(Provisional Translation)

Product Category Rules (PCR)
(Approved PCR ID: PA-AB-01)

PCR Name: Rapeseed Oil

Release Date: September 4, 2009

CFP Calculation and Labeling Pilot Program

*The approved PCR will expire at the end of the CFP Calculation and Labeling Pilot Program (scheduled until March 31, 2012). If the approved PCR is revised by the expiration date, however, the revised PCR shall be valid.

*This English translation of the original Japanese PCR is provided for information purpose. Please refer to the Japanese version for conducting the CFP calculation.

*Tentative Database of GHG Emission Factors for the CFP Pilot Project is available on the CFP web (Japanese only)

http://www.cfp-japan.jp/english/system/data.html

Contents

Introduction

This PCR prescribes rules, requirements, and instructions applicable to rapeseed oil under the CFP Calculation and Labeling Pilot Program. For the definition of the term "rapeseed oil" used in this PCR, see Section 3.1.

The contents provided in this PCR shall be subject to changes and revisions as needed for further refinement, upon continued discussions with relevant enterprises, during the period of the CFP Pilot Project.

1. Scope

1.1 Product System and System Boundary

1.1.1 Components of products

The assessment range includes rapeseed oil, package, enclosed accessories, and intermediate package materials during distribution.

1.1.2 Functional unit of products

The sales unit shall be the functional unit of products.

1.2 Life Cycle Stages

1.2.1 Life cycle flow chart

Annex A shows the life cycle flow chart.

1.2.2 Life cycle stages to be covered

[Raw Material Acquisition Stage]

The raw material acquisition stage consists of the following processes:

1) Rape cultivation processes

- Processes related to the cultivation of rape as raw materials for rapeseed oil
- More specifically, processes necessary for rape harvesting in and around farm land, such as farm land consolidation, seeding, cultivation management, and harvesting
- Nitrous oxide (N_2O) generation from nitrogen fertilizers accompanying these processes is also included in the targets.

● The carbon storage process in farmland soil is not evaluated. As a source of CO_2 absorption, farm land soil shows an effect of storing carbon. Since there is no internationally agreed assessment method and technical development must be awaited for actual measurement, however, this is excluded from assessment now.

2) Rapeseed adjustment processes

● Processes to adjust harvested rapeseeds into raw materials for rapeseed oil and make them ready for shipping

● More specifically, processes such as sorting, weighing, and storage

3) Rapeseed transport process

As the rapeseed transport process, the following two processes shall be evaluated:

● Process to transport non-adjusted rapeseed to adjustment facilities

● Process to transport adjusted rapeseed to a vegetable oil plant for oil extraction

4) Wastes treatment process

Wastes discharged from each process are treated by external operators.

Valuable resources are not included.

5) Processes related to the manufacture and transport of various input items:

■ Rape cultivation processes

● Processes related to the manufacture and transport of rapeseed

● Processes related to the manufacture and transport of fertilizers

● Processes related to the manufacture and transport of agricultural chemicals

● Processes related to the supply of irrigation water

● Processes related to the manufacture and transport of cultivation materials (wooden, plastic, metallic, and stone materials)

● Processes related to the supply of fuel and electric power

■ Rapeseed adjustment processes

● Processes related to the supply of fuel and electric power

■ Processes related to the manufacture and transport of items input to the processes at the production stage such as oil extraction process

- Processes related to the manufacture and transport of extraction solvents
- Processes related to the manufacture and transport of degumming agents
- Processes related to the manufacture and transport of deacidifying agents
- Processes related to the manufacture and transport of decoloring & dewaxing agents to absorb chlorophyll and other pigments
- Processes related to the manufacture and transport of deodorants

The manufacturing and transporting processes of materials used for packaging and transport to acquire the above inputs from outside shall be excluded from evaluation.
Processes not existing at actual raw material acquisition stage are not needed to be evaluated.

[Production Stage]
The production stage consists of the following processes:

1) Preprocesses such as loading and storage
2) Processing processes such as squeezing, extraction, degumming, deacidification, decoloring & dewaxing, and deodorization
3) Post-processes such as storage, blending, weighing, and filling
4) Transport between sites (if oil extraction and filling sites are different)

[Distribution and Sales Stage]
The distribution and sales stage consists of the following processes:

1) Transport related processes
Processes related to the transport of rapeseed oil from a vegetable oil plant to consumers.
The scope of evaluation includes processes related to the fuel consumption by transport and the ones related to the manufacture and transport of materials used for transport.
2) In-store sales process
Process related to the in-store sales of rapeseed oil.
The scope of evaluation includes processes related to electric power and fuel consumption at stores and also the ones related to the disposal of materials used for transport.

However, processes not existing at actual transport shall be excluded from the evaluation. (For example, in case of distribution without in-store sales, only transport related processes shall be evaluated.) Warehouse storage from a wholesaler to stores shall not be considered.

[Use and Maintenance Control Stage]

The use and maintenance control stage consists of the following process:

- Process accompanying fuel consumption at cooking

Processes related to the manufacture and transport of other food materials for cooking shall be excluded from evaluation.

Processes related to the disposal of leftover and the washing of rapeseed oil off tableware shall be excluded from evaluation.

[Disposal and Recycling Stage]

The disposal and recycling stage consists of the following processes:

- Transport of packaging waste from household to treatment facilities
- Incineration of packaging waste at treatment facilities
- Landfill of packaging waste at treatment facilities

Regarding the recycling of packaging waste, both CO_2 emissions from recycling and indirect CO_2 reduction by recycling shall be excluded from evaluation.

2. PCR References

There is no PCR that can be referenced as of August 26, 2009.

3. Terms and Definitions

3.1 Rapeseed Oil

In this PCR, "rapeseed oil" refers to edible oil made only from rapeseeds.

4. Data Collection at Each Life Cycle Stage

4.1 Raw Material Acquisition Stage

4.1.1 Data collection items and classification of primary and secondary data

4.1.1.1 Data collection items

1) Rape cultivation process

At each process necessary for rape cultivation in farm land, such as farm land consolidation, seeding, cultivation management, and harvesting, the data items below shall be collected. In this PCR, fixed assets used for several years shall be excluded from input.

<Input>

1. Rapeseed input amount
2. Fertilizer input amount
3. Agricultural chemicals input amount
4. Cultivation materials input amount
5. Fuel and electric power input amount

If the above inputs are produced in house and the fuel and electric power input amount at production is included in "8. Fuel and electric power input amount," it is not needed to check the individual input amounts because individual input amounts are not necessary for calculating the GHG emissions related to the production of inputs.

<Output and discharge>

6. Rapeseed (before adjustment) production output
7. Co-product production output
8. Wastes discharge amount
9. Nitrous oxide (N_2O) amount from nitrogenous fertilizer

Harvest residues available from the cultivation processes shall be handled as co-product if they are sold outside as merchandise. They shall not be included in co-product if they are consumed inside or landfilled.
"Wastes" refers to the ones whose disposal is entrusted from cultivators to external operators. Harvest residues landfilled in farm land are excluded and CO_2 generated by the decomposition of landfilled harvest residues shall be regarded as carbon-neutral and excluded from the data collection items.

<Other>

10. Farm land area

2) Rapeseed adjustment process

For rapeseed adjustment process to prepare shipping, the data items below shall be collected. In this PCR, fixed assets used for several years shall be excluded from input.

<Input>

1. Rapeseed (before adjustment) input amount
2. Fuel and electric power input amount

<Output and discharge>

3. Rapeseed (after adjustment) production output
4. Co-product production output
5. Wastes discharge amount

Unripe rapeseeds eliminated by adjustment shall be handled as co-product if they are sold outside as merchandise. They shall not be included in co-product if they are consumed inside or landfilled.

"Wastes" refers to the ones whose disposal is entrusted from rape cultivators to external operators. Unripe rapeseeds landfilled in farmland are excluded and CO_2 generated by the decomposition of landfilled unripe seeds shall be regarded as carbon-neutral and excluded from the data collection items.

3) Rapeseed transport process

Regarding the rapeseed transport process, the data items below shall be collected. Fuel usage in transport shall be assessed by the fuel consumption method, the fuel cost method, or the improved ton-kilometer method prescribed in the Act on the Rational Use of Energy. For each fuel usage assessment method, see Annex B.

1. Cargo weight
2. GHG emissions accompanying fuel use

(Fuel method)

- Fuel usage

(Fuel cost method)

- Transport distance
- GHG emissions by fuel consumption per distance covered

(Improved ton-kilometer method)

- Transport distance
- GHG emissions by fuel consumption per transport ton kilometer

● Loading ratio

4) Regarding the processes related to the treatment of wastes from each process, data shall be collected about the followings:

1. Wastes discharge amount
2. Life cycle GHG emissions related to the treatment of wastes

5) Regarding the processes related to the manufacture and transport of inputs, data shall be collected about the followings:

■ Inputs to the rape cultivation process

1. Life cycle GHG emissions related to the manufacture and transport of rapeseeds
2. Life cycle GHG emissions related to the manufacture and transport of fertilizers
3. Life cycle GHG emissions related to the manufacture and transport of agricultural chemicals
4. Life cycle GHG emissions related to the manufacture and transport of cultivation materials (e.g., wooden, plastic, metallic, and stone materials)
5. Life cycle GHG emissions related to the supply and use of fuel and electric power

If the above inputs are produced in house and the usage of fuel and electric power at production is known, however, individual input amounts are not needed to be checked because individual input amounts are not necessary for calculating the GHG emissions related to the production of inputs.

■ Rapeseed adjustment process

6. Processes related to the supply of fuel and electric power

■ Inputs to the oil extraction and other processes at the production stage

7. Life cycle GHG emissions related to the manufacture and transport of extraction solvents
8. Life cycle GHG emissions related to the manufacture and transport of degumming agents
9. Life cycle GHG emissions related to the manufacture and transport of deacidifying agents

10. Life cycle GHG emissions related to the manufacture and transport of decoloring & dewaxing agents

11. Life cycle GHG emissions related to the manufacture and transport of deodorants

12. Life cycle GHG emissions related to the manufacture and transport of packaging materials

4.1.1.2 Primary data collection items

Since 98.1% of rapeseeds used at vegetable oil plants in Japan are imported from overseas (Canada and Australia) ("Facts about Oils and Fats in Japan" by the Ministry of Agriculture, Forestry and Fisheries in 2007), it is impossible to collect universal primary data. Therefore, this PCR does not make it an obligation to collect primary data about the data collection items at the raw material acquisition stage.

4.1.1.3 Items for which either primary or secondary data may be used

Regarding the following items related to the raw material acquisition stage in this PCR, secondary data (including scenario) may be applied.

1) Life cycle GHG emissions related to the manufacture and supply of 1 kg rapeseeds (after adjustment)

"Life cycle GHG emissions related to the manufacture and supply of 1 kg rapeseeds (after adjustment)" shall be prepared as secondary data including all life cycle GHG emissions from the rape cultivation and rape adjustment processes to produce adjusted rapeseeds and also from the processes for the manufacture and transport of the inputs to the processes.

For transport from adjustment facilities to vegetable oil plants, primary data may be collected or the transport scenario given later may be used as secondary data.

If the secondary data is applied, there is no need to collect data about inputs, outputs, and discharges at each process or life cycle GHG emissions data related to the manufacture and transport inputs.

2) Individual item at the rape cultivation process

Even for the collection of primary data about input/output at the rape cultivation process, secondary data may be applied about the followings:

- Nitrous oxide (N_2O) generation from nitrogenous fertilizer

3) GHG emissions by fuel consumption at the rapeseed transport process

1. Improved ton-kilometer method: GHG emissions by fuel consumption per transport ton kilometer
2. Improved ton-kilometer method: Loading ratio
3. Common: Transport distance

4) Life cycle GHG emissions related to the manufacture and transport of inputs

At the collection of primary data about the amounts of inputs to the rape cultivation process, the rape adjustment process, and the production stage, the life cycle GHG emissions data related to the manufacture and transport of inputs is necessary for the carbon footprint assessment. Secondary data may be used for the following life cycle GHG emissions related to the manufacture and transport of the following inputs:

■ Inputs to the rape cultivation process

1. Life cycle GHG emissions related to the manufacture and transport of rapeseeds
2. Life cycle GHG emissions related to the manufacture and transport of fertilizers
3. Life cycle GHG emissions related to the manufacture and transport of agricultural chemicals
4. Life cycle GHG emissions related to the manufacture and transport of cultivation materials (e.g., wooden, plastic, metallic, and stone materials)

■ Inputs to the rapeseed adjustment process

None

■ Inputs to the oil extraction and other processing processes at the production stage

5. Life cycle GHG emissions related to the manufacture and transport of extraction solvents
6. Life cycle GHG emissions related to the manufacture and transport of degumming agents
7. Life cycle GHG emissions related to the manufacture and transport of deacidifying agents
8. Life cycle GHG emissions related to the manufacture and transport of decoloring & dewaxing agents
9. Life cycle GHG emissions related to the manufacture and transport of deodorants

10. Life cycle GHG emissions related to the manufacture and transport of packaging materials

5) Life cycle GHG emissions related to the treatment of discharge

11. Life cycle GHG emissions related to the treatment of wastes

6) Common

- Life cycle GHG emissions related to the supply and use of fuel and electric power for in-house production and the ones about which no data is available from the Tentative Database of GHG Emission Factors for the CFP Pilot Project.

For in-house power generation, see 4.1.2.6.

If biomass energy sources such as firewood, wooden chips, and charcoal are produced in house, the energy consumption necessary for the production shall be checked as the primary data and the GHG emissions shall be assessed. If the energy input for the production of biomass energy sources is included in the total fuel and electric power input of the site, there is no need to collect data separately. CO_2 emissions due to the combustion of biomass energy sources may be regarded as carbon-neutral and excluded from the carbon footprint.

Regarding life cycle GHG emissions related to the supply and use of fuel and electric power acquired from outside, secondary data shall be used.

4.1.1.4 Secondary data collection items

Regarding the inputs and outputs related to the raw material acquisition stage in this PCR, secondary data shall be applied.

- Life cycle GHG emissions related to the supply and use of fuel and electric power acquired from outside about which data is available from the Tentative Database of GHG Emission Factors for the CFP Pilot Project.

4.1.2 Primary data collection rules

4.1.2.1 Data collection method and requirements

Primary data can be obtained by the following two methods:

(a) Checking and adding up the input and output items and their emissions by the unit of work or equipment/facilities operation (operating hours, area, distance, etc.) necessary for the process

(e.g., Agricultural machine operating time by produce x fuel consumption/hour = fuel input amount)

(b) Allocating the result of each operator in a specified period among outputs

(e.g., Allocating the total amount of annual fuel input among harvested produces)

Regarding the production stage in this PCR, both measuring methods are acceptable.

If the measuring method of (a) is used, same method shall be applied to other produces which are produced on the same site but not the target of this PCR and it shall indicate that the grand total of the measuring results of all produces will not deviate greatly from the resultant value of the entire site.

The unit of equipment/facilities operation (operating hours, area, distance, etc.) may be adopted from such information sources as farming diaries, farming management software, and other farming records.

Fuel and electric power inputs related to the use of equipment and facilities such as pumping up irrigation water and manufacturing in-house composts outside farm land shall be measured if they are related to rape cultivation.

If the measuring method of (b) is used, the allocation method shall be the one explained in 4.1.2.4.

Indirect fuel and electric power consumptions such as air-conditioning and lighting in office may be included in the scope of measurement if they cannot be excluded from measurement.

Regarding the amounts of inputs to and outputs from the rape cultivation processes, country average data maybe disclosed. If these are disclosed for the targeted area, the average data may be used as the primary data of the above input and output items.

4.1.2.2 Data collection period

Regarding input items such as rape cultivation process, rapeseed production, organic fertilizer and some fertilizer production, as a rule, the primary data collection period shall be the most recent term. If it is difficult to collect data of the most recent term by the start of product sales, the primary data of the same term in the preceding year may be used. If the harvest was extremely small in the most recent term and the preceding year because of bad weather conditions and such, the average of the primary data of the same term in several years before the preceding year maybe used.

For other input items, the most recent one year shall be the data collection period. If data of the most recent one year is not used, its reason shall be clarified. In addition, the accuracy of data not from the most recent one year shall be assured.

4.1.2.3 Handling of raw material acquisition from multiple suppliers

If raw materials are acquired from multiple suppliers, primary data should be collected about all suppliers. If the number of suppliers is very large, primary data should be used for 50 % or more of the acquired volume, and the average value of data collected from suppliers should be applied as secondary data for suppliers for which data cannot be collected.

The unit of "supplier" here shall match that of primary data collection. The unit of primary data collection may be operator, area, or country (if the average data of producing countries is adopted as primary data).

4.1.2.4 Allocation method

Physical quantity (weight) shall be used as the basic parameter for allocation. If any other parameter (economic value, etc.) is adopted, the basis for using such parameter shall be provided.

4.1.2.5 Handling of regional differences and seasonal variations

During the primary data collection period, the input items for rape cultivation, producing rapeseeds, and manufacturing some fertilizers, such as organic ones, differ between areas. Therefore, primary data shall be collected basically from all suppliers. If this is not possible, however, the data of another supplier in the same area, not in a different area, can be used as the secondary data (see 4.1.2.3 for the criteria of permission).

For other input items, primary data needs not be considered about area differences.

4.1.2.6 Handling of self-produced electricity

If power is generated on the site and used for the production of the product, the fuel amount input for the power generation shall be collected as primary data and the GHG emissions related to the manufacture and combustion shall be assessed.

4.1.3 Secondary data application rules

4.1.3.1 Contents and sources of secondary data

This section prescribes the contents and sources of secondary data available at the raw material acquisition stage in this PCR.

Secondary data not given below may be prepared (including the application of other secondary data) by a CFP applicant on condition that evidence guaranteeing the validity of application of such data is prepared. Validity of the secondary data to be provided by the CFP applicants shall be verified when the CFP calculation results are verified.

The GHG emission factors and the reference data below apply to processes in Japan. When applying such data to overseas data, the validity of the application must be provided, even if process names or raw material names are the same.

■ Life cycle GHG emissions related to the manufacture of 1 kg rapeseeds (after adjustment)

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

■ Emissions from the rape cultivation processes

For nitrous oxide (N_2O) generation by chemical fertilization, this PCR specifies the following reference data as applicable secondary data because there is no corresponding data in Tentative Database of GHG Emission Factors for the CFP Pilot Project.

	Process	Numeric Value		Source
1	Nitrous oxide generation by chemical fertilization	1.51E+00	kg-CO_2e/kg-N	N_2O emission factor accompanying the application of synthetic fertilizer to soil in farm land" in "National Greenhouse Gas Inventory Report of Japan" (2009)

■ Life cycle GHG emissions related to the manufacture of inputs (seeds, fertilizers, and agricultural chemicals) to the rape cultivation processes

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

■ Life cycle GHG emissions related to the manufacture of inputs (cultivation materials and plastics) to the rape cultivation processes

See Annex E: E3. Life Cycle GHG Emissions Related to Manufacturing of Containers, Packaging Materials, Materials used for Transport, and Various Other Materials.

■ Life cycle GHG emissions related to the manufacture of inputs to the production stage
No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

■ Life cycle GHG emissions related to the manufacture of packaging and materials used for transport
See Annex E: E3. Life Cycle GHG Emissions Related to Manufacturing of Containers, Packaging Materials, Materials used for Transport, and Various Other Materials.

■ Life cycle GHG emissions related to the treatment of wastes
See Annex E: E.4 Life Cycle GHG Emissions Related to Treatment of Wastes and Wastewater.

■ Life cycle GHG emissions related to the supply and use of fuel and electric power
See Annex E: E.1 Life Cycle GHG Emissions Related to Supply and Use of Fuel and Electric Power.

■ Improved ton-kilometer method: GHG emissions by fuel consumption per transport ton kilometer
See Annex E: E.5 GHG Emission by Fuel Consumption per Transport Ton Kilometer.

4.1.3.2 Contents of scenario

4.1.3.2.1 Raw materials transport scenario

Regarding transport from a supplier, it is basically preferable to collect primary data about the transport distance, the means of transport, and the loading ratio. If this is not possible, however, the scenario below may be used. Note that the scenario settings for a transport process differ depending whether the rape cultivation site is in or outside of Japan. See Annex C for the methodology for setting the following transport scenario:

(1) Manufacturer of inputs to the rape cultivation process → Rape cultivator
(e.g., Fertilizer manufacturer → Farmer)

The values are not depend on whether the rape cultivation site is in or outside of Japan

<Transport distance> 500 km

<Means of transport> 10-ton-truck (Light oil)

<Loading ratio> 62 %

(2) Rape cultivator → Rape adjustment process executor

(e.g., Farmer → Adjustment facilities)

1. Rape cultivated in Japan

<Transport distance> 50 km

<Means of transport> 10-ton-truck (Light oil)

<Loading ratio> 62 %

2. Rape cultivated outside Japan

<Transport distance> 500 km

<Means of transport> 20ton-truck (Light oil)

<Loading ratio> 62 %

(3) Rape adjustment process executor → Vegetable oil plant

(e.g., Adjustment facilities → Vegetable oil plant)

1. Rape cultivated in Japan

<Transport distance> 500 km

<Means of transport> 10-ton-truck (Light oil)

<Loading ratio> 62 %

2. Rape cultivated outside Japan (Canada and Australia)

i. Domestic transport in cultivating country (Cultivation site → Port)

<Transport distance> 2,000 km

<Means of transport> Railway

ii. International transport (Port → Port)

<Transport distance> International sailing distance in Appendix D

<Means of transport> Bulk carrier (80,000 DWT or less)

iii. Transport in Japan (Port → Port)

<Transport distance> 500 km

<Means of transport> Bulk carrier (8,000 0DWT or less)

iv. Transport in Japan (Port → Vegetable oil plant)

<Transport distance> 100 km

<Means of transport> 10-ton-truck (Light oil)

<Loading ratio> 62 %

(4) Manufacturer of inputs (other than rapeseeds) to the production stage → Vegetable oil plant (e.g., Materials manufacturer → Vegetable oil plant)

<Transport distance> 500 km

<Means of transport> 10-ton-truck (Light oil)

<Loading ratio> 62 %

4.1.4 Cut-off criteria

The materials input to the raw material acquisition stage may be cut-off if the total GHG emissions related to their manufacture and transport is within 5% of the total GHG emissions at the raw material acquisition stage.

4.1.5 Evaluation of recycled materials and reused products

If recycled materials or reused products are used as inputs, the GHG emissions related to their manufacture and transport shall include the GHG emissions accompanying the recycling processes (collection, preprocessing, regeneration, etc.) and reuse processes (collection, washing, etc.).

4.2 Production Stage

4.2.1 Data collection items and classification of primary and secondary data

4.2.1.1 Data collection items

Regarding the production stage in this PCR, data shall be collected about the followings:

<Input>

1. Rapeseed (after adjustment) input amount
2. Packaging materials input amount
3. Fuel and electric power input amount
4. Water input amount (industrial water and tap water)
5. Other materials (solvent, etc.) input amount

The data collection items include the tap water input amount but not the usage of well water pumped at the site of an operator. The reason for exclusion is that the input amount needs

not be checked because the GHG emissions related to the supply of well water is included in the GHG emissions accompanying the supply of fuel and electric power used for pumping.

<Output and discharge>

6. Rapeseed oil production output
7. Co-product (oilcake, etc.) production output
8. Wastes discharge amount

<Other>

9. Life cycle GHG emissions related to the treatment of wastes

4.2.1.2 Primary data collection items

Regarding the production stage in this PCR, primary data shall be collected about the followings:

<Input>

1. Amount of various inputs (solvent, etc.)
2. Rapeseed (after adjustment) input amount
3. Packaging materials input amount
4. Fuel and electric power input amount
5. Water input amount (industrial water and tap water)

<Output (discharged outside)>

6. Rapeseed oil production output
7. Co-product (oilcake, etc.) output
8. Wastes discharge amount

4.2.1.3 Items for which either primary or secondary data may be used

Regarding the following items related to the production stage in this PCR, it is preferable to collect primary data but secondary data may be applied instead.

- Life cycle GHG emissions related to the supply of tap water
- Life cycle GHG emissions related to the supply of industrial water
- Life cycle GHG emissions related to the treatment of wastes
- Life cycle GHG emissions related to the supply and use of fuel and electric power, for which no data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

4.2.1.4 Secondary data collection items

Regarding the inputs and outputs related to the production stage in this PCR, secondary data shall be applied.

- Life cycle GHG emissions related to the supply and use of fuel and electric power, for which no data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

4.2.2 Primary data collection rules

4.2.2.1 Data collection method and conditions

Primary data can be obtained by the following two methods:

(a) Checking and adding up the input and output items and their emissions by the unit of work or equipment/facilities operation (unit operating hours, one lot, etc.) necessary for the process
(e.g., Facilities operating time x power consumption by facilities = power input amount)

(b) Allocating the result of each operator in a specified period among outputs
(e.g., Allocating the total amount of annual fuel input among products)

Regarding the production stage in this PCR, both measuring methods are acceptable.
If the measuring method of (a) is used, same method shall be applied to other produces which are produced on the same site but not the target of this PCR produced on the same site to indicate that the grand total of the stack results of all produces will not deviate greatly from the resultant value of the entire site. However, a measured value is acceptable if it can be validated by another method.
If the measuring method of (b) is used, the allocation method shall be the one explained below. Indirect fuel and electric power consumptions such as for air-conditioning and lighting in office, however, may be included in the scope of measurement if they cannot be excluded from measurement.

4.2.2.2 Data collection period

For all data, the most recent one year shall be basically the primary data collection period. If data of the most recent one year is not used, its reason shall be submitted as a verification document to assure the accuracy of the used data.

4.2.2.3 Handling of production on multiple sites

If there is more than one production site, primary data shall be collected about all sites. If the number of production sites is very large, primary data for major production sites may be applied as secondary data for all other production sites, provided that combined production at major production sites covers 95 % or more of the total amount of production.

4.2.2.4 Allocation method

Physical quantity (weight) shall be used as the basic parameter for allocation. If any other parameter (physical quantity other than weight, economic value, etc.) is adopted, the basis for using such parameter shall be provided.

Allocation between rapeseed oil and oilcake produced together by rapeseed oil processing, however, shall be basically based on economic value. This is because rapeseed oil is considered about higher in price per unit amount and allocation by production weight is considered to lead to the underestimation of GHG emissions related to rapeseed oil. For this allocation, the production weight of rapeseed oil or oilcake is multiplied by the price per unit volume ("rapeseed oil: 1, oilcake: 0.18": average on Nikkei open market from Jan. 2003 to Jan. 2009) to determine the ratio of economic value.

4.2.2.5 Handling of regional differences and seasonal variations

Regarding vegetable oil plant data, the primary data needs not be considered about regional differences.

4.2.2.6 Handling of self-produced electricity

If power is generated on a production site and used for the production of the product, the fuel amount input for the power generation shall be collected as primary data and the GHG emissions related to the manufacture and combustion shall be assessed.

4.2.3 Secondary data application rules

4.2.3.1 Contents and sources of secondary data

This section prescribes the contents and sources of secondary data available at the production stage in this PCR.

Secondary data not given below may be prepared (including the application of other secondary data) by a CFP applicant on condition that evidence guaranteeing the validity of application of

such data is prepared. Validity of the secondary data to be provided by the CFP applicants shall be verified when the CFP calculation results are verified.
Both the GHG emission factors and the reference data mentioned in this PCR apply to processes in Japan. When applying such data to overseas data, the validity of the application must be provided, even if process names or raw material names are the same.

■ Life cycle GHG emissions related to the supply and use of fuel and electric power
See Annex E: E.1 Life Cycle GHG Emissions Related to Supply and Use of Fuel and Electric Power.

■ Life cycle GHG emissions related to the supply of water
See Annex E: E.2 Life Cycle GHG Emissions Related to Water Supply.

■ Life cycle GHG emissions related to the treatment of wastes
See Annex E: E.4 Life Cycle GHG Emissions Related to Treatment of Wastes and Wastewater.

4.2.3.2 Contents of scenario

4.2.3.2.1 Scenario related to transport from oil extraction site to filling site

The transport of rapeseed oil from an extraction site to a filling site is generally within Japan and done by ship from port to port. It is basically preferable to collect primary data about the transport distance and the means of transport. If it is not possible, however, the scenario below may be used.

Scenario when there is more than one filling site in Japan

<Transport distance> 500 km

<Means of transport> Tanker (80,000 DWT or less)

4.2.4 Cut-off criteria

Data may be cut-off for materials input to the production stage (excluding rapeseeds and packaging materials) whose total GHG emissions related to their manufacture and transport is within 5% of the total GHG emissions at the production stage.

4.2.5 Evaluation of recycled materials and reused products

If recycled materials or reused products are used as inputs, the GHG emissions related to their manufacture and transport shall include the GHG emissions accompanying the recycling processes (collection, preprocessing, regeneration, etc.) and reuse processes (collection, washing, etc.).

4.3 Distribution and Sales stage

4.3.1 Data collection items and classification of primary and secondary data

4.3.1.1 Data collection items

At the distribution and sales stage, this PCR applies to the following processes:

1) Transport related processes:

Processes related to transport from a vegetable oil plant to consumers

2) In-store sales processes:

Processes related to sales in stores

- Data collection items about transport related process

1. Cargo weight
2. GHG emissions related to the use of fuel

Fuel usage in transport shall be assessed by the fuel consumption method, the fuel cost method, or the improved ton-kilometer method prescribed in the Act on the Rational Use of Energy. For each fuel usage assessment method, see Annex B.

(Fuel method)

- Fuel usage

(Fuel cost method)

- Transport distance
- GHG emissions by fuel consumption per distance covered

(Improved ton-kilometer method)

- Transport distance
- GHG emissions by fuel consumption per transport ton kilometer
- Loading ratio

(Common)

- Usage of materials used for transport

• Life cycle GHG emissions related to the manufacture and transport of materials used for transport

● Data collection items about in-store sales process

• Life cycle GHG emissions related to the supply and use of fuel and electric power required for in-store sales process

• Life cycle GHG emissions related to the disposal of waste materials used for transport from a store

However, packaging waste recovered for a value shall be excluded.

● Common data collection item

• Life cycle GHG emissions related to the supply and use of fuel and electric power

4.3.1.2 Primary data collection items

Regarding the distribution and sales stage in this PCR, primary data shall be collected about the following inputs and outputs:

● Data collection items about the transport process

- Common: Rapeseed oil transport amount
- Fuel method: Fuel input amount
- Fuel cost method: GHG emissions by fuel consumption per distance covered
- Common: Usage of materials used for transport

● Data collection items about the in-store sales process

- Waste materials used for transport generation amount

4.3.1.3 Items for which either primary or secondary data may be used

Regarding the distribution and sales stage in this PCR, both the application of primary data and secondary data (including scenario application) are accepted.

● Data collection items about transport related process

• Improved ton-kilometer method: GHG emissions by fuel consumption per transport ton kilometer

• Improved ton-kilometer method: Loading ratio

• Common: Transport distance

• Common: Life cycle GHG emissions related to the manufacture and transport of materials used for transport

- Data collection items about the in-store sales process
  • Life cycle GHG emissions related to the supply of fuel and electric power necessary for the in-store sales process

- Common data collection item
  • Life cycle GHG emissions related to the supply and use of fuel and electric power, for which no data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

4.3.1.4 Secondary data collection items

Regarding the distribution and sales stage in this PCR, secondary data shall be applied to the following inputs and outputs:

- Life cycle GHG emissions related to the supply and use of fuel and electric power acquired from outside, for which no data is available from the Tentative Database of GHG Emission Factors for the CFP Pilot Project.

4.3.2 Primary data collection rules

4.3.2.1 Data collection method and conditions

Fuel usage in distribution shall be assessed by the fuel consumption method, fuel cost method, or improved ton-kilometer method prescribed in the Act on the Rational Use of Energy.
The transport distance may be actually measured or obtained from navigation software.

4.3.2.2 Data collection period

For all data, the most recent one year shall be basically the primary data collection period. If data of the most recent one year is not used, its reason shall be submitted as a verification document to assure the accuracy of data not from the most recent one year.

4.3.2.3 Handling of products on multiple transport routes and sales site

4.3.2.3.1 Multiple transport routes

If there is more than one transport route for rapeseed oil, primary data shall be collected about all routes and weight-averaged by the transport amount. If the number of transport routes is very large, primary data should be used for 50 % or more of the total amount, and the average value of data collected from routes should be applied as secondary data for routes for which data cannot be collected.

If no primary data is available, the product transport scenario in 4.3.3.2.1 may be applied.

4.3.2.3.2 Multiple sales sites

If there are multiple sales sites for rapeseed oil, primary data shall be collected about all sites and weight-averaged by the sales amount. If the number of sales sites is very large, primary data should be used for 50% or more of the total amount, and the average value of data collected from sales sites should be applied as secondary data for sales sites for which data cannot be collected.

If no primary data is available, the secondary data about in-store sales (4.3.3.1) may be applied.

4.3.2.4 Allocation method

4.3.2.4.1 Transport process allocation method

Physical quantity (weight) shall be used as the basic standard for allocating energy in transport. If it is difficult to measure only the related quantity but data related to multiple products is available, the data may be allocated by the sales amount.

4.3.2.4.2 Sales process allocation method

Physical quantity (weight) shall be used as the basic standard for allocating energy in sale. If it is difficult to measure only the related quantity but data related to multiple products is available, the data may be allocated by the sales amount.

4.3.2.5 Handling of regional differences and seasonal variations

Primary data about the transport and sales processes differs between areas. Therefore, primary data shall be basically collected about all transport routes and sales sites.

If it is difficult to collect primary data about all transport routes and sales sites, see 4.3.2.3 to represent all by partial data or to apply a scenario or secondary data.

4.3.2.6 Handling of self-produced electricity

If power is generated in a sales store and used for the production of the said product, the fuel amount input for power generation shall be collected as primary data and the GHG emissions related to the manufacture and combustion shall be assessed.

4.3.3 Secondary data application rules

4.3.3.1 Contents and sources of secondary data

This section prescribes the contents and sources of secondary data available at the distribution and sales stage in this PCR.

Secondary data not given below may be prepared (including the application of other secondary data) by a CFP applicant on condition that evidence guaranteeing the validity of application of such data is prepared. Validity of the secondary data to be provided by the CFP applicants shall be verified when the CFP calculation results are verified.

■ Life cycle GHG emissions related to the supply and use of fuel and electric power

See Annex E: E.1 Life Cycle GHG Emissions Related to Supply and Use of Fuel and Electric Power.

■ (Improved ton-kilometer method) GHG emissions by fuel consumption per transport ton kilometer

See Annex E: E.5 GHG Emissions by Fuel Consumption per Transport Ton Kilometer.

■ Regarding life cycle GHG emissions related to in-store sales, this PCR specifies the following reference data as applicable secondary data because there is no corresponding data in Tentative Database of GHG Emission Factors for the CFP Pilot Project.

	Input Name	Numeric Value		Source
1	Store sales (at room temperature)	0.556	g- CO_2 e/yen	Ohno, Ikuhiro (2008): "Carbon Footprint in the Distribution Industry," Proceedings of the Lecture Meeting of the Food Study Group on Carbon Footprint, the Institute of Life Cycle Assessment, Japan. August 1, 2008, p.74.

■ Life cycle GHG emissions related to the manufacture and transport of materials used for transport

See Annex E: E.3 Life Cycle GHG Emissions Related to Manufacturing of Containers, Packaging Materials, Materials used for Transport, and Various Other Materials.

■ Life cycle GHG emissions related to the disposal of materials used for transport
See Annex E: E.4 Life Cycle GHG Emissions Related to Treatment of Wastes and Wastewater. Regarding the incineration data prescribed in E.4 however, CO_2 emissions deriving from carbon in wastes should be separately assessed and added because it drives from the combustion of fuel input for wastes incineration.

4.3.3.2 Contents of scenario

4.3.3.2.1 Product transport scenario

Regarding transport from a vegetable oil plant to stores or consumers, it is basically preferable to collect primary data about the transport distance, the means of transport, and the loading ratio. If this is not possible, however, the scenario below may be used because rapeseed oil is generally filled in Japan. See Annex C for the methodology for setting the following transport scenario:

<Transport distance> 1,000 km

<Means of transport> 10-ton truck (Light oil)

<Loading ratio> 62 %

4.3.3.2.2 Packaging waste transport scenario

Regarding the transport of packaging waste from a store to treatment facilities, it is basically preferable to collect primary data about the transport distance, the means of transport, and the loading ratio. If this is not possible, however, the scenario below may be used. See Annex C for the methodology for setting the following transport scenario:

<Transport distance> 50 km

<Means of transport> 10-ton truck (Light oil)

<Loading ratio> 62 %

4.4 Use and Maintenance Control stage

4.4.1 Data collection items and classification of primary and secondary data

4.4.1.1 Data collection items

Regarding the use and maintenance control stage in this PCR, data shall be collected about the followings:

1. Ratio of rape to all food materials input for cooking using rapeseed oil
2. Fuel input amount for cooking using rapeseed oil
3. Life cycle GHG emissions related to the supply and use of fuel

4.4.1.2 Primary data collection items

For input/output at the use and maintenance control stage in this PCR, a cooking scenario shall be set within the PCR. Basically, specified scenarios shall be applied. (In this PCR, cooking scenarios are limited to sauted dishes like "Happosai" (Chinese chop suey). Tempura and other scenarios are not assumed. See 4.4.3.2 for details.) Therefore, the collection of primary data is not obligatory about any items.

4.4.1.3 Items for which either primary or secondary data may be used

1. Ratio of rape to all food materials input for cooking using rapeseed oil
2. Fuel input amount for cooking using rapeseed oil

For the above input and output at a cooking process using rapeseed oil, secondary data (including scenario) shall be applied.

4.4.1.4 Secondary data collection item

3. Life cycle GHG emissions related to the supply and use of fuel

For the above item, secondary data shall be applied.

4.4.2 Primary data collection rules

Omitted because primary data needs not be collected

4.4.3 Secondary data application rules

4.4.3.1 Contents and sources of secondary data

■ Life cycle GHG emissions related to the supply and use of fuel

See Annex E: E.1 Life Cycle GHG Emissions Related to Fuel and Electric Power Supply and Use.

4.4.3.2 Contents of scenario

4.4.3.2.1 Product use scenario

<Cooking method scenario>

Among the past cases of evaluating CO_2 emissions from cooking processes using edible oils, a research on "Happosai" reported in "Foods LCA and Development of Index for Sustainable Consumption" (2006) by The Food Study Group, the Institute of Life Cycle Assessment, Japan (2006) is considered as most reliable. As a scenario of product use, therefore, this PCR specifies the conditions set in the research on "Happosai."

<Scenario>

The Food Study Group, the Institute of Life Cycle Assessment, Japan (2006) set the following conditions for the research on "Happosai":

Setting Item		Contents of Setting	
Amount		For 4 persons	
Materials input	Sauteing stage	Cuttlefish (Net)	120g
		Pork (round)	80g
		Seasoning of food (soy sauce, liquor, potato starch)	16g
		Prawn(Net)	100g
		Quail egg (Net)	40g
		Vegetables (carrot, Chinese cabbage, mushroom (raw), bamboo shoot (boiled), pimento, onion, garden peas, and ginger)	672g
		Seasonings (salt, sugar, soy sauce, and liquor)	40g
		Sauteing oil (*)	24g
	Boiling stage	Tang (soup)	200g
		Potato starch	12g
Fuel input	Sauteing stage	Utility gas	0.032m^3
	Boiling stage	Utility gas	0.016 m^3

(*) In the research, soybean oil was assumed for the sauteing oil. But in the scenario of this PCR, the same amount of rapeseed oil is used.

<Fuel input amount per unit usage of rapeseed oil based on the above scenario>
Per kg of rapeseed oil: 0.042[m^3-Utility gas/kg- rapeseed oil]

(Contents of assessment)
The rape-related fuel input amount at cooking is allocated by the ratio of the total materials input amount to the rapeseed oil input amount. The discrepancy of specific heat between materials and the evaporation of water are not considered. The fuel input amount is allocated by rapeseed oil not only at the sauteing stage but also at the boiling stage. The difference of total materials input between the sauteing stage and the boiling stage is also reflected.

A) Fuel input amount related to rapeseed oil at the sauteing stage in the above scenario
= Utility gas input amount at the sauteing stage (0.032 m^3) ×Rapeseed oil input amount (24 g)/Total amount of materials input up to the sauteing stage (1,092 g) = 7.03×10^{-4} [m^3-Utility gas]
B) Fuel input amount related to rapeseed oil at the boiling stage in the above scenario= Utility gas input amount at the boiling stage (0.016 m^3) × Rapeseed oil input amount (24g)/Total amount of materials input up to the boiling stage (1,304 g)= 2.94×10-4 [m^3-Utility gas]
C) Fuel input amount related to rapeseed oil in the above scenario (total amount) = A)＋B) = 9.97×10^{-4} [m^3-Utility gas]
D) Fuel input amount related to rapeseed oil in the above scenario (per kg of rapeseed oil) = C)/24×1000 = 0.042 [m^3-Utility gas/kg-Rapeseed oil]

4.4.3.2.2 Product maintenance scenario
This is omitted because there is no GHG emissions related to the storage of rapeseed oil at home and scenario setting is not necessary

4.5 Disposal and Recycling Stage

4.5.1 Data collection items and classification of primary and secondary data

4.5.1.1 Data collection items
Regarding the disposal and recycling stage in this PCR, data shall be collected about the followings:

1. Disposal amount of packaging waste at home
2. GHG emissions related to waste packaging transport to treatment facilities
3. Amount of packaging waste incinerated at treatment facilities
4. Amount of packaging waste landfilled at treatment facilities
5. GHG emissions (other than CO_2 emissions from packaging waste) related to incineration at treatment facilities
6. GHG emissions deriving from packaging waste by incineration
7. GHG emissions related to landfill in treatment facilities

Regarding "6. GHG emissions deriving from packaging waste by incineration," however, the CO_2 emissions deriving from biomass may be regarded as carbon-neutral and need not be accounted.

4.5.1.2 Primary data collection items

Primary data shall be collected about the following:

1. Amount of packaging waste disposed of at home

4.5.1.3 Items for which either primary or secondary data may be used

Regarding the following items related to the disposal and recycling stage in this PCR, secondary data (including scenario) may be applied.

2. GHG emissions related to the transport of packaging waste to treatment facilities
3. Amount of packaging waste incinerated at treatment facilities
4. Amount of packaging waste landfilled at treatment facilities
5. GHG emissions derived from packaging waste by incineration

4.5.1.4 Secondary data collection items

Regarding the following items related to the disposal and recycling stage in this PCR, secondary data shall be applied.

6. GHG emissions related to the incineration of wastes at treatment facilities
7. GHG emissions related to the landfill of wastes at treatment facilities

4.5.2 Primary data collection rules

4.5.2.1 Data collection method and conditions

For the amount of packaging waste disposed at home, the weight of packaging materials as provided in the product specifications may be used, since it is assumed that all of the packaging materials used in the product will be disposed.

Regarding the GHG emissions from packaging waste by incineration, all carbons contained in packaging waste can be considered to be all emitted as CO_2. Regarding the carbon content in packaging waste, the weight ratio of materials in product specifications may be multiplied by the carbon quantity in the materials unit quantity based on the chemical composition. In addition, the secondary data given in 4.5.3.1 may be used.

4.5.2.2 Data collection period

For the amount of packaging waste disposed at home, no data collection period is specified because the weight of packaging materials in product specifications may be used.

4.5.2.3 Handling of products at multiple disposal and recycling facilities

This PCR prescribes the application of secondary data to GHG emissions related to the incineration of wastes at treatment facilities and GHG emissions related to the landfill of wastes at treatment facilities. Secondary data should be applied when wastes are handled on multiple disposal or recycling sites.

4.5.2.4 Allocation method

The weight allocation method shall be used.

When collecting primary data on the "amount of life cycle GHG emissions related to transport of packaging waste to disposal facility," life cycle GHG emissions for multiple routes is obtained as data for the total combined weight with other waste.

For the amount of life cycle GHG emissions for multiple routes, the total amount of life cycle GHG emissions shall be allocated based on the transported weight for each route and included in the amount of life cycle GHG emissions related to transport per unit weight. The amount of life cycle GHG emissions related to transport per unit weight, which is data for the total combined weight with other types of waste, shall also be allocated to different types of waste based on allocation by weight and included in the amount of life cycle GHG emissions related to transport per unit weight covered by this PCR.

When collecting primary data for the "amount of packaging waste incinerated at disposal facility" and the "amount of packaging waste landfilled at disposal facility," the ratio between the

incinerated amount and the landfilled amount is obtained as data for total weight including other types of waste. The incinerated amount and the landfilled amount of the packaging waste shall be calculated based on allocation by weight, using the total incinerated amount and the total landfilled amount at multiple disposal sites.

4.5.2.5 Handling of regional differences and seasonal variations

Local differences and seasonal variations are not considered.

4.5.3 Secondary data collection rules

4.5.3.1 Contents and sources of secondary data

This section prescribes the contents and sources of secondary data available at the disposal and recycling stage in this PCR.

Secondary data not given below may be prepared (including the application of other secondary data) by a CFP applicant that evidence guaranteeing the validity of application of such data is prepared. Validity of the secondary data to be provided by the CFP applicants shall be verified when the CFP calculation results are verified.

■ Life cycle GHG emissions related to the treatment of wastes

See Annex E: E.4 Life Cycle GHG Emissions Related to Treatment of Wastes and Wastewater.

■ Improved ton-kilometer method: GHG emissions by fuel consumption by transport ton kilometer

See Annex E: E.5 GHG Emissions by Fuel Consumption per Transport Ton Kilometer.

■ GHG emissions deriving from packaging waste by incineration

See Annex E: E.4 Life Cycle GHG Emissions Related to Treatment of Wastes and Wastewater.

4.5.3.2 Contents of scenario

4.5.3.2.1 Waste transport scenario

Regarding the assessment of GHG emissions related to the transport of packaging waste from household to treatment facilities, it is preferable to collect primary data but the scenario below may be used instead.

<Transport distance> 50 km

<Means of transport> 10-ton truck (Light oil)

<Loading ratio> 62 %

4.5.3.2.2 Treatment scenario

For the disposal method for the packaging waste transported to disposal facility, it is desirable to collect primary data but the following scenario may also be applied. The following assumptions are applied from the current status of disposal of general waste described in "The current status of emission, disposal, etc. of general waste (actual data for fiscal year 2006)," published by the Ministry of the Environment.

- 92 % of the packaging waste is incinerated.
- 3 % is directly landfilled, and 14 % is landfilled including incinerated ash.
- 5 % is recycled. Environmental load related to recycling shall not be included.

5. Communication Method

5.1 Label Format, Position, and Size

The format and size of the CFP label shall comply with "Specifications of CFP Label and Displaying Other Information."

The carbon footprint label shall be on the package. The label may also appear on POP, brochure, and the Internet.

5.2 Contents of Additional Information

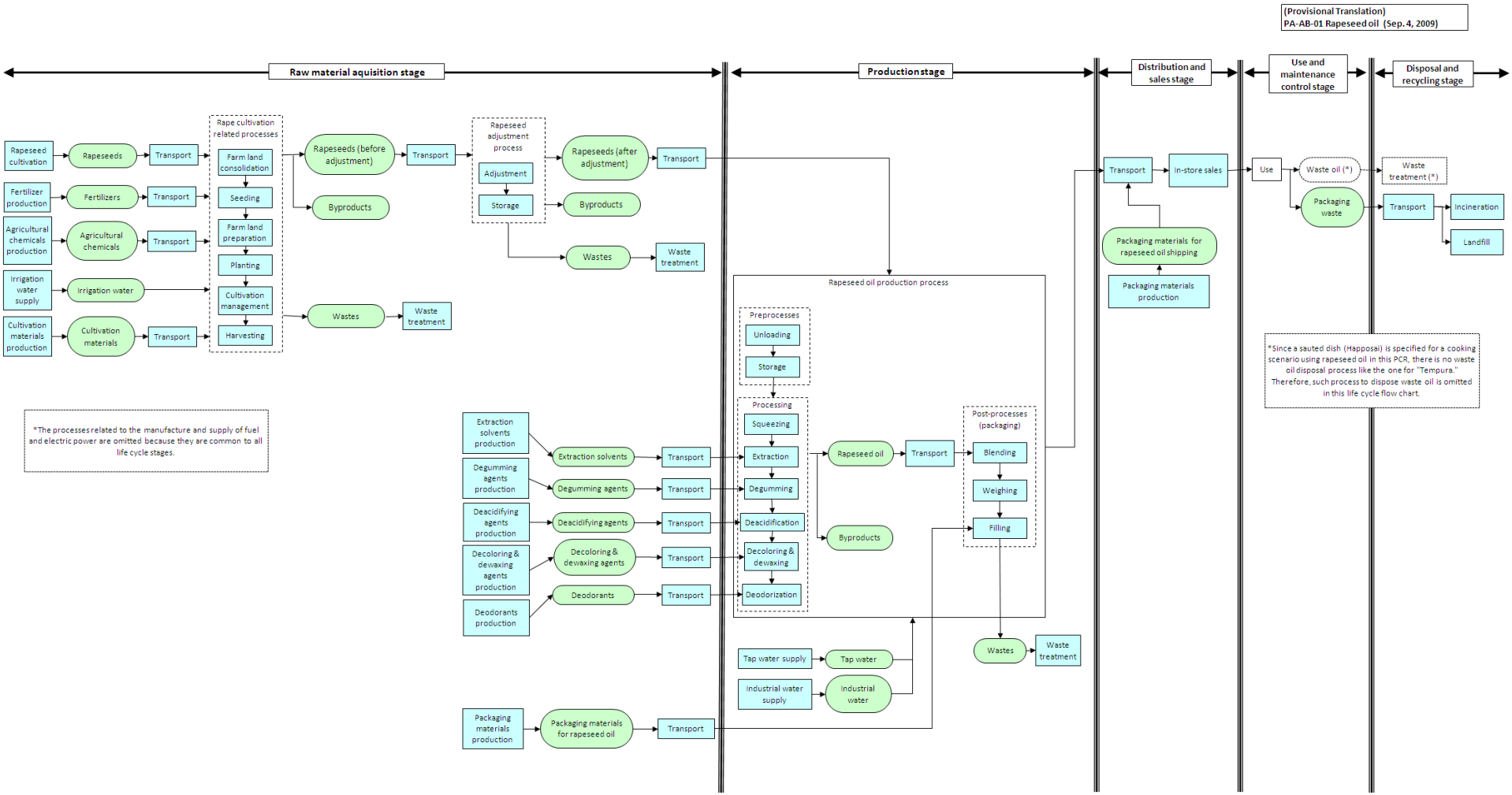
To appropriately notify consumers of GHG emissions reduction efforts by producers and operators, additional labeling is permitted about the amount of past reduction by the same operator about a product judged to be the same or similar.

By expecting the effect of urging each process operator to make reduction efforts, additional labeling by process or labeling by part is also permitted.

For consumers to understand the meaning of carbon footprint value, it is permitted to additionally label the carbon footprint value per cooking in the used scenario. In such a case, the cooking method and the cooking amount in the used scenario shall be clarified.

As additional information (in case of labeling of the reduction, for example, GHG emissions before reduction), only contents acknowledged as appropriate by the PCR Committee shall be labeled.

Annex A: Life Cycle Flow Chart



Annex B: Assessment Method for GHG Emissions Accompanying Fuel Consumption During Transport

B.1 Fuel Consumption Method

1) Collect data on fuel consumption for each means of transport.

2) Calculate the amount of life cycle GHG emissions [kg-CO_2e] by multiplying the amount of fuel consumption [kg (or L)] and the "amount of life cycle GHG emissions related to supply and use of fuel" [kg-CO_2e/kg (or L)] (secondary data) for each type of fuel.

B.2 Fuel Cost Method

1) Collect data on fuel cost [km/L] and transport distance [km] for each means of transport, and calculate the amount of fuel consumption [kg] by multiplying the two parameters.

2) Calculate the amount of life cycle GHG emissions [kg-CO_2e] by multiplying the amount of fuel consumption [kg (or L)] and the "amount of life cycle GHG emissions related to supply and use of fuel" [kg-CO_2e/kg (or L)] (secondary data) for each type of fuel.

B.3 Improved Ton-Kilometer Method

1) Collect data on loading ratio [%] and transport load (transport ton-kilometer) [t-km] for each means of transport.

2) If the loading ratio is unknown, assume it to be 62 %.

3) Calculate the amount of life cycle GHG emissions [kg-CO_2e] by multiplying the transport load (transport ton-kilometer) [t-km] by the "amount of life cycle GHG emissions related to fuel consumption per transport ton-kilometer" [kg-CO_2e/t/km] (secondary data) for different transport loads for each means of transport.

Annex C: Transport Scenario Setting

In this PCR, transport scenarios are set for cases where primary data is not available in the Raw Material Acquisition Stage, the Production Stage, the Distribution and Sales Stage and the Disposal and Recycling Stage. Assumptions for each scenario are as follows:

C.1 Transport Distance

<Domestic transport>

To provide an incentive for primary data collection, transport distances are set at longer possible distances rather than at an average distance.

(a) Transport within a city or not across adjacent cities: 50 km

[Assumption] The distance from a prefectural center to a prefectural border is assumed.

(b) Transport within a prefecture: 100 km

[Assumption] The distance from a prefectural border to another side of the border is assumed.

(c) Transport possibly across prefectures: 500 km

[Assumption] The distance from Tokyo to Osaka is assumed.

(d) Transport from producer to consumer (consumption place is not limited within a specific area): 1000 km

[Assumption] The distance a little longer than half Honshu (the main island of Japan: 1600 km) is assumed.

<Domestic transport in overseas countries>

(a) Transport from rape cultivation site to adjustment facilities: 500 km

[Assumption] The distance from a state border to a state center is assumed.

(b) Transport from rape adjustment facilities to port: 2,000 km

[Assumption] Double the distance from a state order to another side of the border is assumed.

<International transport>

The sailing distance from a departure port to an arrival port is adopted.

The sailing distance in Annex D may be used.

C.2 Means of Transport

<Transport in Japan>

(a) A 10-ton truck (Light oil) is assumed for an incentive to take CO_2 reduction measures in distribution such as modal shift.

(b) In the raw materials transport scenario, rapeseeds cultivated overseas are transported to the closest port to a vegetable oil plant by a coastwise ship. Considering this fact, the means of transport is set to "Bulk carrier (80,000 DWT or less)."

(c) Based on the facts, in the inter-site transport scenario at the production stage, the means of transport from oil extraction site to filling site is set to "Tanker (80,000 DWT or less)."

<Domestic transport in overseas producing countries>

(a) "20-ton truck (Light oil)" when the transport distance is less than 2,000 km

(b) "Railway" when the transport distance is 2,000 km or more

<International transport>

It is assumed to be maritime transport only. The means of transport is set uniformly to "Bulk carrier (80,000 DWT or less)."

C.3 Loading Ratio

<Truck>

Values to be applied when loading ratio is unknown were taken from the following table in the “Methods for calculating the energy consumption related to cargo transport by cargo transport carriers,” a notification by the Ministry of Economy, Trade and Industry.

Vehicle Type	Fuel	Maximum Load (kg)		When loading ratio is unknown			
				Average Loading Ratio		Basic Unit(I/t-km)	
			Median	For household	For business	For household	For business

Light, compact and ordinary trucks	Gasoline	Light trucks	350	10%	41%	2.74	0.741
		~1,999	1000	10%	32%	1.39	0.472
		2000 or more	2000	24%	52%	0.394	0.192
Compact and ordinary trucks	Light oil	~999	500	10%	36%	1.67	0.592
		1,000~1,999	1500	17%	42%	0.530	0.255
		2,000~3,999	3000	39%	58%	0.172	0.124
		4,000~5,999	5000	49%	62%	0.102	0.0844
		6,000~7,999	7000			0.0820	0.0677
		8,000~9,999	9000			0.0696	0.0575
		10,000~11,999	11000			0.0610	0.0504
		12,000~16,999	14500			0.0509	0.0421

The above are average loading ratios for truck transport. Since the loading ratio tends to be greater for rapeseed oil than for general cargo, the CO_2 emissions was considered slightly greater even the average loading ratios are used and enough as an incentive for primary data collection.

This PCR applies these values also to overseas land transport trucks.

Annex D: International Sailing Distance

The following distance data may be used:

(A representative port was set for each country and distance data was extracted from Lloy'ds Register Fairplay "Ports & Terminals Guide 2003-2004.")

- Japan - Australia: 8,938 km
- Japan - Canada: 7,697 km
- Japan - USA: 8,959 km
- Japan - Korea: 1,156 km
- Japan - China: 1,928 km
- Japan - India: 5,834 km

Annex E: Secondary Data Common to All Life Cycle Stages

Both the common basic unit data and the reference data mentioned in this PCR apply to fuels and power used in Japan, raw materials manufactured in Japan, and processes implemented in Japan. When applying such data to overseas cases, the validity of the application must be provided.

Secondary data not given below (data where no data is available from the Tentative Database of GHG Emission Factors for the CFP Pilot Project) may be prepared by a CFP applicant on condition that evidence guaranteeing the validity of application of such data is prepared. Validity of the secondary data to be provided by the CFP applicants shall be verified when the CFP calculation results are verified.

E.1 Life Cycle GHG Emissions Related to Supply and Use of Fuel and Electric Power

E.1.1 Application of GHG Emission Factors

For the items below, "Manufacture" and "Combustion" of the said fuel type in the Tentative Database of GHG Emission Factors for the CFP Pilot Project shall be used. The correspondence is as follows:

■ Life cycle GHG emissions related to the supply of fuel and electric power

	Fuel Type		Corresponding item
1	Fuel manufacture	Light oil	"Light oil"
2		Kerosene	"Kerosene"
3		Gasoline	"Gasoline"
4		Heavy oil A	"Heavy oil A
5		Heavy oil B	"Heavy oil B"
6		Heavy oil C	“Heavy oil C"
7		LPG	"Liquefied petroleum gas (LPG)"
8		Utility gas 13A	"Utility gas13A"
9	Power	Steam	"Steam"
10	Purchased electric power		Electric power (average in Japan)

■ GHG emissions related to the use of fuel and electric power

	Fuel Type		Corresponding item
1	Fuel	Light oil	"Combustion/Light oil"
2		Kerosene	"Combustion/Kerosene"
3		Gasoline	"Combustion/Gasoline"
4		Heavy oil A	"Combustion/Heavy oil A
5		Heavy oil B	"Combustion/Heavy oil B"
6		Heavy oil C	“Combustion/Heavy oil C"
7		LPG	"Combustion/LPG"
8		Utility gas 13A	"Combustion/Utility gas13A"

There is no GHG emissions related to the use of "Steam" and "Purchased electric power." The life cycle GHG emissions related to the supply of purchased electric power differs greatly between countries, reflecting the electric power supply configuration. Therefore, it is not permitted to apply data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project to electric power purchased and used overseas.

E.1.2 Data to which “GHG Emission Factors for the CFP Pilot Project” is not applied

E.1.2.1 Electric Power Purchased Outside of Japan

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

E.1.2.2 Biodiesel and Bioethanol

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

E.2 Life Cycle GHG Emissions Related to Water Supply

For the life cycle GHG emissions related to the supply of water, the corresponding data in Tentative Database of GHG Emission Factors for the CFP Pilot Project shall be used. The correspondence shall be as follows:

	Data Name	Corresponding item
1	Tap water	"Tap water"
2	Industrial water	"Industrial water"

When applying the data listed above as the amount of life cycle GHG emissions related to water supply in foreign countries, the validity of application of such data must be provided, since the data listed above is intended for water used in Japan.

E.3 Life Cycle GHG Emissions Related to Manufacturing of Containers, Packaging Materials, Materials used for Transport, and Other Materials

- For plastics containers, packaging materials and materials used for transport, there are two types of secondary data: (1) Secondary data on resin manufacturing and (2) Secondary data on molding. When using these data, there shall not be unreported or double-counted life cycle GHG emissions related to molding.
- For paper containers, packaging materials and materials used for transport, there are secondary data on paper manufacturing and secondary data that takes into account paper manufacturing and molding. When using these data, there shall not be unreported or double-counted life cycle GHG emissions related to molding.
- The amount of life cycle GHG emissions related to transport is not included in the following secondary data list. The amount of life cycle GHG emissions related to transport shall be evaluated by collecting primary data or applying transport scenario for each life cycle stage.
- When applying the data from “Tentative Database of GHG Emission Factors for the CFP Pilot Project” and reference data listed below to materials manufactured in foreign countries and processes implemented in foreign countries, the validity of application of such data must be provided, since the data from “Tentative Database of GHG Emission

Factors for the CFP Pilot Project" listed below is intended for materials manufactured in Japan and processes implemented in Japan.

E.3.1 Plastic containers, Packaging Materials, and Materials used for Transport

E.3.1.1 Secondary Data of Resin Manufacturing

For the life cycle GHG emissions related to the manufacture of resin, the corresponding data in the Tentative Database of GHG Emission Factors for the CFP Pilot Project shall be used.

E.3.1.2 Secondary Data of Molding

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

E.3.1.3 Paper Containers, Packaging Materials, and Materials used for Transport

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

E.3.1.4 Metallic Materials

For the life cycle GHG emissions related to the manufacture of metallic materials, the corresponding data in Tentative Database of GHG Emission Factors for the CFP Pilot Project shall be used.

E.3.1.5 Other Materials

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

E.4 Life Cycle GHG Emissions Related to Treatment of Wastes and Wastewater

E.4.1 Application of GHG Emission Factors

For the items below, "Manufacture" and Tentative Database of GHG Emission Factors for the CFP Pilot Project shall be used. The correspondence is as follows:

	Data Name	Corresponding item
1	Crush	"Crushing"
2	Incineration	"General waste incineration"
3	Landfill	"Landfill (managed type)"

When applying the data listed above to processes implemented in foreign countries, the validity of application of such data must be provided, since the data listed above is intended for processes implemented in Japan.

Data for “Incineration” is the amount of life cycle GHG emissions derived from fuel consumption for incineration of waste. Therefore the amount of CO_2 emissions derived from carbon atoms in the waste must be separately calculated and added. Reference data related to the amount of life cycle GHG emissions derived from incineration of waste is shown in Section D.4.2.

E.4.2 Data to which “GHG Emission Factors for the CFP Pilot Project” is not applied

E.4.2.1 Life Cycle GHG Emissions Related to Sewage Treatment

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

E.4.2.2 GHG Emissions from Incineration of Wastes

No data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project applies to this data item.

E.5 GHG Emissions by Fuel Consumption per Transport Ton Kilometer

For the items listed below, relevant data in the “Tentative Database of GHG Emission Factors for the CFP Pilot Project” may be used. For truck transport, however, the amount of life cycle GHG emissions from fuel consumption per transport ton-kilometer, for average loading rate, is not provided in the said Database. Therefore, the closest lower loading ratio (e.g. 50 % if average is 62 %) shall be applied when applying the GHG emission factors.

- Amount of life cycle GHG emissions from fuel consumption per transport ton-kilometer in truck transport, by vehicle size and by loading ratio
- Amount of life cycle GHG emissions from fuel consumption per transport ton-kilometer in railway transport
- Amount of life cycle GHG emissions from fuel consumption per transport ton-kilometer in ship transport, by vessel size

Data for truck transport and railway transport in the "Tentative Database of GHG Emission Factors for the CFP Pilot Project" listed above are intended for transport processes implemented in Japan. However, these data may be applied to overseas transport processes, since the amount of life cycle GHG emissions for truck transport and railway transport is dependent on the means of transport more than on country-specific circumstances.