The just-concluded holiday season saw people take to the roads en masse. Like in every holiday season, there were several road crashes that led to the death of people. Perhaps this a good time to reflect on why we seem to have made so little progress in addressing this form of deadly violence.

Across the globe, vehicles kill great numbers of people – about one person every 24 seconds. Road crashes are now the number one killer of young people over five years of age. The idea that this massive amount of death can be captured by the term "accidents" needs challenging. What we are talking about is *traffic violence* caused by deliberate action or inaction in the face of knowledge about how to prevent these deaths.

In African countries with relatively low motorisation rates, citizens primarily use non-motorised means of transport or public service vehicles. This presents an opportunity to build particularly safe streets. Instead the number of deaths per vehicle is sadly very high. The Nigerian trauma doctor, Ola Orekunrin, notes that this is much neglected by the public health community.

Kenya is no exception. The World Health Organization (WHO) estimates that every year between 3,000 and 13,000 people (mostly pedestrians, cyclists and boda boda riders) die in road crashes. The National Transport and Safety Authority (NTSA), which to its credit is now trying harder to report "accidents", tells us that 3,146 people were killed on Kenyan roads last year; most of them were pedestrians. The actual number of deaths is likely to be much larger as many are not reported, especially in remotes areas, and in many cases police do not follow through to discover the fate of victims who pass away in hospitals.

Many more people, including many children, are maimed, left with disabilities or traumatised. Road crashes impose enormous burdens on individuals, their families and communities, the health care system, and the country. Victims must deal with medical bills, legal and insurance wrangles, loss of work and abilities, great emotional distress and grief. As economically productive people die or become disabled or impoverished, the country as a whole takes an enormous economic hit. Some estimates suggest that over 5.6 per cent of Kenya's GDP is lost to crashes.

A new approach: Vision Zero

The sheer magnitude of this carnage and suffering should prod us towards some new thinking based on a deeper analysis of what causes this form of violence. Indeed, understanding road deaths *as a form of violence* is the first critical step.

People make deliberate choices at an individual level (to drive while drunk, for example) and also at a policy level (to build streets without safe pedestrian facilities) that result in violence. We should also learn from places where real declines have occurred in road fatalities. In these places, this violence is not accepted as a normal price to pay for mobility, and the goal is, in fact, set for zero deaths or "Vision Zero".

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Vision Zero interventions start with the premises that humans are flawed and likely to make mistakes in judgement and also that vehicles are very dangerous and get more so with speed. As one of the architects of this approach, Dr. Claus Tingvall, emphasises, "In every situation a person might fail. The road system should not." Based on this premise, people have to take a more systems-based approach and get to work by designing streets and rules on streets that reflect these realities.

Evidence exists that the "Vision Zero" approach works. In 1997, Sweden's parliament made it law, giving it force, prominence and legitimacy. The main policy innovation was to place responsibility for road safety squarely on the system's designers and also to shift the paradigm from acceptance of a certain number of road deaths to the idea that this violence should be eliminated entirely. This meant promoting a collection of measures, including using research and data, to actively redesign streets and to create incentives to reduce crashes.

In Sweden this approach seems to have worked. Official statistics suggest the number of road deaths halved and that the number of deaths among car users decreased by 60 per cent between 2000 and 2010. One scholarly study notes that "while the decrease has stagnated somewhat after 2010, Sweden's roads are still among the world's safest, with only 3 of every 100,000 Swedes dying on the roads each year, compared to 10 in the USA." (In Kenya, WHO estimates that this figure is 34.4 per 100,000 people.) Since the Swedish experiment, "Vision Zero" programmes have been adopted by cities like New York and Los Angeles, working better in the former than in car-dominated Los Angeles in part because New York was more aggressive about redesigning dangerous intersections and reducing speeds.

To illustrate how a Vision Zero approach works, Dr Tingvall gives an example of an

intervention in a rural area where people drink a lot. It was discovered that people were dying while trying to pass each other on a two-lane road. To address this specific problem, one intervention that worked was to turn the two-lane road into a narrower single lane, slowing everyone down and making passing impossible. Along with other measures, such as discouraging drinking and driving (also critical in Kenya), this led to a decline in crashes and deaths. Narrowing street space for cars appears to have a psychological impact on drivers and to cause them to slow down.

Another example is keeping roundabouts in place instead of lights at four-way intersections, because even though the crashes might be reduced by lights, the higher speeds involved in collisions in a four-way intersection are deadlier. Human life rather than speed should take the priority in design.

Vision Zero for Kenya?

Could Kenya take such a "Vision Zero" approach and adapt it to its situation? Would it work? I will argue that advocating, adopting and adapting some aspects of this approach seem critical to addressing traffic violence in Kenya. A systems approach would, in fact, mean facing some of the entrenched problems on Kenyan roads (and a health care system that needs more resources to cater to the scale of the problem but we will focus on prevention).

Some of these problems include: 1) "failure" of police enforcement which, as we all know, is a system of extraction from road users; 2) failure of the government (especially the engineers who choose for Kenyans what kinds of roads to build) to take responsibility for systems problems such as design that kills; and 3) car-dominant and elitist investment decisions with a self-interested focus on rapid highways for a minority of car users.

We know that the police enforcement system in Kenya is broken and needs repair. In 2009, the Ransley Report on Police Reform argued that the traffic police need revamping. This includes building traffic management systems that do not require their direct involvement. The police also need better training and ICT systems, including for keeping track of crashes. The NTSA is working on some of these reforms. While this is a step in the right direction, it does not address some of the deep problems that undermine enforcement.

It is well known that some senior police officers and politicians who are supposed to play an oversight role over traffic police and public service vehicles have serious interests in the sector. The 2009 Ransley Report noted the profound conflict of interest and breach of ethics when traffic police own public service and breakdown vehicles and emphasised that "the

problem of conflict of interest has become so widespread that it has undermined the capacity of police to impartially enforce regulations". We skirt this issue every time there is an outcry after yet another horrific crash. The reaction is always to blame and crack down on matatus as if public service vehicles are the only problem rather than the broader institutional context in which they operate.

The Ransley Report also suggests harsher fines that can be tied to all offenders, including private vehicle owners. Ideally, those who consistently get into crashes should be made to pay higher insurance rates and should eventually lose their licences. However, this approach, especially with the current enforcement problems, is unlikely to work in the near term under present conditions. Instead of only looking at punishment as a means of penalising irresponsible road users, a Vision Zero approach would push us to ask what kind of positive incentives and design changes we can use to address traffic violence.

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In the matatu sector, one of the potentially largest but most neglected factors in road crashes is the poor labour conditions of drivers. This includes working very long hours in difficult conditions and a target system (instead of a fixed salary) that encourages speeding and reckless driving. Emerging evidence from experiments in Nairobi suggest that drivers will slow down and improve driving if they are monitored with devices and paid more. eThekwini Municipality in South Africa is experimenting with Moja Cruise, a programme to give service contracts to minibus operators so that they get paid for better service, including reduced speed, and this can be monitored with tracking devices.

Rather than looking at positive incentives for change, the reaction of the Kenyan government always appears to be punitive, avoiding to take responsibility for its own failure to design a safer public transport system. Instead, it persists in blaming the matatus by imposing new costs and fines without putting resources into the system to reduce the incentives for drivers to speed and drive recklessly. An increase in punishment and requirements under the current poor enforcement system tend to raise revenues and feed

the police extraction system, which ironically can mean that drivers will need to try to make up any lost revenue, probably by driving faster.

Secondly, we know, and the Vision Zero experiments have proven, that road design is also a big factor in crashes. A standard "safety audit" is available to test for many of these flaws. Kenyans know this: they talk about "black spots" – places that are well known for having an inordinate number of flaws that cause crashes and death. To my knowledge few of these black spots have been analysed and redesigned as a Vision Zero approach would demand. Mandatory safety audits by independent parties with real power to enforce safe design is also key and not yet required by law in Kenya.

Street guideline-but adapted to local conditions- are critically important to develop. This is an idea of what redesign can do for a street from the Global Street Guidelines developed by NACTO.

Despite international encouragement and available funding, the government has actively resisted improved standards for road designs. Advocates, including many road engineers, have been asking for these new standards, especially for urban roads where conflicts between pedestrians, cyclists, bodaboda, personal and freight vehicles as well as matatus are strong and need urgent addressing. Out of these conflicts emerge fatal encounters. When road designs prioritise rapid vehicles instead of a complete streets approach to creating a safe and orderly flow of people, including proper sidewalks, matatu stops and crossings for safe passage of pedestrians, the results are deadly. Indeed, the essential insight is that road designers must plan for the flow of *people not vehicles*.

Finally, it is hard to avoid the conclusion that some decision-makers in the Kenyan government are willing to accept the horrific price of traffic violence (even as its risks their own lives and the lives of those they love) for narrow material gain through road contracts built with minimal transparency and proper safety standards. They continue to distract attention with increasingly hollow refrains about personal responsibility (see this video of a public forum in 2012 on Thika Highway) while adamantly refusing to accept the kind of responsibility for safe systems design that Vision Zero demands.

Even with the increased rhetoric around bus rapid transit (BRT), we see the continued prioritisation of car-oriented investment projects without proper design and safety standards in place. When justifying these projects, proponents always cite a figure for time

lost in traffic (ignoring pedestrians) but not the number of road deaths that seem to follow in the wake of these highways, which have long been discredited in most of the world as a means for addressing congestion. As one example, consider the absurd plan in Nairobi for yet another very expensive elevated highway from the airport to the CBD instead of a street and network redesign to improve existing flows of people.

This is all being done even as we have data to show that highway "improvements" have helped create massive numbers of death. The diagram below comes from a superb project by Elisabeth Resor and Ma3Route that mapped crashes over a 6-month period from May to October 2015. It is clear that the upgraded highways are where the most crashes and deaths happen. More data from the NTSA and a new soon-to-be-released study by the World Bank show that these highways are profoundly dangerous and need addressing immediately if we care about traffic violence.

This is heat map of crashes from Nairobiaccidents.com. It shows major black spots (areas with higher than average accident concentrations) in Nairobi; the darker the area the greater the number of crashes.

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Yet, instead of looking this systems failure squarely in the face an (elevated) highway for rapid vehicle travel is being planned instead of a redesign and improvement of existing problematic highways, which, in turn, could actually address some of the congestion issues as well. For example, why not first focus on improved matatu and bus service on the Mombasa highway, including some form of BRT or dedicated service vehicle lanes, as well as better and safer pedestrian crossings and traffic management, and then see what else might be needed?

Given what we know about traffic violence and some of the best approaches to reducing it,

it is hard to escape the conclusion that the Kenyan authorities are deliberately failing to address road violence. New approaches and ideas are available, but perhaps some in charge may be distracted by money that can be made through continuing to build expensive, deadly roads. Instead of Vision Zero, it appears we have zero vision on moving forward.

This will continue if proponents of combatting traffic violence do not find ways to hold those designing the road systems to account. Adopting a Vision Zero approach may be a powerful step forward and way to do this. It reorients the responsibility to where it belongs and promotes some proven tools for going from roads for cars to safer, complete streets for people. It may also bring in new allies from cities and countries like Sweden that have proven methods for taming the violence on roads.

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This approach could build on some of the positive work the NTSA has been doing along with some of the counties. Nairobi, for example, has a strong Non-Motorised Transport Policy that includes as a key action item, new road design guidelines and prioritising walking along with traffic calming in the city centre.

A survey my centre conducted in 2015 showed that an overwhelming number of Nairobians want lower speed limits, especially in the vicinity of schools. Activists managed to pass a yet to be fully implemented Traffic Amendment Act 2017, which mandates actions for safer school travel including redesign and calming in streets around schools. A growing number of activists from the heroic "Lollipop Man" to civil society organisations are working to improve streets and safety. Vision Zero might just help give a new frame to push for badly needed change. Given the scale of the everyday terror and carnage of traffic violence in Kenya, it is at least worth a try.

Safari njema!

For further reading see the recent report At the Crossroads: The Politics of Road Safety in Nairobi by ODI and the latest WHO Global Status Report on Road Safety