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An exploration of policy knowledge-seeking on high-volume, low-carbon transport: findings from expert interviews in selected African and South-Asian countries

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A B S T R A C T

This paper shares one element of research undertaken for the UK Department for International Development's (DFID) Applied Research Programme on High Volume Transport (HVT)[1] in nine low-income countries (LICs) in Africa and South-Asia. The research was conducted under the Low Carbon Transport Theme. It examines policy knowledge-seeking among transport researchers and practitioners in a subgroup of nine Sub-Saharan African and South Asian countries; these experts are already convinced of the need for HVT measures and are seeking knowledge regarding successful policy-transfer in order to accelerate transport decarbonisation.

The policies in the countries investigated in this study recognise the need to reduce transport emissions, but this is rarely the measure that drives mobility interventions. Meeting the Paris Agreement targets will depend on whether low carbon, sustainable transport is rapidly and broadly implemented.

Interviews with key informants include questions relating to motivations for seeking policy knowledge; the key policy knowledge that interviewees seek in order to shift country priorities or accelerate low-carbon development; and how best to share and access appropriate and relevant knowledge. These questions are drawn from the policy-transfer theory and processes described in the literature.

Findings from the interviews suggest that key informants are aware of the prevalence and impact of uncritical, unsuccessful policy transfer, given their experiences with new transport measures in their countries; this is a significant lesson-learned. The value of context-specific transport policy transfer rather than off-the-shelf solutions is recognised by key informants, and appropriate policy knowledge is actively sought. A research gap exists to document an evidence-base regarding the influences and mechanisms that lead to successful low-carbon transport transfer processes in low-income countries.

1. Introduction

This paper shares one element of research undertaken for the UK Department for International Development's (DFID) Applied Research Programme on High Volume Transport (HVT)[2] in nine low-income countries (LICs) in Africa and South-Asia: Bangladesh, India, Indonesia, South Africa, Ghana, Nigeria, Rwanda, Uganda, and Kenya (see Appendix B for the country selection process). The research was conducted under the Low Carbon Transport Theme.

The above research (Slocat, 2019) identified the challenges and barriers to HV-LCT implementation in the selected countries, and investigated the existence and nature of gaps and knowledge-needs required to accelerate transport decarbonisation. Meeting the Paris Agreement targets will

depend on whether low carbon, sustainable transport is rapidly and broadly implemented.

This paper focuses on the related knowledge-seeking activities among transport researchers and practitioners in the selected countries who seek to shift country priorities and accelerate low-carbon development.

"Policy", in the policy-transfer literature and in this paper, does not refer to a specific policy or strategic document, but to knowledge about policies, administrative arrangements, institutions, etc., in one time and/or place is used in the development of policies, administrative arrangements and institutions in another time and/or place ((Dolowitz & Marsh, 1996, p. 344). Policy goals, policy content, policy instruments, programmes, institutions, technologies, ideologies, ideas, attitudes, and negative lessons, are all part of policy-transfer (De Borger, 2018).

1.1. Low-carbon transport context in the selected countries

Transport per capita GreenHouse Gas (GHG) emissions in LICs are currently low (0.1 t to 0.5 t) compared to richer countries (1.5 t to 5 t) (Slocat,

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[1] See Appendix C for definition of High-Volume Low Carbon Transport
[2] See Appendix C for definition of High-Volume Low Carbon Transport

2019). In 2010, LICs share of total global transport GHG emissions was 0.5% (Gota et al., 2019). However, a substantial shift in business as usual (BAU) is required to bring transport sector emissions in line with the long-term global climate objectives (0.3 t to 0.6 t per capita) of the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement (2016), which aims to limit the increase in global average temperature to 1.5 degrees above pre-industrial levels.

The policies in the countries investigated in this study recognise the need to reduce transport emissions (Stucki, 2015), but this is rarely the measure that drives mobility interventions. Main motivations include the need to reduce traffic congestion and improve mobility and accessibility for a transport disadvantaged population, expand rural connectivity, deliver energy security, reduce road deaths, and improve air quality (Slocat, 2019). Although slowing down the growth in GHG emissions is an international commitment for these countries, low-carbon transport (LCT) in LICs is primarily a co-benefit of transport that meets broader sustainability criteria (Slocat, 2019).

Improving the probability of reaching global climate targets will require higher ambition and more comprehensive measures in LCT plans, as rapid motorisation has driven substantial upward deviations in projected emissions increases. Growth of absolute transport emissions between 2000 and 2016 was highest in Asia (92%) and Africa (84%) (Slocat, 2019).This growth is attributed primarily to increased prosperity, which in turn increases passenger and freight transport activity. Africa's contribution to global motorised transport demand has historically been low, though there has been a steady growth rate in motorisation of 33% between 2005 and 2015 (Slocat, 2019). However, most of the global transport demand between 2005 and 2015 was in Asia, with a corresponding 88% increase in its motorisation rate. Achieving ambitious transport goals in urban Africa in particular is worrying in the light of the poor record of success, which is compounded by the backlog of investment in transport and continued rapid urbanisation (Pirie, 2014), along with poor-alternatives analysis, vested interests, and political interference (Rizzo, 2015; Klopp, 2016; Burgess et al., 2010; Obeng-Odoom, 2010; Istianto, 2015).

1.2. Development challenges in the selected countries

Low-income countries (LICs) share what Klopp describes for Kenya as a "fairly typical plethora of inter-related urban malaises" (Klopp, 2012, p. 2): high levels of poverty, social segregation, oil dependency, and road crashes, poor air quality, serious traffic congestion, limited transport choices, and a historical failure to invest in and plan for formal bus and train services and long travel distances (Jennings et al., 2018; Intalinc, 2017a; Intalinc, 2017b; Intalinc, 2017c; Intalinc, 2018). Concerns about food security, access to education, housing and healthcare, among others, have a consequential relationship with transport disadvantage for the majority of urban residents.

Poor urban planning, inefficient basic service delivery, poor infrastructure provision, inadequate transport services, unregulated traffic, and inadequate technical, institutional and financial capacities, all add up. Travel is time-consuming and expensive, which affects the competitiveness and attractiveness of developing world countries and cities. The poor status of walking and cycling, and the association of motorised transport with education, affluence and elevated status in society remain ongoing concerns (Jennings, 2016b; Joshi and Joseph, 2015).

Low-density sprawl is a continuing feature of the emerging megacities of the developing world, which are replicating the car-dependent cities of the developed world (Wright and Fulton, 2005; Lah, 2018). Although compact city design can facilitate walking, cycling and public transport, and low carbon development, it is a challenge to retro-fit sprawling emerging cities – resistance to city densification and infill development is common; the high peak-to-base ratios of sprawling cities render public transport financially unviable. Walking and cycling distances remain long (Lah, 2018). Technological innovation is unlikely to be a simple answer to the challenges, despite growth (albeit slow) of bus electrification in developing

cities in South Asia (Li et al., 2018). There is also little evidence in projected trends for anything other than continued motorisation (Wright and Fulton, 2005).

In the selected countries, where the concerns are more short term, the need for pro-poor basic urban services take precedence over environmental concerns. The challenge is to design a development pathway that is pro-poor, climate resilient, and low carbon (Schwanen et al., 2011; Banister, 2011).

In the end, ensuring that mobility interventions are also "low carbon" interventions is rarely a key consideration among decision-makers in the selected countries, and reducing GHG emissions is not necessarily the highest priority when it comes to urban development decision-making (Slocat, 2019). It is a major concern among developing countries that climate mitigation actions impose costs and quantitative emission reduction targets are believed to adversely affect economic development (Mittal et al., 2015).

2. Method

The paper reports the results of qualitative, in-depth key-informant (expert) interviews. Key informants comprised selected individuals from the Partnership on Sustainable Low Carbon Transport (SLoCaT) broader membership network who are already convinced of the need for LCT measures, and are seeking knowledge regarding successful policy-transfer in order to accelerate low-carbon development. Interviewees (at least two per selected country) were invited to participate based on their experiences in working in HV-LCT in the relevant countries, or their work in training, capacity-building or knowledge sharing. This paper is not concerned with what particular interventions key informants 'should' be wishing to learn of, or what policy and practices 'should' be transferred.

The number of interviews was constrained by project resources and project timing. There are fewer interviews from Asia compared to African countries, and disproportionate representation from South Africa[3]. Interviewees in the text are named as Int01, Int02, etc., and are not disaggregated in terms of region or country (analysis found no substantive differences in response). Not all interviewees are cited.

The interviews were conducted between October and December 2018, and took place by voice call, online communication, or face-to-face. Interviews lasted between 60 and 120 min each.

Interviewees are referred to as key informants, experts, and interviewees interchangeably (in other words, all interviewees are key informants/experts).

The small-scale of this qualitative series of interviews means that the paper does not make universal or quantitative claims. Instead, it serves as a first step in exploring the topic, to generate recommendations, and to frame issues before designing a substantive intervention.

Number of the interview as referred to in this paper	Professional affiliation
Int 01	Civil society
Int 02	City government
Int 03	City government
Int 04	Private sector practitioner
Int 05	City government
Int 06	City government
Int 07	Private sector practitioner
Int 08	Private sector practitioner
Int 09	Research scholar
Int 10	Research scholar
Int 11	Civil society
Int 12	Private sector practitioner
Int 13	Civil society
Int 14	Donor agency
Int 15	City government

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[3] There is also substantially more literature published regarding South African transport measures.

3. Literature review

The literature review is not to be taken as a comprehensive, systematic or bibliometric one, but is a review of key papers and concepts to provide the context within which to situate the interviews and inform the interview protocol. The literature review considers policy transfer, sustainability transitions, and best practices, as factors in knowledge-seeking, and looks at policy-transfer as a broad political practice, not necessarily in relation to transport. The available literature offers no evidence to suggest that policy-transfer processes differ significantly between transport, energy, or other policy areas.

There is little literature that evaluates transport policy transfer pathways, impacts, and successes and failures, in the selected countries. This relative lack of transport-specific policy-transfer literature is one of contributions of this paper.

There is substantial literature that considers the broad mobility, climate, and other development challenges facing the selected countries; this literature has been outlined above (Context) and is not the focus of this paper. Instead, this paper looks at knowledge-seeking with regard to LCT, which led the literature search in the direction of lessons-learning, policy transfer, best-practice, study-tours, and low-carbon transitions, among others.

Marsden et al. (2011) describe policy-transfer as part of a process for introducing new ideas into countries or cities, diffusing knowledge about policymaking from one setting, and applying it to another; it can be a "highly politicised process that seeks to justify preferred solutions". Policy learning comprises the use of information and knowledge to make decisions; this process starts with information seeking and leads to adoption and policy change (Lah, 2018; Lee and van de Meene, 2012; Bennett and Howlett, 1992). The "objects" of policy transfer – what is or what is sought to be transferred – includes knowledge of (and actual) policies, goals, instruments or programmes (Pojani and Stead, 2015a). These transfers can include "soft" outcomes, such as inspiration, changes in ideas, concepts, attitudes, and norms, or "hard" outcomes, such as changes in structures, policies, and programmes (Pojani and Stead, 2015a; Stone, 2004. Bulkeley, 2006). Transfer can take the form of copying, emulation, hybridisation, and inspiration, and the lessons-learned can be negative or positive (Pojani and Stead, 2015b).

What travels can be less the policy itself but what Montero (2017a) describes as powerfully emotive and influential mythical narratives, about the success of the policy at source.

Within the various "objects of transfer" or knowledge, information technology transfer is becoming important, for example in bicycle-share systems, shared transport, and electric mobility (Parkes et al., 2013; Marsden et al., 2009).

Early literature on policy transfer suggest something shameful in both seeking and "selling" policy or lessons – with Stone (2001) citing labels such as "policy band-wagon[n]ing", "policy-borrowing", "systematically pinching ideas" and "policy-pushing". More recent work follows suit, with descriptions of policy tourism and policy tourists (Wood, 2014); "policy entrepreneurs" (Dolowitz and Marsh, 1996); elite networks (Stone, 2001), the global "consultocracy" (McCann, 2011) and "persuasive practitioners" (Marsden et al., 2009).

3.1. Best practice as an "object" of policy transfer

"Best practice" and policy transfer have developed what Macmillen and Stead (2014) describe as a "near-synonymous relationship", where "best practice" has become something of a shorthand term for a collection of transfer-related knowledges. From academic research to guidelines to training, the identification and sharing of "best practice" has become a widespread phenomenon. It has become an accepted wisdom, and its development and subsequent sharing, an effective way in which to promote policy transfer and learning.

By tapping into existing knowledge, transport knowledge seekers are able to avoid "unnecessary" pitfalls, and draw their own conclusions (Jallow and Johansson, 2015). Birch and Keating (2011) describes best practice as

methods "gathered from analysed, comparable, successful cases, with defined criteria that has proven to be transferable and scalable" (p. 16).

The literature is dichotomous regarding best practice, however – or perhaps, rather, the literature suggests that much "best-practice" is not such at all. Instead, it might not involve substantive evaluation at all, and can serve as little more than an exercise in informal polling (Wolman et al., 2004, p. 992) or the manifestation of the best advertising and most effective programmatic spin doctoring (Pojani and Stead, 2015b; Macmillen and Stead, 2014). Inspirational "one-size-fits-all" models may gloss over the complexity of local contexts (Montero, 2017b). With regard to South-South Bus Rapid Transport (BRT) transfer, policy adoption has seldom involved a "rational process of technical evaluation" (Marsden et al., 2009, (p. 64), but may instead be an acceptance of simplified inspiring narratives by "persuasive practitioners", who rely not on technical or scientific knowledge but on the suppression of other key contributors to policy success or failure. Contrary to early assumptions, "off-the-shelf" prefabricated best-practice seldom shortens the policy-making cycle, but can instead lead to "lengthy and protracted policy circulation process riddled with experimentation and failure" (Wood, 2015b, p. 568). Searching for suitable solutions, selecting the most appropriate one, gathering background information, and adapting it to the own context, might be as time consuming as creating an own solution (Boulanger and Nagorny, 2018).

Where the conferring of 'best practice' status is used as a reward and recognition for urban and transportation initiatives or initiators, the risk is that only "good news" stories are shared and circulated (Bulkeley, 2006). References to "worst" or "poor" practice are almost non-existent, yet learning from policy failure can deliver valuable knowledge (Macmillen and Stead, 2014). Such "policy boosterism", as McCann (2013) calls it, is a subset of traditional branding and marketing, which involves the active promotion of locally developed and/or locally successful policies, programmes, or practices, and results in the enhanced reputation and burnished image of both the particular city and the policy agents (p. 2).

3.2. Motivations for seeking policy knowledge

Key informants seek policy knowledge for a number of reasons, from responding to new or shifting challenges, or seeking solutions to align with the requirements of donors, trans-national organisations, or other international agencies. Stone (2001) writes how knowledge shared by donor agencies for instance often includes how to prepare competitive project proposals, learn the language of donors, and enter the international community of practice. The increasing influence and power of transnational agencies, and increased internationalism, has led to a more aggressive "pushing" of international policy agendas and a reduced capacity of national policy-makers to frame their own priorities.

Marsden et al. (2011) developed six categories of motivation related to transport: (1) strategic need (policy failure): (1) project or policy collapse; (2) curiosity (sometimes simply based on a visit, work or holiday); (3) legitimisation of current policies and influencing of future funding and policy decisions; (4) the availability of funding; and (5) political intervention.

These motivations for seeking policy knowledge fall on a continuum between voluntary and coerced from lesson-drawing to the direct imposition of a programme, policy or institutional arrangement (Dolowitz and Marsh, 2000) or pressure from political parties, funding bodies and donor agencies, policy entrepreneurs, or experts (Pojani and Stead, 2015b; Stone, 2001) Voluntary policy transfer is more likely to involve a measure of rational alternatives analysis (Pojani and Stead, 2015a). Technological challenges, and new technology, can push national governments and other key informants into policy-transfer, along with economic pressures. Image concerns also motivate knowledge-seeking – fears of being left behind, a desire to be regarded as "world-class" and globally competitive, along with a wish to be identified with affluence or "more advanced neighbours" (Pojani and Stead, 2015a; Jennings, 2016a; Hoffmann and Lugo, 2014).

3.3. Agents of policy transfer

The internet, social media, and increased global networking opportunities have made policy transfer easier, and more wide-ranging; off-the-shelf solutions are seen as being a cheap, simple, and quick way of resolving local challenges (Pojani and Stead, 2015b; Marsden and Stead, 2011).

Although language, culture, constitutional systems, geography and economic structures have tended to lead key informants to learn from their geographic neighbours, there are frequent exceptions (Ison et al., 2011). Policies (i.e. knowledge of, and actual policies, goals, instruments or programmes) are now diffusing in all directions, not simply from the developed to the developing world (Healey and Upton, 2010).

Yet despite the internet, the value of face-to-face contact cannot be matched for its ability to influence and inspire: conferences and forums are the stages on which "persuasive practitioners" (Montero, 2017a) tell their stories. Shifting key informants from knowledge to action requires "active processes of inspiration, persuasion and trust building" that no online platform can facilitate (p. 61). The development of peer networks during a shared, emotional journey, sends study tourists home catalysed with magnified ambition (Vanderkooy and Glaser, 2016) and builds the communities of practice that drive transfer. The literature identifies key players in policy transfer (also referred to as policy actors or stakeholders) as elected officials, political parties, government officials, lobby groups/NGOs, policy entrepreneurs/experts, and supra-national with a recent growth in the visibility and influence of foundations, the academic sector, consultants, transnational advocacy networks, philanthropic institutions and think tanks (Dolowitz and Marsh, 1996; Marsden and Stead, 2011; Stone, 2001; Benson and Jordan, 2012).

'Policy entrepreneurs '– individuals actively selling policies and best-practice around the world, using a network of global advocacy entities (Dolowitz and Marsh, 1996; Marsden and Stead, 2011; Stone, 2001; Benson and Jordan, 2012) – have been the focus of case study work by Wood (2014, 2015a, 2015b), in particular the way in which South African cities assimilated and implemented BRT services. International public transport advocacy groups and research centres played a key role in providing BRT evidence as "best practice", and contributed capacity and financial support to cities interested in replicating it (Wood, 2015b.) Wood wonders if South–South learning regarding BRT serves to strengthen the bonds between southern cities, "shatter" former colonial ties, and "generate southern solutions to global problems" (Wood, 2015b, p. 1067). If so, the author is critical of such an approach, where it overlooks the substantial differences in political, spatial and socio-economic complexities. Wood cites a South African-based BRT consultant in this regard: "It would be difficult to say that we examined the best practices taking place across cities of the global South and ticked boxes on which is best to work with …" (Wood, 2015b, p. 1071). "Rather, the general sentiment was that South African urbanism is far advanced of both its continental and regional neighbours and thus there is little to learn from African or Indian cities."

Where fact-finding missions and persuasive practitioners were the "backbone" of BRT learning for South Africa (Wood, 2014) they were also the catalyst to BRT in Indonesia. In Jakarta, the decision to develop a BRT system was taken as the result of a visit from the [former] mayor of Bogotá:

"The process then stalled before a delegation of 15 officials, politicians, companies, press and NGO representatives attended an international seminar on human mobility held in Bogotá. The Mayor Governor [of Jakarta] subsequently visited Bogotá and a task force was then put in place to really get the scheme implemented." (Marsden et al., 2009, p. 24).

3.4. Challenges to policy transfer

Initiatives that challenge travel behaviour are difficult to implement; political consensus (or the lack of it), risky policies (powerful vested interests and voter lobbies), poor local understanding of policy impacts, technical and other skills, and associated legal and institutional changes, are barriers to policy transfer (Marsden et al., 2011). Despite a proliferation of guidebooks, online communities of practice, and study tours, the pace of transport policy transfer remains slow.

Pojani and Stead (2015a) studied nine sustainable urban transport options in developing countries (road infrastructure; rail-based public transport; road-based public transport; support for non-motorised travel modes; technological solutions; awareness-raising campaigns; pricing mechanisms; vehicle access restrictions; and control of land-uses), and concluded that, despite what "some development agencies" might have countries believe, policy solutions are not simply waiting in the wings, where all that needs to happen is wider implementation.

Policy transfer failure is not necessarily due to a lack of information and knowledge, but also because of inadequate resources, insufficient power to act, and contested understandings of sustainability (Marsden and Stead, 2011). At the same time, the more information agents have about how a programme operates in the originating location, the easier the transfer process (Dolowitz and Marsh, 1996) and the easier it is to predict policy outcomes. If policy failure is the consequence of inadequate information, Dolowitz and Marsh describe this as "uninformed" policy transfer (Dolowitz & Marsh, 2000, p. 17).

Failure to mobilise opinion leaders or elites, and a poorly understood need to get on board local constituencies, public opinion and the media, can also lead to policy failure (Pojani and Stead, 2015b). Policy transfer in Africa and South Asia has been criticised for its limited understanding of the context in which policies were successful at origin; an example of what Dolowitz and Marsh might call "incomplete" policy transfer (Dolowitz & Marsh, 2000, p. 17). "Whereas BRT is nowadays a textbook example … the development process of more than three decades is seldom acknowledged, and other cities tend to copy only the successful 'end-state'" (Hitge and Dijk, 2012).

New policies often have to be grafted upon existing policy environments, and rarely occur in a greenfield situation (Dolowitz and Marsh, 2000). Policy transfer is therefore challenging when substantial differences exist in public transport operational indicators, social, economic, political, institutional and equity conditions and travel demand, travel behaviour, and urban form, population density, even language, between the policy "seller" and "borrower". Failure to heed these causal processes for success are what Dolowitz and Marsh might call "'inappropriate' policy transfer" (Dolowitz & Marsh, 2000, p. 17; Istianto, 2015; Intalinc, 2018; Pojani and Stead, 2015a; Jennings, 2018; Scorcia and Munoz-Raskin, 2019; Lucas and Jones, 2012; Kogdenko, 2011).

Although it is unlikely that "policy-sellers" resolutely ignore context, they rarely address in detail actual implementation – for example, which specific agencies will be involved, in what capacities, deploying what type and quantity of resources, and within what timeframe (Wilkinson et al., 2011). Referring to BRT, Wilkinson et al. (2011) notes that unless such issues are taken up before a project is set in motion, it may well be discovered that not only is it unaffordable without a major diversion of already constrained public resources, but also that it offers a poorer ratio of overall benefits to cost than may have been claimed initially in terms of some abstract model [7,63–65]. (Rizzo, 2015; Behrens et al., 2012; Behrens et al., 2016).

The majority of ex-post evaluation of BRT comes from North American cities, and literature for Africa and Asia is limited (Kogdenko, 2011; Hidalgo et al., 2013; Ferbrache, 2019. Venter et al., 2018).

In one ex-post study of the successfulness of BRT systems in Asia, the author specifically considers "policy transferability potential" as an evaluation criterion – "how easy is it to transfer a particular policy from one country [or city] to another, ensuring similar results". In a terminal evaluation of the BRT project in Jakarta, the evaluators assert that simply copying appropriate institutions, without strong political direction, adequate resources, and the technical capacity of the country of origin, is doomed to fail (Sayeg and Lubis, 2014).

Transport policies that address climate mitigation and adaptation can be in conflict. Policy failure can be due to "tugs-of-war" between developed and developing countries over the distribution of responsibility to mitigate emissions (Lee and van de Meene, 2012).

In the selected countries, BRT and utility cycling are the examples that have received most attention from policy-transfer researchers. A largely uncritical adoption of policies that have failed to deliver as expected has drawn substantial criticism in recent years (Wilkinson et al., 2011; Salazar Ferro et al., 2015; Venter et al., 2018; Behrens et al., 2016). Also of interest to researchers has been the influence of international donors and funding agencies, and the narrative of "world class", in driving this transfer (Jennings, 2018; Scorcia and Munoz-Raskin, 2019; Kogdenko, 2011; Venter et al., 2018).

3.5. What makes policy transfer successful?

Successful policy transfer is, to some extent, the absence of the causes of policy failure: not only rationally considered and appropriate, context-specific interventions, but also with financial and institutional support, technical and procedural knowhow, and media and opinion-maker support (Ison et al., 2011; Vanderkooy and Glaser, 2016). Rietveld et al. (2006), after considering common success and failure factors in eight European case study innovations in sustainable transport, add "passion and enthusiasm" to the list of success factors, on a par with "the ability to fit in with existing system or existing infrastructure" Lee & van de Meene, 2012, p. 254).

Informal institutions – shared cultural conventions, moral codes, societal norms and attitudes to policy compliance – are major determinants of policy success (Macmillen and Stead, 2014). The transitions literature, and particularly that of socio-technical dynamics, suggests that studies of entrenched beliefs, conflicting values, competing interests, and complex social relations (Geels, 2012; Geels et al., 2017) could yield new insights into these determinants, and investigations in path dependency and uncertainty are also likely to make important contributions to this area of study (Wieczorek, 2018).

Learning from good examples is of course essential for successful policy transfer, although Boulanger and Nagorny (2018) caution that "the common belief in the transformative power of the good practice transfer is [indeed] without empirical foundation" (p. 323). After investigating whether replication of good practice can in fact lead to transformative change, Boulanger and Nagorny (2018) propose instead that a mentoring approach rather than 'advice' is more likely to accelerate LCT: while best practice and policy transfer do serve a purpose, learning, mentoring, and co-creating matter the most.

3.6. Gaps in the literature and the evidence

If the broad scholarly work on best practice in public policy making is limited, it is almost non-existent in relation to transport policy: "Little is known about the relative importance of different parts of the transfer process, or the extent to which learning about policies in other areas can influence the effectiveness of policy design in the transport arena and/or policy outcomes. … No studies have yet thoroughly linked policy outcomes to the learning" (Marsden and Stead, 2011 p. 492).

The above work cites Marsden et al. (2009), who systematically considered transport innovations (here, 30 examples of congestion charging, compact growth, and car-sharing) in European and North American cities, and examined the policy-transfer process. Marsden et al. (2009) investigated learning, policy impacts, the way in which the cities learned, how they introduced learning, and what challenges they faced, but were still unable to make conclusive claims on the extent to which policy transfer leads to more effective outcomes.

In a special edition on the transferability of transport policy, convened to investigate the paucity of research explaining why some transport policies achieve widespread adoption while others stall, May and Ison et al. (2011) note that none of the papers in the collection is able to demonstrate the benefits of the process of seeking policy lessons, or understand the nature of this knowledge seeking process. Any tradition of studying policy transfer or innovation in transport has centred on ex-ante evaluation of policies or technology, and "there is little evidence that tells us exactly how the transfer happens, in what social or emotional context, or the conditions that influence the learning and transfer" (Marsden et al., 2009, p. 494). Few studies trace policies through to implementation, in both the developed and the developing world (Benson and Jordan, 2012).

Further, there is a lack of scholarly and grey literature (for example knowledge or evaluation reports) on the way in which decisions regarding mobility (low-carbon or otherwise) interventions are made in the project countries, or, indeed, elsewhere in the Global South; or the way in which policy and other knowledges are sought, transferred, learned, or assimilated into policy or practice. Montero (2017a) notes that while there have been a number of studies that shed light on how policy models and "best practice" are produced and circulated, little is known about how policy actors learn and "are eventually persuaded" to adopt globally circulating policy models. Less is known about the forms of power, governance, and legitimacy that are embedded in the construction and mobilisation of certain policies as world policy models (Montero, 2017a).

There is a surprising lack of ex-post evaluation literature, particularly of recent, costly and infrastructure-heavy BRT systems in Africa and South Asia – considering that the main objective of ex-post evaluation is that of "learning" (Kogdenko, 2011) – and there are many more publications of "best practice" than those of "lessons-learned".

4. Results: Findings from expert interviews

The following section reports the expert interviews, grounding the responses in the policy-transfer theory and processes described in the literature review above, with a view to exploring policy knowledge-seeking on HV-LCT.

This section shares responses from experts to questions regarding motivations for seeking transport policy knowledge; the challenges to transport policy transfer and accelerating transport decarbonisation; the key transport policy knowledge they seek to shift selected country priorities or accelerate low-carbon development; and how best to share and learn appropriate and relevant transport policy knowledge. This paper does not investigate or examine a learning theory, but rather reflects on statements made by experts.

4.1. What motivates transport policy knowledge-seeking

Interviewees were asked what drives knowledge-seeking by decision-makers (or those advising decision-makers) regarding mobility (including low-carbon) interventions in their countries. Their responses are broadly aligned with the literature, above. Across all countries, traffic congestion, air quality, and the need to provide the quality of public transport and reduce poverty, were identified as major motivators. This aligns with the "strategic need" or "policy failure" identified by Marsden et al. (2011), the realisation that current policies will not "lead to the achievement of the [entity's] goals".

Without exception, mobility rather than low-carbon mobility was the proximate goal, according to interviewees, although concerns with fuel-security, and therefore an interest in fuel-efficiency and solar-electric vehicles, are emerging.

"Talking about low-carbon is a 'western luxury thing' – but value is being seen in going low-carbon in order to decrease dependency on fuel imports" [Int01].

"Low carbon is definitely not a priority in terms of South African government thinking. It's a vast country, and they simply cannot make this a priority. Poverty imperatives, and the provision of mobility, are more important. And eventually, it will be about climate adaptation not mitigation" [Int02].

The policy actors – persuasive practitioners, policy entrepreneurs, and international donors and agencies – that emerge in the literature review are known to the interviewees. Concerns were (passionately) raised around the influence of international consultancies when determining not necessarily appropriate mobility interventions locally.

"I'll be frank, BRT was sold to [the national department of transport] and it became gospel. We did not know anything of the implications …" [Int03].

Where low-carbon interventions are promoted, a number of interviewees see this to be because of "global climate treaty imperatives" rather than entirely voluntary national agendas (Int03), or because of "the donors – World Bank, the UN agencies, who care. They are pushing it. With financial incentives" [Int04].

"What is the motive? To be honest, international pressure. When people/funders arrive, they say, 'if you want to have the money, you have to have this', and part of this is to measure carbon emissions or at least estimate them" [Int04].

The desire to "punch above our weight" [Int05] – the motivating "world-class" imperative or "boosterism" noted in the literature review – can, like donor influence, play its part in accelerating transport decarbonisation, even if "for the wrong reason" [Int06]. Of South Africa's emerging electric mobility programme, one interviewee said the following:

"It's a 'global player thing' that's driving [the country's] ambitions, the BRICS line-up, the expert group… We do want to be seen as playing a leadership role. Cape Town must be seen on the same platform as San Francisco" [Int05].

Interviewees are quick to note, though, that donor or international pressure is not necessarily negative, if the measures they promote are rationally considered and context-appropriate:

"Talking to some of the authorities, they just do not care. But if you arrive with money, that will get them to implement. If you arrive with enough money, and that includes [a requirement for] carbon-related emissions reductions, they will do what you are asking" [Int07].

Interviews reveal that there is significant commitment among local transport practitioners to accelerate transport decarbonisation, despite a litany of policy failures and the challenges of multiple unmet development needs:

"Somehow we have to find a way to explain the long-term consequences if you don't start doing [low carbon transport] now. It will be even harder in a couple of years. It has a cost now, but a lower cost than in two years' time. Any financial loss is even harsher in a couple of years" [Int08].

How to achieve this acceleration, how to overcome the challenges, and either harness or shift the motivations for policy-transfer, is discussed next.

4.2. Challenges to transport policy transfer

Challenges to policy transfer in the project countries described by experts are almost textbook examples of policy failure, described in the literature above. Indeed, much of the literature has used these examples as cases in point.

"It should by no means be thought adequate any longer simply to assert that mechanisms and processes that seem to have enabled successful outcomes in one context – say Bogotá or Curitiba – can simply be transplanted to another – say Dar es Salaam or Cape Town – without a very searching examination of whether conditions are in fact likely to be conducive to this" [Int09].

At the same time, barriers to scaling up LCT measures are linked to the motivations for seeking knowledge: where poverty alleviation, the provision of mobility and access, and dealing with traffic congestion, is seen as more important than attending to the low-carbon aspect or impact of any such interventions, LCT is always going to be a hard sell. "A direct link [needs to] made between low-carbon transport and air quality, poverty, ill health … "[Int02]. How to achieve this is a critical knowledge sought see below).

In the selected Sub-Saharan African countries, interviewees believe that mitigation measures are less a priority than resilience measures, as the impacts of resilience projects are more immediate.

"Ghanaians mostly don't care. We have other priorities, and it is right – when your population is dying of malaria, when you are stuck in congestion, why care about climate change? Ghana needs adaption measures. Mitigation is not their thing. They will suffer the consequences, but they didn't

cause it. It's about building resilience to something that is already on its way" [Int04].

"Our countries have two levels of problems: we have poverty, violence, insecurity. These are urgencies. And then, you have long-term goals of reducing carbon emissions. [The approach by authorities is that] let's first fix what's really urgent right now" [Int08].

There are a number of possible low-carbon interventions that interviewees said could directly, and negatively, affect the poor; these are politically risky. In South Africa, the national government has capped price increases on low-grade fuel in the face of recession, monthly fuel price increases, and a national election, which will have an impact on emissions and air quality. In other African countries (for example Uganda, Kenya, Ghana, Tanzania), where there are few limits on the age of vehicle imports and poorly regulated fuel quality, the lack of regulations allows for private vehicles to be more affordable for residents and for whom public transport is a poor-quality alternative. One interviewee described the challenge in this way: "These are not even conscious trade-offs – as low carbon is just not on the agenda [Ghana] – you might do something for the climate, but it might be against the poor [Int04]."

4.3. What transport policy knowledge is sought, and from where?

4.3.1. Making the case for LCT

Despite the challenges, interviewees reflect a desire to make the case for LCT and its related measures to political and other decision-makers, and actively seek the knowledge that might assist in doing so.

"We need to constantly tell our politicians that [low-carbon] transportation is a social service. We need to know how to do this better. We are grappling with the social imperative of public transportation, and the need for subsidy. We need to know how to push the argument" [Int07].

As it stands, "politicians benefit from the current transport system – it's like a 'mini-[gold]mine'. So, there's resistance to changes because it might be the end of this gold mine."[4] [Int15].

Yet "political will" is a double-edged sword and can put pressure on technical teams to develop unsustainable, or ultimately uninformed, incomplete, or inappropriate solutions. Lagos BRT (BRT-Lite, in Nigeria) is one such example. The project has been hailed as benefitting from "strong, forceful support from a politically astute champion" backed by "a solid organisation with superior administrative and technical skills and public transport experience" (World Bank, 2012). at the same time interviewees say it is"financially attractive to passengers and to the state but financially punitive to operators, who have endured operational cost increases for years with no increase in state-set fares" [Int07]. South Africa's BRT services were set in motion by strong political intent, but require up to 75% operating subsidies (Wood, 2014; Scorcia and Munoz-Raskin, 2019; Schalekamp et al., 2017). In Kenya, transportation decision-making has been influenced by the way in which power and institutions operate, both formally and informally, with bus services shifting even in relation to elections [Int10 and Klopp, 2016].

The tightrope of influencing decision-makers requires a multi-pronged approach, as one interviewee put it: his chief insight at a recent learning exchange was "seeing [that there is a need for] various approaches toward [achieving sustainable urbanism] – quantitative, spatial, and technical. [And this requires sharing] the economic, social and environmental benefits that people and politicians tend to overlook" [Int11].

4.3.2. Looking to trusted peer networks and "unbiased inputs"

The critical leaning of the literature comes as no surprise to key informants; it is not news that policy failure is common because of poorly understood local contexts and "boosted" best-practice:

"What works oversees will never work here in Africa. We have to adapt. What is right for our market? There is still some panel beating that is

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[4] Int15's quote has been taken, with permission, from an internal report published in 2017, in which the interviewee made a similar point more clearly, where the lead author was the interviewer.

required to get what is called international best practice to work here" [Int12].

In a reversal of the global, multi-directional diffusion of policy noted in the literature, interviewees are returning to a limited geographical or co-hort range, and are sceptical about imported expertise.

"The solutions need to be home grown and built on what we already have. So many proposals come to us. Now we have BRT, now we have this, then we have that … But we cannot end up taking each and every thing: we have to prioritise, but we don't necessarily have the institutional capacity [or the knowledge] to do so. We must think very critically about BRT, as we have learned [when looking for lessons[that even with the size of South Africa's economy, they are struggling to make it work" [Int15].[5]

Interviewees unanimously recognise a need to learn critical thinking and decision-making skills, particularly regarding context and policy transfer:

"Don't bring [outsiders from our continents] to teach lessons, as they see the problem differently. Africans and Asians have enough experience and enough examples that we can learn from. It's just a matter of working to-gether. We don't need to use the same model everywhere. Every country, every city has its strengths and weakness. We need to recognise them and get them to work. It's not your nationality, it's your experience, I'm tired of hearing the same thing for every city" [Int08].

The pitfalls of "best-practice", evidenced in the literature, are recognised by interviewees, who "want to learn from mistakes" rather than be presented with the gloss. They are suspicious of the "persuasive practitioners" and policy "boosterism" of the literature:

"We want experiences from other cities and regions because they will help us to learn from mistakes, and we will also have a better [programme] because of the different ideas and inputs" [Int15].

"[We need] access to data; and access to information about pilot projects; we need to know where others failed, what are the challenges, what works, what has not worked. We don't want to risk having to reinvent the wheel. We want access to unbiased inputs … [but these are] challenging to get to, because of personal hidden agendas" [Int12].

Give the urgency and scale of urban challenges, interviewees seldom talked of challenges beyond providing and improving passenger transport. Freight transport, and fuel efficiency, seem to have got lost in the search for ways to address traffic congestion in cities and facilitate mobility among the poor. Questions about emissions monitoring and emissions reduction were usually met with answers around air quality monitoring and particulate matter reduction instead, with a nod to relatively recent air quality moni-toring programmes in Kenya and Senegal. Learning from India and China is top of mind when it comes to electric mobility – whether public or private transport – and it is in the conversation about bus electrification that emis-sions monitoring emerges as a topic.

When asked whether "you [are] aware of any implemented HV-LCT projects that have proved to be financially/operationally unsustainable over time, despite successes elsewhere?", "decolonising" transport is a phrase used by more than one interviewee in their response. CNG paratran-sit projects "do not seem to have survived", passenger rail is in trouble fi-nancially in every country, and "the way in which BRT has been implemented in most African cities [is clearly unsustainable]"[6].

"Many of the big projects beloved by politicians are not sustainable" [Int10].

When asked, on the other hand, what projects or programmes key infor-mants would see value in learning from, interviewees point not to highly publicised programmes but to regional successes in paratransit fleet re-newal, fuel- and vehicle import standards, cashless-fare systems (mobile payments) for paratransit, Open Streets events, regulatory reform, and im-proved public transport service contracting.

These measures, by and large, relate to improving or reforming trans-port measures already in existence, and their transformation would play an important role in reducing private vehicle use and improving the emis-sions impact of public transport. As the literature suggests, key informants learn of these interventions through trusted peer networks (through whom they have also made additional connections and contacts) and take pride in continental successes. When asked about improving walking and cycling facilities, interviewees suggest learning from a bicycle-share scheme on the campus of the University of Nairobi, or the low-tech bicycle shares in India. Interviewees reference the Open Streets car-free movement in South Africa, Raahgiri Day in India, or Nairobi's Place-making week – not the "original" Ciclovia in Bogotá, Colombia, on which these concepts were based.

4.3.3. Facing spatial and technical and challenges

A concern was raised regarding the concept of low carbon transport in the "headspace" of decision-makers: "We need to explain to decision-makers that low-carbon is not only electric vehicles and cleaner fuels. We also need to grasp that what we think are low-carbon modes might not be so:

"BRT isn't really an example of low-carbon [despite its fuel quality and size], as there are so many empty buses, so many empty kilometres, as we try to provide off-peak, frequent services." [Int02]. [Sprawling cities with high peak-to-base ratios, tend to run vehicles at low occupancies off-peak.]

Technical knowledge around electric vehicles (EV) is nonetheless sought, even though EVs are "very expensive" [Int02].

"If we brought in EVs, who would we have to maintain them? We have to import technicians for our wind farms. We don't have a huge industry that looks at solar, or is able to look at battery tech, we don't even know how to dispose of them. We don't do much research into alternative fuels. We don't produce electric bicycles. We have a low manufacturing skills base, and all this is hampering a lot of progressive development. What is missing is expertise, training and expertise" [Int02].

4.3.4. Overcoming institutional challenges

There is doubtless a wealth of experience in sustainable transport policy measures and programmes in the project countries, although there are rarely mutually enforcing policy and infrastructure measures across all tiers of government (Lah, 2018). Only an integrated approach can generate the sustainable development benefits (such as air quality, safety, energy ef-ficiency, access to mobility services, and energy security) that drive policy intervention. Inconsistency, poor policy packaging, and inadequate coali-tions across national and local government, mean that policy interventions are not up to the challenge.

Experts shared this limited or lack of coordination between implementing entities and authorities as a significant barrier to transport decarbonisation. One respondent highlighted the challenges of a three-tier government system in Nigeria, with differing skills and capacity levels, decreasing from Federal to State to City level; in this instance, the highly ca-pacitated Federal entity develops guidelines, and each State can determine context-specific policy. While this enables a nuanced approach, "a lot gets lost in the process, and poorer states are not going to implement any-thing…" [Int07]. The situation worsens when the country, state and/or city are governed by people with different political affiliations. Institutional weakness offers an opportunity, on the other hand, to "not get distracted by [new technology such as] EVs – but take a comprehensive look at getting institutional systems in place…" [Int12].

"How do you get the systems in place where the cities make good deci-sions and invest wisely? That's what we need to learn" [Int10].

4.4. Desirable mechanisms for policy learning

Where knowledge-seekers have limited access to learning opportuni-ties, "any type of learning experience, lecture-style, toolkit, site visits, is helpful for me. I value academic literature, as I believe it is more trustwor-thy, but since I left university, I no longer have access to it" [Int02].

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[5] Int15's quote has been taken, with permission, from an internal report published in 2017, in which the interviewee made a similar point more clearly, and where the lead author was the interviewer.

[6] Every Sub-Saharan African interviewee mentioned BRT in response to this question.

Face-to-face engagements, whether in the form of site visits, learning exchanges, conferences or workshops, are interviewees' preferred means of seeking knowledge:

"Site visits [are best] as they help one to plan properly, because what is on the map or internet can be different in real life" [Int15].

As the literature indicates, these personal experiences are highly effective at inspiration, personal learning, and trust building, if not necessarily successful policy transfer. Interviews reveal that hands-on experiences from other cities and regions are valued: "the social interaction, and the relationships formed, gave me the biggest, and ongoing, learning opportunities" [Int11].

As they are sceptical of "off-the-shelf" policy interventions, key informants are critical of one-sided study tours to sites of international best practice. For these to be successful, certain factors must be in place, including the "key stakeholders, the right people, the right background, and the right audience" [Int12].

"Capacity building sessions are a really a good thing, if they are taken seriously. That is a real shame – in Dakar, they can have a bunch of capacity building projects, half the people come in, get their per diems or CPD points, you get paid, you leave" [Int08].

One interviewee, who attended a recent Sub-Saharan African learning exchange event about how to set up a car-free day, said that the opportunity to learn lecture-style, together with hands-on learning, about a wide variety of matters, had overwhelming impact on his personal learning and his ability to replicate the programme. This is the experiential learning to which Boulanger and Nagorny (2018) refers.

"The practical experience of being part of an actual Open Streets event, and looking at the technical details before hand, discussions with engineering firms and transport departments, seeing how road closure happens, and learning of the critical involvement of the media … I would have learned none of this otherwise" [Int01].

Because learning-exchanges bring multiple cities and countries together, all-important contextual learning is possible:

"The [exchange] raised some interesting and difficult questions, such as, how does this apply to other cities which are very different and have less resources, and for that reason the conversation was very rich … A session where everyone had a chance to present the situation in their city [is] really productive'"[Int13].

While written handbooks, "templates", workbooks and manuals are received gratefully by interviewees, there are challenges; one interviewee [Int14] told that only a fraction of the World Bank's substantial repository of learning documents is downloaded.

The interviewees describe a knowledge environment where there is a proliferation of advocacy materials and technical guidelines, but where the "how" remains undealt with: how to make decisions, how to evaluate alternatives, how to assess "sales talk". Key informants wish to learn from rigorous data, and state that many pilot projects are implemented as "half-hearted" attempts without any real data collection and learning.

Online learning receives little enthusiasm: "Webinars do not work" is a blunt assessment from one interviewee. "Poor internet connections, data costs, and time zones are the biggest issue. And these especially don't work if there are many people with questions" [Int12]. Embedded research programmes (between universities and local authorities or agencies) and on-the-job training are favoured policy learning approaches, as are the concepts of demonstration or pilot projects to generate evidence for good or appropriate practice.

Overall, key informants are likely to agree with Boulanger and Nagorny (2018), that rather than abandon the idea of policy learning, co-learning and co-creation is the way forward.

"Whatever we do, it must be a long-term collaborative approach. … It must be about integration, and joint problem solving – all actors need to expect learning and change out of the dialogue" [Int10].

5. Concluding remarks

Although the findings of this study cannot fill the knowledge gaps described in the literature, it is able to offer insights into the knowledge-seeking process, in this case among key informants or experts who are already convinced of the need for LCT measures, and who are seeking the knowledge needs to accelerate their implementation. Particularly, these interviews provide a more balanced perspective than the highly critical literature, on the enduring value of learning from others – despite decades of bearing the brunt of costly policy failure.

Overall, the literature is a critique of failed policy transfer and of policy transfer agents who are at times seen as cynical sellers of transport solutions without sufficient understanding of context and appropriateness. The cited literature is unanimous — replicating policies uncritically is bound to result in policy failure. This literature resonates with key informants interviewed.

The conclusions of the literature, that policy solutions do not already exist and simply await wider implementation, are known to interviewees, who have lived with attempts to replicate policy in such a manner. Interviewees have been party to "mobility events" where persuasive practitioners have plied their trade, and have witnessed the various proposed solutions lose their shine. Media headlines write of "billions blown",[7] projects gone "bust",[8] and multi-billion "flops"[9]; interviewees have also seen 'international best practice' flounder, and describe new, "empty" bicycle lanes [Int02] that have created division, anger, and "I told you so" [Int02] rather than improved safety and increased mode share.

The literature reveals few audit trails showing how transfer happens, in what context, under what conditions, and to what degree of success; this could be read that without such evidence to date, and in the face of evidence of substantial failure, there is little reason to try. None of the selected countries can continue to make mistakes, which cost scare resources, credibility, and common purpose: as one interviewee put it: "We cannot exhaust a [financial] resource we don't have" [Int15].

But while one outcome of policy failure is scepticism about international agencies and solutions "from elsewhere", the appetite to resolve mobility challenges is undiminished among key informants; on the contrary, interviewees share knowledge-seeking activities around LCT solutions that suggest this appetite has increased. This is significant. The value of appropriate, context-specific transport policy-transfer is increasingly recognised, and knowledge is actively sought. The lessons of policy failures to date have been learned among key informants, who in turn share lessons in the conferences, study tours and learning exchanges they attend. An improved evidence base of successful and unsuccessful policy transfer in LICs could have a substantial positive outcome. Contrary to some of the literature, interviewees report both inspiration and action after study tours and learning exchanges where multi-directional learning has been the goal and outcome; here, "magnified ambition" (Vanderkooy and Glaser, 2016) can lead to action. Key informants keep one (critical) eye on global "best practice", and the other on what works locally or regionally, or among country cohorts.

In conclusion, there is still a research gap to document the missing audit-trails, the conditions under which LCT policy-transfer is successful in the selected countries and developing countries in general; such an evidence base could link policy outcomes with learning, pay attention to collaboration efforts, joint learning, and community acceptance. There also remains a need for evidence to make the case for HV-LCT, to show that a context-appropriate shift to LCT can reduce emissions as well as meet development and mobility needs in LICs in Asia and Africa.

Author contributions

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Acknowledgements

Appendix A. Literature review

The purpose of the paper is not to provide a literature review in itself, but to report (Slocat, 2019) on findings from key informants. Thus this literature review is not to be taken as a comprehensive, systematic or bibliographic review, but a review of key papers and concepts to provide the context within which to situate the interviews; the State of Knowledge explored is not only that of the body of literature, but also of the key informants; of interest is the alignment between the two.

The literature scan was conducted between November 2018 and February 2019, and constituted:

1. a keyword search; complemented by
2. stakeholder input; and
3. bibliographies of published papers; and
4. a call for published papers on social media networks;' and
5. email request to Partnership on Sustainable Low Carbon Transport (SLoCaT) organisational database.

The search focused on English language scholarly publications globally. The following four databases were searched:

Science Direct (www.sciencedirect.com);

Google Scholar (http://scholar.google.co.za);

JStor (www.jstor.org); and

ResearchGate (www.researchgate.net).

Key words

Developing countries, Low-income countries, Africa, South Asia

+ transport, mobility, low-carbon transport/mobility, low-emissions transport/mobility, sustainable transport

+ low-carbon transitions, political economy, policy transfer, lessons-learning, lesson drawing, best practice, study tours, capacity building, policy diffusion, knowledge diffusion, policy tourism, learning exchange, policy innovation, review of evidence, ex-post evaluation

Appendix B. Country selection process

A subgroup of countries was selected through a robust, quantitative selection process which focused on identifying DFID countries in Africa and South Asia that have the highest need for low carbon transport. The assumption was that urgency is the highest in countries with high motorisation rates, high current transport emissions, and/or a high projected BAU transport emissions growth.

Twenty-four countries in Africa and South Asia (in which DFID is active) were included in the initial screening process. This pre-selection process was based on a ranking system with six indicators, each of which contained two sub-indicators with national-level data:

Gross Domestic Product (GDP) per capita in 2017 and GDP per capita growth between 2000 and 2017;

Motorisation level and motorisation growth between 2005 and 2015;

Current transport CO_2 emissions per capita in 2016 and per capita emissions growth between 2000 and 2016.

Current (aggregate) transport CO_2 emissions in 2016 and emissions growth between 2000 and 2016;

Projected transport CO_2 emissions per capita for BAU in 2050 and per capita BAU emissions growth between 2020 and 2050;

Projected transport CO_2 emissions for BAU in 2050 and BAU emissions growth between 2020 and 2050.

Thus, the country selection process identified the countries with the highest risk of becoming the largest transport emission emitter among the 24 countries with already high per capita transport emissions, income level growth and high motorisation rates. The final list of the selected countries would comprise up to three Asian countries and six African countries, which equals a threshold of 35–40% of each country subset.

Appendix C. Project definition of high-volume, low-carbon transport

Interviewees received the following in the introductory documentation on the Definition of Low Carbon Transport:

'When we refer to low carbon transport in this project, our focus is on transport interventions that either reduce the implicit GHG emissions from baseline or produce zero GHG emissions. This could include: 1) Fuel and technology changes to current transport modes that reduce the implicit emissions per vehicle km, such as cleaner fuels, greener technology, engine and driving efficiency; 2) Shifting to renewable sources of energy; reducing energy intensity (e.g. reducing implicit emissions per person/km or freight/ton/km, through increased occupancy, or zero emission modes); 3) Improving energy efficiency of vehicles (e.g. though optimised scheduling, fuels, eco-driving); 4) Shifting from current transport mode to another that offers lower GHG emissions per person/km or freight/ton/km transported; 5) Public transport reform programmes (for example quality bus or bus rapid transit projects); 6) Vehicle Recapitalisation programmes; 7) Travel Demand Management programmes; 8) Electric bus and vehicle programmes; 9) Fuel technology programmes; 10) Facilities and programmes for walking and cycling; 11) Greener freight and logistics; 12) Carbon taxation.'

'When we refer to high volume transport, we are referring to: 1) Road and rail passenger transport; 2) Two- and three-wheelers; 3) Road and rail freight transport; 4) Air and inland water travel; 5) Incentives and other regulatory programmes.'

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