# (Provisional Translation)

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

# PCR Name: Nonglutinous Rice (Japonica)

Release Date: September 4, 2009

CFP Calculation and Labeling Pilot Program

*The approved PCR will expire at the end of the carbon footprint calculation and labeling trial 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 milled non-glutinous rice (Japonica rice, including wash-free rice) under the CFP Calculation and Labeling Pilot Program. 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 rice, package, enclosed accessories, and intermediate packaging materials during distribution.

#### 1.1.2 Functional unit of products

The sales unit shall be the functional unit of products. In case of selling by weight, the unit per weight shall be permitted.

### 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]

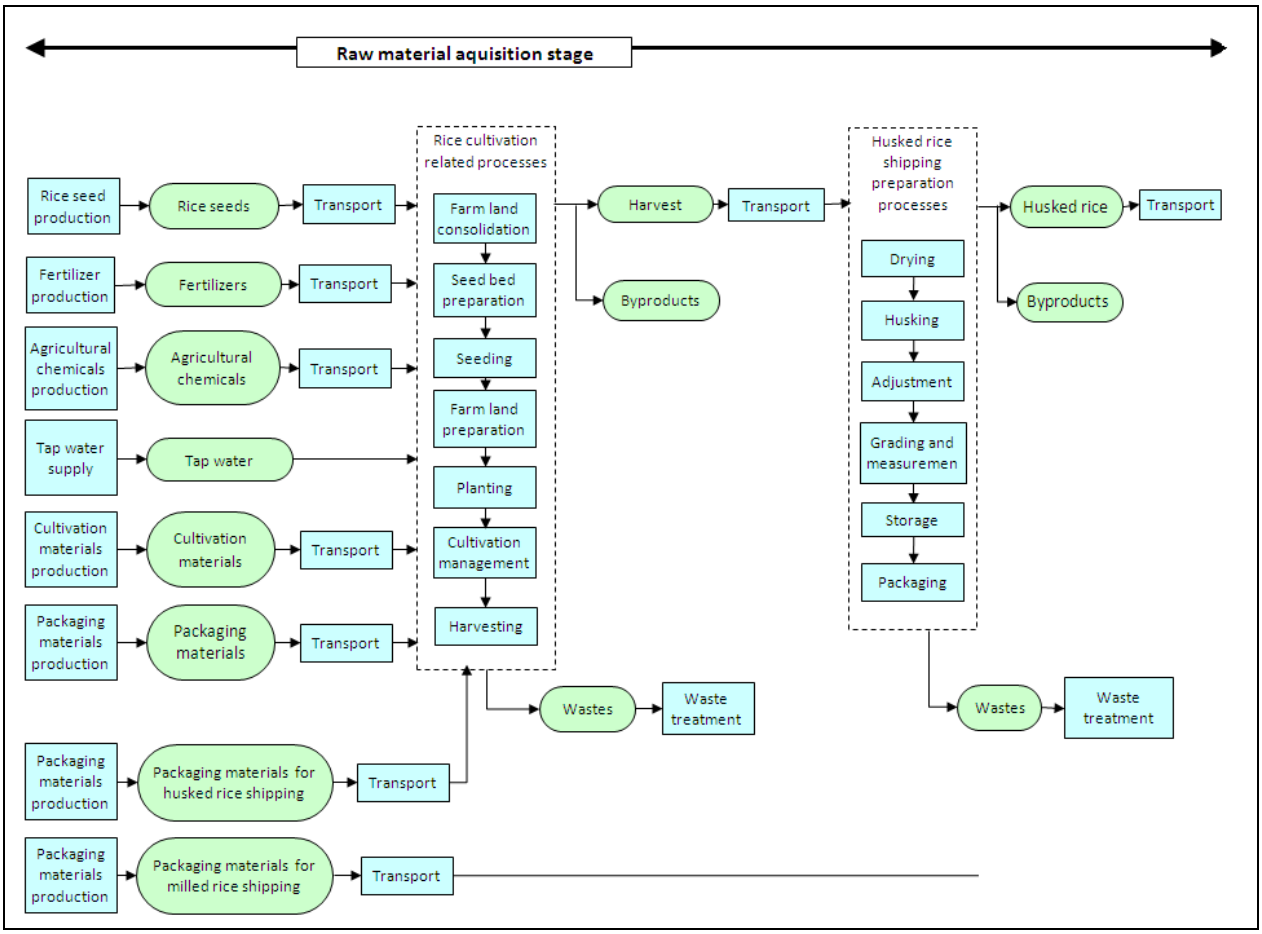

Figure 1 Processes included in the raw material acquisition stage

The raw material acquisition stage consists of the following processes:

1) Rice cultivation related processes

● Processes necessary for rice cultivation in and around farm land, such as farm land consolidation, seed bed preparation, seeding, farm land preparation, planting, cultivation management, and harvesting

- "Farm land consolidation" includes such processes as tillage, harrowing, padding, and fertilization.
- "Cultivation management" includes such processes as water control, additional fertilization, insect pest control, weed control, and paddy levee consolidation.
- "Harvesting" shall be various processes until fresh paddy rice is obtained. More specifically, "harvesting" includes cropping, threshing, and landfilling harvest residue.

● Methane ($CH_4$) generation from soil and nitrous oxide ($N_2O$) generation from nitrogen fertilizers accompanying these processes are 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) Husked rice shipping preparation processes

Fresh paddy rice is adjusted through drying and husking and then packed for shipping after grading, weighing, and storage.

3) Husked rice transport process

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

● Process to transport harvested fresh paddy rice to drying and adjustment facilities for shipping preparation

● Process to transport husked rice after drying and adjustment to a rice mill for the milling related processes at the production stage

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:

■ Processes related to the manufacture and transport of items input to the rice cultivation related processes

- ● Processes related to the manufacture and transport of rice seeds
- ● 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 tap 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

■ Processes related to the manufacture and transport of items input to the husked rice shipping preparation process

- ● Processes related to the manufacture and transport of packaging materials for husked rice shipping

- Processes related to fuel and electric power supplies

■ Processes related to the manufacture and transport of input for rice milling related processes

- Processes related to the manufacture and transport of packaging materials for milled rice shipping

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

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

1) Rice milling related processes

Processes necessary for husked rice to be milled and packed at a rice mill such as receipt, rice milling, wash-free rice processing, selection, weighing, and packaging.

2) Processes related to the treatment of wastewater and wastes from a rice mill

Wastes discharged from each process are treated by external operators.

Valuable resources are not included.

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

1) Transport related processes

Processes related to the transport of milled rice from a rice mill to consumers

The scope of evaluation includes processes related to 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 milled rice.

The scope of evaluation includes processes related to power and fuel consumption at stores and also the ones related to the disposal of transport materials.

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 processes:

- Process accompanying power consumption at cooking
- Process accompanying water consumption at cooking
- Process accompanying the treatment of wastewater from cooking

[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 Milled Rice

Non-glutinous rice (Japonica rice) milled from husked rice to remove bran and germ. Wash-free rice shall also be included. This PCR does not apply to cooked rice.

### 3.2 Rice Milling

Rice milling is the process to remove bran and germ from husked rice. Rice cooking and other forms of cooked rice processing shall be excluded.

### 3.3 Fertilizer

In this PCR, "fertilizer" generically refers to the elemental fertilizer, combined fertilizer, and organic fertilizer defined as below.

#### 3.3.1 Elemental Fertilizer

In general "elemental fertilizer" refers to a fertilizer guaranteed to contain one component from nitrogen, phosphoric acid, and potassium. In this PCR, silica (water-soluble silica gel) is added to the components.

#### 3.3.2 Combined Fertilizer

"Combined fertilizer" refers to a fertilizer guaranteed to contain two or more components from nitrogen, phosphoric acid, and potassium.

#### 3.3.3 Organic Fertilizer

"Organic fertilizer" refers to a fertilizer deriving from biomass, including compost and manure.

## 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) Rice cultivation related processes

At each process necessary for rice cultivation in farm land, such as farm land consolidation, seed bed preparation, seeding, farm land preparation, planting, 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. Rice seed input amount
2. Fertilizer input amount
3. Agricultural chemicals input amount
4. Tap water input amount
5. Cultivation materials input amount
6. Packaging materials input amount
7. Fuel and electric power input amount

For the definition of "fertilizer" in this PCR, see Section 3.3.

Regarding the in-house production of the above inputs, individual input amounts need not be collected if only the fuel and electric power input amount at production is included in "8. Fuel and electric power input amount."
The data collection items include the tap water input amount but not the usage of agricultural water drawn from an irrigation canal or well water pumped at the site of an operator. The reasons for exclusion are that the agricultural water usage is difficult to check and that related GHG emissions cannot be assessed because agricultural water is considered almost the same as natural water, unlike tap water. For well water, GHG emissions related to supply is included in the amount of GHG emissions accompanying the supply and use of fuel and electric power used for pumping. Like the above inputs for in-house production, therefore, the input amounts need not be collected.

<Output and discharge>

8. Husked rice (before adjustment) output amount
9. Byproduct output amount
10. Wastes discharge amount
11. Methane ($CH_4$) amount from soil
12. Nitrous oxide ($N_2O$) amount from nitrogenous fertilizer

"8. Husked rice (before adjustment) output" shall be the total harvested amount and there is no need to deduct the amount of self consumption. At this process, the GHG emissions per unit harvest amount is assessed on the basis of "8. Husked rice (before adjustment) output."
Rice straws and husks available from rice cultivation shall be handled as byproducts and not allocated if they are sold outside as merchandise. They shall not be included in byproducts if they are consumed inside or landfilled.
"Wastes" refers to the ones whose disposal is entrusted from rice 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>

13. Farm land area

2) Husked rice shipping preparation process

For husked rice shipping preparation process consists of drying, storage, adjustment, grading, weighing, and packaging, the data items below shall be collected. In this PCR, fixed assets used for several years shall be excluded from input.

<Input>

1. Husked rice (before adjustment) input amount
2. Fuel and electric power input amount
3. Packaging materials input amount

<Output and discharge>

4. Husked rice (after adjustment) production output
5. Byproduct production output
6. Wastes discharge amount

"Wastes" refers to ones whose disposal is entrusted from rice cultivators to external operators. Husks landfilled in farm land are excluded and $CO_2$ generated by the decomposition of landfilled husks shall be regarded as carbon-neutral and excluded from the data collection items.

3) Husked rice transport process

Regarding the husked rice transport process to transport husked rice after adjustment to a rice mill, 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.

There is no data item to be collected about the amount of wasted packaging or disposed materials used for transport at the transport-to rice mill because they are checked at the production stage.

1. Cargo weight
2. GHG emissions accompanying fuel use

(Fuel method)

- Fuel usage

(Fuel consumption 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 discharge 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 various inputs, data shall be collected about the followings:

■ Inputs to the rice cultivation related processes

1. Life cycle GHG emissions related to the manufacture and transport of rice seeds
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 supply of tap water
5. Life cycle GHG emissions related to the manufacture and transport of cultivation materials (e.g., wooden, plastic, metallic, and stone materials)
6. 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, the life cycle GHG emissions related to the manufacture and transport of each input needs not be checked.

Life cycle GHG emissions related to the manufacture and transport of materials for packaging and transportation used to acquire the above inputs from outside shall be excluded from evaluation.

■ Inputs to the shipping preparation process

7. Life cycle GHG emissions related to the manufacture and transport of packaging materials for shipping husked rice

8. Life cycle GHG emissions related to the manufacture and transport of packaging materials for shipping husked rice

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

■ Inputs to the rice milling related processes at the production stage

10. Life cycle GHG emissions related to the manufacture and transport of packaging materials for shipping milled rice

#### 4.1.1.2 Primary data collection items

Regarding the following items related to the acquisition of raw materials in this PCR, primary data shall be collected. All data above the cut-off criteria shall be accounted.

1) Rice cultivation related processes

<Input>

1. Rice seeds input amount
2. Fertilizer input amount
3. Agricultural chemicals input amount
4. Tap water input amount
5. Cultivation materials input amount
6. Packaging materials input amount
7. Fuel and electric power input amount

<Output and discharge>

8. Husked rice (before adjustment) production output
9. By-product production output
10. Waste materials discharge amount

<Other>

11. Farm land area

2) Husked rice shipping preparation process

<Input>

1. Husked rice (before adjustment) input amount
2. Fuel and electric power input amount
3. Packaging materials input amount

<Output and discharge>

4. Husked rice (after adjustment) production output

5. Byproduct production output
6. Wastes discharge amount

3) Husked rice transport process
7. Husked rice (after adjustment) transport amount
8. Fuel method: Fuel input amount
9. Fuel cost method: GHG emissions by fuel consumption per distance covered

4) Wastes treatment process
10. Wastes discharge

5) 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 quantified. If the energy input for the production of biomass energy sources such as firewood, wooden chips, and charcoal is included in the total fuel and electric power input on 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 carbon footprint.
Regarding the life cycle GHG emissions related to the supply and use of fuel and electric power acquired from outside, the secondary data that is explained later shall be used.

#### 4.1.1.3 Both primary and secondary data acceptable

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

■ Emissions from rice cultivation related processes
1. Methane (CH4) from soil
2. Nitrous oxide ($N_2O$) from nitrogenous fertilizer

■ GHG emissions by fuel consumption at the husked rice transport process

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

4. Improved ton-kilometer method: Loading ratio

5. Common: Transport distance

■ Life cycle GHG emissions related to the manufacture and transport of inputs to the rice cultivation related processes

6. Life cycle GHG emissions related to the manufacture and transport of rice seeds

7. Life cycle GHG emissions related to the manufacture and transport of fertilizers

8. Life cycle GHG emissions related to the manufacture and transport of agricultural chemicals

9. Life cycle GHG emissions related to the supply of tap water

10. Life cycle GHG emissions related to the manufacture and transport of cultivation materials (wooden, plastic, metallic, and stone materials)

■ Life cycle GHG emissions related to the manufacture and transport of inputs to the shipping preparation processes

11. Life cycle GHG emissions related to the manufacture and transport of packaging materials for shipping husked rice

■ Life cycle GHG emissions related to the manufacture and transport of inputs to the rice milling related processes at the production stage

12. Life cycle GHG emissions related to the manufacture and transport of packaging materials for shipping milled rice

■ Life cycle GHG emissions related to the treatment of discharge

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

#### 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 no 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 process execution

(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 products

(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. 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 well water and manufacturing in-house composts outside farm land shall be measured if they are related to rice 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 the measurement.

Regarding the amounts of inputs to and outputs from the rice cultivation related processes, regional agricultural cooperatives and governments often investigate their local producers and disclose standard cases of cultivation. If these are disclosed locally, the values of the standard

cases may be used as the primary data of the input and emissions of the above input and output items in both (a) and (b).

#### 4.1.2.2 Data collection period

Regarding input items such as rice cultivation related processes, rice seed 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 may be used. This averaging method is permitted if the harvest becomes poor in the rice crop index of the Ministry of Agriculture, Forestry and Fisheries (95% or lower, compared with usual years).

As mentioned in Section 5.1, the primary data acquisition period for the rice cultivation related processes shall be clarified at the carbon footprint labeling.

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 and the accuracy of data used 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, the average data collected from suppliers should be used as secondary data on condition that the following requirements are satisfied:

(1) Rice cultivation related processes and husked rice shipping preparation process

For a milled rice product, a great many producers cultivate husked rice and prepare its shipping. Therefore, primary data shall be collected about some suppliers and averaged as secondary data for other suppliers whose data cannot be collected. However, it is necessary to assure that the primary data was collected without any biases among the suppliers. For this assurance, it is permitted to use a method of categorizing all suppliers based on various items such as farm land area, harvest amount, and farming efficiency and to prove that the sample size of each category is proportional to the distribution of each category. If any other method is used, grounds shall be presented to assure the data represents all sources.

(2) Processes related to the manufacture and transport of various inputs

Like the cultivation of husked rice and preparation for its shipping, a great many suppliers (producers) deal with a single product at the production processes for rice seeds or organic fertilizers. Therefore, primary data shall be collected about some sources and averaged as secondary data for other sources whose data cannot be collected. However, it is necessary to assure that the primary data was collected from samples not biased among the suppliers. For this assurance, it is permitted to use a method of categorizing all suppliers based on various items such as farm land area, harvest, and farming efficiency and to prove that the sample size of each category is proportional to the distribution of each category. If any other method is used, grounds shall be presented to assure the data represents all sources.

For another acquisition item, primary data shall be collected about 50% or more of the total acquisition amount and averaged secondary data for other sources whose data cannot be collected.

#### 4.1.2.4 Allocation method

Physical quantity (weight) shall be used as the basic parameter for allocation. If any other parameter (farm land area, working time, any physical quantity other than weight, 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 rice cultivation and manufacturing organic fertilizers 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).

Other input items are regarded as industrial products and area differences need not to be considered regarding the primary data.

#### 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 by a carbon footprint assessment operator 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.

■ Emissions from the rice cultivation related processes

In this PCR, the amount of methane ($CH_4$) generation from soil shall be assessed by the $CH_4$ emissions assessment method for the agricultural field prescribed in "National Greenhouse Gas Inventory Report of Japan." In this PCR, the amount of nitrous oxide ($N_2O$) generation deriving from nitrogenous fertilizers shall also be assessed by the $N_2O$ emissions assessment method for the agricultural field prescribed in "National Greenhouse Gas Inventory Report of Japan."

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

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

| | Input | Numeric Value | | Source |
|---|---|---|---|---|
| 1 | Rice seed | 0.403 | kg-$CO_2$e/kg | "Husked rice" in "Database of $CO_2$ Emission Factors about Food Related Materials" (Three-year average) http://www.ajinomoto.co.jp/company/kankyo/pdf/2007/lcco2.pdf |

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

There is no corresponding data in the Tentative Database of GHG Emission Factors for the CFP Pilot Project. However, a carbon footprint assessment operator may prepare such GHG emission factors (including the application of other secondary data) 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 manufacture of inputs (cultivation materials) to the rice cultivation related processes

See Annex D: D3. Life Cycle GHG Emission Related to the Manufacture of Containers, Packaging Materials, Materials used for Transport and Other Materials.

■ Life cycle GHG emissions related to the supply of inputs (water-related) to the rice cultivation related processes

See Annex D: D.2 Life Cycle GHG Emission Related to Water Supply.

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

Annex D: D3. Life Cycle GHG Emission Related to the Manufacture of Containers, Packaging Materials, Materials used for Transport, and Other Materials.

■ Life cycle GHG emissions related to the treatment of wastes

See Annex D: D.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 D: D.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 D: D.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. See Annex C for the methodology for setting the following transport scenario:

● Manufacturer of inputs to rice cultivation related processes →Rice cultivator

(e.g., Fertilizer manufacturer →Farmer)

<Transport distance> 500 km

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

<Loading ratio> 62 %

- Rice cultivator →Husked rice shipping preparation process executor

(e.g., Farmer →Drying and adjustment facilities)

<Transport distance> 50 km

<Means of transport> 2-ton truck (Light oil)

<Loading ratio> 58 %

- Husked rice shipping preparation process executor → Rice mill

(e.g., Drying and adjustment facilities → Rice mill)

<Transport distance> 500 km

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

<Loading ratio> 62 %

- Manufacturer of inputs (other than husked rice) to the rice milling related processes →Rice mill

( e.g., Manufacturer of packaging materials for shipping milled rice→rice mill)

<Transport distance> 500 km

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

<Loading ratio> 62 %

#### 4.1.4 Cut-off criteria

For raw materials whose total amount is within 5% of the total input amount, excluding fertilizers, data related to acquisition may be cut-off.

This cut-off is based on the following idea:

The past cases of LCA and the results of trial CFP for the Eco-products 2008indicate that fertilizers, N2O emissions accompanying fertilization, and CH4 emissions from soil greatly affect the GHG emissions at the raw material acquisition stage for milled rice. At the acquisition of materials other than fertilizers, the GHG emissions becomes 5% or less of the GHG emissions at the entire stage. Even when 5% or less is cut-off from the input amount of materials other than fertilizers, therefore, the requirement of $CO_2$ emissions within 5% can be satisfied well.

#### 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. Husked rice input amount
2. Packaging materials input amount
3. Fuel and electric power input amount
4. Tap water input amount
5. Other materials 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 and use of fuel and electric power used for pumping.

<Output and discharge>

6. Milled rice production output
7. Co-product (cracked rice, etc.) output
8. Wastes discharge
9. Wastewater discharge amount

<Other>

10. Life cycle GHG emissions related to the treatment of wastes and wastewater

Wastes discharge and wastewater discharge are considered as being internally generated but emitted to outside. If wastewater is purified within facilities and discharged to a river, no accounting is necessary because there is no wastewater treatment process accompanied by GHG emissions after discharge into a river.

#### 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. Husked rice input amount
2. Packaging materials input amount
3. Fuel and electric power input amount
4. Tap water input amount
5. Other materials input amount

<Output (discharged outside)>

6. Milled rice production output
7. Co-product (cracked rice, etc.) production output
8. Wastes discharge
9. Wastewater 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 treatment of wastes
- Life cycle GHG emissions related to the treatment of sewage

#### 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 acquired from outside having data available in the Tentative Database of GHG Emission Factors for the CFP Pilot Project.

### 4.2.2 Rules about Collection of Primary Data

#### 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 process execution

(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 air-conditioning and lighting in office 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, data may be collected about main production sites only. If data collection is limited to main sites only, the site names shall be clarified. The output from the main production sites shall be 50% or more of the total output.

Note: "The output from the main production sites shall be 50% or more of the total output" is exceptionally permitted in this PCR at the PCR Committee (meeting held on September 3, 2009). At the future revision of this PCR, therefore, it is preferable to increase the percentage in the total output.

#### 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 milled rice and bran produced together by rice milling, however, shall be basically based on economic value. This is because milled rice is considered about 20 times higher in price per unit amount and allocation by production weight is considered to lead to the underestimation of GHG emissions related to milled rice. For this allocation, the production weight of milled rice or bran is multiplied by the price per unit volume ("milled rice: 1, bran: 0.052" based on a survey by Japan Rice Millers Association) to determine the ratio of economic value.

#### 4.2.2.5 Handling of regional differences and seasonal variations

Regarding rice mill data, the primary data needs not be considered about regional differences and seasonal variations.

#### 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 by a carbon footprint assessment operator 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 D: D.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 D: D.2 Life Cycle GHG Emissions Related to Water Supply.

■ Life cycle GHG emissions related to the treatment of wastes

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

#### 4.2.3.2 Contents of scenario

For the production stage, no scenario is particularly defined in this PCR.

### 4.2.4 Cut-off criteria

Data may be cut-off for materials input to the production stage (excluding husked rice 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 rice mill to consumers

2) In-store sales processes:

Processes related to store sales

● 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 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 counter 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.

#### 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: Milled rice 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 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
  - GHG emissions accompanying the transport and disposal of packaging waste

#### 4.3.1.4 Secondary data collection items

Regarding the distribution and sales stage in this PCR, specified 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

### 4.3.2 Rules about Collection of Primary Data

#### 4.3.2.1 Data collection method and conditions

Fuel usage in distribution 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.
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 milled rice, 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 milled rice, 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 volume, 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 sales store in 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 the transport of milled rice. It is preferable to measure only the quantity related to the product. 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 the sale of milled rice. It is preferable to measure only the quantity related to the product. 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 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 by a carbon footprint assessment operator 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 D: D.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 D: D.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 D: D.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 D: D.4 Life Cycle GHG Emissions Related to Treatment of Wastes and Wastewater. Regarding the incineration data prescribed in D.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 rice mill 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. 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 following items related to the cooking of milled rice:

<Input>

1. Milled rice input amount
2. Power input amount
3. Water input amount (washing)
4. Water input amount (cooking)

<Discharge>

5. Discharge amount (washing)

<Other>

6. Life cycle GHG emissions related to the treatment of household wastewater

"1. Milled rice input amount" does not refer to each cooking amount but the input amount to the use and maintenance control stage per sales unit that is the unit of the product in this PCR which substantially means the weight of milled rice per product sales unit.

##### 4.4.1.2 Primary data collection items

Primary data shall be collected about the following:

1. Milled rice input amount

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

Regarding inputs and outputs at the use and maintenance control stage in this PCR, a scenario shall be set for the cooking process within the PCR and the specified scenario shall be basically applied. Therefore, there is no item about which application of primary data or secondary data is acceptable.

#### 4.4.1.4 Secondary data collection items

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

<Input>

2. Power input amount to rice cooker
3. Water input amount (washing)
4. Water input amount (cooking)

<Discharge>

5. Discharge amount (washing)

<Other>

6. Life cycle GHG emissions related to the supply of tap water
7. Life cycle GHG emissions related to the treatment of household wastewater
8. Life cycle GHG emissions related to the supply and use of power

### 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 to use

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

Secondary data not given below may be prepared by a carbon footprint assessment operator 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 purchased power

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

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■ Life cycle GHG emissions related to the supply of tap water

See Annex D: D.2 Life Cycle GHG Emissions Related to Water Supply.

■ Life cycle GHG emissions related to the treatment of household wastewater

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

#### 4.4.3.2 Contents of scenario

##### 4.4.3.2.1 Product use scenario

To the cooking of milled rice, the following scenario applies:

<Scenario>

| Setting Item | | | Setting Contents |
|---|---|---|---|
| Rice cooker | Rice cooker | Cooking capacity | Jar-rice-cooker of size 5.5 to less than 8 cups |
| | | System | IH type and microcomputer-controlled type |
| | | Performance | • Average performance of the models in "Energy Conservation Performance Data in 2009 Summer"<br>• Average annual power input amount*<br>IH type: 95.7 kWh/year<br>Microcomputer controlled type: 93.1 kWh/year |
| | Milled rice amount per cooking* | | 450 g (3 cupfuls) |
| | Number of rice cooking times (annual)* | | 340 times |
| | Warming time (annual)* | | 1,540 hours |
| | Timer set time (annual)* | | 1,190 hours |
| | Standby time* | | 2,290 hours |
| Water | Rice washing | Ordinary milled rice** | 4.5 L for 450 g (3 cupfuls) |
| | | Wash-free rice | 0 L |
| | Rice cooking | | 1.3 times the weigh of milled rice |

*) Source: "Energy Conservation Performance Data in 2009 Summer" (Agency for Natural Resources and Energy)

**) Source: Survey by Musenmai Association of Japan

<Input and outputs of each item based on the above scenario>

| Input/Output Item | | | Input/Output Amount | | Grounds of Assessment |
|---|---|---|---|---|---|
| Power input | | | 0.62 | kWh/kg milled rice | Average annual power input of 94.4kWh for IH and microcomputer controlled type divided by the annual rice cooking amount of 153kg (0.45 kg x 340 times) |
| Tap water input | Rice washing | Ordinary milled rice | 10 | L/kg milled rice | 4.5 L divided by 0.45 kg |
| | | Wash-free rice | 0 | L/kg milled rice | |
| | Rice cooking | | 1.3 | L/kg milled rice | 0.585 L (tap water amount necessary for cooking of 0.45 kg milled rice) divided by 0.45 kg |
| Wastewater discharge | Ordinary milled rice | | 10 | L/kg milled rice | Wastewater discharge amount = Washing water amount |
| | Wash-free rice | | 0 | L/kg milled rice | Wastewater discharge amount = Washing water amount |

#### 4.4.3.2.2 Product maintenance scenario

This is omitted because there is no GHG emissions related to the storage of milled rice at home and scenario setting is not necessary.

### 4.4.4 Cut-off criteria

This is omitted because the product use scenario defined in the PCR (4.4.3.2.1) is used and cut-off 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 considered carbon-neutral and need not to 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.

#### 4.5.2.2 Data collection period

For the amount of packaging waste disposed at home (4.5.1.2), no data collection period is specified because the weight of packaging materials in product specifications may be used.

For an item of possible primary collection (4.5.1.3), numeric values in the most recent one year shall be basically collected. 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.

#### 4.5.2.3 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. The secondary data may also 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.

#### 4.5.2.6 Handling of self-produced electricity

If power is generated in treatment facilities 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.

### 4.5.3 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 by a carbon footprint assessment operator 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 treatment of wastes
See Annex D: D.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 D: D.5 GHG Emissions by Fuel Consumption per Transport Ton Kilometer.

■ GHG emissions deriving from packaging waste by incineration

See Annex D: D.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. 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 %

##### 4.5.3.2.2 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."

In case of package sales, the carbon footprint label shall be on the package. The label may also appear on POP, brochure, and the Internet. In case of sales by weight, the mark may appear on POP, brochure, and the Internet.

A carbon footprint value shall always be labeled with the period of primary data collection about rice cultivation related processes.

If a model case of local producers by an agricultural cooperative or a local government is used as primary data, it shall be stated clearly.

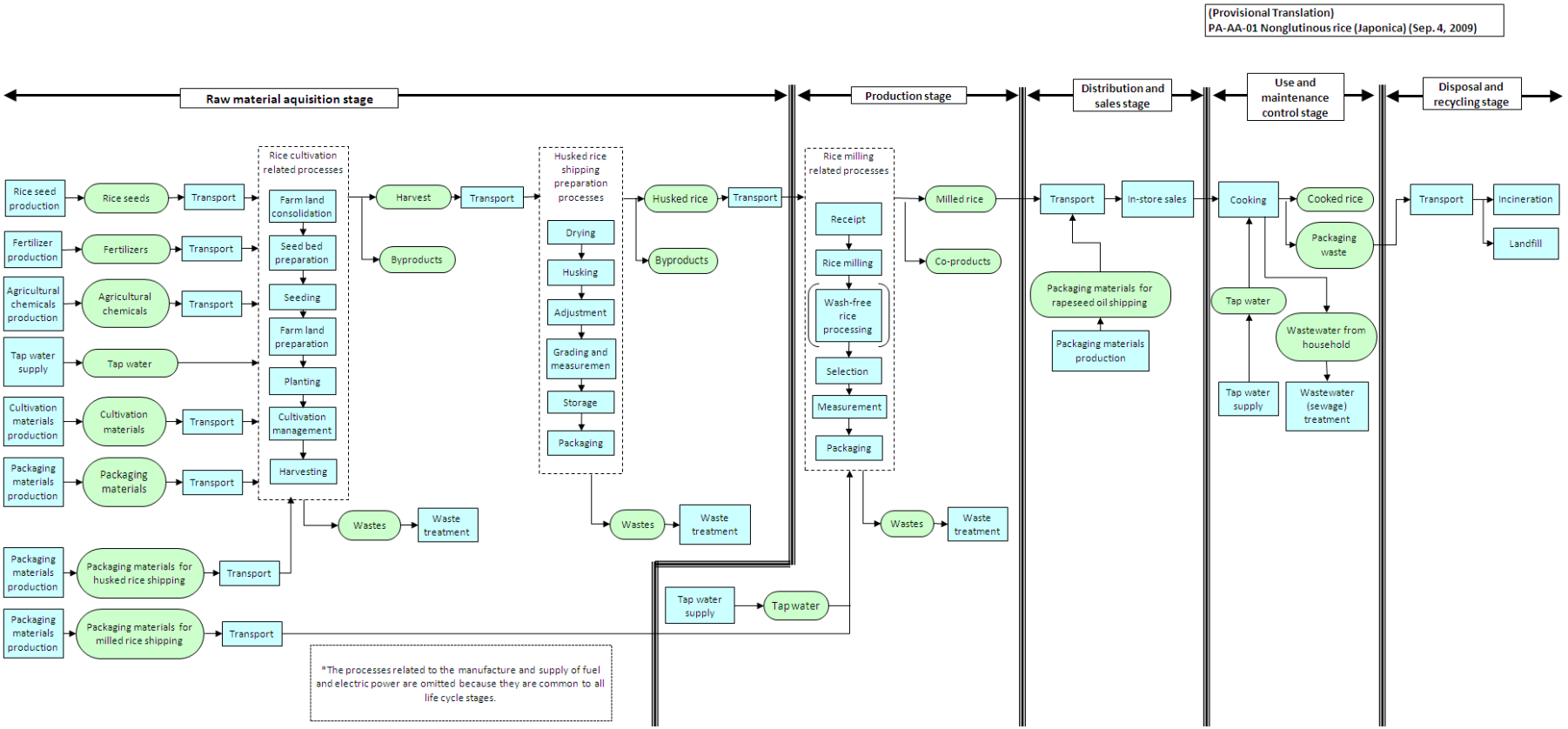
It shall be stated clearly that the carbon footprint value of milled rice contains the GHG emissions related to cooking.

### 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 (or the same area or group) about a product judged to be the same or similar, or the amount of reduction through environment-friendly agriculture promoted by the Ministry of Agriculture, Forestry and Fisheries. By expecting the effect of urging each process operator to make reduction efforts, additional labeling by process or part is also permitted. The ratio of primary data collected on production sites can be labeled additionally.

As additional information (e.g., in case of labeling of the reduction, 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-$CO_2$e] 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-$CO_2$e/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-$CO_2$e] 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-$CO_2$e/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-$CO_2$e] 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-$CO_2$e/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.

| Life Cycle Stage | Scenario |
|---|---|
| Raw material Acquisition sage | 1. Manufacturer of inputs to rice cultivation related processes → Rice cultivator<br>(e.g., Fertilizer manufacturer → Farmer)<br><Transport distance> 500 km<br><Means of transport> 10-ton truck (Light oil)<br><Loading ratio> 62 % |
| | 2. Rice cultivator →Drying and adjustment facilities<br><Transport distance> 50 km<br><Means of transport> 2-ton truck (Light oil)<br><Loading ratio> 58 % |
| | 3.Drying and adjustment facilities →Rice mill<br><Transport distance> 500 km<br><Means of transport> 10-ton truck (Light oil)<br><Loading ratio> 62 % |
| | 4. Manufacturer of input (other than husked rice) to rice milling related processes → Rice mill<br>(e.g., Manufacture of packaging materials for shipping → Rice mill)<br><Transport distance> 500 km<br><Means of transport> 10-ton truck (Light oil)<br><Loading ratio> 62 % |
| Distribution and sales stage | Distribution and sales stage<br>Transport from rice mill to stores or consumers<br><Transport distance> 1,000 km<br><Means of transport> 10-ton truck (Light oil)<br><Loading ratio> 62 % |
| Disposal and recycling stage | Transport from garbage dump place to treatment facilities<br><Transport distance> 50 km<br><Means of transport> 10-ton truck (Light oil)<br><Loading ratio> 62 % |

Assumptions for each scenario are as follows:

### C.1 Transport Distance

For an incentive to primary data collection, the transport distance is set to a little longer than the average but possible.

(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.

### C.2 Means of Transport

Truck transport is basically assumed for an incentive to take $CO_2$ reduction measures in distribution such as modal shift. Large vehicles were set for distributors and rather small ones for others.

(a) Transport by distributor: 10-ton truck

(b) Transport by agricultural producer: 2-ton truck

### C.3 Loading Ratio

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 |
| | | 12,000~19,999 | 14500 | | | 0.0509 | 0.0421 |

The above are average loading ratios for truck transport. Since the loading ratio tends to be greater for milled rice 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.

## Annex D: Secondary Data Common to All Life Cycle Stages

Both the data from the Tentative Database of GHG Emission Factors for the CFP Pilot Project 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 carbon footprint assessment operator 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.

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

#### D.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 | "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."

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

■ Bioethanol

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

■ Biodiesel

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

### D.2 Life Cycle GHG Emissions Related to Water Supply

For the life cycle GHG emissions related to the supply and use 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.

## D.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.

### D.3.1 Plastic containers, Packaging Materials, and Materials used for transport

#### D.3.1.1 Secondary Data of Resin Manufacturing

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

### D.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.D.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.

### D.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.

### D.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.

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

### D.4.1 Application of GHG Emission Factors

For the items below, "Manufacture" and "Combustion" of the said fuel type in 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.

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

#### D.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.

#### D.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.

### D.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.