The UNDA project and the ForFITS model

Working Party on Intermodal Transport and Logistics (WP.24) and Working Party on Rail Transport (SC.2)

Geneva, 7 November 2012

Pierpaolo Cazzola, UNECE Transport Division
UNDA project

Characteristics, objectives and expected achievements

Project characteristics

– Duration: 3 years (January 2011 – December 2013)
– Leading agency: UNECE
– Implementing entities: ECA, ECLAC, ESCAP & ESCWA

Objectives and expected achievements

– Support for policy decisions aimed at the mitigation of GHG emission in inland transport
– Development of a monitoring and assessment tool for CO₂ emissions in inland transport, including elements concerning:
  • vehicles and types of propulsion systems
  • energy sources
  • transport infrastructure
  • Road, rail, and inland waterways
  • The model is closely related to transport, energy and CO₂ emission statistics
– Capacity building workshops in all UN Regional Commissions are included, with the aim to explain the analysis tool and its use
Global Status Report (finalized and published, available on-line)
- Overview of available numerical information (statistics, technical analyses), concerning transport, energy and GHG emissions (mainly CO₂)
- Analysis of policies aimed to the mitigation of GHG emissions in transport
- Review of models dealing with the analysis of transport GHG emissions and mitigation policies
- Recommendations for the improvement of transport statistics and the ForFITS model

Concept note containing the draft methodology (available on-line)
- Reviewed by selected experts
- Contains the definition of the main characteristics of the modelling tool

Meeting of the reviewers and International Expert Meeting (April 2012)
- Presentation of the draft Global Status Report
- Presentation of an outline of the ForFITS model
- Discussion of comments received from the review panel

Model development
- Started in July, building on the previous milestones
- **Model prototype expected by the end of the year 2012**
Development of the modeling tool (2012)
  – Development of the prototype
  – Overall verification and validation
  – Identification of interested partners for case studies
Regional calibration (early 2013)
  – Preparation of the user manual
  – Regional verification and validation
  – Application to case studies and pilot phase
Dissemination and capacity-building (2013)
  – Organization of capacity-building workshops and training sessions
    • with other UN Regional Commissions
    • with interested partners
Final Step (end 2013)
  – Project evaluation
ASIF (Activity, Structure, Intensity, Fuel cons.) framework

- It allows the evaluation of transport activity, fuel consumption and fuel-based emissions (CO₂) (as well as travel-based emissions, eventually)
- It assures transparency (no black-box: all relationships are based on data that can be clearly identified with measureable information and/or statistics)

Demand generation based on demographic and socio-economic data

- Tkm function of GDP and as a result of characteristic patterns of development (e.g. focus on the extraction of primary materials, industry and manufacturing, services)
- Pkm, car ownership, use of public transport from GDP per capita, fuel prices, and characteristic development patterns (e.g. related with urban density)
- Way simpler than origin and destination (whose accuracy depends on the data available...)
ForFITS
Simplified structure

- Vehicles classified by service (passenger, freight), mode, class & powertrain
- Fuels classified by blend and pathway
- Different areas (e.g. urban or not) in each region/country

Road & rail (passenger & freight) transport included as modes and in different vehicle classes, e.g.:
- Road freight: service trucks, medium & heavy long-haul trucks
- Passenger rail: trams, metros, intercity and high speed passenger trains

Vehicle number, load, vehicle activity (stock), passenger and freight activity, fuel consumption, emissions, total costs

Aggregation for passenger and freight

Mode 1
...  
Mode M

Mode 1
...  
Mode M

Vehicle 1
...  
Vehicle P

Vintage 1
...  
Vintage V

Powertrain 1
...  
Powertrain N

Energy content of fuels, emission factors (upstream, tailpipe), energy production pathways characteristics, mandates

Fuel 1
...  
Fuel F

Fuel blend 1
...  
Fuel blend G

Elasticities

LOGIT + mandates + availability

Vehicle fuel consumption, costs, taxes (new sales or used imports), technology mandates

LOGIT + technical availability

Fuel prices

travel/vehicle

Population, GDP, fuel price

Scrappeage
UNDA project

http://www.unece.org/trans/theme_forfits.html

– Review on statistics, mitigation polices, and modelling tools

– Methodology

– International Expert Meeting
  http://www.unece.org/?id=29350

Contact details

pierpaolo.cazzola@unece.org