickly and with low costs. Taking Pakistan's road and transport system more seriously is a requirement for national development, and one that will save lives and livelihoods.



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List of Abbreviations and Acronyms

ABS	Anti-Lock Braking System
ADB	Asian Development Bank
BRI	Belt and Road Initiative
BRT	Bus Rapid Transit
CAREC	Central Asia Regional Economic Cooperation
CPEC	China-Pakistan Economic Corridor
DFID	Department of International Aid
EVs	Electric Vehicles
FCDO	Foreign, Commonwealth & Development Office
FPSC	Federal Public Service Commission
GDP	Gross Domestic Product
IMF	International Monetary Fund
ITP	Islamabad Traffic Police
LDCs	Least Developed Countries
LIDC	Low-Income Developing Country
MoC	Ministry of Communications
MoUs	Memoranda of Understanding
NGO	Non-Governmental Organisations
NHA	National Highway Authority
NHMP	National Highways & Motorway Police
NHTSA	National Highway Traffic Safety Administration
NRSC	National Road Safety Council
NRSS	National Road Safety Secretariat
NTRC	National Transport Research Center
NUST	National University of Sciences and Technology
PAMA	Pakistan Automotive Manufacturers Association
PBS	Pakistan Bureau of Statistics
PIDE	Pakistan Institute of Development Economics
PSDP	Public Sector Development Program
PSP	Police Service of Pakistan
R&D	Research & Development
SEZs	Special Economic Zones
SOPs	Standard Operating Procedures
STDs	Sexually Transmitted Diseases
UK	United Kingdom
UKDfT	United Kingdom Department for Transport
UN	United Nations
US	United States
VRUs	Vulnerable Road Users
WHO	World Health Organization

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