CLEAN DEVELOPMENT MECHANISM

CDM-MP62-A05

Draft Methodological tool

Baseline emissions for modal shift measures in inter-urban cargo transport

Version 01.0 - Draft

United Nations
Framework Convention on
Climate Change

COVER NOTE

1. Procedural background

1. The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), at its sixth session, decided that Parties, project participants, as well as international industry organizations or admitted observer organizations through the host country's designated national authority (DNA), may submit proposals for standardized baselines applicable to new or existing methodologies, for consideration by the Executive Board (Board) of the clean development mechanism (CDM).

2. In this context, the Board, at its sixty-second meeting, adopted the "Guidelines for the establishment of sector specific standardized baselines" (the SB guidelines) and at its sixty-fifth meeting, it agreed to the "Work programme on standardized baselines" that included the element of expanding the SB guidelines to CDM projects in the transport sector.

3. In response to the mandate given by the Board to the secretariat on the expansion of the SB guidelines to CDM projects in the transport sector, the secretariat: (i) conducted an elaborate analysis of approaches to standardization of baseline setting in the transport sector; (ii) hired a consultant and scrutinized the report developed by the consultant; and (iii) conducted consultations on the report and approaches to standardization with external experts from the Methodologies Panel (Meth Panel) and the Small-Scale Working Group (SSC WG). After the elaborate analysis and extensive consultations, the secretariat came to the conclusion that there are fundamental limits to the standardization of baseline setting in the transport sector and described these challenges in a concept note presented to the Board at its sixty-ninth meeting.

4. At its sixty-ninth meeting, the Board considered the concept note on the challenges and options for work on the development of guidelines on standardized baselines for the transport sector, provided feedback and requested the secretariat to submit a concept note for the Board's consideration at a future meeting, with a detailed analysis of the following elements:

   (a) Background information and rationale for the key challenges for the standardized baselines for transport sector projects, as presented in the concept note as per annex 12 to the annotated agenda of the sixty-ninth meeting of the Board;

   (b) Rationale for the options suggested on standardization and scaling-up of CDM in the transport sector;

   (c) Benefits of and efforts required for the options suggested.

5. At its seventy-second meeting, the Board considered a concept note on the challenges and opportunities for standardization and simplification in the context of the transport sector and requested the secretariat to develop guidelines on standardized baselines for the transport sector covering standardization at the following levels:

   (a) Standardized parameters or approaches that are country-specific or region-specific;

   (b) The development of the draft guidelines should be done in consultation with the Meth Panel and the SSC WG, for consideration of the Board at its seventy-fifth meeting.

6. The Board also requested the Meth Panel to develop, where suitable, standardized parameters or approaches that can be applied at the global level in the form of a methodological tool, for the Board's consideration at its seventy-fifth meeting. These tasks were included in the approved work plan of the Board for 2013 which contained the product "Development and implementation of the guideline on standardized baselines for transportation projects" under project 110 on standardized baselines.

7. At its seventy-fifth meeting, the Board considered the draft guideline "Establishment of standardized baselines in the transport sector" and agreed that the document should be a methodological tool to ensure its immediate use by project participants and other stakeholders in the development of standardized baselines. The Board requested the Meth Panel to revise the draft, taking into account the inputs provided by the Board, for the consideration of the Board at a future meeting.

2. Purpose

8. The purpose is to propose a new regulatory document to regulate a new area: a methodological tool that provides methodological approaches for estimating baseline emissions for modal shift measures in inter-urban cargo transport. The tool can be used by both, DNAs to establish standardized baselines to be used by a number of project activities, and project participants to estimate baseline emissions for individual project activities.

3. Key issues and proposed solutions

9. Not applicable.

4. Impacts

10. The draft tool provides methodological approaches to estimate baseline emissions for modal shift measures in cargo transport that shift inter-urban transportation of cargo from road to rail or water-borne transport, which according to international literature, offers the largest mitigation potential in cargo transportation.

5. Subsequent work and timelines

11. The Meth Panel, at its 62nd meeting, agreed on the draft tool. After receiving public inputs on the document, the Meth Panel will continue working on the draft tool, at its 63rd meeting, for recommendation to the Board at a future meeting of the Board.

6. Recommendations to the Board

12. Not applicable (call for public input).

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1. Introduction

1. The tool provides methodological guidance for estimation of baseline emissions for transport projects implementing modal shift measures in inter-urban cargo transport.

2. Scope, applicability, and entry into force

2.1 Scope

2. This tool includes approaches for estimating baseline emissions for project activities aimed at modal shift in inter-urban cargo transport.

2.2 Applicability

3. The tool is applicable to project activities in inter-urban cargo transport that implement a measure or a group of measures aimed at a modal shift from road to water-borne (using barges or domestic ships) or rail transportation.

4. The tool can be used by designated national authorities (DNAs) and is applicable for establishing standardized baselines. In this case, relevant provisions from the following documents shall be applied:

   (a) Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines;

   (b) Procedure for development, revision, clarification and update of standardized baselines.

5. The tool can also be used by project participants and is applicable for estimating baseline emissions for individual project activities. In this case, relevant provisions from the latest approved versions of CDM methodologies, used in conjunction with the tool, shall be applied.

6. DNAs, project participants and other stakeholders may propose revisions that further expand the applicability of the tool to include other approaches and measures.

2.3. Entry into force

7. Not applicable (call for public input).

3. Normative references

8. This tool refers to the following documents:

   (a) “Tool to calculate baseline, project and/or leakage emissions from electricity consumption”.

9. When the tool is used for establishing standardized baselines, relevant provisions from the latest approved versions of the following documents shall be applied:

   (a) Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines;

   (b) Procedure for development, revision, clarification and update of standardized baselines.

4. Definitions

10. The definitions contained in the Glossary of CDM terms shall apply.

11. For the purpose of this tool, the following definitions apply:

   (a) **Measure (for emission reduction activities)** - a broad class of greenhouse gas (GHG) emission reduction activities possessing common features;

   (b) **Level of aggregation** - the level of aggregation and geographical scope is linked to the type of measure implemented. For modal shift in cargo transportation, only modes used for long-haul cargo transport need to be taken into account when the respective baseline is established;

   (c) **Long-haul cargo transport** - transportation of cargo over distances greater than 50 km;

   (d) **Heavy duty vehicles (HDVs)** - vehicles with a gross vehicle weight greater than or equal to 3.5 tonnes are classified as heavy duty vehicles;

   (e) **Light duty vehicles (LDVs)** - vehicles with a gross vehicle weight less than 3.5 tonnes are classified as light duty vehicles.

5. Methodological steps to establish the baseline

12. Baseline emissions from the transportation of cargo are calculated based on the amount of cargo transported under a project activity and the emission factor per cargo type *i* that can be transported by the number of modes.

13. The amount of cargo transported under the project activity shall be monitored along the crediting period.

5.1. Step 1. Determine relevant cargo types

14. Determine the cargo types (can be similar to those in Table 2) transported in the country. The level of aggregation of a region or province can be chosen if there is data to implement a calculation procedure for the region. The baseline is applicable to this region or province. If this regional baseline is used for another region, justification needs to be provided to prove that another region is in a similar situation in terms of the availability of infrastructure.

5.2. Step 2. Determine the mode share for each relevant cargo type

15. Mode share is expressed in tonne-kilometres (TKM) and is determined for each relevant cargo type identified in Step 1 and shall include all relevant modes used for its transportation such as road, pipeline, rail and shipping. Data from reliable sources not older than three[1] years can be used to determine relevant modes for the specific cargo type.

16. For each relevant cargo type, the mode share can be based on national statistics, studies or data collected by transport agencies. A survey to collect data can be carried out in the country, region or province for which the baseline emissions are calculated.

17. The mode share is determined based on TKM transported by the mode K divided by the total of TKM transported in the same time period and region/province/country.

5.3. Step 3. Determine the average specific emission factor per TKM for cargo

18. The average emission factor for cargo per TKM per mode of transport is determined based on the approaches below:

5.3.1 Rail

19. For rail, the average specific emission factor per TKM is determined using the following two options.

20. **Option 1.** The average specific emission factor per TKM can be determined as an average for all cargo types transported by trains. To determine TKM of cargo transported, data for calculations should be based on:

    (a) Records of the rail operator or publications of total TKM of cargo transported and total fuel and electricity used (preferred option);

    (b) Total tonnes of cargo and an average transportation distance for cargo.

$$SEF_{RL,x} = \frac{FC_{RL,n,x} \times NCV_{n,x} \times EF_{CO2,n,x} + EC_{RL,x} \times EF_{elect} \times 10^3}{C_{RL,x}} \quad \text{Equation (1)}$$

Where:

$SEF_{RL,x}$ = Specific emission factor per TKM of cargo transported by rail in year *x* (gCO_2/TKM)

$FC_{RL,n,x}$ = Fuel consumption of the rail system for cargo using fuel type *n* in year *x* (kg)

[1] As stipulated in the "Standard for determining coverage of data and validity of standardized baselines".

$NCV_{n,x}$	=	Net calorific value of fuel type *n* consumed in year *x* (MJ/kg)
$EF_{CO2,n,x}$	=	Emission factor of fuel type *n* in year *x*(gCO_2/MJ)
$EC_{RL,x}$	=	Electricity consumption of the rail system for cargo transport in year *x* (kWh)
EF_{elect}	=	Emission factor for electricity ($kgCO_2$/kWh)
$C_{RL,x}$	=	Cargo transported by the rail system in year *x* (TKM)
x	=	Most recent calendar year prior to the submission of standardized baseline

21. If a specific cargo type is transported by a dedicated train that does not transport any other cargo, then the average specific emission factor per TKM for this particular cargo type can be estimated based on the records.

22. **Option 2.** The average specific emission factor per TKM can be also be determined using default emission factors provided in Table 1 below.

Table 1. Default emission factors for rail transport depending on the type of trains used for transportation

Type of fuel used by train	Factor	Unit
Electricity	0.03	kWh/tonne.km
Diesel	0.07	Kg diesel/tonne.km

Source: CO_2 information for transport services. 2012. Application of Article L. 1431-3 of the French transport code. Methodological guide. Ministry of Ecology, Sustainable Development and Energy of France

5.3.2. Shipping

23. For shipping, the average specific emission factor per TKM is determined as an average for all cargo types transported by domestic ships. To determine the average specific emission factor per TKM of cargo transported by domestic ships, data for calculations can be based on data from ship operator(s) or any relevant national data sources. In the absence of such data, a default value of 40 gCO_2/TKM can be used.[2]

24. If a specific cargo type is transported by a dedicated ship that does not transport any other cargo, then the average specific emission factor per TKM for this particular cargo type can be estimated based on the records.

[2] Based on IFEU, EcoTransIT World: Methodology and Data – Update 31 July 2011, Table 40 has values between 32 and 61 gCO_2/TKM depending on vessel dead weight and container/non-container. The value of 40gCO_2/TKM corresponds to the lower end and is conservative.

5.3.3. Pipeline

25. Pipelines are used to transport very specific goods such as liquid and gaseous fuels. The average specific emission factor per TKM can be estimated based on data from the records of the pipeline operator(s).

5.3.4. Road

26. For road transportation, the specific emission factor per TKM is determined for each relevant cargo type separately, using the following options:

    (a) **Option 1. Default values.** The default emission factors for the relevant cargo types identified in Step 1 can be applied for the transportation of cargo by diesel and gasoline trucks:

        (i) If trucks operate on natural gas in the host country, the default values in Table 2 shall be multiplied by the ratio of the emission factor of natural gas to the emission factor of diesel (both expressed in gCO_2/GJ);

        (ii) If trucks operate on a blend of diesel with biofuels in the host country, the default values in Table 2 shall be multiplied by the fraction of diesel in the blend determined on an energy basis.

Table 2. Default emission factors for road transportation depending on the type of cargo transported

Type of cargo transported	Emission factor ($g\ CO_2$/tonne.km)
Agricultural products and live animals	83
Beverage	61
Groceries	76
Perishable and semi-perishable foodstuffs and canned food	94
Other food products and fodder	74
Solid mineral fuels and petroleum products	76
Ores and metal waste	90
Metal products	80
Mineral products	57
Other crude and manufactured minerals and building materials	70
Fertilizers	76
Chemicals	70
Transport equipment	100
Machinery and metal products	119
Glass and ceramic and porcelain products	84
Grouped goods	94

Type of cargo transported	Emission factor (g CO_2/tonne.km)
Other manufactured articles	113

Sources: "Repérage des produits les plus concernés par la maîtrise de la demande de transport routier", Beauvais Consultants, ADEME, 2006 and "Le point sur N°25, Les émissions de CO_2 par les poids lourds français entre 1996 et 2006 ont augmenté moins vite que les volumes transportés", Commissariat général du développement durable, Ministère de l'écologie, de l'énergie, du développement durable et de la mer, 2009.

(b) Option 2. Historic data or survey

27. This option is not applicable if the demand for the transportation of cargo is new.

28. The baseline emission factor is calculated based on historic data on the amount of fuels consumed for transportation of the cargo type, net calorific values and CO_2 emission factors of the fuel types used, amount of cargo transported, distance of the baseline trip route and a factor to account for non-empty return trips. This option can be applied only if reliable data records on the amount of cargo transported, amount of fuel consumed and the fuel types used are available for the trucks dedicated to the transportation of the particular type of cargo (see Step 1). This information may be obtained through surveys performed by public or other entities.

29. The specific emission factor for each relevant cargo type is calculated as follows:

$$SEF_{R,i,x} = \frac{FC_{i,n,x} \times NCV_{n,x} \times EF_{CO2,n,x} \times F_{RT,i,x}}{CW_{i,n,x} \times D_{i,n,x}} \quad \text{Equation (2)}$$

Where:

$SEF_{R,i,x}$ = Specific emission factor for cargo type *i* transported by road in year *x* (gCO_2/tonne-km)

$FC_{i,n,x}$ = Fuel consumption of trucks using fuel type *n* to transport cargo type *i* in year *x* (litre, m^3 or kg)

$NCV_{n,x}$ = Net calorific value of fuel type *n* consumed by trucks in year *x* (MJ/litre, MJ/m^3 or MJ/kg)

$EF_{CO2,n,x}$ = Emission factor of fuel *n* consumed by the trucks in year *x* (gCO_2/MJ)[3]

$F_{RT,i,x}$ = Factor to account for non-empty return trips (fraction) by trucks transporting cargo type *i* in year

$CW_{i,n,x}$ = Average weight of cargo type *i* transported by trucks using fuel type *n* in year *x*(tonne)

[3] If the fuel is blended with biofuel, the emission factor of the blend shall be calculated assuming an emission factor of zero for the biofuel.

$D_{i,n,x}$ = Average distance driven by trucks using fuel type *n* to transport cargo type *i* in year *x* (km)

n = Fuel types used by trucks in year *x*

i = Cargo type transported by trucks

x = Most recent calendar year prior to the establishment of standardized baseline

5.3.4.1. The determination of factor to account for non-empty return trips

30. The factor to account for non-empty return trips $F_{RT,i,x}$ is calculated based on one year of historical data on the number of empty return trips. In cases where it can be demonstrated that all the return trips in year *x* were empty, F_{RT} is 1. In cases where there are non-empty return trips in year *x*, $F_{RT,i,x}$ is determined as follows:

$$F_{RT,i,x} = \frac{CW_{i,n,x} \times D_{i,n,x}}{CW_{i,n,x} \times D_{i,n,x} + CW_{RT,i,n,x} \times RTD_{i,n,x}} \quad \text{Equation (3)}$$

Where:

$F_{RT,i,x}$ = Factor to account for non-empty return trips (fraction) by trucks transporting cargo type *i* in year *x*

$CW_{i,n,x}$ = Average weight of cargo type *i* transported by trucks using fuel type *n* in year *x* (tonne)

$D_{i,n,x}$ = Average distance driven by trucks using fuel type *n* to transport cargo type *i* in year *x* (km)

$CW_{RT,i,n,x}$ = Average weight of cargo type *i* transported on return trips *RT* by trucks using fuel type *n* in year *x* (tonne)

$RTD_{i,n,x}$ = Distance of the return trip route *RT* of trucks using fuel type *n* to transport cargo type *i* in year *x* (km)

n = Fuel types used by trucks in year *x*

i = Cargo type transported by trucks

x = Most recent calendar year prior to the establishment of standardized baseline

5.4. Step 4. Determine baseline emission factor

31. The baseline emission factor is determined for each cargo type separately, based on the modal split and the emission factor per TKM per mode according to the following formula:

$$EF_{i,x} = M_{R,i,x} \times SEF_{R,i,x} \times D_{PJ} + M_{RL,i,x} \times SEF_{RL,x} \times D_{PJ} + MC_{S,i,x} \times SEF_{S,x} \times D_{PJ} + M_{PL,i.x} \times SEF_{PL,i,x} \times D_{PJ}$$ Equation (4)

Where:

$EF_{i,x}$	=	Emission factor per cargo type *i* transported in year *x* (gCO_2/TKM)
$M_{R,i,x}$	=	Mode share for road transport of cargo type *i* in year *x* (%)
$SEF_{R,i,x}$	=	Specific emission factor for cargo type *i* transported by road in year *x* (gCO_2/TKM)
D_{PJ}	=	Rail/waterway distance between start and end point of project rail line or ports for shipping (km)
$M_{RL,i,x}$	=	Mode share for rail transport of cargo type *i* in year *x* (%)
$SEF_{RL,x}$	=	Specific emission factor per TKM of cargo transported by rail in year *x* (gCO_2/TKM)
$MC_{S,i,x}$	=	Mode share for ship transport for cargo type *i* in year *x* (%)
$SEF_{S,x}$	=	Specific emission factor for cargo transported by ships in year *x* (gCO_2/TKM)
$M_{PL,i.x}$	=	Mode share for pipeline for cargo type *i* in year *x* (%)
$SEF_{PL,i,x}$	=	Specific emission factor for cargo type *i* transported through pipelines in year *x* (gCO_2/TKM)
i	=	Cargo type transported by trucks
x	=	Most recent calendar year prior to the establishment of standardized baseline

32. Transportation distance D_{PJ} for which emission reductions are estimated with the use of standardized baselines should be obtained from the project.

5.5. Step 5. Determine baseline emissions

33. Baseline emissions for cargo are based on TKM of actually transported cargo by the project multiplied by the relevant baseline emission factor. TKM of cargo transported is based on the project records.

$$BE_y = \sum_i EF_{x,i} \times AL_{i,y} \times 10^{-6}$$ Equation (5)

Where:

BE_y	=	Baseline emissions of project cargo in the year *y* (tonnes)
$EF_{x,i}$	=	Emission factor per cargo type *i* transported in year *x* (gCO_2/TKM)

$AL_{i,y}$	=	Cargo activity level of the project expressed as TKM transported of cargo type *i* in year *y* (TKM)

6. Data and parameters

6.1. Data and parameters not monitored

Data / Parameter table 1.

Data / Parameter:	**$C_{RL,x}$**
Data unit:	TKM
Description:	Cargo transported by the rail system in year *x*
Source of data:	Rail company
Measurement procedures (if any):	Vintage maximum three years
Any comment:	Same time period and same location as $FC_{RL,x}$/$EC_{RL,x}$

Data / Parameter table 2.

Data / Parameter:	**$FC_{RL,n,x}$/$EC_{RL,x}$**
Data unit:	kg for fuels and kWh for electricity
Description:	Fuel consumption of the rail system for cargo using fuel type n in year x/Electricity consumption of the rail system for cargo transport in year *x*
Source of data:	Rail company
Measurement procedures (if any):	Vintage maximum three years
Any comment:	Same time period and same location as $C_{RL,x}$

Data / Parameter table 3.

Data / Parameter:	**$FC_{i,n,,x}$**
Data unit:	litre, m^3 or kg
Description:	Fuel consumption of trucks using fuel type *n* to transport cargo type *i* in year *x*
Source of data:	Historical data or survey
Measurement procedures (if any):	-
Any comment:	-

Data / Parameter table 4.

Data / Parameter:	**$NCV_{n,x}$**
Data unit:	Energy/mass or volume units of fuel type *n* in year *x*
Description:	Net calorific value of fuel type *n* consumed in year *x*

<table>
<tr><td>Source of data:</td><td>The following data sources may be used if the relevant conditions apply:<table><tr><th>Data source</th><th>Conditions for using the data source</th></tr><tr><td>(a) National default values</td><td>This source can only be used for liquid fuels and should be based on well documented, reliable sources(such as national energy balances)</td></tr><tr><td>(b) IPCC default values at the lower limit of the uncertainty at a 95 per cent confidence interval as provided in Table 1.2 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories</td><td></td></tr></table></td></tr>
<tr><td>Measurement procedures (if any):</td><td>-</td></tr>
<tr><td>Monitoring frequency:</td><td>For (a): review the appropriateness of the values annually.
For (b): any future revision of the IPCC Guidelines should be taken into account</td></tr>
<tr><td>QA/QC procedures:</td><td>Verify whether the values under (a) and (b) are within the uncertainty range of the IPCC default values as provided in Table 1.2, Vol. 2 of the 2006 IPCC Guidelines. If the values fall below this range, collect additional information from the testing laboratory to justify the outcome or conduct additional measurements. The laboratories in (a) should have ISO17025 accreditation or demonstrate that they can comply with similar quality standards</td></tr>
<tr><td>Any comment:</td><td>-</td></tr>
</table>

Data / Parameter table 5.

Data / Parameter:	**$EF_{CO2,n,x}$**
Data unit:	gCO_2/J
Description:	CO_2 emission factor for fuel type *n* in year *x*

<table>
<tr><td>Source of data:</td><td>The following data sources may be used, if the relevant conditions apply:
<table>
<tr><th>Data source</th><th>Conditions for using the data source</th></tr>
<tr><td>(a) National default values</td><td>This source can only be used for liquid fuels and should be based on well documented, reliable sources (such as national energy balances)</td></tr>
<tr><td>(b) IPCC default values at the lower limit of the uncertainty at a 95 per cent confidence interval as provided in Table 1.4 of Chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories</td><td></td></tr>
</table></td></tr>
<tr><td>Measurement procedures (if any):</td><td>-</td></tr>
<tr><td>Monitoring frequency:</td><td>For (a): review the appropriateness of the values annually.
For (b): any future revision of the IPCC Guidelines should be taken into account</td></tr>
<tr><td>QA/QC procedures:</td><td>-</td></tr>
<tr><td>Any comment:</td><td>-</td></tr>
</table>

Data / Parameter table 6.

Data / Parameter:	**EF_{elect}**
Data unit:	$kgCO_2/kWh$
Description:	Emission factor for electricity ($kgCO_2/kWh$)
Source of data:	Procedures in the latest approved version of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" shall be followed
Measurement procedures (if any):	"Tool to calculate baseline, project and/or leakage emissions from electricity consumption" shall be applied
Any comment:	-

Data / Parameter table 7.

Data / Parameter:	**$CW_{i,n,x}$**
Data unit:	tonne
Description:	Average weight of cargo type *i* transported by trucks using fuel type *n* in year *x*
Source of data:	Sample measurements or trucking/logistics companies

Measurement procedures (if any):	Vintage maximum three years. For sample measurements, relevant provisions from the latest approved version of the "Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities" shall be followed. The lower 95 per cent confidence level shall be taken
Any comment:	The parameter is not required if mode split data for cargo on road is available for the country/region/province

Data / Parameter table 8.

Data / Parameter:	**$CW_{RT,i,n,x}$**
Data unit:	tonne
Description:	Average weight of cargo type *i* transported on return trips RT by trucks using fuel type n in year *x*
Source of data:	Sample measurements or trucking/logistics companies
Measurement procedures (if any):	Vintage maximum three years. For sample measurements, relevant provisions from the latest approved version of the "Standard for Sampling and Surveys for CDM Project Activities and Programme of Activities" shall be followed. The lower 95 per cent confidence level shall be taken
Any comment:	

Data / Parameter table 9.

Data / Parameter:	**$D_{i,n,x}$**
Data unit:	km
Description:	Average distance driven by trucks using fuel type *n* to transport cargo type *i* in year *x*
Source of data:	Historical data or survey
Measurement procedures (if any):	-
Any comment:	-

Data / Parameter table 10.

Data / Parameter:	**$RTD_{i,n,x}$**
Data unit:	km
Description:	Distance of the return trip route *RT* of trucks using fuel type *n* to transport cargo type *i* in year *x*
Source of data:	Historical data or survey
Measurement procedures (if any):	-
Any comment:	In many cases, $RTD_{i,n,x}$ will be the same as $D_{i,n,x}$, where the trucks take the same route in the return trip. However, in cases where the trucks take different route (detour) in the return trip, the $RTD_{i,n,x}$ shall be the actual length of the return trip

6.2. Data and parameters monitored

Data / Parameter table 11.

Data / parameter:	**$AL_{i,y}$**
Data unit:	TKM
Description:	Cargo activity level of the project expressed as TKM transported of cargo type *i* in year *y*
Source of data:	Rail operator
Measurement procedures (if any):	Based on records of rail operator
Monitoring frequency:	Continuously, aggregated at least annually
QA/QC procedures:	Can be cross-checked with invoices
Any comment:	

6.3. Key parameters to calculate the baseline for modal shift in inter-urban cargo transport

Parameter	**Level of aggregation and sources of data**
Cargo types/geographical area (coal transported using less intensive mode)	1. Country level ; 2. The level of aggregation of a region or province can be chosen if there is data to implement a calculation procedure for the region. The standardized baseline is applicable to this region; 3. If this regional standardized baseline is used for another region, justification needs to be provided to prove that another region is in a similar situation in terms of the availability of infrastructure
Mode share for each relevant cargo type	1. Country level; 2. Region/province (please see the requirement above)
Rail	
Fuel consumption	1. Country level; 2. Region/province (see the requirement above). If data is available, emission factors for specific cargo types can be estimated for those cargo types that are transported by dedicated trains. For trains transporting a mix of cargo, one emission factor for all types of cargo is estimated
Net calorific value	1. National default; 2. International default (IPCC)
Emission factor of fuel	1. National default; 2. International default (IPCC)
Electricity consumption	Grid
Grid emission factor	Build margin
Shipping	Country level
Pipeline	Country level
Road	Emission factor/cargo type:

	1. Default value 2. Calculated based on historic data
Amount of cargo type transported under the project	Project-specific. Data obtained by PPs, not DNAs
Project transportation distance	Project-specific. Data obtained by PPs, not DNAs

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Document information

Version	*Date*	*Description*
Draft 01.0	10 February 2014	MP 62, Annex 5 A call for public input will be issued on this draft tool.

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