

# Flagship Project

# ForFITS tool for emissions reduction in transport



## PROJECT DOCUMENT

### 1. EXECUTIVE SUMMARY

|  |  |
|--|--|
| <b>Project Title</b>                             | ForFITS tool for emissions reduction in transport  |
| <b>Project Manager</b>                           | Miquel Gangonells                                  |
| <b>Sub-programme</b>                             | Transport  |
| <b>Implementing Entity</b>                       | UNECE  |
| <b>Start Date</b>                                | 01 July 2017                                       |
| <b>End Date</b>                                  | 31 December 2020                                   |
| <b>Budget</b>                                    | 2,499,983 USD                                      |
| <b>Beneficiary Countries</b>                     | All UN Member States                               |
| <b>Cooperating Entities within the UN System</b> | UN Regional Commissions (ECA, ECLAC, ESCAP, ESCWA) |

#### Brief description

UNECE works to promote sustainable transport, which is safe, clean and competitive, through the development of freight and personal mobility by inland transport modes, by improving traffic safety, environmental performance, energy efficiency, inland transport security and efficient service provision in the transport sector.

Transport Ministers from the UNECE region and beyond gathered to celebrate the seventieth anniversary of the Inland Transport Committee (ITC) in Geneva in February 2017. The meeting was an opportunity to take stock of the achievements of the ITC since its inception, and decide on its future mission until 2030, given the current challenges and opportunities globally. The participants adopted a Ministerial Resolution entitled “Embracing the new era for sustainable inland transport and mobility.” The Resolution highlights that transport and mobility must contribute to the implementation of the Sustainable Development Goals (SDGs), the Addis Ababa Action Agenda and the Paris Agreement on Climate Change. Link to the Resolution:

[https://www.unece.org/fileadmin/DAM/trans/doc/2017/itc/Final\\_Resolution\\_ITC\\_70\\_years.pdf](https://www.unece.org/fileadmin/DAM/trans/doc/2017/itc/Final_Resolution_ITC_70_years.pdf)

Improving the sustainability of transport has been established in the 2030 Agenda on Sustainable Development as a horizontal task that is essential for achieving most, if not all of the SDGs. Transport is responsible for approximately 13 per cent of world energy-related Green House Gases (GHG) emissions with about three quarters coming from road vehicles, and for about 23 per cent of world energy-related CO<sub>2</sub> emissions. As such it is a sector in dire need of reform in the contexts of energy, environment and climate change related SDGs and their targets. Furthermore, the negative externalities

of transport energy use also produce adverse environmental and health effects on the local scale, particularly in large urban agglomerations, because of vehicle emissions of local air pollutants (NO<sub>x</sub>, CO, PM, etc.). Statistics show that only UNECE countries have managed to decrease the per capita CO<sub>2</sub> emissions from transport in the past decade (2001-2011). However, as these countries are responsible for roughly 50 per cent of the total inland transport emissions, much more progress is required.

This highlights the critical role of the ITC and its relevant subsidiary bodies as platforms to which Governments will increasingly resort to develop and implement effective solutions to tackle climate change mitigation and adaptation, air pollution and overall environmental performance of transport, including but not limited to, the construction of vehicles and the transport of dangerous goods.

UNECE developed the ForFITS tool as part of a 3-year (2011-2014) United Nations Development Account (UNDA) project with the aim to assess transport CO<sub>2</sub> emissions and the impact of policies intended to mitigate them. The assessments take into account information such as vehicle classes, powertrain technologies, and fuel blends. ForFITS can project future transport activity, energy use and CO<sub>2</sub> emissions as a result of the evolution of socio-economic parameters (Gross Domestic Product (GDP) and population), cost of driving, structure of the transport system and technology deployment.

The project aims to further develop the ForFITS tool, to include not only the assessment of GHG emissions (as it is in the existing version of the tool) but also the assessment of local air pollutants, and to offer capacity-building activities to reduce overall inland transport emissions by using ForFITS. Furthermore, analysis of the main trends in inland transport using ForFITS would demonstrate the impact of a wide range of policy measures and could support policy dialogue with governments, cities and representatives of regional organizations, for wider dissemination and use of the tool.

The Expected Accomplishments (EA) of the project are:

- EA1 A new module of ForFITS is developed to assess local air pollutants emitted in inland transport as well as to assess the impact of measures intended to mitigate them (Phase 1 – years 2017 and 2018); and
- EA2 Strengthened capacity of national and local governments for formulating policies that will minimize the contribution of the transport sector to local air pollution and climate change (Phase 2 – years 2019 and 2020).

The role of other Regional Commissions will be critical in disseminating the use of the ForFITS tool once the tool is complete with the new module on local air pollutants. ForFITS can help harmonize the assessment of GHG emissions and air pollution worldwide, as well as develop and implement effective solutions to tackle climate change mitigation and adaptation, as well as environmental performance of the transport sector.

## **2. Background**

### **2.1 Context**

UNECE developed the ForFITS tool (For Future Inland Transport Systems) from 2011 to early 2014 in the framework of a global project led by UNECE and funded by the United Nations Development Account ([http://www.un.org/ga/search/view\\_doc.asp?symbol=A/64/6%28Sect.35%29](http://www.un.org/ga/search/view_doc.asp?symbol=A/64/6%28Sect.35%29)). UNECE validated the model by pilot testing in countries, namely: Chile, Ethiopia, France, Hungary, Montenegro, Thailand and Tunisia. UNECE also organized presentations of the ForFITS at several

awareness-raising events and capacity-building workshops organized in cooperation with the other UN Regional Commissions. The model and the user manual are publicly available online at <http://www.unece.org/?id=19273>.

ForFITS covers all transport modes with a focus on inland transport. ForFITS was developed to assist users to evaluate the potential of different possible policies to mitigate the contribution of transport to climate change and, thus, only CO<sub>2</sub> emissions (the main GHG emitted in the transport sector) are considered in the existing version of the model. Specifically, ForFITS projects activity, energy consumption and well-to-wheel CO<sub>2</sub> emissions in the transport sector under different economic, technology and policy scenarios. The model is optimal for use at national level, but regional and local applications are also possible.

The UNECE Inland Transport Committee (ITC) endorsed the ForFITS tool and encouraged governments to use it. The model applies in the framework of the Transport, Health and Environment Pan-European Programme (THE PEP) as well as in the assessment of the transport sector of Lithuania and the mobility strategy of its capital city, Kaunas. More recently, the transport chapters of the Environmental Performance Reviews (EPRs) of Georgia, Belarus and Tajikistan were complete by using ForFITS and a review of Albania is presently underway. Furthermore, at the request of ITC, UNECE carried out a regional assessment scenario for CO<sub>2</sub> emissions from inland transport which, for example, shows that CO<sub>2</sub> emissions are likely to nearly triple in middle-income ECE countries by 2040 if no change in transport policy is made to improve the environmental performance of the sector.

Air quality is a growing environmental and health concern for population in many countries, and despite past improvements, the transport sector remains a major polluter. Air quality is of particular concern in cities, as exposure to harmful gases and particulates is still significant all over the world, but particularly in fast growing and transition economies. Concerns have been exacerbated by recent emissions scandals and related investigations. Actual emissions from light duty vehicles are much higher than originally thought (tested) and fall well short of regulatory limits. Consequently, public confidence in vehicle manufacturers and regulators has been significantly undermined.

There is a strong need to have a better understanding of current trends in pollutants emissions especially from road transport, in order to better assess, for example, the environmental and health impacts of infrastructure investments. ForFITS seeks to bring innovative insights to the topic by using the latest emission factors available and by taking into account the impact of the latest regulatory developments and using them for future projections of pollutants emissions. Developing robust approaches to model pollutant emissions by each transport mode could help decision makers to better target their policy choices to improve air quality, holistically in synergy with CO<sub>2</sub> and climate change mitigation.

The first component of this project aims at developing a new ForFITS module to cover local air pollutants in addition to GHG emissions. Subsequently, UNECE will organize capacity-building activities on the use of ForFITS to simulate the impact of policy interventions intended to reduce overall transport emissions. Analysis of the main trends in inland transport using ForFITS would demonstrate the impact of a wide range of policy measures and could support policy dialogue with governments, cities and representatives of regional organizations.

The purpose of the proposed capacity building activities is not only to demonstrate to stakeholders how to use the ForFITS tool, but also to raise awareness among the interlocutors (in countries and regions) of the necessity and urgency for compiling and publicizing improved climate and air pollution related data and statistics.

## **2.2 Mandates, comparative advantage and link to the Programme Budget**

UNECE serves as Secretariat to the ITC's World Forum for Harmonization of Vehicle Regulations (ITC-WP.29). The ITC-WP.29 is the only institution dealing with international regulatory aspects for new vehicles at a global level. The vehicle regulations developed in this framework contain emissions limits for local pollutants that apply to the Contracting Parties to the UN Agreements administered by ITC-WP.29. Therefore, including local pollutants within ForFITS would enable stakeholders to assess the impact of regulatory instruments that the ITC-WP.29 considers for discussion.

Such enhancement will influence policy and regulatory evolution not only at national level, where local pollution by inland modes of transport is assessed, but it will also, through the capacity to quantify the impact of vehicle regulations, steer future regulations of ITC-WP.29 and make the UN regulatory activities more effective supporting achievement of the SDG targets.

The project directly supports the UNECE Strategic Framework, sub-programme 2 (Transport) for the period 2016-2017:

[http://www.unece.org/fileadmin/DAM/press/pr2014/SF\\_Prog17\\_2016-17\\_ECE\\_FINAL\\_Issued\\_HQ.pdf](http://www.unece.org/fileadmin/DAM/press/pr2014/SF_Prog17_2016-17_ECE_FINAL_Issued_HQ.pdf).

The project implementation will contribute to the following expected accomplishments of the strategic framework:

1. EA(a) on strengthening legal and regulatory framework. Including local pollutants in ForFITS will contribute to analyze the impact of modifying emissions requirements in UN regulations and, thus, the tool will become a reference to facilitate the introduction of new emissions limits.
2. EA(d) on capacity-building activities. There is an explicit reference to the use of ForFITS for capacity-building activities in paragraph 17(d). This project will significantly support policy dialogue and capacity-building activities to strengthen the capacity of governments in defining their strategy in the short and long term to mitigate climate change and improve air quality.

The ForFITS also provides the methodology to national governments for gathering the necessary data and statistical information that feeds into the ForFITS tool, and forms a sound basis on which national policy makers can make informed decisions about the future of inland transport. Close cooperation with the work of ITC-WP.6 on Transport Statistics will ensure that appropriate terminology and methodology applies when gathering the information.

## **2.3 Country demand and target countries**

Several countries have expressed interest in having analytical information about not only the future scenarios of GHG emissions, but also of air local pollutants, and have therefore asked UNECE to enhance the ForFITS accordingly.

The ForFITS decision support tool was designed to provide policy makers with important input information. It is an equally useful tool for developed countries in which high quality relevant data is available, as well as for developing countries with limited data and information at their disposal. The development of the new ForFITS module will attempt to follow the same approach, in order to ensure that the new module and the model as a whole are usable worldwide, as it is today.

Worldwide usability of the model facilitates the comparability of results regardless of the individual national or regional economic, social or environmental circumstances or the level of availability of relevant data and statistics. As take-up and use of the tool grows, it can lead to globally comparable results and thus to policy dialogue at a global level. ForFITS results will be valuable inputs in the review mechanisms for the Sustainable Development Agenda.

## 2.4 Link to the SDGs

The project proposal has a direct linkage to the following sustainable development goals:

- **SDG3** (good health and well-being), target 3.9. (By 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination): This project would facilitate the improvement of air quality by reducing local pollutants emitted from the transport sector associated with adverse effects on health. For example: nitrogen dioxide (NO<sub>2</sub>) causes inflammation of the airways and reduced lung function; long-term exposure to low concentrations of carbon monoxide (CO) can result in neurological problems and potential harm to unborn babies; particulate matter (PM) is one of the most dangerous pollutants as it penetrates into sensitive regions of the respiratory system.
- **SDG11** (sustainable cities and communities), target 11.6. (By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management), indicator 11.6.2. (Annual mean levels of fine particulate matter (e.g. PM<sub>2.5</sub> and PM<sub>10</sub>) in cities (population weighted)): With the new ForFITS module as proposed in this project, city authorities will be able to simulate policy scenarios and tailor (in coordination with national policies) policy solutions that can lead to desired PM<sub>2.5</sub> and PM<sub>10</sub> levels, in synergy with CO<sub>2</sub> abatement policy actions.
- **SDG13** (climate action), target 13.3. (Improve education, awareness raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning): The capacity-building activities in this project will strengthen the capacity of the governments to choose the most appropriate set of policies to mitigate climate change and air pollution from transport emissions by using ForFITS. Developing a new module for local air pollutants would enhance the CO<sub>2</sub> module as well since there are policies and modelling approaches applicable to both. Providing the results of inland transport emissions for both, GHG and air local pollutants, is expected to make the model more interesting for policy makers, so the number of ForFITS users implementing air pollution and climate change measures as a combined strategy in inland transport is expected to increase significantly.
- **SDG17** (partnership for the goals), target 17.14. (Enhance policy coherence for sustainable development): The ForFITS model is a tool that contributes to establishing coherence between transport and climate change and air quality related policies.

### **3. ANALYSIS**

#### **3.1 Problem analysis**

The transport sector is one of the main contributors to climate change and air pollution. Thus, the improvement of the environmental performance of the transport sector is one of the key areas of policy strategy for environmental protection. ForFITS is a tool that enables a country to simulate the impact of sets of policies intended to mitigate transport emissions. This means that the tool with its “policy converter” approach is able to evaluate a large number of policy measures and options, such as modal shift from private vehicles to public transport, fuel taxation schemes, subsidies for cleaner vehicle technologies and introduction of biofuels, under different potential scenarios (assuming a certain trend in GDP, population and oil price).

The addition of local pollutants to ForFITS would create a unique UN tool that would cover the full range of transport emissions, GHG and air local pollutants. Several policy measures currently assessed by ForFITS (e.g. those targeting reduction of travel demand or modal shift) have an impact on both, CO<sub>2</sub> and air local pollutant emissions, although the model currently quantifies only CO<sub>2</sub>. This wider scope would enable governments to implement transport policies minimizing the contribution of the transport sector to climate change and air pollution at the same time.

#### **3.2 Country level problem analysis**

The problem analysis explained above applies to all countries globally, particularly those targeting transport as a key sector to fulfil national strategies and goals on emissions reduction. All countries would benefit from a tool that is projecting transport emissions under different economic scenarios and policy interventions. The development of the new module on local air pollutant will follow the same principle as when the current version of ForFITS was developed; that is, ForFITS needs to be a harmonized tool that requires harmonized inputs so that it provides comparable worldwide outputs. Countries can use the model outputs for benchmarking as well as a sound scientifically valid basis for the policies they want to implement.

Analyses performed by using ForFITS highlight that low and middle-income countries are likely to more than triple transport emissions by 2040 as result of projected economic growth. ForFITS may be particularly useful in their cases to identify the right policy choices to curb this trend. Some low and middle-income countries lack transport data and statistics, but ForFITS uses a flexible methodology that adapts to different levels of data availability and quality. In addition, capacity-building activities proposed in this project will raise awareness and provide support in improving the availability of climate and air pollution related data and statistics.

### 3.3 Stakeholder analysis and capacity assessment

| <b>Non UN stakeholders</b>  | <b>Type and level of involvement in the project</b>  | <b>Capacity assessment</b>  | <b>Capacity gap</b>   | <b>Desired future outcomes</b>   | <b>Incentives</b>  |
|---|--|---|---|--|--|
| <b>Government Ministries of Transport &amp; Environment</b><br>Regional, city and/or municipal authorities (depending on national context).<br>National & local statistical offices | ForFITS helps policy makers make informed decisions for implementing policy solutions;<br>Beneficiaries of capacity building for using ForFITS | Direct knowledge of challenges at the national and/or local level but lack of specific tools to address challenges                          | Lack of scientific information to take informed decisions and evaluate the sustainability (in the context of SDGs) of policy actions  | Ability to apply the ForFITS model to develop appropriate transport policies, in line with desired sustainable development outcomes and national goals | Access to tools to enable decision makers to develop & apply policies that synergize transport and sustainable development targets |
| <b>Civil Society</b><br>Consultants/<br>Academia/Research institutes  | Direct support in the development of the new ForFITS module  | Specific knowledge and modelling expertise are fundamental in research & modelling phases   | Literature review, data gathering, analysis and modelling to develop the new ForFITS module   | The new ForFITS module is developed & meets expectations   | Experience, knowledge gained, exchange between experts & gathering of data & information from the source                           |
| <b>Private sector</b><br>(vehicle manufacturers)  | Indirect:<br>Benefitting from results.<br>Direct:<br>Provision of data.  | Data & information from the private sector on vehicle sales & vehicle characteristics (e.g. engine technology, fuel consumption, emissions) | Uncertainties regarding future national air pollution and climate change related policies and their impact on the market for vehicles | Information on possible scenarios and consequences of policies on the market   | Need for results and information   |

## **4 PROJECT STRATEGY: OBJECTIVE, EXPECTED ACCOMPLISHMENTS, INDICATORS, MAIN ACTIVITIES**

### **4.1 Project Strategy**

The main objective of the project is to strengthen the capacity of national and local governments to formulate their transport policies, empower civil society and UN agencies in their advocacy and policy dialogue in support of the development of a long-term vision for the reduction of GHG and pollutant emissions from inland transport and, thus, facilitate air pollution reduction and climate change mitigation.

The project will benefit from the existing UN ForFITS tool, a tool that projects transport CO<sub>2</sub> emissions under different economic, technology and policy scenarios. The first phase of the project will mainly consist of the necessary steps to develop a new module on local air pollutants connected with the existing ForFITS tool. This includes research, exchange of views with international experts, definition of the model concept and model features, and final development of the revised ForFITS tool including both GHG and local air pollutant transport emissions.

The second phase of the project will consist, through the dissemination of the new ForFITS tool, of strengthening the capacity of governments to develop transport policy to maximize overall transport emissions reduction and, thus, contributing to climate change mitigation and air quality improvement. The new ForFITS model will be validated worldwide through pilot tests performed in a selected country for each UN Region. The new ForFITS model, together with a new user manual available online as a web-based tool for a uniform and transparent evaluation of transport emissions and policy impact, with a view to raising awareness among Governments and other stakeholders, providing a rational basis for sustainable transport policies and effective measures. UNECE will organize a capacity-building workshop in each UN Region on how the ForFITS tool can help Governments and other organizations in their objectives to map transport emissions in inland transport and to identify areas with the highest potential for reduction.

Internationally comparable inland transport emissions data are necessary, and the first step will be to apply a common approach to data collection and sampling. The identification and definition of the emission reduction potentials for each inland transport mode directly or indirectly producing GHG and local air pollutant emissions is essential for establishing powerful measures to effectively mitigate climate change and air pollution. As an implicit result of this project, the future use of the ForFITS (implemented calculation models, transport policy intervention packages, as well as the related documentation) will increase the awareness of the causality and interrelationship between transport and GHG and local air pollutants emissions and will lead to enhanced inter-sectoral and international cooperation and planning towards sustainable transport policies.

The project will sensitize Governments and sub-national bodies, as well as businesses and international organizations, to share concerns about climate change and air pollution, and will make them aware of the methods and project recommendations enabling them to develop the capacity to reduce GHG and local air pollutant emissions in inland transport.

## 4.2 Logical Framework

| Intervention logic  | Indicators  | Means of verification   |
|---|---|---|
| <p><b>Objectives</b><br/>To provide a tool to enable national and local governments to formulate transport policies by the reduction of GHG and local air pollutant emissions from inland transport (2030 Agenda related targets of SD3, SDG11, and SDG13).</p> |   |   |
| <p><b>Expected accomplishment – EA1</b><br/><br/>New module of ForFITS developed to assess local air pollutants emitted in inland transport as well as to assess the impact of measures intended to mitigate them.</p>  | <p><b>IA1.1:</b> New module added to the ForFITS tool that includes the most hazardous local air pollutants to human health (NO<sub>x</sub>, CO &amp; PM) generated by inland transport modes &amp; considers at least five transport policy options to improve air quality.</p>  | <p>ForFITS revised model.</p>   |
| <p><b>A1.1</b> Research on transport statistics, policy options and existing tools related to the assessment of local air pollutants emitted in the inland transport sector.</p>  |   |   |
| <p><b>A1.2</b> Development of the concept for the new module of ForFITS targeting local air pollutants</p>  |   |   |
| <p><b>A1.3</b> International experts meeting organized in Geneva to facilitate the exchange of information on modelling approaches.</p>   |   |   |
| <p><b>A1.4</b> Definition of model features such as inputs, outputs and methodology as well as calculation flow.</p>  |   |   |
| <p><b>A1.5</b> Integration of the local air pollutants module in the existing ForFITS tool in a user friendly modelling environment</p>   |   |   |
| <p><b>Expected accomplishment – EA2</b><br/><br/>Strengthened capacity of national and local governments for formulating policies that will minimize the contribution of the transport sector to local air pollution and climate change.</p>                    | <p><b>IA2.1:</b> The revised ForFITS tool with the new module and its user manual available online, including all necessary information to use the tool autonomously.<br/><br/><b>IA2.2:</b> At least 350 participants attending capacity-building workshops on the revised ForFITS tool and increase in the related transport data and statistics provided.<br/><br/><b>IA2.3:</b> 10 ForFITS users, particularly number of governments using the tool to define their transport policy formulation in line with climate change &amp; air quality targets.</p> | <p>ForFITS webpage.<br/><br/>Survey conducted at the end of each workshop.<br/><br/>Information on targets or progress reported by governmental delegates at national, regional and international meetings or by media.</p> |
| <p><b>A2.1:</b> Validation of the new module as part of the whole ForFITS model covering GHG and air pollutants by performing a pilot test in each UN region in cooperation with the UN Regional Commissions and the selected national/local governments.</p>   |   |   |

| <b>Intervention logic</b>  | <b>Indicators</b> | <b>Means of verification</b> |
|--|-------------------|------------------------------|
| <b>A2.2:</b> Development of the user manual for the new module and integrating it into the existing ForFITS user manual.   |                   |                              |
| <b>A2.3:</b> Development of a new user-friendly ForFITS webpage.   |                   |                              |
| <b>A2.4:</b> In cooperation with the other UN Regional Commissions, organization of a capacity-building workshop in each UN region with the aim of introducing the new ForFITS tool to policy makers and to train potential ForFITS users, explain its availability either as a stand-alone decision making support tool or as a combined one for addressing climate change mitigation and reduction of local air pollution from inland transport, and to enhance the capacity to improve availability and quality of related transport data and statistics. |                   |                              |

### 4.3 Risks and mitigation actions

| <b>Risks</b>   | <b>Mitigating Actions</b>  |
|--|--|
| R1. The project assumes that the research phase will bring enough insights to allow the development of the new module on local air pollutants. However, it is difficult to predict the outcome of research before starting. The outcome may bring limitations to the model development in terms of scope, applicability and methodology. | M1. If the new module on local air pollutants cannot be connected to the existing ForFITS tool it will be developed instead as a stand-alone model (e.g. ForFITS LAP (local air pollutants)). If the model cannot be validated globally it will be applicable only to the regions where it can be validated. The new model will consider as many local air pollutants and policy options as available data and statistics allow. |
| R2. Workshop participants may be fewer than expected or may change job and not stay in charge.   | M2. The capacity-building workshops need to target specific audiences and adapt to the profile of participants. If necessary, workshops may be split between technical experts and policy makers. Effective channels will be used to address potential participants. Careful selection of participants will ensure that the critical mass of contacts stays in place at least on a medium term.                                  |
| R3. Many countries have not clearly defined national governmental responsibilities in the field of climate change and air pollution mitigation or they have low priorities for emissions monitoring in transport.  | M3. The project will raise awareness of the causality and interrelationship between transport and GHG and local air pollutant emissions. The project will sensitize Governments and stimulate policy dialogue.   |
| R4. Low capacity of certain countries to collect data to use the ForFITS tool. National priorities do not include addressing transport emissions due to different understanding by countries of the economic and social benefits that can be achieved through climate change mitigation and air quality improvement.                     | M4. The new ForFITS tool will be designed in the most flexible way to enable countries with low data available to still be able to use the tool. In addition, the capacity-building activities of the project will also focus on promoting the need for improved availability of climate and air pollution related data and statistics.  |

## **4.4 Sustainability**

The project is designed to ensure the sustainability of the ForFITS tool after the completion of the project.

ForFITS will be developed in a modelling environment that is well known in the international framework and is commonly used for other modelling activities. Rather than having an isolated model, ForFITS may raise the interest of other organizations and trigger synergies and cooperation between entities leading to further action.

The tool will be easily accessible as a free download together with a user manual that contains all necessary information to be able to use the model independently. In addition, all capacity-building workshops would follow the principle of train the trainers, so participants will be carefully selected to ensure that knowledge is further disseminated. The broad scope of ForFITS is also an asset in terms of competitiveness and potential customers.

UNECE developed the ForFITS and owns the source code and the intellectual property of the model. ForFITS has been used in 15 countries and 5 cities to which UNECE provides technical assistance when needed. All the in-house expertise, skills, resources and networking developed within the last years will be leveraged to ensure the sustainability of this project.

The input data required to run a model is a key element to ensure that the model will be used. ForFITS methodology will be flexible enough to be used by developed countries with high quality data available, as well as for transition economies with limited data and information. In addition, the UNECE Transport Division intends to utilize internal own resources to intensify the link between transport statistics and the inputs required to run ForFITS through the Working Party on Transport Statistics (WP.6) of the Inland Transport Committee.

Climate change and air pollution are of growing concern. The high contribution by the transport sector to GHG and local air pollutant emissions, as well as the potential reduction through appropriate policies is likely to capture the interest of policy makers. The ForFITS tools responds to an increasing need to measure CO<sub>2</sub> emissions and more broadly, air pollutants, UNECE therefore anticipates that it will maintain and further develop the tool in the long-term, with a view to service effectively its Member States, as well as a large number of stakeholders.

The ForFITS tool will always bring opportunities to further enhance and update the model, so this project has the potential to continue beyond the project duration and subject to securing additional funding. For example, some new vehicle categories could be included in the model, some correlations will be enhanced and some default data could be updated.

## **5 MONITORING AND EVALUATION**

All monitoring, reporting and evaluation of the project will be undertaken in compliance with UNECE policies, UN Financial Rules, and Regulations.

The Inland Transport Committee will provide technical advice and recommendations on the development of the new ForFITS tool and capacity building activities to disseminate it. The UNECE Transport Division will be responsible for monitoring the implementation of the project activities.

UNECE will update all Member States on the progress through the ITC as well as the EXCOM, as deemed appropriate. The UNECE on-line Project Monitoring Tool (PMT) is another useful resource publicly available to all stakeholders to monitor the project implementation.

Updates on the project implementation may also be presented to UNECE partners, UN Regional Commissions as well as International Organizations working in the beneficiary countries and/or in the Transport Sector.

## **6 MANAGEMENT AND COORDINATION AGREEMENTS**

The overall management and control of the project lies with UNECE Transport Division, and is executed in compliance with United Nations administrative financial rules and regulations.

UNECE will work in close cooperation with Regional Commissions and country representatives. UNECE will consult as appropriate other international stakeholders (e.g. UNDP, UNFCCC, UNEP, etc.) to ensure tight coordination in countries which will reinforce the effectiveness of initiatives and avoid overlaps.

All stakeholders are welcome to contribute to the project activities by participating in the consultations/meetings/workshops.

### Annex 1 - Results-based work plan

| EA   | Activity # | Timeframe by activity           |                                    | Budget class and Code<br><i>(Please use the budget classes listed in the table above.)</i> |           | Amount (USD) |
|------|------------|---------------------------------|------------------------------------|--|-----------|--------------|
|      |            | Year<br><i>(Y1, Y2, Y3, Y4)</i> | Quarter<br><i>(Q1, Q2, Q3, Q4)</i> |  |           |              |
| EA1  | A1.1       | 2017 (Y1)                       | Q3, Q4                             | Other Staff Costs (GTA)  | 010       | \$ 92,982    |
|      |            |                                 |                                    | Consultants  | 010       | \$ 66,000    |
|      |            |                                 |                                    | Contractual Services   | 120       | \$ 50,000    |
|      | A1.2       | 2018 (Y2)                       | Q1, Q2                             | Other Staff Costs (GTA)  | 010       | \$ 92,982    |
|      |            |                                 |                                    | Consultants  | 010       | \$ 66,000    |
|      |            |                                 |                                    | Contractual Services   | 120       | \$ 50,000    |
|      | A1.3       | 2018 (Y2)                       | Q3                                 | Other Staff Costs (GTA)  | 010       | \$ 46,491    |
|      |            |                                 |                                    | Consultants  | 010       | \$ 33,000    |
|      |            |                                 |                                    | Travel of participants   | 160       | \$ 20,000    |
|      |            |                                 |                                    | Contractual Services   | 120       | \$ 15,000    |
|      |            |                                 |                                    | Operating and other direct costs   | 125       | \$ 10,000    |
|      |            |                                 |                                    | Equipment vehicles and furniture   | 135       | \$ 5,000     |
|      | A1.4       | 2018 (Y2)                       | Q4                                 | Other Staff Costs (GTA)  | 010       | \$ 46,491    |
|      |            |                                 |                                    | Consultants  | 010       | \$ 33,000    |
|      |            |                                 |                                    | Contractual Services   | 120       | \$ 15,000    |
| A1.5 | 2019 (Y3)  | Q1, Q2                          | Other Staff Costs (GTA)            | 010  | \$ 92,982 |              |
|      |            |                                 | Consultants                        | 010  | \$ 66,000 |              |

| EA  | Activity #                                    | Timeframe by activity           |                                    | Budget class and Code<br><i>(Please use the budget classes listed in the table above.)</i> |            | Amount (USD) |
|-----|---|---------------------------------|------------------------------------|--|------------|--------------|
|     |   | Year<br><i>(Y1, Y2, Y3, Y4)</i> | Quarter<br><i>(Q1, Q2, Q3, Q4)</i> |  |            |              |
| EA2 |   |                                 |                                    | Contractual Services   | <b>120</b> | \$ 95,000    |
|     | A2.1  | 2019 (Y3)                       | Q3                                 | Other Staff Costs (GTA)  | <b>010</b> | \$ 46,491    |
|     |   |                                 |                                    | Consultants  | <b>010</b> | \$ 33,000    |
|     |   |                                 |                                    | Travel of Staff  | <b>160</b> | \$ 65,000    |
|     | A2.2  | 2019 (Y3)                       | Q4                                 | Other Staff Costs (GTA)  | <b>010</b> | \$ 46,491    |
|     |   |                                 |                                    | Consultants  | <b>010</b> | \$ 33,000    |
|     | A2.3  | 2020 (Y4)                       | Q1                                 | Other Staff Costs (GTA)  | <b>010</b> | \$ 46,491    |
|     |   |                                 |                                    | Contractual Services   | <b>120</b> | \$ 75,000    |
|     | A2.4  | 2020 (Y4)                       | Q2, Q3, Q4                         | Other Staff Costs (GTA)  | <b>010</b> | \$ 139,473   |
|     |   |                                 |                                    | Travel of participants   | <b>160</b> | \$ 562,500   |
|     |   |                                 |                                    | Travel of Staff  | <b>160</b> | \$ 65,000    |
|     |   |                                 |                                    | Operating and other direct costs   | <b>125</b> | \$ 65,000    |
|     |   |                                 |                                    | Equipment vehicles and furniture   | <b>135</b> | \$ 95,000    |
|     | Evaluation (for projects at/ above \$250,000) |                                 |                                    |  | Consultant | 010          |

## Annex 2 - Budget

### **Staff and personnel costs (010) \$ 650,874 USD (Total)**

A project coordinator will be recruited at P3 level by UNECE to monitor the development of the new ForFITS tool and to organize the capacity-building activities, in support of activities A1.1; A1.2; A1.3; A1.4; A1.5; A2.1; A2.2; A2.3 and A2.4. The project coordinator will be deeply involved in the research and modelling activities, will monitor the work outsourced to consultants, and will organize the capacity-building activities in close cooperation with the UNECE management team.

All activities (42 work-months) x (\$15,497 USD per work-month as per UN personnel cost) = \$650,874

### **Consultants (010): \$ 330,000 USD (Total)**

Two international consultants for the task(s) of research and model development in support of activities: A1.1; A1.2; A1.3; A1.4; A1.5; A2.1 and A2.2 (30 work-months) x (\$5,500 USD per month) = \$330,000

### **Travel of Staff (160): \$ 130,000 USD (Total)**

Missions by UN staff for the purpose of pilot testing and capacity-building workshops in support of activities A2.1 and A2.4 (20 missions). (\$6,500 USD average mission cost) x (20 missions) = \$130,000

### **Operating and other direct costs (125): \$ 75,000 USD (Total)**

Costs required for the organization of the international experts meeting and the capacity-building workshops in support of activities A1.3 and A2.4.

### **Equipment vehicles and furniture (135) \$ 100,000 USD (Total)**

A provision of \$100,000 is required for the equipment and the training material for the international experts meeting and the capacity-building workshops in support of activities A1.3 and A2.4.

### **Contractual services (120): \$ 300,000 USD (Total)**

A provision of \$150,000 is required for purchasing data/reports/scientific material in the research phase in support of activities A1.1; A1.2; A1.3; A1.4 and A1.5.

A provision of \$150,000 is required for IT services when implementing the model into a modelling environment and when developing a web-based application tool in support of activities A1.5 and A2.3.

### **Travel of meeting participants (seminars, workshops, study tours) (160): \$ 582,500 USD (Total)**

International experts meeting in support of activity A1.3. Duration of the seminar: 1 day; (\$1000 USD per participant) x (20 participants) = \$20,000

Capacity-building workshops in support of A2.4. Duration of a workshop: 4 days; (\$1500 USD per participant) x (75 participants) x (5 workshops) = \$562,500

**Budget summary:**

|                               |                     |
|-------------------------------|---------------------|
| <b>Total direct cost</b>      | <b>\$ 2,168,374</b> |
| Evaluation (at least 2%)      | \$ 44,000           |
| 13% UN Programme Support Cost | \$ 287,609          |
| <b>Total budget</b>           | <b>\$ 2,499,983</b> |