

THE PEP toolbox: Assessment method

Aim

The aim of the THE PEP toolbox is to identify, assess and disseminate promising examples of interventions or measures on environmentally friendly and healthy transport. The web contains a number of databases that present 'good practices' as sustainable solutions for mobility issues. The criteria for this classification are, however, usually not specified. Moreover, most of these interventions do not take health into account. This is why a number of interventions ('case studies') have been identified, some of which have been assessed and deemed to serve as promising practice. This does not mean that other case studies are not valuable or do not have a positive health impact, but simply that the health impacts have not been evaluated in these case studies.

Methods for identifying and evaluating case studies

The selection and assessment of case studies for THE PEP toolbox was done in a structured way. The following steps were taken:

Step 1: Identification of case studies

In order to identify successful transport measures with regard to health, we collected and selected case studies from international databases, mainly the European Local Transport Information Service (ELTIS, www.eltis.org) and the Pollution Reduction Options NETWORK (www.proneteurope.eu). Case studies in the ELTIS database are searchable by category or keyword. 'Health' was not included in the categories, so the full text was searched for this word, which yielded 159 results. Of the case studies found, some were excluded because their information was incomplete, they were not relevant for healthy mobility, or they appeared twice in the database. A total of 147 case studies were selected for further screening.

Step 2: Screening and selection of case studies

Of the 147 case studies selected, it was important to ascertain whether any measurements had been performed before and after implementation of the intervention. The screening focused on impact measurements in four areas: awareness raising and agenda setting, environment, behaviour, and health. Three assessors screened the case studies based on information available in the fact sheet in the ELTIS database. The assessors assigned a value to each impact area. If they expected that indicators had been measured, the value 2 was assigned to the impact area. The value 1 was assigned when impacts had not been measured but predicted or estimated. The value 0 was assigned to those cases that did not predict or estimate any impacts for a specific area. Weighting factors were assigned in order to determine the total score of an intervention. Health was considered most important and thus assigned the highest weighting factor. The score in the health impact area was multiplied by 3, while impact scores for environment or behaviour were multiplied by 2 and for awareness by 1, as is shown in Table 1. All scores were added up to obtain each assessor's final score. The maximum score was 16. The average and standard deviation of the three total scores per intervention were calculated. If the standard deviation of the three total scores was higher than 4.0, the assessors discussed the

intervention until they reached a consensus about the total score. Table 1 provides some examples of the scoring method.

Table 1: Scoring and ranking table

	Impact areas									Scoring			Result					
	Awareness			Environment			Behaviour			Health				Average score**	Standard deviation***			
	Assessor 1	Assessor 2	Assessor 3	Assessor 1	Assessor 2	Assessor 3	Assessor 1	Assessor 2	Assessor 3	Assessor 1	Assessor 2	Assessor 3	Total Score Assessor 1*			Total Score Assessor 2*	Total Score Assessor 3*	
Case study A	2	1	2	2	2	2	2	2	2	2	2	2	16	15	16	15.7	0.6	Included
Case study B	2	2	2	0	0	0	2	2	2	0	2	0	6	12	6	8.0	3.5	Discussed
Case study C	0	2	1	0	0	2	2	2	1	0	0	0	4	6	7	5.7	1.5	Excluded

* Total score by case study and assessor calculated using weighting factors per impact area.
 ** Used for ranking
 *** Used to determine whether assessors had to discuss the assessment of the case study

Thirty case studies that were part of a larger programme or appeared to be general policy plans rather than a specific intervention were set aside for future evaluation. The remaining 117 case studies were ranked according to their average score. The overall average score was 5.4 (stdev 1.2), with a median of 5.0 and a 75-quartile of 7.3. The 33 case studies with the 25 per cent highest scores were selected for further assessment (average 10.2, stdev 1.2).

Step 3: Collecting additional information

Additional information on the selected case studies was collected using a predefined fact sheet. Information was collected from project websites and publicly available documents. Where necessary, project leaders of the case studies were contacted for additional information. For eight case studies, the available information was too limited for proper assessment or health had not been taken into account. The remaining case studies were independently assessed by three assessors based on the information summarized in the PEP fact sheets.

Step 4: Assessment of the case studies

Three assessors independently assessed the case studies for the following aspects: general methodological quality; impact on awareness raising; impact on the transport system or infrastructure, impact on environmental exposure; impact on behaviour; and impact on health status. A number of implementation issues, such as the sustainability of effects, applicability in other regions/situations and the degree of intersectoral collaboration were also assessed (see Table 2).

For the assessment of methodological quality, the availability of before-after measurements was taken into account, as well as an expert's opinion of the quality of the intervention. Finally, a score was assigned to the amount of interventions that were taken, with the highest scores assigned to combinations of interventions. See Table 2 for details.

Indicators were formulated for each case study and used to assess each impact area. Which indicators were formulated depended on the measures that had been taken in a specific case study. Examples of indicators are the number of participants in an event, the amount of avoided greenhouse gas emissions, the number of people showing a modal shift, or the number of road-traffic deaths. As most case studies did not measure any direct health effects, the impacts on the transport system or infrastructure, environmental exposure and behaviour (e.g. modal shift) were assumed to be indirect health effects (see Table 2).

The indicators were assessed as DET (deteriorated), NMI (not meaningfully improved), MI (meaningfully improved) and NIA (no information available on improvement). The scores of the indicators were summarized in a final score for an impact area. In each of the areas, the final score was ++ (4 stars), + (3 stars), +/- (2 stars), - (1 star) or 0 (no star, meaning that no information was available). The three assessors discussed all of the assessments to reach a consensus on the final assessment scores, which are shown as stars in the overall assessment. For more information on the scoring method, see Table 2.

Table 2: Assessment form

SCORE	★★★★	☆☆★★	☆☆★★	☆☆☆☆	☆☆☆☆
A Assessment of overall intervention design					
Overall methodological quality	Excellent	Good	Moderate	Poor	No information
	<i>Verifiable before and after measurements (calculations) and good study design/analysis</i>	<i>Before-after measurements (or calculations)</i>	<i>No before-after measurements, but predicted/estimated impacts</i>	<i>No before-after measurements</i>	<i>No information on study design and methods</i>
Existing level of evidence on effectiveness	Extensive/Elaborate (favourable results): usually effective	Limited (favourable results): sometimes effective	Very limited (favourable results): usually no effect	Unfavourable results: negative effect	None (innovative)
Combination of measures used					
	<i>The intervention contained all three types of the following measures: informing; facilitating; regulating</i>	<i>The intervention contained two of the three types of the following measures: informing; facilitating; regulating</i>	<i>The intervention contained one type of the following measures: informing; facilitating; regulating</i>	<i>Not used</i>	<i>Not used</i>
B Assessment of health effects					
B.1 Assumed health effects					
Transport system and infrastructure	Effective (meets target) with positive side-effects and no negative side-effects	Effective (meets target) with no negative side-effects	Not effective, no negative side-effects	Not effective, and negative side-effects	Not considered/no information
	<i>Extensive new public transport systems were established and/or infrastructure was built</i>	<i>A considerable amount of public transport systems were established and/or some infrastructure was built</i>	<i>Some public transport systems were established and/or some infrastructure was built, but amount did not considerably increase</i>	<i>No new public transport systems or infrastructure were established</i>	
Exposure impact	Effective (meets target) with positive side-effects and no negative side-effects	Effective (meets target) with no negative side-effects	Not effective, no negative side-effects	Not effective, and negative side-effects	Not considered/no information
	<ul style="list-style-type: none"> • Concentration or emission level of at least one substance was 'meaningfully' reduced in relation to set objectives AND <ul style="list-style-type: none"> • No negative side-effects (such as deterioration in other indicators) 	<ul style="list-style-type: none"> • Concentration of at least one substance was reduced, but not meaningfully AND <ul style="list-style-type: none"> • No negative side-effects (such as deterioration in other indicators) 	OR <ul style="list-style-type: none"> • No improvements (no change) • Improvements in concentration of one/some substance(s), but deterioration in others or negative side-effects 	<ul style="list-style-type: none"> • Deterioration in concentration(s) of substance(s) AND <ul style="list-style-type: none"> • No positive side-effects 	

Impact on behaviour	Significant increase in percentage of people showing other behaviour in relation to target	Small increase, no negative side-effects	No change, no negative side-effects	Not effective, and negative side-effects	Not considered/no information
B.2 Measured health effects					
Health impact	Effective (meets target) with positive side-effects and no negative side-effects	Effective (meets target) with no negative side-effects	Not effective, no negative side-effects	Not effective, and negative side-effects	Not considered/no information
	<ul style="list-style-type: none"> At least one health indicator was 'meaningfully' reduced AND <ul style="list-style-type: none"> No negative side-effects (such as deterioration in other indicators) 	<ul style="list-style-type: none"> At least one health indicator was reduced, but not meaningfully AND <ul style="list-style-type: none"> No negative side-effects (such as deterioration in other indicators) 	OR <ul style="list-style-type: none"> No improvements (no change) Improvements in one/some indicator(s), but deterioration in others or negative side-effects 	<ul style="list-style-type: none"> Deterioration of health indicator(s) AND <ul style="list-style-type: none"> No positive side-effects 	
C Assessment of implementation issues					
Information to be included for reference but not to be assessed.					
Costs	Information to be included for reference but not to be assessed.				
Sustainability	Long-term effect	Some long-term effects	Few long-term effects	Effects are not lasting	No information
Intersectoral collaboration	Very effective collaboration	Some positive collaboration	Little collaboration	Poor collaboration	No information
Applicability	Can be easily reproduced in other situations	Can be reproduced in other situations with reasonable effort for adaptation	Can be reproduced in other situations, but requires a lot of effort for adaptation	Cannot be reproduced in other situations	No information
	No major context-specific implementation issues	Some major context-specific implementation issues that can be influenced	Many major context-specific implementation issues that can be influenced	Major context-specific implementation issues that cannot be influenced	

Definitions

Informing:

Measures that intend to change people's behaviour by informing them about a specific issue and its possible solutions. This includes awareness raising campaigns and educational programmes.

Facilitating:

Measures that intend to change people's behaviour by facilitating a specific option. This includes providing bicycles to employees, opening new bus lines, building bicycle paths etc.

Regulating:

Measures that intend to change people's behaviour by forcing them to choose the appropriate option. This includes adopting laws and regulations.

Health effects:

Hospital admissions, fitness values, body fat, feeling of well-being, number of road-traffic injuries/fatalities, traffic safety.

Infrastructure:

Building bicycle paths, modifying spatial planning, providing services (bicycles for employees, shower facilities for employees, new bus lines).

Environment:
Behaviour:

Emissions, greenhouse gas emission
Modal shift (from motorised transport to walking/cycling), amount of physical activity