

# Report on Behavioural Interventions

## Deliverable 1.3

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### Summary

The report on review of literature in behavioural interventions (Deliverable 1.3) is prepared in relation to address the following questions:

- Factors which are found important in encouraging pro-environmental (i.e. environment friendly) behaviours among individuals;
- Effects and significance of various behavioural intervention implemented in various parts of the world and their role in improving air quality;
- What different methods are available to quantify the effectiveness of behavioural interventions.

The report focused more on mobility (individual travel habits) related interventions in terms of defining their impacts as emissions from road transport is one of the significant contributors of air pollution.

Among the factors for encouraging pro-environmental behaviours in individuals; literature indicated that socio-demographic variables (such as income, occupation, education level) are not a significant determinant of pro-environmental behaviour, however, factors that explains individual attitude, personal motivation, and altruism (i.e. selflessness or non-selfish attitude) are more powerful in explaining these behaviours. Additionally, social context is also important as positive social norms (influence of actions of others) can influence positive pro-environmental behaviour. Citizens involvement in the design and implementation stages are key to foster more positive and long-lasting results.

There are a variety of different types of interventions employed, and they are classified in the literature as informational and structural strategies. Informational strategies are soft (giving information regarding consequences of certain practices and actions) and mostly creating a “pull” effect. On the other hand, structural strategies are primarily hard measures (such as pricing, restriction on entry of motorized vehicles in certain area etc.) designed to create “pull” and “push” effects. It has been shown in the literature that structural strategies are more effective, however, when these are employed in

combination with informational strategies, the effect is more sustainable. Within the mobility field, interventions such as: promoting active mobility and public transportation, pricing strategies (tolls, congestion charging, Parking fee), telecommuting, vehicle restrictions in the form of introducing low emission zones and restricted ownership, electric mobility, car sharing and speed limits introduction are found to have been studied in relation to their effect on air quality. Interventions in relation to active mobility and public transportation are more likely to be used more aggressively due to their pull effects and acceptability among residents, and they are not only appropriate for air quality improvement but also produce healthy life style among residents.

There is a wide body of literature available that tests efficacy of interventions (mostly informational) using small scale experiment by dividing individuals to form control and treatment groups. Commitment, goal setting and prompt (i.e. nudging individual at specific space or time) type of intervention treatments are found more effective among informational strategies. However, at the same time, it is important that barriers and benefit associated with required behavioural change should be examined and selection of the type of treatment should also be based on this situation. Furthermore, integrated models (travel behaviour and environment model) also provide a framework to investigate various mobility-based interventions and their effect on air quality. It is, however, unfortunate that these integrated models have not been used extensively.

In relation to other work packages within iSCAPE, the following is recommended:

- Behavioural interventions related to active mobility and public transport should be examined using integrated travel behaviour and environment chain models;
- Exposure analysis should be carried out using space-time based consideration of individual and air pollutants. Tools such as GPS based mobile apps and mobile sensor kits are available for carrying out these tasks;
- Behavioural intervention needs to be designed considering social context and psychographic and altruistic characteristics of individuals. Identification of target audience along with barriers and benefit of required behavioural change are required to be examined;
- Interventions engaging citizens render fruitful results and foster pro-environmental behaviour among individuals.

The full report will be published in autumn 2017.



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