March 2022

Knowledge Base on Health-Climate-Transport Objectives

User Guide

Introduction

In far too many instances, existing transport systems contribute to air pollution, road traffic injuries and deaths, physical inactivity, and socioeconomic exclusion. Reshaping mobility with a focus on health and equity will help to increase access to convenient, affordable transport and help to protect the climate.

This document describes a knowledge base to support prioritisation of policy objectives for delivering transport systems that protect health and climate. The knowledge base is made up of four main components:

(1) ***Policy objectives (+ Dashboard)***: Enumerates broad policy objectives as a focal point for delivering transport systems that protect health and climate and shows how the other three components are evaluated for each respective policy objective.

(2) ***System-level impacts:*** Estimates impacts to global health, climate, food systems through achieving various transport policy objectives.

(3) ***User-level impacts:*** Estimates impacts to individual affordability, safety/equity, clean/healthy, and accessibility through achieving various transport policy objectives.

(4) ***Transport measures + key stakeholders:*** Prioritises packages of 'quick win' transport measures to achieve policy objectives and identify needed levels of support from various stakeholder groups.

Overall functions of the knowledge base include: increasing decision-making capacity in national and sub-national officials; amplifying the benefits of policy packages combining several transport measures; and supporting integrated health-climate-transport advocacy messaging for international organisations and advocacy organisations.

Target audiences include national and sub-national policymakers (e.g. health, climate, transport ministries); financiers: (e.g. development banks, philanthropies); international organisations: (e.g. WHO, FAO, UNFCCC); and advocacy organisations with focuses on health, climate, transport.

Knowledge base components

(Note: Below sections/terminology and numbering are linked to matrix on HCT policy objectives).

Figure 1 illustrates the linkages among the four components listed in the introduction above, within a common dashboard in the first tab of the knowledge base.

PO#	(1) Policy objectives	(2) System-level Impacts			(3) User-Level Impacts				(4) Transport measures/actors		
		Health/ Well Being	Climate/ Energy	Food Systems/ Diet	Affordable	Safe/ Equitable	Green/ Healthy	Accessible	Nat'l Gov't	Local Gov't	Private sector
1	**Prioritise safe active and public transport to reduce emissions and increase health benefits.**										
1.1	Reallocate investment in roads towards subsidising **public transport**, improving **active transport** infrastructure	H	M	L	L	M	M	L	L	M	M
2	**Invest in efficient and zero-carbon systems and technologies.**										
2.1	Base planning and infrastructure decisions around the **Avoid, Shift and Improve framework (ASI)**.	H	M	M	M	M	M	L	M	H	H
3	**Ensure that mobility solutions reduce inequities and benefit everyone.**										
3.2	Adopt an **equitable, rights-based approach** to decisions around mobility	H	L	L	M	M	M	M	M	M	M

Figure 1: Dashboard linking four components of knowledge base/decision-making tool.

(1) Policy objectives

Policy objectives capture a range of recommended actions for national and local authorities to support the transition to health-promoting, zero-carbon transport. This tab captures policy objectives and links them to system-level impacts, user-level impacts, and transport measures and key stakeholders.

Inputs: Primary policy objectives are adapted from HCN Briefing 3 (i.e. Transport Systems That Protect Health and Climate) (see Figure 2). Additional policy objectives are taken from other HCN briefings (e.g. Diet and Food Systems for Health, Climate and Planet and Energy systems that protect climate and health (to be expanded as relevant to transport systems).
Calculations: Each policy objective is evaluated against a series of impact variables (on a scale of 3 (High) to 1 (Low)) and linked to additional variables in tabs addressing system-level impacts, user-level impacts, and transport measures + stakeholders (see Sections (2) to (4)).

Outputs: Each policy objective is linked to aggregated *positive* system-level impacts, user-level impacts, and transport measures and stakeholders, categorised as H(igh), M(edium), and L(ow).

PO#	(1) Policy objectives
2	**Invest in efficient and zero-carbon systems and technologies.**
2.1	Base planning and infrastructure decisions around the **Avoid, Shift and Improve framework (ASI)**.
2.2	Increase investment in research and implementation of **zero-carbon** (public, shared, and freight transport.
3	**Ensure that mobility solutions reduce inequities and benefit everyone.**
3.1	Ensure that everyone has **access to affordable and safe zero-carbon transport** that meets their needs.
3.2	Adopt an **equitable, rights-based approach** to decisions around mobility
3.4	National governments in high-income countries should support **low- and zero-carbon transport systems in LMICs**

Figure 2: Sample policy objectives for assessment across three system- and user-level impacts, and transport measures/key stakeholders.

(2) System-level impacts

System-level impacts from transport measures include indirect impacts on health/well-being, climate/energy and food systems/diet. These topics link four HCN briefings that look at the evidence on how current food, energy, transport and health systems are contributing to the climate crisis and impacting peoples' health, and how they can also be part of the solution.

- ***Inputs:*** Individual transport impacts (i.e. direct impacts to transport systems) are evaluated by relative impact to each policy objective (on a scale of 3 (High) to 1 (Low)).
- ***Calculations:*** A cross product of *direct transport impacts* (e.g. 'Reduce congestion') and *indirect impacts* (e.g. health, climate, food impact) is calculated for each policy objective, as shown in Figure 3.
- ***Outputs:*** Aggregated *positive* system-level impacts for health/well-being, climate/energy and food systems/diet indicators are categorised as H(igh), M(edium), and L(ow), as illustrated in Example A.

Example A: System-level impacts are evaluated for Policy Objective 1.1 ("Reallocate road investment to subsidise public transport and improve active transport infrastructure"), against the following sample *transport impact indicators:*

Reduce congestion:
Reduced congestion reduces delivery times and boosts city productivity.

Reduce local emissions:
Reduced emissions of black carbon and particulates improves health.

Increase physical activity:
Increased walking and cycling can reduce prevalence of multiple diseases.

Reduce public transport costs:
More affordable trains and buses reduce carbon emissions and improve health.

					Overall
Health	M	H	H	M	**H**
Climate	M	M	L	H	**M**
Food	M	L	L	L	**L**

Figure 3: Sample outputs (based on sample transport impacts above)

This output illustrates that the policy objective of reallocating road investments to public and active transport improvements is expected to have relatively high impact on health/ well-being; medium impact on climate/ energy; and low impact on food systems/diet.

(3) User-level impacts

User-level impacts are those that accrue to the daily on-the-ground experiences of transport system users (in contrast to the *system-level impacts* described in the previous section). These experiences are captured in a set of eight user archetypes, which consist of theoretical user profiles that represent a diverse range of socio-economic and geographic characteristics (e.g. age, gender, ability, housing location, transport options). See matrix tab "(3) Transport User Archetypes" for a more complete description of each user archetype.

The SLOCAT Wheel on Transport and the SDGs *(Figure 4)* articulates positive interactions between sustainable, low carbon transport and mobility and the 2030 Agenda on Sustainable Development. The wheel categorises SDG targets across four cross-cutting themes — Equitable, Healthy, Green and Resilient — to present these interactions. Under each theme, fundamental notions related to socio-economic and environmental systems on which sustainable, low carbon transport can affect positive change are highlighted. These categories inform the user-level impact analysis (with the first three having particular individual relevance).

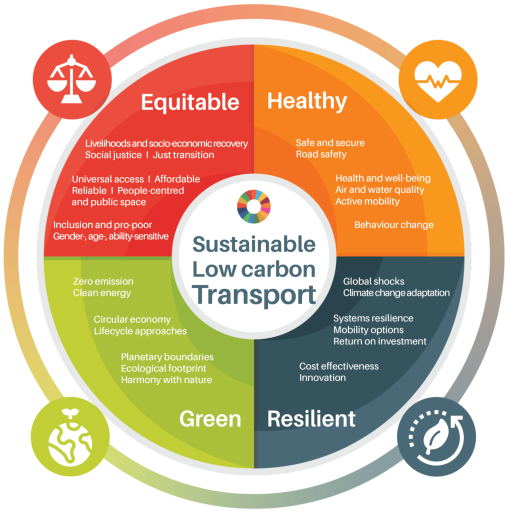

Figure 4: SLOCAT Wheel on Transport and the Sustainable Development Goals (SDGs)

- ***Inputs:*** Individual user archetypes (i.e. direct impacts to users of transport systems) are evaluated by relative impact from each policy objective (on a scale of 3 (High) to 1 (Low)).
- ***Calculations:*** A cross product of *direct impacts to user archetypes* (e.g. urban professional, suburban manufacturing worker) and *expected social benefits for each* (e.g. affordability, safety/equity, health, accessibility) is calculated for each policy objective, as shown in Figure 5.
- ***Outputs:*** Aggregated *positive* system-level impacts for affordability, safety/equity, and cleanliness/health and accessibility indicators are categorised as H(igh), M(edium), and L(ow), as illustrated in Example B.

Example B: *User-level impacts* are assessed against Policy Objective 1.1 (*"Reallocate road investment to subsidise public transport and improve active transport infrastructure"*) for the following sample *user archetypes:*

Urban professional

- High-income country
- Shared mobility, cycling
- 5% income on transport

Urban informal transport operator

- Lower-middle income country
- Self-owned minibus taxi
- 10% income on transport

Suburban manufacturing worker

- Upper-middle income country
- Shared taxi, public bus
- 25% income on transport

Rural student

- Low/mid-income country
- Cycling/walking, public bus
- 35% income on transport




					Overall
Affordable	L	M	M	H	**M**
Safe/Equitable	M	H	L	H	**H**
Clean/Healthy	M	H	M	M	**M**
Accessible	L	M	L	L	**L**

Figure 5: Sample outputs based on sample user archetypes above)

This output illustrates that the policy objective of reallocating road investments to public and active transport improvements is expected to have relatively high impact for the urban informal transport operator and the rural student (each of whom has significant potential gains from this reallocation of investments). At the same time, this policy objective is expected to have a relatively low impact on the urban professional or the suburban manufacturing worker (each of whom has less significant potential gains due to higher levels of affordability, safety, and accessibility in current transport options).

*(4) **Transport policy measures and stakeholders***

Transport policy measures are identified actions that have potential to improve system- and user-level impacts described in the two previous sections. Key stakeholders are those that are instrumental in planning, enabling and implementing these transport policy measures.

Transport policy measures in this analysis include the 20 SLOCAT Quick Wins on Transport, Sustainable Development and Climate Change. "Quick wins" consist of immediate, bold and ambitious measures for shifting the transport paradigm towards an equitable 1.5°C planet.

Transport quick wins are tested at scale and are replicable with the possibility for large-scale impact; technically and economically feasible in both developed and developing countries using available technologies; and available for both passenger and freight transport, with a reasonable balance within the Avoid-Shift-Improve Framework.

These actions have the potential to contribute toward reducing greenhouse gas emissions, thereby moderating climate impacts, while at the same time providing key sustainability benefits, including direct and indirect benefits to health/well-being and diet/food systems.

Key stakeholders in this analysis include the general categories identified in the 20 SLOCAT Quick Wins report (i.e. national governments, local governments, private sector actors, NGOs, development agencies), as illustrated on pp. 48-49 of the report.

- ***Inputs:*** Transport policy measures (i.e. transport "quick wins") are evaluated by relevance to each policy objective (on a scale of 3 (High) to 1 (Low)).
- ***Calculations:*** A cross product of ranked *transport policy measures* (e.g. car and e-bike sharing, efficient bus-based transport systems) and *relative engagement of various stakeholder groups required to achieve each policy measure* (e.g. national governments, local governments, private sector actors) is calculated for each policy objective, as shown in Figure 6.
- ***Outputs:*** Aggregated *positive* system-level impacts for national governments, local governments, private sector actors are categorised as H(igh), M(edium), and L(ow), as illustrated in Example C.

Example C: Sample *quick-win transport measures* are prioritised for relevance to achieving Policy Objective 1.1 (*"Reallocate road investment..."*) and categorised by degree of required involvement of stakeholder groups (e.g. national government, local government, private sector) to achieve this policy objective.

 Car and e-bike sharing: Car sharing can reduce car ownership and bike sharing systems can increase bike use.

 Efficient bus-based transit: Bus rapid transport can reduce traffic deaths, decrease emissions and create employment.

 Zero emissions urban freight: About 50% of urban motorised freight trips in the

European Union could be shifted to cargo bikes.

Sustainable urban mobility plans: SUMPs can reduce carbon emissions and yield savings in capital and operating costs.

					Overall
Nat'l gov't	L	L	M	M	**M**
Local gov't	H	H	H	H	**H**
Private	H	M	H	L	**M**

Figure 6: Sample outputs (based on 'quick win' transport measures above):

This output illustrates that the policy objective of reallocating road investments to public and active transport improvements requires prioritisation of the sample transport quick wins described above in this box (among others). It also illustrates that local government has a pivotal role in planning and implementing the quick wins needed to achieve this policy objective; while the private sector has a mixed role (e.g. with critical contributions for car/bike sharing and zero-emissions urban freight), and national government has only peripheral involvement in realising this objective (e.g. enabling legislation for SUMPs).

Methodology

The outputs in each component ((2) system-level impacts, (3) user-level impacts and (4) transport measures/stakeholders) are calculated through a different approach, respectively outlined in the sections above. The score of every output is normalised to a scale of 0 to 1 (higher value is better). To simplify results, the outputs are categorised as low (L), medium (M) or high (H). The thresholds are set to reflect any score lower than 0.4 as "low," any value above 0.4 but below 0.6 as "medium," and any score above 0.6 as "high."

Limitations

The assessment is currently based on the perceived impact of certain actions in the context of policy objectives. The judgement about the impact depends on the opinion of the reviewer who rates the impact. Future iterations can improve the assessment by making use of literature or by trying to consult several experts on the topic.

The current approach simplifies the results into low, medium or high. Thus, it is unclear how, for example, all results with a low output are ranked. An issue connected to this limitation is that if the general impact scores are low, the final output scores will most likely also always result in a low score. An alternative approach would be to use flexible averages (based on the results) and highlight above-average scores.

The tool does not reflect regional contexts or specific political settings. The general objective was to develop a universal tool with a focus on the Global South. As the Global South is not a homogenous region, the impact of the policies will differ in different countries. Thus, this initial version of the tool should be regarded as a high-level guidance. If there is a need to use the tool in a specific region/country, then the assessment should apply to the respective context and political setting.

Summary

As demonstrated through the above examples, the knowledge base/decision-making tool has the following benefits to policymakers, practitioners, and advocates:

(1) ***Increasing decision-making capacity in national and sub-national officials*** *based on direct and indirect impacts to the health-climate-transport nexus.* The tool allows for the prioritisation of policy objectives by sorting outputs relative to system-level impacts, user-level impacts, and transport measures and key stakeholders (e.g. as illustrated in Figure 1).

(2) ***Amplifying the benefits of policy packages*** *combining several transport measures on the health, climate, and transport interface.* The tool emphasises that achieving broad transport policy objectives (with varying impacts on health/well-being, climate/energy and food systems/diet) depends upon realising a combination of individual policy measures supported by appropriate levels of involvement among various stakeholders (e.g. as illustrated in Figure 6)

(3) ***Supporting integrated health-climate-transport advocacy messaging*** *for international organisations and advocacy organisations in global and regional processes.* The knowledge base provides a basis for a common set of communications approaches across the health/ climate/ transport nexus, and also allows formulation of customised messages for a given organisational priorities (e.g. in enumerating the relative opportunities, threats and imperatives for Policy Objective 1.1 (“Reallocate road investments”) as illustrated in Examples A/B/C above).

References

(1) Policy objectives

- HCN Briefing 1: Diet and Food Systems for Health, Climate and Planet
- HCN Briefing 2: Energy systems that protect climate and health.
- HCN Briefing 3: Transport Systems That Protect Health and Climate
- HCN Briefing 4: Sustainable and Climate Resilient Health Systems

(2) System-level impacts

- Strategies for healthy and sustainable transport, World Health Organization (2021).

(3) User-level impacts

- Transport Action for Achieving the Sustainable Development Goals, SLOCAT Partnership (2020).

(4) Transport measures/stakeholders

- Quick Wins on Transport, Sustainable Development and Climate Change. SLOCAT Partnership (2016).
- Low-Carbon Quick Wins: Integrating Short-Term Sustainable Transport Options in Climate Policy in Low-Income Countries (2019). Stefan Bakker,* Gary Haq, Karl Peet, Sudhir Gota, Nikola Medimorec, Alice Yiu, Gail Jennings and John Rogers.