

Sustainable transport for human development, human transport for sustainable development

Active travel, motorization and global sustainable transport policy

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1. Introduction

With emissions from transport on track to double by 2050, sustainable transport has become firmly established on the global policy agenda. As global advocates for sustainable transport SLOCAT (Yiu et al., 2019, p. 5) have stressed, ‘safe, efficient, low carbon, and affordable mobility for all is essential to sustainable human development’. This truism is steadily becoming policy convention, with the UN establishing a high level advisory group (UN, 2016), the World Bank launching the *Sustainable Mobility for All* initiative (SuM4All, 2018), and transport receiving full chapters in IPCC reports. Such sustainable transport policies not only respond to the *climate crisis*, they also must confront the ongoing *urbanisation* and *motorisation* of human societies. For cities, since 2007 home to a majoritarian and increasing share of the world’s population (and an even larger share of carbon emissions), sustainable transport is key to achieving both decarbonization and wider urban sustainability objectives. While local governments are the immediate actors on such issues, the global policy framework – understood here as formed by multilateral organizations and development banks with the power to shape global policy-making – offers the best hope of coordinated and comprehensive action at this critical juncture.

While global policy may concur that ‘safe, efficient, low carbon and affordable’ are the characteristics of sustainable transport, there is less clarity on the priorities for action. The general aims and theory of sustainable transport having been discussed in academic and civil society circles for decades, and with various examples of successful policy making on hand, it would seem that a path to action is clear. Within the well-established ‘sustainable transport paradigm’ (Banister, 2008), ‘active travel’ (walking, bicycling and other forms, also called “non-motorised” or “human-powered” transport) is widely held to be crucial, as it is intimately associated with inclusive and sustainable human well-being. It is also abundantly clear that excessive dependence on individual motorised travel leads to a very different kind of development – exclusive, resource-hungry and destructive to human and natural environments (c.f. Baer, 2019; Illich, 1973), with particularly destructive effects on cities. However, this clear understanding of *what must be done* has not resulted in consistent progress. Indeed, key indicators such as transport emissions, road deaths and urban congestion continue to worsen worldwide.

This article puts forward the argument that a clearer assessment of the respective benefits and downsides of active transport and motorisation is central to achieving sustainable and inclusive development. With the global policy framework currently failing to decarbonize the transport sector in line with the Paris Agreement commitments¹ and, at the same time,

¹ This is not to say that these multilateral and international organisations are directly responsible for all action on transport. Clearly, there are highly important roles for the private sector, national

squandering the full potential of sustainable transport to contribute to the Agenda 2030, there is a pressing need to reconsider the way sustainable transport has been conceptualized, mobilized and put into action. In particular, it could be asked: given the transformative and durable changes needed to achieve sustainable development and stay within planetary limits, which transport pathways lead to unsustainability and therefore must be adjusted or counteracted? Accordingly, which modes or forms of transport are more or less favourable to achieving inclusive and low-carbon mobility? And does global sustainable transport policy reflect these priorities?

This text sets out the case for walking and bicycling as essential to efficient and equitable transportation systems and crucial to achieving a wide range of sustainability goals. Active travel modes use the human body's metabolic energy to travel, burning calories rather than fuel, and therefore not only have zero emissions, but are also the most central to the human condition. In contrast to the large machines and dangerous speeds characteristic of most motorised transport, active modes move at a human pace and lay little claim to space. Indeed, placing active travel as central to sustainable transport necessarily calls motorised travel into question as its antipode and modal 'competitor', and thereby makes visible the negative impact of dependence on individual motorised travel and the impossibility of business as usual. And while a focus on these individual modes – walking and cycling on the one hand, and automobiles and motorcycles on the other – risks overlooking the key role of collective travel (urban public transport in particular), this more limited comparison centres the discussion on the omissions and lack of clarity of global sustainable transport policy. In particular, it would both refine and challenge the current prioritisation of reduction of carbon emissions: *refine*, in the sense that active modes are undeniably the lowest emitting and least resource dependent of modes, while individual motorised modes have the highest impact; and *challenge*, by pointing out that sustainable transport has much wider impacts and externalities for human well-being, and that focus on emissions reduction overlooks the complex co-benefits and dependencies of transport for human development.

These points are detailed below in five connected discussions, each centred on a particular element of the global sustainable transport policy framework, respectively: the IPCC's assessment of climate mitigation in the transport sector; the Sustainable Development Goals (SDGs) and their reporting framework; the New Urban Agenda and questions of urban liveability; the World Bank's transport lending strategy for developing cities; and finally, the crucial and positive leadership of local governments and civil society actors. As

and local governments to play, and individuals in changing their decisions and habits.

Nonetheless, this article focuses on the global policy framework due to its worldwide influence and leading role in setting policy goals and guidelines.

these cases make clear, there is major scope for improving sustainable urban transport policy. This is a call for action: active travel should take a more central role in transport policy frameworks at all scales, and the negative impact of motorisation must be reckoned with to achieve not only decarbonization, but wider sustainable development objectives as well.

2. Defining sustainable transport

Given the quantity of discourse on the importance of sustainable transport, it is surprisingly hard to pin down a clear definition. Depending on the aims and background of a given speaker or document, different conceptions may be proposed – some, such as the IPCC, focus on sectoral carbon emissions; others use a wider framework, for instance, the World Bank's *Sustainable Mobility for All* (SuM4All) refers to 'accessible, efficient, safe, green' (SuM4All, 2018). Such conceptions remain vague and do not detail what a sustainable transport system may entail. Therefore, in order to fully understand the assumptions and implied policy objectives, both 'sustainable' and 'transport' (or 'mobility') require further analysis. It becomes clear that a narrow understanding of either concept serves to naturalize current travel behaviour patterns, and motorised transport in particular, while overlooking active modes.

Sustainability, in the transport sector, has generally been taken to mean *lower carbon emissions* (or 'green'), despite growing attention to economic and social sustainability goals. Much of the concern regarding transport pertains to its significant and steadily increasing share of global carbon emissions, and the relative difficulty of decarbonization. In 2016, the global transport sector directly accounted for 7.7 Gt carbon emissions, representing 23% of total energy-related emissions; under a business-as-usual scenario this could double by 2050 (PPMC, 2017). The clear imperative to reduce *operational* emissions, combined with an avoidance of questioning travel behaviour and modal choice, has led to a focus on electrification of vehicles (IPCC, 2014; see also Gössling & Cohen, 2014). However, this common-sense approach is hampered by a very narrow outlook on emissions. Carrying out a holistic life-cycle analysis of emissions and resource use makes it clear that electric vehicles are not as sustainable as zero tailpipe emissions would suggest, mostly due to the carbon intensity of manufacture and energy supply (EEA, 2018; ICCT, 2018; Qiao et al., 2019). Moreover, there are serious concerns about the resource use and environmental impacts generated by lithium battery production (Riofrancos, 2019;

Wanger, 2011). Comprehensively moving beyond this focus on operational emissions will, however, require a closer look at 'transport'.

As the IPCC (2014, p. 603) recognizes, continued growth in transportation activity, particularly in developing countries, makes it a priority to decouple transport activity growth from emissions. This begs the question: why is transportation activity increasing? And in particular, why carbon-intensive transport? Despite increasing awareness of the unsustainability of certain transport practices (such as short-haul flights), there has been little critical discussion of the necessity of movement itself and it is commonly seen as self-evidently good or necessary. Undermining this assumption is the great divergence in individual and regional travel behaviour, specifically in terms of modal choice and total km travelled, which in turn largely corresponds to wealth inequalities (Schäfer et al., 2009, pp. 23-66). Indeed, much transport activity is not driven by fundamental necessities, but rather by status, desire or leisure (Litman, 2009). Interestingly, it has been shown that even as motorisation has driven increases in average speed and distance travelled over the past century, daily travel time has remained constant (Schäfer et al., 2009, pp. 29-33). Thus, while economic growth heavily stimulates travel activity, beyond a certain point it creates *new needs*, rather than respond to *existing needs*.² These considerations serve to question whether the current trend towards faster, further and more frequent travel is in fact beneficial or, for that matter, irreversible.

Alternatively, transport can be seen as a means to an end, namely, to access places to live, work, socialize and recreate. This shift is reflected in transport planning, which traditionally aimed to move ever more vehicles at ever faster speeds, but more recently prioritizes people's access to opportunities (Litman, 2019; Venter et al., 2019). This means that transport can no longer be considered independently from factors such as land use and urban form, infrastructures and socio-spatial inequalities. Importantly, understanding transport as a system belies the common assumption that modal choice is a matter of individual preference or socio-cultural norms, and brings into focus the potential role of public policy in influencing transportation behaviour. Though the language of access has reached higher levels of global policymaking (c.f. UN, 2016), it is unclear whether the wider implications of this conceptual shift are fully understood. While discourses of 'access for all' send the right signals, without transformative intervention in transport systems, this will have little real-world effect.

Crucially, many scholars have considered sustainable mobility as an alternative 'paradigm', rather than merely a green-minded discourse. Rather than a minor policy adjustment, it

² This is not to say that these needs are not strongly felt; rather, it means such needs should be critically examined rather than taken as natural and fundamental to modern society. A clear example is short-haul flights for 'weekend breaks', or the use of a car for urban trips under 2km.

should be seen as a major shift in concepts and planning priorities, often directly opposed to the business-as-usual transport paradigm of motorisation and car dependency (Banister, 2008; Hickman et al., 2013). Yet rather than drawing on this body of work to reconceptualise the role and form of transport, global policy frameworks have endlessly reiterated the need to decarbonize a 'black-box' transport sector, never looking far beyond operational emissions. In contrast, the sustainable mobility paradigm stresses that comprehensive transition away from high-carbon, high-consumption pathways will require durable changes to socio-technical systems, habits and cultural norms (Dennis & Urry, 2009; Schwanen et al., 2012; Watson, 2012). Moreover, the failure to identify wider aspects and dependencies related to transport systems and behaviours conceals the fact that the impact of transport on human well-being goes far beyond carbon emissions. Issues ranging from travel times and costs, road deaths and air and noise pollution, to urban form and inactivity, are actually strongly interconnected, and have much to do with how our transport systems are organized and what forms of transport are prioritized, with the marginalisation and exclusion of active modes in favour of private motorisation being particularly key to understanding our current transport predicament.

3. Moving beyond emissions

By providing means of access to our habitats and lived environments, and thereby to employment, goods and services, leisure, and each other, mobility profoundly shapes human lives and wellbeing. Lack of mobility can be an indicator of deprivation, and indeed much economic development depends on transport access. On the other hand, increased motorised transport can have serious negative externalities, in the form of congestion, pollution, inactivity, crashes and unequal access, especially where densities are high (Achakulwisut et al., 2019; Khreis et al., 2016; Thomson & Bull, 2002). As the world's urban population continues to grow, such typical city problems are highly relevant to human wellbeing and economic development. In transport systems, the climate crisis is thus aligned and interlinked with apparently distinct crises such as those of urban space and public health (Jacoby & Pardo, 2010). However, the connected effects, co-dependencies and co-benefits of changes to transport systems are hardly acknowledged in global policy. This is especially evident when considering active travel, deemed irrelevant despite astonishingly obvious benefits in terms of space, health and emissions.

Take the SDG's, for instance. While there is no sustainable transport goal, at least 8 SDGs are closely related to transport (SLOCAT, 2019), and transport systems are central to

targets such as road safety (3.6) and urban access (11.2).³ While, from within the sustainable transport paradigm, such topics would seem to merit attention to active modes, there is no such reference in the declaration (in contrast, public transport is mentioned on various occasions). For instance, target 11.2 seeks to ‘provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety’ but goes on to specify that the focus ought to be on public transport. Though this is undoubtedly worthy and necessary (particularly in large metropolitan areas), the target seems to overlook active travel as fundamental to human movement, relevant worldwide and indeed a major part of any trip by public transport. Making matters worse, there is no mention in the SDGs of the negative consequences of the current and increasing dominance of motorised vehicles in the world’s transport systems, making the main impediment to sustainable transport invisible and the road safety target completely toothless.

Much of the SDG compliance depends on signatory countries submitting Voluntary National Reviews (VNRs). SLOCAT analysis (2019) has highlighted that many countries do not report their transport targets in their VNRs. When they do, they tend to focus on transport infrastructure development, with some attention to climate and road safety targets. Walking and cycling were only mentioned in 10% of all VNRs between 2016 and 2019, reflecting the goals’ lack of specification of the importance of these modes. Where the SDGs reward reporting of isolated transport indicators, they may be stimulating potentially counterproductive actions: take for instance the expansion of road infrastructure, which is not intrinsically negative – yet, if ‘evaluated’ solely in terms of total extent (in km), there is no knowing whether it provides for and protects non-motorised road users. In the absence of such provisions, road deaths are likely to go up in line with increased use of private motorised transport, as is currently the case in many African countries (World Health Organization, 2018). SLOCAT argues that reporting on ‘transport co-benefits’ could be key to re-centring the role of transport in ‘leaving no one behind’. For instance, all road transport reporting should include some reference to road safety, congestion and air pollution. Crucially, considering transport’s effects in their entirety, and its social impacts in particular, would make it much harder to ignore active travel.

To stress this point, it is useful to revisit to the central role of the human body in active travel. This leads to two fundamental characteristics – *activity* and *human scale* – which provide benefits far beyond a narrow definition of sustainability, and indeed contribute to holistic human well-being and development. As is widely known, bodily activity is healthy, even necessary to longevity; there is less attention to the fact that it contributes to psychological well-being as well (Ettema et al., 2015; Martin et al., 2014; Singleton, 2019).

³ This is, however, a considerable improvement on the Millennium Development Goals, which featured no reference to transport whatsoever, despite its relevance to poverty reduction, see Hook (2006).

It is inclusive, walking being one of the simplest of human activities, and though cycling requires some training, it is not beyond the reach of nearly all humans between childhood and old age.⁴ Active travel is also economically inclusive, with little to no direct costs, and it often forms the only travel option for the poor. In terms of scale, active modes occupy much less space than motorised modes – particularly single-occupancy automobiles. This means these modes have a dramatically higher capacity to move people in congested urban environments; moreover, they do not depend on elaborate and costly infrastructure. Though walking and cycling may be slower than motorised modes over longer distances (when there is no traffic), they do not create risk of serious harm, promote human interaction and do not pollute with exhaust and sound. In fact, promoting active travel is highly related to improving the public realm in general, with walkability one of the key indicators of quality of public space (Gehl, 2010; Speck, 2018).

In sum, active travel is intimately related to inclusive human development, and liveable cities in particular. If, as SLOCAT (2019, p. 23) have argued, ‘the full potential of the transport and wider mobility sector to contribute to a balanced achievement of the SDGs remains untapped’, a major reason has been the failure to recognize and integrate the benefits of active travel in the sustainable development framework. Encouraging these modes has the potential to improve human health and reduce road deaths, improve urban access for all, reduce emissions and energy consumption, and even stimulate human interaction and sociality. In the context of the SDG’s, only a transport policy oriented towards improving human wellbeing holistically can be called sustainable. Such a policy must go beyond merely promoting active modes, however, and confront the major obstacle to sustainability: the entrenched and increasing dominance of private motorised vehicles on the world’s transport systems.

⁴ Conventional active modes such as walking and cycling generally require some level of fitness and physical ability, which can exclude those with disabilities or otherwise unable to move. However, these groups can use human-scale mobility devices such as manual and electric wheelchairs, mobility scooters and hand carts, which rely on sidewalks, crosswalks and cycling paths. Improvement of active travel facilities and access to these devices can provide individual freedom of movement and reduce dependence on transport services.

4. Motorisation as the elephant in the room

Since the modern automobile became a mass-produced commodity in the beginning of the 20th century, the car has not only comprehensively transformed mobility by bringing comfort and speed within reach of the masses, but society as well. Individual motorised mobility – whether by car or, in many developing contexts, motorcycle – has become the definitive symbol of entry into the consumption class and a signifier of economic development. When considering the vehicles by themselves, there are obvious benefits to motorised travel, in terms of comfort, speed, flexibility, and status. Yet, as has been succinctly pointed out by André Gorz (1973), the freedom promised by the car can prove illusory: while the first vehicle on the road may provide immense privileges, once everybody has one, the marginal benefit vanishes. Today, this is repeated in many middle-income countries where, just as easy access to credit brings the dream of automobility within reach of the masses, the resulting pressure on road space rules such liberties out. Beyond the individual user's experience, however, at a societal level the increased reliance on individual motorised travel has serious negative consequences on sustainability and liveability, particularly in urban areas (as has long been recognized by urbanists such as Lewis Mumford and Jane Jacobs, see also Crawford, 2000; and Newman & Kenworthy, 1999). Crucially, the negative externalities of motorised travel are barely priced in, with the individual costs of use far below the socially borne costs of emissions, pollution, premature deaths and inactivity.

Given the wealth of substantive evidence of the negative effects of excessive motorisation it could be expected that global policy thoroughly tackle the issue. With the world's total fleet expected to surpass 2 billion units by 2030 (Sperling & Gordon, 2010), continuing motorisation seems likely to frustrate the achievement of much of the sustainable development agenda. Many of these new cars (and motorcycles) will enter the developing world's rapidly growing cities, already afflicted by congestion, pollution and road deaths. Yet UN-Habitat's *New Urban Agenda* declaration, the leading document on global urban policy, does not mention 'motorisation', 'automobile' or 'car' a single time ('urbanisation' is mentioned 25 times). While the agenda includes various articles promoting sustainable mobility, including improvement of public space (art. 37 and 100), road safety (art. 113), and even walking and cycling (art. 100, 114 and 118), it is afflicted by a form of 'car blindness' (Dyer, 2019) that fails to acknowledge the major impacts of cars on cities. This is a serious omission as efforts to improve active travel or public space without confronting automobiles are likely to fail or be cancelled out by continued pro-car development. Lacking global leadership on this issue, local governments are left to balance transportation priorities on their own – in a context of national policies favouring motorisation through subsidies, often supported by a powerful carmaker lobby.

Ironically, whereas global urban policy may be 'blind' to cars and their effects on cities, the needs of cars are a pressing concern for local and regional transportation planners. Since the 60's, most of the world's cities have been designed around the needs and requirements of the private automobile. To provide room for increasing numbers of cars and the ensuing demand for space and speed,⁵ governments dedicate vast sums to construct and maintain a vast system of highways, arterials, underpasses, tunnels and other costly yet low-capacity infrastructure – for a total investment that generally dwarfs public transport spending, let alone active travel infrastructure outlays. These infrastructures are often planned and designed according to data and indicators that exclusively focus on automobile travel conditions (i.e., roadway level of service and congestion indicators). Therefore, the process whereby automobiles take over roads and marginalise other modes is naturalized by a form of data blindness that fails to measure other roads users and therefore does not allocate spending to their needs (Litman, 2003). Perhaps most damningly, these exclusive infrastructures often create barriers and even increase distances between destinations. This domination of human environments and public space by cars is perhaps most apparent in the form of parking lots, which can occupy vast amounts of space – and where mandatory parking minimums exist, are heavily subsidized (Ortiz, Medgenberg, & Arzaba, 2014; Shoup, 1997).

The automotive industry maintains that the adverse consequences of cars can be solved by a technological fix, claiming that 'the car of the future is electrified, autonomous, shared, connected and yearly updated' (PWC, 2017). The message that 'sustainable motorisation' is possible through electrification and fuel economy improvements is also shared by the IPCC, which devotes much attention to vehicle energy performance (IPCC, 2014). Yet the widely shared assumption that technology, rather than reducing or rationalizing use, will solve automobility's problems is largely unfounded. Fundamental issues such as the impact of cars' size and mass on urban environments simply won't disappear thanks to batteries alone. Indeed, in a worrying trend, sales of SUVs – larger, more dangerous and less fuel efficient than 'normal' cars – are increasing in all global markets (Cozzi & Petropoulos, 2019). Meanwhile, ride hailing technology has undermined public transit and dramatically increased the amount of vehicle miles travelled and cars on the road (Henao & Marshall, 2019; Tirachini & Del Río, 2018). And while the advent of driverless technology has been presented as a potentially revolutionary improvement in safety and efficiency, fears that pedestrians and cyclists might interrupt the flow of risk-avoidant vehicles has led some to propose crowd-control gates at busy intersections (Taub, 2019). To forward-thinking urban mobility professionals thinking about such issues in the New Urban Mobility Alliance (NUMO), it is starkly clear that people must be prioritized over vehicles (Chase,

⁵ Every new car sold is accompanied by an expectation that there will be space for it – to drive, and to park. Given the large individual investment made, this implies a powerful political demand for new infrastructure.

2020). Rather than ceding the streets to unaccountable and unsustainable machines, they could be reclaimed from automobiles and transformed to create vibrant '8-80' streets suitable for children to move freely and independently.

5. The realities of implementation

Much of the global policy framework is discursive: it sets out priorities, goals and guidelines, but does not get into the details of implementation. Development banks such as the World Bank and its regional counterparts constitute a more executive arm of global policymaking. Due to their financial clout, these institutions have a particularly large influence on policy in developing world contexts. Coincidentally, it is in developing countries that the scope for action on active travel is largest, especially in those places where urbanisation continues rapidly (in particular, sub-Saharan Africa) and where motorisation rates are currently low. It could be hoped that development banks could provide positive direction through financing and capacity building. Encouragingly, the World Bank has recognized the need for explicit strategies for walking and cycling since the beginning of the millennium (World Bank, 2002, pp. 125-134) and has recently launched initiatives such as *Sustainable Mobility for All* (SuM4All).

However, the track record on the ground has been poor, with banks consistently preferring to finance large road infrastructure projects and public transport systems over active travel interventions (Pendakur, 2011). For instance, of the 297 projects in the World Bank's urban transport portfolio between 2007-16, none focused on active mobility, 144 were 'roads-only', 17 bus rapid transit (BRT), and 29 metro and urban rail. Roads and public transport systems, due to their scale and potential revenue streams, are attractive targets for financing and are more in line with traditional conceptions of 'development' through infrastructure. Though provisions for active travel may be included in such projects (22% included some type of 'activities', see World Bank, 2017, p. 21), the Bank's lending agenda has overlooked design standards of urban roads and land use planning, both of which strongly affect walking and cycling behaviour (Mitric, 2013). In a review of the Bank's urban transport lending, Mitric (2013, p. 32) concludes that 'the vacuum of policies on urban roads leaves individual motor vehicles the undisputed masters of the road network [...] a much more aggressive stand relative to individual motorisation will be required'.

While development banks have adopted the language of access, inclusivity and sustainability, a closer look at how these are translated to policy makes it clear that the conceptual confusion around sustainability and transport outlined above is pervasive. For

instance, though 'mobility for all' and improving access has long been a World Bank policy target (World Bank, 2017), there is a clear focus on achieving transport service provision through implementation of specific projects, rather than leveraging financing for wider improvement of accessibility. An illustrative case is the BRT system of Cali, Colombia, implemented in 2009 with financial support from the World Bank. Here, the Bank exclusively financed the BRT infrastructure and insisted on private sector operations, in line with global directives (see Paget-Seekins, 2015). This wasted an excellent opportunity to improve active travel conditions, in particular, to integrate cycling for intermodal last-mile access (as was done in Bogotá's BRT). As Mosquera-Becerra (2016) has shown, the Bank's financing restricted the local government's capacity to adapt the project to the city's active travel targets, and the profitability imperative meant that bicycles were considered a competitor to the BRT, rather than a complementary mode.

For development banks, the primary role of transport is to stimulate economic growth, a perspective that has not changed significantly over decades (see Sum4All, 2019; The World Bank, 2002, 2008). It is also considered an important economic sector in its own right, and banks are in the business of making a return on investment. It is therefore not surprising that walking and cycling, as non-financialised as they are non-motorised, are afterthoughts - good discourse, but bad business. While from a perspective of planetary limits, high modal shares for walking and cycling in developing countries are advantageous and should be maintained, from a growth-oriented perspective, it is a sign of backwardness (and a great opportunity for selling cars). It is perhaps exactly the continuing dependence of vast swathes of the world's poor on active travel that led them to be neglected in the drive for development. This is reflected in the assumption that GDP growth is necessarily correlated to motorisation, and that this is indeed desirable.⁶ In this view, only after societies suffer the consequences of breakneck growth in car traffic, can they begin to pick up the pieces. Take, for instance, China's polluted metropolises, which are slowly recovering their once impressive bicycle mode shares amidst general traffic chaos (Hu & Yin, 2018; see also Thomas, 2018), or the ongoing and entrenched segregationary effects of urban highways on American cities, where planning for cars was often synonymous with creating barriers between racialized communities (Miller, 2018). Of course, once the infrastructure is in place and the dominance of the car assured, it becomes much more difficult to reorganize the city to once more favour active travel and social inclusion.

⁶ Even the IPCC (2014, p. 620) goes as far as to state that shifts from walking to individual motorized transport are 'to some degree inevitable, and [...] in part desirable as they reflect economic growth'. The first assertion is difficult to contest; the second, however, is more questionable. If the IPCC seeks a decoupling of transport activity from emissions, how indeed can it be considered 'desirable' that vehicle ownership continue to correlate with economic growth?

It can be concluded that the sustainability prerogatives of development banks have been rather more oriented towards 'financial sustainability' of their projects than the socio-ecological sustainability of development pathways (see, for instance, World Bank, 2017, pp. 29–36). Nonetheless, there are signs that policy priorities may be changing, not least in the World Bank's SuM4All strategy. The four priorities set out: 'universal access', 'safety', 'efficiency' and 'green mobility' would seem to orient policy towards transformative change. However, the policy document (Sum4All, 2019) relies on comparison between countries rather than types of transport systems, which frames policy actions in comparative terms (i.e. '800,000 deaths could be avoided [...] if all countries [achieved] OECD level') and fails to clearly identify either the co-benefits of active modes and the downsides of motorisation. That is not to say that the policy measures set out, such as standards for sidewalks and bicycle lanes, safe systems approaches, vehicle use regulations and integration of public transport and bicycles, are not worthwhile. It is yet to be seen whether the adoption of the language of the sustainable mobility paradigm is mostly discourse or may actually result in policy shift with corresponding financial and technical delivery. A key indicator of whether this happens will be action on – and financing for – active travel projects.

6. Local action gives hope

Despite ongoing motorisation and urban growth, there are many positive developments at the local level. Promising initiatives, often led by citizen actors, range from interventions in the circulation of cars and better spaces for pedestrians and cyclists, to an increasing body of policy and academic literature on inclusive, healthy and people-friendly road environments and transport systems. In spite of the lack of global policy action on the consequences of motorisation and promotion of active modes, many local governments and civil society actors are successfully pushing for transformative change. This has seen cities worldwide launch ambitious changes to their road networks, laying out cycling infrastructure, implementing road safety interventions and reclaiming streets, even in places where the car was formerly king (Sadik-Khan & Solomonow, 2016). In the developing world in particular, such efforts are being undertaken with the support of expertise from global philanthropic organizations such as the World Resources Institute (WRI) and the Institute for Transportation and Development Policy (ITDP), development agencies such as Germany's GIZ (in particular, their Transforming Urban Mobility Initiative), and local experts and NGOs (c.f. Sosa López & Montero, 2017).

It is not surprising that change is happening at a local level, as it is in cities where the need for action on active travel is most needed, and where the negative effects of the automobile's primacy are most visible – and most contested. Though utopias of 'car free cities' (Crawford, 2000) may seem unrealistic to many, they are thinkable because cities existed long before the age of the motor car, and large parts of world cities remain pedestrian-only. That car-free, walkable environments are usually the most attractive and vibrant parts of cities has not escaped notice (Speck, 2018). Quality public space simply does not mix with automobiles, which intrude on places through noise and fumes while gobbling up valuable space. While pedestrianisation of commercial streets is common, it is not, however, a sustainable transport policy, especially when these locations are easily accessible by car. More promising are initiatives to manage demand for automobile travel, particularly through reductions in parking supply (Donald Shoup, 1997) or congestion charges (Santos et al., 2010). Initiatives to restrict car usage can 'reclaim' public space for active travel and other uses. Temporary closures, such as car-free days and open streets events (Sarmiento et al., 2016), have not only been highly successful in promoting physical activity, they demonstrate alternative ways of moving through the city and other uses for road space.

There is no shortage of examples of best practice. Many cities in the highly motorised Global North have recognized that a more liveable city must be oriented around people rather than cars, and have set out to remove urban highways (Bocarejo, LeCompte, & Zhou, 2012), create 'superblocks' by restricting car access (in Barcelona, see Bausells, 2016) and even declare their city centres car-free (Oslo, see Peters, 2019). Some of these cases become models that inspire and circulate worldwide, as in the case of Bogotá's Sunday street closures (Montero, 2017) and Dutch and Danish cycling expertise (Pucher & Buehler, 2007). However, it remains difficult to challenge the perceived necessity of improving automobile traffic in most parts of the world, and cities continue to launch massive urban highways projects. In contexts where vehicle ownership is a privilege of a wealthy elite, the automobile's claims on public space are not questioned and the needs of the non-motorised poor continue to be disregarded as a matter of course.⁷ And so, with few exceptions, transport policy in rapidly motorising countries across Latin America, Africa and Asia is stubbornly oriented to providing ever more space for new cars to fill (see Manji, 2015; Trumper & Tomic, 2009). Though the role of inequality in entrenching automobility has no easy solutions, the lack of attention in global policy frameworks to the trade-off between active travel and motorisation does not help.

⁷ See, for instance, the design of urban arterials in most of the developing world. Where provisions exist for active modes, such as pedestrian bridges, they are usually to keep them off the road and out of the way of motorized vehicles (see ITDP, 2019).

What is made clear by both real-world projects and the sustainable mobility paradigm is that effecting transformative change requires a corresponding change in mindset and planning practice. To move from sustainability discourses to action requires fostering these changes at various levels of government. For instance, a key prerequisite to effective walking and cycling policy and projects is actually measuring use and evaluating priorities for action (Litman, 2019b). In part due to capacity constraints, such data is often incomplete or completely lacking in Southern cities. Nonetheless, a shift as simple and obvious as considering the needs of all users, rather than just vehicles, can bring forward considerations of equity, health and accessibility, leading to a much wider change in the way transport is approached. Frameworks such as the inverted transportation hierarchy (with pedestrians on top, and private vehicles bottom), 'push-pull' and Travel Demand Management (TDM), Transit Oriented Development (TOD), and the Avoid-Shift-Improve model, can also foster such changes, and their promotion by civil society actors and development organisations is likely to be productive. Perhaps most importantly, there needs to be change on the ground. Efforts to improve active travel confront perceptions of these modes as dangerous, low-status, slow and uncomfortable. In anticipation of long-term cultural and social change, the most effective tool for overcoming these barriers is urban design. Facilities for walking and cycling must be inviting and comfortable to use, which means designing infrastructure to a high standard and prioritizing it over motorised traffic.

7. Active modes can achieve sustainable transport for human development

Were the human development potential of non-motorised transport recognized and acted on successfully, the urban environments housing the majority of the world's population would see dramatic change. We might witness currently congested urban highways, hostile to the presence of human bodies, turned into inviting boulevards where people mingle and pass through. The noise of motorised vehicles, so characteristic of urban life today, might fade away, to be replaced by the laughter of children and clatter of bicycles. Imagine, as urban air pollution crises become less frequent, the health and quality of life of hundreds of millions dramatically improving. Perhaps most importantly, cities around the world may join Oslo in having zero pedestrian and cyclist fatalities (Coulon, 2020). These processes would likely reinforce each other and also benefit public transport, leading to a significant reduction in urban transport emissions, previously considered one of the least

likely to rapidly decarbonize. Yet these possible futures are being foreclosed around the world, as cities continue to develop according to an automobile-centric model, and each year millions of private vehicles join already congested urban traffic.

As the world urbanises, economic growth continues, and the planetary sustainability crisis intensifies, the limits of the twentieth-century transport planning model have become undeniable. Liveable and sustainable cities are simply incompatible with heavy automobile use, as concerns regarding space, equity, health and resource use increasingly highlight the costs of business as usual. This is an excellent opportunity for global action to promote active travel and the different model of urban transport it represents – healthy, safe, equitable, integrated with public transport, accessible, and sustainable. Here, global policy, shaped by multilateral actors such as the UN, World Bank and IPCC, could take a leading role in pushing for more focus and action to improve active travel and reduce or avoid car dependence. Whereas it would still be up to individual state and local actors to actually design and implement policies (which many cities are already doing), the leading role of certain convening agencies and coaxing through financial support could achieve more substantial changes, and in a global and coordinated manner. This would represent truly effective action on sustainable development and a bold move into the twenty-first century, in line with the architecture and aims of the SDGs.

However, as this article has shown, despite ambitious discourses regarding sustainability, a realistic assessment of the benefits and costs of travel modes on sustainable human development seems to be far off. In an inexplicable omission, the modal choice between active and motorised transport is ignored or passed over, with the negative impact of automobiles on cities particularly invisible to global policy. Too many still believe growth in vehicle ownership and use reflects economic progress, rather than a highly costly investment that entrenches an unsustainable and inequitable future. To move forward, the ‘transport taboo’ (Gössling & Cohen, 2014) that makes it impossible to question vehicle use must be dismantled, and with it the damaging collective illusion that electric vehicles will ‘solve’ sustainable transport. On the other hand, merely promoting walking and cycling without effecting systemic change to our transport systems and planning practices will not result in significant nor durable change. If advocates for sustainable transport can make their voices heard at the highest levels of policymaking, they should bring a reasonably unreasonable message: ‘cities for people, not for cars’.

Of course matters may not be that simple. Comprehensive transformation of the transport paradigm is highly contingent upon wider cultural and economic changes. These wider difficulties should not be ignored, nor seen as an insurmountable barrier. Rather, it is the crucial background to all promotion of active transport, which will naturally encounter opposition and resistance from vested interests, and asks for much re-learning and public debate. It is not coincidental, however, that the world faces serious challenges that will

require coordinated and far-reaching global action: foremost of which the *climate crisis*, but also the ongoing *urbanisation* and *motorisation* of human societies. In this context, the promotion of active travel comes to the fore as a necessary, even obvious policy, and though many may protest, it brings with it the corollary of restricting automobile use in cities. Policymakers pretending that the entire world can sustainably reach the motorisation levels of North America or even Europe are wilfully blind: there simply is not enough space to fit all those cars in the cities of tomorrow, nor is there enough lithium to electrify four to five billion vehicles. It is time to rationalize the use of the car before it is too late.

A true sustainable transport policy would move beyond emissions and aim to improve human well-being by providing inclusive access, without negatively affecting health and living environments. It would act on the contradictions of current transportation model, which benefits a few highly mobile individuals and a vast industrial complex while creating massive socially-borne costs. The key limitations of automobility, such as cost, space and health, could be leveraged to promote and sustain necessary policy changes in infrastructure design, public finance and law, which should be linked to parallel efforts regarding public transport, urban planning, circular economies and so on. With the sustainable transport paradigm well established, many examples of best practices on hand, and inventories of 'quick wins' available (see for instance Peet et al. , 2016), the main question is not *what to do*, but rather *how to do it*. One major step forward would be elevating the importance of active travel at a global policy level, committing national and local actors to long overdue policy changes and freeing up resources currently dedicated to roadbuilding and developing autonomous vehicles. In the end, if we want 'safe, efficient, low carbon and affordable mobility for all', what ticks all the boxes?

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