

USING THE HEALTH ECONOMIC ASSESSMENT TOOLS (HEAT) FOR WALKING AND CYCLING: LESSONS LEARNT



January 2013

Final Report

PHAN project deliverable D7: report on the lessons learnt from the application of the health economic assessment tools for walking and for cycling in the five PHAN project cities and suggestions for the improvement of the tools.



ABSTRACT

The joint WHO/EC project on promoting networking and action on healthy and equitable environments for physical activity (PHAN) ran from February 2010 to January 2013. It aimed at providing Member States with intelligence, guidance, tools, examples of good practices and exchange platforms on physical activity promotion. In addition, the project supported Member States in creating stronger collaboration with other sectors (such as urban planning, transport, education, tourism, sport and leisure) and promoted the use of new tools and approaches to physical activity promotion in different urban environments. Specifically, two of the five project goals aimed to strengthen exchange on experiences made on application of tools for integrating physical activity into city planning and economic assessments and to further develop and refine the tools for planning for and economic assessment of physical activity based on experiences made in their practical application. This report summarizes the experience made in using the health economic assessment tools (HEAT) for walking and for cycling in Brighton-and-Hove (United Kingdom), Modena (Italy), Kuopio (Finland), Pärnu (Estonia) and Viana do Castelo (Portugal), lessons learnt and suggestions for improvements. The PHAN project was supported by the European Union in the framework of the Health Programme 2008-2013.

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1. INTRODUCTION

The joint WHO/EC project on promoting networking and action on healthy and equitable environments for physical activity (PHAN) ran from February 2010 to January 2013. It aimed at providing Member States with intelligence, guidance, tools, examples of good practices and exchange platforms on physical activity promotion. In addition, the project supported Member States in creating stronger collaboration with other sectors (such as urban planning, transport, education, tourism, sport and leisure) and promoted the use of new tools and approaches to physical activity promotion in different urban environments. Specifically, two of the five project goals aimed to:

- Strengthen exchange on experiences made on application of tools for integrating physical activity into city planning and economic assessments;
- Further develop and refine the tools for planning for and economic assessment of physical activity based on experiences made in their practical application.

As part of the efforts to develop and refine existing tools for planning for and economic assessment of physical activity, the PHAN project supported five cities from across Europe in using the Health economic assessment tools (HEAT) for walking and cycling (work package 6). This report summarizes the experience made in using HEAT in Brighton-and-Hove (United Kingdom), Modena (Italy), Kuopio (Finland), Pärnu (Estonia) and Viana do Castelo (Portugal), lessons learnt and suggestions for improvements. It is based on individual reports from the five project cities as provided at the meeting on “Lessons learnt from using the Health Economic Assessment Tool for cycling and walking (PHAN project meeting H)” on 25 September 2012 at Sport Wales, Sophia Gardens, Cardiff, United Kingdom in connection with the annual meeting of the European network for the promotion of health-enhancing physical activity (HEPA Europe). The reports followed the case study template (see Annex 2) developed earlier in the project together with the experts on HEAT and representatives from the five project cities at PHAN project meeting G on 25-26 August 2011 in Kuopio.

2. ABOUT HEAT FOR WALKING AND CYCLING

HEAT for walking and cycling is an online resource (<http://www.euro.who.int/HEAT> and <http://www.heatwalkingcycling.org>) of WHO/Europe to estimate the economic savings resulting from reductions in mortality as a consequence of regular cycling and/or walking. It does so by estimating the answer to the following question: if x people cycle or walk y distance on most days, what is the economic value of mortality rate improvements?

The tool can be used in a number of different situations, for example:

- when planning a new piece of cycling or walking infrastructure. HEAT attaches a value to the estimated level of cycling or walking when the new infrastructure is in place. This can be compared to the costs of implementing different interventions to produce a benefit–cost ratio (and help to make the case for investment)
- to value the reduced mortality from past and/or current levels of cycling or walking, such as to a specific workplace, across a city or in a country. It can also be used to illustrate economic consequences from a potential future change in levels of cycling or walking.

HEAT Health economic assessment tool

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Introduction

- HEAT for walking
- HEAT for cycling
- Examples of applications
- Training sessions
- Methodology and user guide
- Acknowledgements
- HEAT for walking
- HEAT for cycling
- Archive / Previous versions

HEAT Introduction

Welcome to the WHO/Europe Health Economic Assessment Tool (HEAT).

This tool is designed to help you conduct an economic assessment of the health benefits of walking or cycling by estimating the value of reduced mortality that results from specified amounts of walking or cycling.

The tool can be used in a number of different situations, for example:

- **when planning a new piece of cycling or walking infrastructure.** HEAT attaches a value to the estimated level of cycling or walking when the new infrastructure is in place. This can be compared to the costs of implementing different interventions to produce a benefit–cost ratio (and help to make the case for investment)
- **to value the reduced mortality from past and/or current levels of cycling or walking,** such as to a specific workplace, across a city or in a country. It can also be used to illustrate economic consequences from a potential future change in levels of cycling or walking.
- **to provide input into more comprehensive economic appraisal exercises, or prospective health impact assessments.** For example, to estimate the mortality benefits from achieving targets to increase cycling or walking, or from the results of an intervention project.

More information is available at <http://www.euro.who.int/HEAT>

- [Start using HEAT for walking](#)
- [Start using HEAT for cycling](#)

More information

What data do I need?

Before you begin, check that you have the data you need to produce an assessment.

[more...](#)

- to provide input into more comprehensive economic appraisal exercises or prospective health impact assessments. For example, to estimate the mortality benefits from achieving targets to increase cycling or walking, or from the results of an intervention project.

HEAT is based on best available evidence, with parameters that can be adapted to fit specific situations. Default parameters are valid for the European context.

3. ACKNOWLEDGEMENTS

The development of HEAT was carried out within the Transport, Health and Environment Pan-European Programme (THE PEP) and in close collaboration with HEPA Europe. It was supported by an international advisory group of economists and experts on health, physical activity and transport. WHO gratefully acknowledges the financial support received by Austria (Federal Ministry of Agriculture, Forestry, Environment and Water Management), Sweden (Swedish Expertise Fund), Switzerland (Swiss Federal Office of Public Health) and a consortium of donors from the United Kingdom under the leadership of Natural England and the European Union in the framework of the Health Programme 2008–2013 (Grant agreement 2009 52 02).

4. HEAT AND ITS APPLICATION IN PHAN PROJECT CITIES

The project cities were recruited through the WHO Healthy Cities Network in Europe. After an initial expression of interest, they were briefed on a selection of available tools for application at local level for the planning of and the economic assessment of physical activity at the PHAN project meeting F on 23 November 2010 in Olomouc during the annual meeting of HEPA Europe. The tools included: “A Healthy City is an Active City Physical Activity Planning Guide”, the Health Economic Assessment Tool (HEAT) for cycling, HEAT for walking (as of 2011) and “Guidance for economic valuation of transport-related health effects”. After an evaluation of the local situation regarding the promotion of physical activity vis-à-vis the proposed tools, each project city decided on which tool to apply within the scope of the PHAN project. All project cities chose one of the two variations of HEAT (i.e. walking and/or cycling). As these two tools share much of the general concepts as well as they way they are implemented, this report combines the experience and lessons learned from using the two tools.

Throughout 2011 and 2012, the project cities applied HEAT for walking and HEAT for cycling in various contexts and documented their experience. Experts on the use of HEAT (expert group from work package 7 of the PHAN project) provided guidance and training on the use of HEAT, including aspects of data collection and interpretation of results (e.g. at PHAN project meeting G on 25-26 August 2011 in Kuopio. The following chapters reflect on their reported experience and draw conclusions on suggestions for improvements of HEAT for walking and HEAT for cycling.

Kuopio, Finland

Kuopio is a city and a municipality located in the region of Northern Savonia, Finland. A population of 105,229 makes it the ninth biggest city in the country. The city has a total area of 2,317.24 square kilometers, of which 719.85 km² is water and half forest. The population density is low, but the city's urban areas are populated very densely, nationally second only to capital Helsinki.

Summary of the Kuopio experience

Kuopio City Authorities used HEAT to estimate the value of existing levels of cycling across their employees. Funding for the activities was provided by WHO as part of the PHAN project. The activities were also funded by the City of Kuopio and in-kind funding was provided by the City of Kuopio service sectors. An online survey was used to estimate the number of people cycling and duration cycled. A number of assumptions were made including the number of people cycling and average duration cycled over a four week period. The annual number of deaths prevented varied between 0.29-5.66 and the current value of the average annual benefit averaged across 10 years varied between €396,000 and €7,604,000 respectively. The results of HEAT were used to help secure agreement for the promotion of all commuter cycling, but especially during winter, with particular consideration given to winter maintenance and storage services. Future use of HEAT includes a project to promote cycling with large employers situated close to an existing cycle route perceived to be 'dangerous'.

HEAT was used to estimate the economic value of the cycling to work carried out by employees of the city council. The project aimed to use this estimate to develop arguments to further promote cycling, specifically “to find ways to show the benefits of preventive work in monetary terms for the decision makers and to find new ways to promote physical activity”.

Secondary objectives of the project were to develop a model for data collection on cycle commuting, and to explore the obstacles to cycle commuting.



The project convened a steering group to help coordinate activities. The group contained people from a wide range of fields including urban and environment planners and experts from different disciplines including physical activity promotion. It was found to be quite easy to form the group: although people tended to have different expectations for the project, what brought them together was a desire to show the economic benefits of work in preventive work in monetary terms for the policymakers.

A bespoke online survey was designed, based on the Kuopio Region Bicycle and Pedestrian Strategy (2010). This asked city council employees about their usual method of travel to work, and asked cycle commuters detailed questions about frequency and duration of cycling. These data were used to provide input values for HEAT, and to estimate the current value of all cycle commuting carried out by the city's employees.

The results were used in a seminar for decision makers, employees of city of Kuopio, experts from the Fit for Life program and journalists in April 2012. There was a good level of media interest, and positive feedback from organizations such as the Foundation for Sport and Health Sciences; Fit for Life program; and the Finnish Sport Federation.

The next step is to present the results to a wellbeing group of city of Kuopio that consists of directors of all city sectors. This will help to clarify the real impact the HEAT calculations have had on cycle policy in the city.

Summary of learning

The Kuopio team found HEAT 'partly' met their expectations; they had a few small technical issues but produced useful data. The real test will come in time when they evaluate the influence the results have had on policy: they note that decision-making is a long process, so this will take time.

The most challenging aspects of Kuopio's implementation of HEAT were:

- Selecting the most appropriate mortality rate
- Interpreting the results into something meaningful for policymakers
- Conducting repeat (sensitivity) analyses

Pärnu, Estonia

Pärnu is a city in southwestern Estonia on the coast of Pärnu Bay, an inlet of the Gulf of Riga in the Baltic Sea. It is a popular summer vacation resort with many hotels, restaurants, and large beaches. Pärnu has a total population of 42,677 and a population density of 1,300/km².

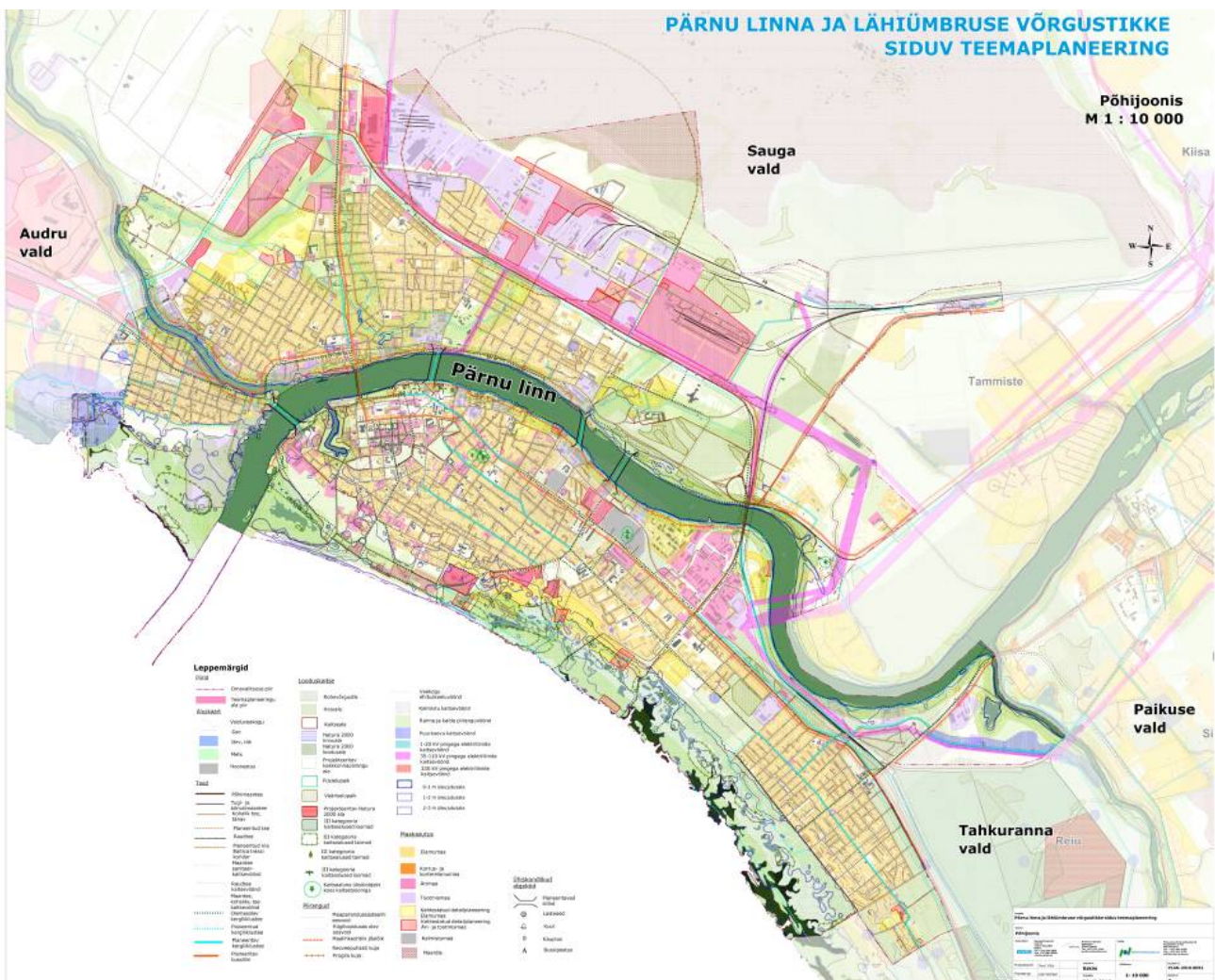
Summary of the Pärnu experience

Pärnu City Government used HEAT to estimate the value of: future projected levels of cycling, measured increases in cycling and existing levels of cycling. Manual counting and questionnaires were used to estimate the number of people currently cycling, duration and distance cycled. This was then used to estimate the future number of cyclists following infrastructure improvements. Assuming that 230 cyclists per day would use the new route, and that 50% of these are additional new cyclists, there would be a

reduction of avoidable deaths of 0.17 per year. Using a country-specific value of statistical life of €1,430,000, this leads to a current value of the average annual benefit, averaged across 6 years of €112,000 per year. The results of HEAT have been used as one of the tools to secure funding to build a new 4km pathway which will link to an existing pathway in order to create a complete circular route around the riverbank, connecting downtown and residential areas. The results are also being used to support the development of a master plan for Pärnu and a strategic environmental assessment.

HEAT was used to provide input to Pärnu’s comprehensive plan, to increase knowledge about cycle usage in the town, and its impacts on health. The objectives were:

1. To evaluate the economic benefits based on number of cyclists using an existing cycling infrastructure on main cycle paths;
2. To evaluate economic benefits from hypothesized additional cyclists;
3. To estimate the economic benefits based on planned infrastructure in different part of the city



The objectives remained flexible as the main aim was to get general knowledge on economic appraisal and extra information for the comprehensive plan. The HEAT team worked closely with partners who are working with developing road and transport infrastructure for the Pärnu masterplan and analyzing its environmental impacts.

The team did not have information on the number of cycle trips per day, mean trip length or how many days cycled per year. They considered the option of using automatic traffic counts but dismissed this as too expensive. They therefore used manual count data and conducted an additional survey to get the relevant data to be used in HEAT model.

Counts and survey questionnaire was implemented on the main existing cycle links over the city, over 4 days at the end of September/beginning of October 2011. The study aimed to explore the cycling habits of Pärnu residents and to avoid the impact of summer visitors on the study.

The survey results provided input to the HEAT model, and this together with survey results were presented to the Pärnu City Government to be used as extra input into the master plan and evaluating environmental impacts as part of a strategic environmental assessment. There was media interest in the results and an article was published in the local newspaper. There was also a dissemination event during celebrations of European Day on Saturday, 12th of May 2012. This included a bicycle tour of Pärnu during which the HEAT results were presented.

Summary of learning

The Pärnu team found HEAT 'partly' met their expectations: they found that the results provided useful inputs to the new master plan of Pärnu, alongside helping the environmental assessment. They report that the information was "inferential and rather illustrating" but still useful as it provides additional evidence to support action on walking and cycling. The most challenging aspects of Pärnu implementation of HEAT were:

- problems in estimating the number of people cycling, especially using the 'return trips' question;
- some respondents could not identify specific routes, but just circled the whole city on the map;
- assumptions had to be made about the total number of people cycling from general responses to the questionnaire; and
- as it was found to be uncommon to give an economic value to human life, the economic appraisal component was difficult to communicate.

Brighton and Hove, United Kingdom

Brighton and Hove is a unitary authority area and city in the ceremonial county of East Sussex, England. It is England's most populous seaside resort with a total population of 273,400 and an area of 87.54 km².

Summary of the Brighton and Hove experience

In England, the Cycling Towns programme provided funding to increase levels of cycling across selected towns and cities. In Brighton & Hove, local authority and NHS staff used HEAT to explore any potential health economic benefits from involvement in the programme. Existing cycle count data for the period 2006 – 2010 were used and assumptions made regarding average days cycled per year and the average duration per cycle trip. Results showed that between 2007-2010 there was a 30% increase in the number of cyclists, the current value of the average annual benefit averaged across 10 years was £220,115 and relative risk of all-cause mortality of 12%. Assessments were also made on a projected increase in cyclists (260%) and an increase in cycling, duration and frequency resulting in economic benefits of up to £6.25m and relative risk of all cause mortality of 20%. The economic assessment

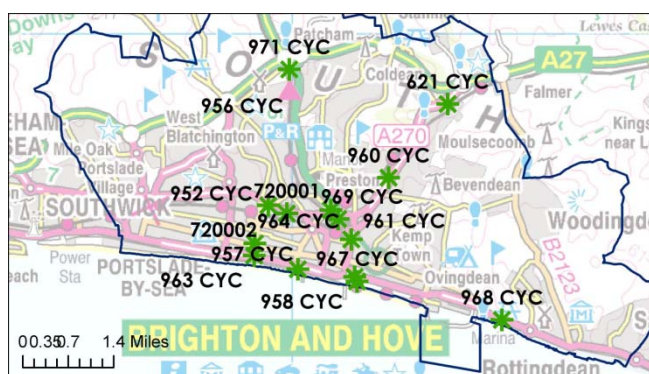
provided by HEAT was very well received and the tool is now going on to be used in the business case for a new traffic calming scheme for both for walking and cycling.

Brighton and Hove was a designated Cycle England Cycle Town from 2006 – 2011, so the team involved in the project saw this project as an opportunity to use a tool to explore any potential health economic benefit from involvement in the programme. The HEAT team hoped the project would help to strengthen links between public health and sustainable transport, and strengthen the business case for investment in active travel infrastructure.

The aim of the project was to show the financial benefit of various sustainable transport schemes to help inform policy makers and attract funding streams for future transport schemes.

The team found that there was no difficulty justifying involvement in the work, as partners saw the economic case for cycling as an important argument to be made to justify investment.

As a Cycling England Cycle Town, Brighton and Hove had a large amount of existing cycle count data for the period 2006 – 2011. These data were from both manual and automatic counts and in locations covering most of the city. This was combined with other data and default values/assumptions in HEAT to provide inputs to the model.



The results demonstrated the health economic benefit from an increased level of cycling between 2006 and 2010 using the conservative defaults. The team then showed what the benefit would be if we were to set a target to substantially increase the cycling levels – from 3% to 10% of adult population cycling - and also increased (conservatively) the average number of days and the duration cycled. The health economic benefits demonstrated were substantial and appeared to have been influential in the team being asked to

continue work on HEAT for an assessment of a new traffic calming development.

The results were received very positively at a dissemination event, and appear to have been useful in strengthening the business case for investment in active travel.

Summary of learning

The Brighton team found HEAT met their expectations. In their own words “We had expected HEAT to provide a tool which could potentially strengthen business cases for investment in active travel; so far this is proving to be the case.”

They found good support for the use of HEAT from a wide variety of stakeholders and following their dissemination event they have been asked to apply a HEAT assessment to a major new traffic calming proposal by the lead commissioner for transport.

The most challenging aspects of Brighton-and-Hove’s implementation of HEAT were:

- Finding their way around the user guide
- Lack of examples to follow
- Working through a 'trial and error method' (i.e. it was only through trying different inputs that they decided what to use and what was more important)
- Understanding the concept of risk reduction

Modena, Italy

Modena is a city and comune (municipality) on the south side of the Po Valley, in the Province of Modena in the Emilia-Romagna region of Italy. It has a total population of 186,108 and a population density of 1,000/km².

Summary of the Modena experience

The City of Modena, Italy used HEAT to estimate the value of existing levels of cycling, measured increases in cycling, future projected levels of cycling and the health benefits produced by the use of a new cycling path which connects the main hospital / university with the city centre. Funding for the activities was provided by WHO/Europe as part of the PHAN project. A manual cycle count was used to measure the number of cyclists on two main crossroads; distances were based on the length of the cycle stretch cycled and the known total length of the path. Assumptions were made regarding the average distance cycled per person per year and the amount of cycling per person per year. Results show an anticipated increase in cyclists of 1,091, and an associated number of avoidable deaths of 0.35 per year. Average mortality risk is expected to decrease by 5.13%. The current value of the annual benefit averaged across 10 years is: €414,000. The results of HEAT were used to help secure agreement for the new cycling path.

The project team in Modena used HEAT to evaluate a project about the construction of a new cycling path. The objectives were:

- to use HEAT to evaluate the validity of a new cycling path through an economic assessment of the costs and benefits, and an evaluation of the impact of the project on the health of the potential users of this path and
- to improve working with other sectors of the local government including the coordinator of the new cycle path project.



The team secured good cooperation from city decision-makers, who wanted to seize the opportunity to have a WHO tool that would support the validity of the project of the new bike path in terms of costs and health for the citizens. They were also able to bring together professionals from diverse disciplines

including urban planning; mobility and transport. They also collaborated with a cycling organization to find data about cycle path usage.

The project team was able to use existing data and combine this with a new survey of citizens' cycling habits, and data about the new path (including its proposed length).

The results were thought to be 'extremely useful' and were considered in the decision making process: they helped to justify the building of the new cycling path; and they helped discussions with local government and with the citizens about the positive impact on health and on city mobility.

The results of HEAT appear to have been influential on the citizens' opinion about the path. A communication plan has now been written that will disseminate the results for citizens and local government.

Summary of learning

The Modena team found HEAT met their expectations; they found that the exercise enabled them to make the case for investment in cycling, and to develop a communication plan to disseminate the results for citizens and local government. The results have seen to be positive for all the groups involved in this project. The Modena team did not report any particular challenges in using HEAT.

Viana do Castelo, Portugal

Viana do Castelo is a municipality and seat of the Viana do Castelo District in the Norte Region of Portugal. The city proper has a population of 36,148 and the municipality has a total population of 91,238 over a total area of 318.6 km² (population density 286.4/km²). It is located at the mouth of the Lima River.

Summary of the Viana do Castelo experience

The HEAT team in Viana do Castelo has found that most Portuguese local councils say they would like to invest more on walking and cycling infrastructure, but they do not routinely use an economic model to estimate whether the investment is worthwhile. They therefore set out to use HEAT in the city to influence planning decisions.



The City of Viana do Castelo is located in the North of Portugal. The HEAT project was carried out by the University of Minho and the National Laboratory for Civil Engineering (LNEC) in collaboration with the City of Viana do Castelo, who also provided the support for the data collection. The City is a member of the Healthy City Network, and as part of this, launched the project "Come and Go without Polluting", to encourage people to use forms of transport alternative to the car. This had the following objectives:

- to use bicycles where cycle lanes and parking facilities had been built in various parts of the city;
- to promote walking, by creating the 'Healthy Footprint', a set of urban routes which promotes physical activity alongside the enjoyment of various city spaces; and
- incentives to residents to car-share.

The HEAT team aimed to use HEAT to help raise awareness of the issue of promoting walking and cycling at the regional and national levels. To do this they investigated two scenarios:

- Scenario A – Improving Public Space for Pedestrians. This refers to a reconstruction project of a street designated "Rua Monsenhor Daniel Machado", located in the historical city centre. The reconstruction was finished in September 2012, and the team predicted increased pedestrian traffic volumes. They conducted what they considered to be a conservative assessment, as the 'post' figures were only shortly after the reconstruction, and it is thought that pedestrian volumes would continue to rise.
- For scenario B, the City team examined potential savings that might be achieved if the number of cycling trips increased across the city by 10%, 20%, 30% and 50%. This was important to understand the contribution of investing in cycling infrastructure and other related measures to generate future value.

Data collection comprised the following steps:

1. estimates of walking and cycling volumes based on traffic counts; and
2. data collection through the development of a local mobility survey targeting both potential walkers and cyclists; data indicators included origin - destination of trips; average distance/time travelled; number of trips; and identification of key barriers for walking and cycling.

Both scenarios produced very positive results. Scenario A (improving public space for pedestrians) found the benefit cost-ratio of the street reconstruction to be 3.5:1, demonstrating that the potential health benefits that may accrue from street reconstruction are much higher than the associated investment costs. The team also conducted various sensitivity analyses including varying the interest rate. Scenario B (planning future cycling infrastructure) considered the cycling plan for the city of Viana do Castelo, using a 10 year timeframe for the health benefits assessment. The estimate for future usage resulted in benefits of between €95,000 and €1.74m.

These results have been extensively communicated including a paper at a European Transport Conference and a dissemination event at the City of Viana do Castelo. This workshop was jointly organized by the City team and involved the participation of policy makers and technical staff members from all departments/divisions (multidisciplinary team responsible for mobility planning, land use, social and environmental management and city sustainability). The use of HEAT was evaluated during this session and 75% of the attendees considered HEAT tool to be "extremely useful" or "very useful" and 25% considered it as "moderately useful".

The attendees suggested that future applications of HEAT tool should include (in priority order):

- supporting the city's strategy for sustainable mobility (to help to demonstrate the health benefits of regular walking and cycling);
- supporting the economic appraisal (Cost-Benefit Analysis) of walking investments;
- supporting the economic appraisal (Cost-Benefit Analysis) of cycling investments; and

- to help the city to meet objectives for sustainable mobility, health and quality of life. The team also made a number of suggestions for future improvements to HEAT (detailed in section 4 below).

Summary of learning

The HEAT application involved a close cooperation with the city staff from “Câmara Municipal de Viana do Castelo” who contributed actively to the data collection. It was also found that the application of the HEAT tool had a high acceptability of local decision makers and city officials, as demonstrated through the final workshop/dissemination event. Results of the HEAT tool were particularly important to support the city strategy to promote walking as a healthier transport mode in the historic centre and to demonstrate the benefits of pursuing regular activity. The City team has said that “the HEAT tool can act as an important tool to make people aware the health benefits of regular walking and cycling. Indeed, individuals’ awareness of the potential health benefits of regular cycling and walking can be important to encourage people to uptake active mobility styles”. In addition, they found that the inclusion of health benefits of walking and cycling in the cost-benefit analysis of transport investment makes a stronger case to support both economic and social efficiency through a shift to healthier transport modes. The most challenging aspects of implementation of HEAT to date have been finding appropriate data; as local data were not available, a bespoke survey had to be conducted.

5. LESSONS LEARNT IN THE APPLICATION OF HEAT FOR WALKING AND HEAT FOR CYCLING

The project teams discussed the learning from their applications of the HEAT model, and issues that may be taken into account in the further development of HEAT. These are set out in detail below.

Winning support for the use of the model, and involving relevant stakeholders (in particular regarding non-health sectors). Most cities found winning support for the use of the tool to be easy: health is recognized as an important output of active travel projects, and HEAT helps to solidify and quantify this. The link to Healthy Cities and the increased attention being paid to health impact assessment seems to have helped this. HEAT can help to bring transport and health colleagues together – an important issue in its own right. In many cases it seems that HEAT has enabled conversations about investment in cycling and walking that might not normally have happened. This is because the tangible nature of HEAT (as a tool ready to go and be applied to any project) means that it helps to focus people’s minds on finding the most appropriate opportunities. It was also found that in many cases, decision makers opted to participate in the testing of HEAT as it was felt that this would provide WHO endorsement to their plans, through providing evidence of the health benefits of investment. HEAT also seemed to help to encourage the involvement of a variety of non-health stakeholders to sit around the table to discuss walking and cycling. This is mainly because it provides a tangible and economic output from the model (i.e. it does not present obscure or difficult to understand health concepts).

Non-health sectors were also included in the dissemination of the results in a number of the case studies. For example, the City of Kuopio included urban and environment planners in their advisory group; Pärnu worked with road and transport infrastructure planners; Brighton and Hove worked with the lead commissioner for transport (who subsequently requested a new HEAT analysis of another traffic proposal).

Defining objectives and possible alternative scenarios (pros and cons)

In some of the cases, it can be seen that people firstly decided to use HEAT, and then decided how they would use it. This is probably a symptom of these being case studies: they were initially keen to use HEAT in some way so they agreed that first and then agreed the focused objectives. This would probably be different in a real world situation where it is thought that projects would have a plan in place, and would then use HEAT to investigate its economic aspects.

The majority of these case studies were really using HEAT from an advocacy point of view: they wanted to justify investment in cycling and walking. This is a valid use of the tool but it might be different from a group that is attempting to decide how to invest in transport infrastructure and has to decide between competing options.

One case study in particular demonstrated the value of presenting analyses of different scenarios in order to investigate the difference in outcomes, and to help in their communication. The Viana do Castelo team tried different scenarios of varying levels of cycling, from an increase of 10% to 50%. This helped them to demonstrate the impact that these different levels of cycling had on mortality and economic benefits, and also to some extent showed that they were making reasonable and realistic assumptions.

Identification of required data (sources) for baseline assessment

For most of the PHAN cities this was one of the most serious hurdles to cross. Most cities did not have data on the levels of walking and cycling that could be used as inputs to the model. Only Brighton had data from automatic and manual counts, and even they had to then make assumptions and use default values on some parameters. The other cities therefore used the resources of the PHAN project to conduct new surveys to collect the data they needed for the model. The implication of this is that without the support of projects like PHAN, many potential users of HEAT may be limited by the amount of cycling/walking data they have, and the resources available to collect new data. Other data collection issues that emerged were problems estimating the total length of cycle journeys (i.e. whether to assume it was the same as the bike path, or less) and the proportion of return journeys.

Technical issues including use of the website

Most users found the website itself easy to access and use. The most prevalent criticism was that the site is dense and text-heavy, and is not visually appealing. Some found that the WHO authorship of the website was not entirely clear. One case study had problems with the mortality rate section; another was critical of the lack of summary tables that brought together all the options that had been tried. This would be particularly useful when performing sensitivity analyses. A small number of users suggested it would be useful to have the facility to save local data as default values – for example, in drop-down menus – or references to local data sources. This would save time, which is spent searching for data and considering its comparability and thus usability in the tool.

Perhaps the most significant challenge was in interpreting the results: one case study said that even with a familiarity with health economics it was a little challenging.

There were some specific small problems with the website that are addressed under 'suggestions for improvements' below.

User guides/help menus

The user guide was found to be comprehensive but also quite a 'heavy' read. While to some extent this is inevitable (as it is a technical document), there may be ways that it can be simplified. The on-screen prompts were universally liked and used by the PHAN cities. The only criticism is that these prompts do not print when the pages are printed.

Using the model to calculate the value of health benefits

Some of the cities found difficulties in making the estimations or assumptions needed for inputs to the tool. This may be a general cultural issue - i.e. being unfamiliar with the need for assumptions in economic analysis – rather than a specific criticism of the HEAT model. This also extended in one case to being unfamiliar with the whole concept of applying an economic value to human life.

It also appears that it is only through using the model and applying different scenarios that people are able to understand it fully. One city representative pointed out that it was only by practicing with several different scenarios that they were able to be clear about what they wanted to achieve and what outcomes they were looking for. It is possible that WHO could emphasize this aspect more – and the need for sensitivity analyses.

Using the outputs to inform decision makers and integrate into decision-making processes

All of the PHAN cities report that the HEAT calculations have been useful in making the case for cycling investment in their cities. There is little direct evidence of this, as it is extremely challenging to be able to attribute changes to HEAT itself. The next steps for the cities may be to evaluate this aspect in a more focused manner; trying to assess the process of implementation and demonstrate the role that HEAT played in each case.

There were no accounts of the HEAT approach being rejected by decision makers in any of the cities, with the city managers reporting that it was easy to gain support for the approach in their city. This may be due to a biased sample (i.e. the PHAN cities were already nominated for their enthusiasm for the approach) as much as it is due to the solidity of the HEAT approach and its endorsement by WHO.

The use of HEAT and, in particular, the interpretation of the results may be difficult for those who lack health economic knowledge. Training may be needed on this aspect, along with construction of multi-disciplinary teams including economists alongside planners and campaigners etc.

Another issue is that there is some recognition that the values quantified through HEAT are not real cost savings that can be attributed back to the transport sector. Some policymakers may reject the approach due to this.

Communication and dissemination (including events)

This was a slightly biased sample of users: most of them were very positive about using HEAT and promoting cycling and walking, and so were more likely to take part in positive promotional activity. These included press releases and media activity; launches and promotional events; and joint meetings. The most critical challenge for the cases studies was in influencing policy decisions in the long-term.

Some specific suggestions for improvements of the HEAT website included:

- A 'quick start' user guide
- Results in a format that could be exported more readily to presentations and reports (e.g. as a spreadsheet)
- A clearer explanation of which mortality rate is being used in the calculation
- The ability to generate sensitivity analyses without re-running the calculations
- A value per person might be considered
- Outputs for different scenarios being available in a single results page
- The ability to save local data that was used in earlier calculations

6. OUTSTANDING ISSUES AND NEXT STEPS

This analysis has provided some critical feedback to the HEAT team to help with the development of the tool. Priority actions following the final meeting with the project cities and the HEAT expert meeting in December 2012 (PHAN project meeting I) have included:

- routine maintenance of the HEAT website to improve functionality
- the collection of case study examples to publish on the website, to demonstrate different approaches and to highlight the breadth of potential uses of HEAT at local, regional and national level
- improving correct use of HEAT by instigating a programme of monthly online training to enable new users and discuss problems
- the commissioning of an Excel version (offline) of the walking and cycling tool, to be used by more advanced users and/or those who want to integrate into other spreadsheet or database tools
- investigating the integration of country-specific values of a statistical life (VSLs) into the site
- considering the addition of morbidity
- updating the reference case for walking and cycling.

These improvements should help to ensure that HEAT continues to be a practical tool to help people making the case for investment in cycling and walking.

ANNEX 1: TEMPLATE FOR DEVELOPING CITY-SPECIFIC WORKPLANS FOR THE APPLICATION OF HEAT FOR WALKING AND/OR WALKING

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REGIONAL OFFICE FOR EUROPE

WELTGESUNDHEITSORGANISATION
REGIONALBÜRO FÜR EUROPA



ORGANISATION MONDIALE DE LA SANTE
BUREAU REGIONAL DE L'EUROPE

ВСЕМИРНАЯ ОРГАНИЗАЦИЯ
ЗДРАВООХРАНЕНИЯ
ЕВРОПЕЙСКОЕ РЕГИОНАЛЬНОЕ БЮРО

Training workshop on physical activity assessment tools
(PHAN project meeting G)

EUDHP1003966 / 4.2 / 6

25-26 August 2011, Kuopio, Finland

02 August 2011
Original: English

Using the Health Economic Assessment Tool for cycling and walking

Template for preparation of the city-specific work plans

The purpose of the meeting is to help cities in the PHAN project group to use the HEAT tool, and to develop a detailed work plan for using the tool in their city.

Experts in the HEAT will be available for hands-on assistance in all aspects of using the HEAT tool. However, to ensure the best use of the limited time, it would help a great deal if you could do some preliminary preparatory work before the meeting.

Below are ideas for 11 steps to be taken towards developing an implementation plan for using the HEAT in your city. Please consider them all before the meeting and write down your plans and ideas for each of the 11 steps below. It would help the preparations of the experts, if you could then share these with them prior to the meeting. For this purpose, please send them to us by 14 August 2011 at csc@ecr.euro.who.int.

1. Play with the HEAT!

Go to <http://www.heatwalkingcycling.org> and familiarize yourself with the way the tool works. Click on all the help menus and 'additional info' boxes and read as much as possible. Invent some data and run lots of imaginary scenarios, and see what figures the HEAT produces. Do the same for walking and cycling. Make a note of anything you would like clarified.

2. Bring all relevant colleagues together

A wide range of people may have an interest in making the case for cycling and walking in your city, and it will help to understand their perspectives as much as possible. These might include:

- Public health professionals
- Transport planners
- Elected officials
- Transport economists



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- Cycling and walking user groups
- Researchers and statisticians
- Campaigners
- Academics

Consider convening a meeting to bring together these people to understand what they want from this work. Or at least seek ideas from as many of these as possible.

3. Define objectives

Why do you want to use the HEAT? Discuss with colleagues the main purpose of conducting an economic appraisal. It might be one of the following:

- To 'make the case' for cycling or walking generally. To do this you might value the current level of walking and cycling and demonstrate how much it is 'worth' to the public purse. Or you could model different levels or patterns of walking and cycling and show the difference in mortality. For example: 'what is the value of doubling cycling in our city?'
- To investigate the potential impact of different interventions. This could model different scenarios and calculate the benefits of each. For example, comparing investment in leisure trails in parks with investing in on-road infrastructure for commuting.
- To evaluate an intervention that has actually happened. If cost data are available, this would involve calculating the benefit-cost ratio of the intervention. For example, showing that every €1 spent on walking results in reduced mortality worth €2-3.
- To add into a more comprehensive economic assessment. For example, if you already have data on benefits of cycling or walking infrastructure to congestion and pollution, HEAT helps you add in the health (mortality) dimension.

Overall, it is helpful to be as specific as possible from the start, and to make sure that the output of the HEAT (the value of reduced mortality attributable to a specified level of cycling or walking) is useful to you before you begin. For example, you should have a clear idea of how the output of HEAT can be used in decision-making processes (or existing assessment processes) to increase walking/cycling in your city.

4. Define an alternative scenario

In order to be able to demonstrate the impact that the use of HEAT has on walking/cycling in your city it is useful to define one alternative scenario for comparison. For example, if the plan is to build cycling paths and use HEAT in the economic assessment process of this infrastructure project, you could define as an alternative either

1. inaction, i.e. no cycling paths and no other use of the resources (zero scenario)
2. shorter/fewer cycling paths (reduced scenario)
3. longer/more cycling paths (increased scenario)
4. use the resources for other transport-related activities, e.g. build a pedestrian zone or parking lots for cars instead (substitute scenario)

For the purpose of this project, of course alternatives 1,2 or 4 would be of interest. While alternatives 1 and 2 could possibly simply be assessed by adjusting certain parameters in HEAT, alternative 4 could be more difficult to describe in quantitative terms. A qualitative analysis might suffice in this case for the final report of



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the project.

5. Review existing data – identifying gaps

The better the data you put into the HEAT, the better the estimate that comes out. Before the meeting, consider what data you have available on walking and cycling that could be used as inputs to the tool.

You may already have all the data you need to use the HEAT. Review what you have from across the city, and check whether the data are representative, and up to date. From this you can review where the gaps are. The same considerations would need to be made for the alternative scenario defined in step 4.

6. Agree data collection methods

Consider the data collection methods needed to fill these gaps. A guidance document from Sustrans sets out the main methods for consideration: use this to plan your data collection. The same considerations would need to be made for the alternative scenario defined in step 4.

7. Assemble the necessary data

If you do not have any data on walking and cycling, use this as a starting point for developing a plan to collect the appropriate data.

There are two main types of data you need:

- An estimate of how many people are walking or cycling. This might come from route user surveys, population surveys, roadside counts, or estimates. For more information on use of surveys click [here](#)
- An estimate of the average duration spent walking or cycling in the study population. Again this can come from surveys or from estimates. This can be entered in a number of ways:
 - Duration (average time walked per person, eg 30 minutes walked on average per day)
 - Distance (average distance walked per person, eg 10 km cycled on average per week)
 - Steps (average number of steps taken per person, eg 9,000 steps per day)
 - Trips (average per person or total observed across a population, eg 25 bike trips per year)

In addition, a number of default values are provided in the HEAT; you can use these or provide your own values if you think they may more accurately reflect your situation:

- mortality rate (you can use the European average as default, or enter your local crude mortality rate)
- value of a statistical life (you can use a European average value, or enter your local value)
- time period over which you wish average benefits to be calculated
- a discount rate (or you can use the default value supplied)

In addition, you can provide details of the cost of promoting cycling or walking, if you wish the HEAT to



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calculate a benefit-cost ratio.

8. Collect data

If original data collection is needed, consider carefully when this should take place. Cycling is especially seasonal, with higher levels in the summer months. To avoid artificially inflating your figures you may wish to collect data all year, or at least in different seasons. The same considerations would need to be made for the alternative scenario defined in step 4.

9. Integrate into HEAT

Once all the data are available, the next step is to use the data to make an economic estimate. This can be done in a number of ways, such as running various scenarios for comparisons.

10. Communication plan and dissemination

It is vital to consider how the results are going to be communicated. Who are the main target audiences for this work? What is the best way to get the message across to them? Do you need different modes of communication for different target audiences? Will communication be best written or face-to-face? Many aspects of the HEAT model may appear slightly academic, so it may be helpful to 'translate' these for non-specialist audiences.

A critical element is the political dimension: if the purpose of the project is to change an element of transport policy then it is vital to consider the way in which you think the HEAT will achieve this. How will the HEAT findings be integrated into the political process to make sure the case is being made for walking and cycling and – more importantly – is being heard by the people who make the decisions?

You may want to consider some or all of the following:

- A short executive summary of the main findings
- A longer published report
- A paper in an academic journal
- A briefing not specifically for politicians
- A briefing event for journalists
- Web updates and news items
- Briefing or emails to cycle/walk campaigners to encourage them to help

As part of the project it will be important to stage a dissemination event for all the key players, to ensure that everyone is aware of the outputs of the project, and has a chance for discussion.



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11. Evaluation

Consider how you are going to evaluate the project. What went well? What could have been done better? Do you know if the project itself led to any changes in policy? What implications does this have for the next phases of the work? How could HEAT be improved?

These questions are essential for the final project report. A more detailed outline for reporting on the experience made with the HEAT will be developed together at the meeting in Kuopio.

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ANNEX 2: CASE STUDY TEMPLATE FOR REPORTING BACK ON THE USE OF HEAT FOR CYCLING AND HEAT FOR WALKING

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Meeting of project cities on lessons learned from the
application of HEAT for walking and cycling
(PHAN project meeting H)

EUDCE1206040 / 2.2.3 / 7

25 September 2012, Cardiff, United Kingdom

05 September 2012
Original: English

HEAT application feedback report questionnaire

In preparation for the meeting in Cardiff, we would be grateful if you would provide feedback on your experiences in using the HEAT tool. We are interested in positive and negative feedback, so let us know problems or challenges you have had, as well as things that went well. The main deliverable for the group to produce is to combine the experience from using HEAT in the 5 project cities into a report on lessons learned. The aim is to find the strengths and the weaknesses of HEAT in real life situations and draw conclusions from these to suggest ways to improve the HEAT website, associated documentation as well as the communication, dissemination and framing of HEAT.

Please use the below questions as a prompts to think about the whole process (not just the technical details or use of the website). The template is split into two main parts: one covering aspects regarding the context and wider processes around using HEAT and the use of the results produced by HEAT, and one covering the practical aspects of using the HEAT website.

Please remember that your replies should relate directly to your use of HEAT within the context of the PHAN project. Please give as much information as possible.

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1. Aspects related to the context and wider processes around using HEAT
1.1. Motivation to use HEAT
What was your motivation to use HEAT?
What is your expertise/background?
What were your specific expectations (e.g. what effects did you expect the use of HEAT would have)?
Was it difficult to convince decision makers to use HEAT? If yes, what were the difficulties? What were their expectations?
What were the main arguments which worked in convincing decision makers to use HEAT?
1.2. Use of HEAT
Brining relevant colleagues together: did you consult with relevant colleagues at an early stage to refine the objectives? How successful was this stage? Who did you involve (what was their expertise and background) and why? Was it difficult to motivate them?
Defining objectives: what were the objectives of the project? Were you able to be precise about these objectives or was there some flexibility? Were these agreed by partners?
Reviewing existing data and identifying gaps: Did you review existing data to see what was available and what was needed? If yes, what did you find from this review?
Agree data collection methods: What were your experiences in reaching agreement on the data collection methods?



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Assembling existing data: Were you able to use existing data to input to the HEAT tool? If so, what were your experiences? How easy was it to adapt the data for use in the HEAT?
Collecting the data: If you had to collect primary data, what were your experiences in collecting the data to input to the HEAT tool? How did you estimate or measure the number of people walking or cycling? How did you deal with the duration/distance walked/cycled? What challenges did you face and how did you overcome them?
1.3. Interpretation / follow-up of results of HEAT
How were the results from the HEAT calculations used? Were they considered in decision making processes? If yes, did they have an impact? How relevant and influential were the results?
What was the reaction you received when presenting the results to the target audience(s)? For example, were the results credible to them or did they question, dismiss or misinterpret them?
Did HEAT meet your expectations (see section on motivation above)? <input type="checkbox"/> Exceeded my expectations <input type="checkbox"/> Fully met my expectations <input type="checkbox"/> Partly met my expectations <input type="checkbox"/> Did not meet my expectations Please provide an explanation for your assessment.
Communication and dissemination: Did you develop a communication plan? Have you communicated the results to all interested groups? What were your experiences of the communication phase?
Evaluation: Have you evaluated what you have done? If yes, what were the results of the evaluation? What would you do differently next time? If you were to advise someone else doing a similar project, what would you say to them?



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2. Technical / practical aspects of the website of HEAT
1.4. Functionality
Did the website run without errors?
Overall, how easy did you find the website to use?
Did you use the user guide / help menus / documentation online and were they helpful?
Did you run different scenarios (i.e. did you register an account with the website)?
1.5. Clarity / presentation / usability
Is the purpose of the website and of HEAT in general presented clearly?
Did you understand what is needed to use the website properly?
Running the HEAT calculations: What were your experiences in inputting the data into the HEAT website and obtaining calculations? What aspects were challenging or unclear?
Did you find the website visually appealing?
Did you easily find the information you were looking for?



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Was it easy to navigate the website?
1.6. Quality / objectivity
Does the website provide high quality information / results?
Is the authorship of the website clear?
Were the results clear and easy to interpret and to present?
1.7. Relevance / authority
Does the website address its purpose?
Is the website credible?
1.8. Accessibility
Did you ever have problems accessing the website?
Would you like to access the website also from mobile devices?
Do you require having access to an offline version of HEAT? For example a spreadsheet?
In which other languages do you think the website should be offered?



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3. Other
Please list here any other information you deem relevant for improving HEAT not covered above.

Thank you! Please send the completed form to Christian Schweizer
csc@euro.who.int by 20 September 2012.



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ANNEX 3: MEMBERS OF THE CITY PROJECT TEAMS

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The World Health Organization (WHO) is a specialized agency of the United Nations created in 1948 with the primary responsibility for international health matters and public health. The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health conditions of the countries it serves.

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Uzbekistan

The joint WHO/EC project on promoting networking and action on healthy and equitable environments for physical activity (PHAN) ran from February 2010 to January 2013. It aimed at providing Member States with intelligence, guidance, tools, examples of good practices and exchange platforms on physical activity promotion. In addition, the project supported Member States in creating stronger collaboration with other sectors (such as urban planning, transport, education, tourism, sport and leisure) and promoted the use of new tools and approaches to physical activity promotion in different urban environments. Specifically, two of the five project goals aimed to strengthen exchange on experiences made on application of tools for integrating physical activity into city planning and economic assessments and to further develop and refine the tools for planning for and economic assessment of physical activity based on experiences made in their practical application. This report summarizes the experience made in using the health economic assessment tools (HEAT) for walking and for cycling in Brighton-and-Hove (United Kingdom), Modena (Italy), Kuopio (Finland), Pärnu (Estonia) and Viana do Castelo (Portugal), lessons learnt and suggestions for improvements. The PHAN project was supported by the European Union in the framework of the Health Programme 2008-2013.

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