

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

With the vision of becoming the Kitchen of the World, Chareon Pokphand Foods Plc. continuously develops and operates its agroindustrial and food businesses, with its objectives to offer products of high quality in terms of nutritional value, taste, and traceability. The Company strives to operate businesses that focuses on modern production process, conforms with international standards, efficiently uses natural resources, environmental friendly and able to compete in the front line of the food industry. The Company takes into account the interests of all stakeholders to ensure sustainable growth, while being able to continuously generate appropriate return to shareholders.

Thailand operations involve agroindustrial and food business operations for domestic distribution and export covering approximately 30 countries across 5 continents. The Company's Thailand operations cover livestock and aquaculture including swine, broilers, layers, ducks, shrimps and fish. Its integrated production process starts from production of animal feed, animal breeding, animal farming, processing of meat, production of semicooked or cooked meat products and ready-to-eat products with retail and food outlets as the Company's distribution channels.

The Company's products can be classified into three categories: 1) Feed; 2) Farm (including animal breed, commercial animal, and primary processed meat); and 3) Food Products (such as processed semi cooked and cooked meat, and ready to eat food products under the company's brands, brand, and customers' brands).

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2017	December 31 2017	No	<Not Applicable>
Row 2	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 3	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Row 4	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>

C0.3

(C0.3) Select the countries/regions for which you will be supplying data.

Thailand

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

THB

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Operational control

C-AC0.6/C-FB0.6/C-PF0.6

(C-AC0.6/C-FB0.6/C-PF0.6) Are emissions from agricultural/forestry, processing/manufacturing, distribution activities or emissions from the consumption of your products – whether in your direct operations or in other parts of your value chain – relevant to your current CDP climate change disclosure?

	Relevance
Agriculture/Forestry	Own land only [Agriculture/Forestry only]
Processing/Manufacturing	Direct operations only [Processing/manufacturing/Distribution only]
Distribution	Direct operations only [Processing/manufacturing/Distribution only]
Consumption	Yes [Consumption only]

C-AC0.7/C-FB0.7/C-PF0.7

(C-AC0.7/C-FB0.7/C-PF0.7) Which agricultural commodity(ies) that your organization produces and/or sources are the most significant to your business by revenue? Select up to five.

Agricultural commodity

Fish and seafood from aquaculture

% of revenue dependent on this agricultural commodity

10-20%

Produced or sourced

Produced

Please explain

Shrimp is fish and seafood agricultural commodity produced by CPF.

Agricultural commodity

Other, please specify (Poultry (Chicken/Duck/Egg))

% of revenue dependent on this agricultural commodity

20-40%

Produced or sourced

Produced

Please explain

Agricultural commodity

Other, please specify (Swine)

% of revenue dependent on this agricultural commodity

10-20%

Produced or sourced

Produced

Please explain

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	CEO established "CPF's Safety, Health, Environment and Energy Policy" or "CPF's SHE&En Policy" as well as SHE&En long term targets. Both Policy and the long term target are endorsed and deployed to all operation sites. COO who is assigned from CEO to be a chairman of "SHE&En Management Committee" or "SHE&En MC", has direct responsibility for climate-related issues. Any progressive result of the policy implementation, obstacle and suggestion of further improvement are reported to CEO in Executive Committee meeting. SHE&En MC shall ensure an establishment of long term and short target to reduce GHG emission in accordance with CPF's Safety, Health, Environment and Energy Policy. Annual GHG reduction target shall be established for each operation site and business line, respectively. GHG reduction activities shall be carried out at the sites with full supports from site management. The target is monitored and discussed in management level of both business unit and business line.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	<p>Reviewing and guiding strategy</p> <p>Reviewing and guiding major plans of action</p> <p>Setting performance objectives</p> <p>Monitoring implementation and performance of objectives</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<p>SHE&En MC meeting is regularly scheduled twice a year. Additional meeting may be arranged where necessary. Governance mechanisms to climate-related issues included in SHE&En associated agenda which cover: • Reviewing SHE&En related strategy; • Reviewing and approval related SHE&En plans and projects including GHG reduction; • Reviewing and approval of key SHE&En performance indicators and associated targets; • Monitoring and overseeing progress of SHE&En performance against the targets set. Results of the SHE&En MC meeting are then reported to CPF Executive Committee. In order to ensure that long term targets are achieved, Environmental Sustainability Subcommittee was set up under the SHE&En MC. The Subcommittee has direct responsibilities to: 1. Establish CPF's environmental sustainability policy, strategy, long term target and implementation plan; 2. Supervise, monitor, evaluate outcome, progress and any obstacles related to environmental sustainability activities to CPF SHE&En MC; and 3. Set budgets required to conduct environmental sustainability activities and propose to CPF SHE&En MC for approval.</p>

C1.2

(C1.2) Below board-level, provide the highest-level management position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Sustainability committee	<p>Other, please specify (Supervise, monitor, evaluate outcome)</p> <p><i>Environmental Sustainability Subcommittee was set up under the SHE&En MC. Subcommittee has direct responsibilities to: 1. Establish CPF's environmental sustainability policy, strategy, long term target and implementation plan; 2. Supervise, monitor, evaluate outcome, progress and any obstacles related to environmental sustainability activities to SHE&En MC; and 3. Set budgets required to conduct related activities for SHE&En MC approval.</i></p>	Half-yearly
Environmental, Health, and Safety manager	<p>Managing climate-related risks and opportunities</p> <p><i>CPF SHE&En Office, leaded by Senior Vice President, is responsible to supervise all related SHE&En activities including climate-related within all business units in order to ensure that the SHE&En policy are effectively deployed nationwide. Targets set are met.</i></p>	As important matters arise

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored.

“CPF Safety, Health, Environment and Energy Management Committee” or “CPF SHE&En MC” is established to responsible for all SHE&En related activities including climate-related issues. The SHE&En MC consists of COO who is assigned from CEO to be a chairman. Executive vice presidents from each business line, CFO, and high management level from supporting functions to participate as committee member in order to ensure that all output from MC will be implemented in all operation sites. Head of CPF’s SHE&En Office is a secretary of the Committee. SHE&En MC directly reports to the CEO.

CPF SHE&En MC has direct responsibility for all SHE&En related activities including climate-related issues. The Committee shall ensure long term and short target of SHE&En performance including GHG emission reduction as well as associated activities are in accordance with CPF’s SHE&En Policy.

Annual GHG reduction target shall be established in both operation site level and business line level. GHG reduction activities shall be carried out at the sites with full supports from site business unit and business line management. The target is monthly monitored in site level and reported to business line management in quarterly meeting. Progressive of SHE&En related activities and performances of all sites are consolidated by CPF SHE&En office and reported to the SHE&En MC in every half-yearly MC meeting.

In order to ensure that long term targets are achieved, Environmental Sustainability Subcommittee was set up under the SHE&En MC. Significant environmental sustainability projects initiated by the Subcommittee during reporting periods includes:

- Improving energy efficiency by modifying equipment and machines in cooling and air conditioning system in 11 business units; and
- Formulating CPF Solar Rooftop project as clean energy for almost 34 business units.

In order to operate business in a sustainable way, CPF established “Safety, Health, Environment and Energy Standard” or “CPF SHE&En Standard” in 2015. The Standard shall be implemented and maintained in all business units in order to improve and escalate SHE&En performance throughout the organization. CPF SHE&En Standard consists of management standards, those are aligned with Plan-Do-Check-Act concept, and technical standards, those includes management practices for significant SHE&En aspects being interested by CPF’s stakeholders. The technical standards cover 3 main areas: environment (water, wastewater, waste, energy and climate change); occupational health and safety (hazardous substance management, safety program, occupational health, SHE&En culture, vehicle safety); and engineering (management of change, machinery Integrity, site selection and project management, contractor and supplier and emergency preparedness and response). Implementing the CPF SHE&En Standard will enhance efficacy on natural resources consumption while reduce environmental and safety impacts. In addition, this approach will help to ensure compliance with applicable regulation and requirements as well as sustainably create value to stakeholders.

CPF SHE&En office acts as core mechanism to drive the implementation of SHE&En policy and standard by providing technical and engineering consultancy. Direct responsibility of the Office includes:

- To enhance SHE&En knowledge and understanding to all personnel of CPF;
- Monitor and notify changes in SHE&En laws and regulations, customer requirements and other applicable requirement as well as support implementation for compliance appropriately;
- Consider and manage all SHE&En risks under the business risk management framework, and continuously monitor and report risk management outcomes to CPF management;
- Prepare, plan and implement CPF SHE&En audit program and document and record compliance status of business unit in order to maintain compliance with CPF SHE&En Standard;
- Review audit results and monitor progress and effectiveness of corrective actions for non-compliance issues;
- Define CPF SHE&En key performance indicator (SHE&En KPI), objectives and targets together with SHE&En Leader and report SHE&En performance for CPF to CPF SHE&En Management Committee;
- Study, research and gather information on Best Practices as well as SHE&En trends from global leading corporations for further planning for performance improvement
- Manage both internal and external communication related to SHE&En including gather, review and report information on SHE&En according to GRI and DJSI requirements to the public;
- Involve in any major decisions that influence SHE&En performance as well as other major investments together with relevant

functions;

- Promote and build SHE&En culture within CPF's Business Unit with emphasis on communication, awareness raising, and creating SHE&En innovation program; and
- Involve with government and public sectors to define policies related to SHE&En management.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues.

Who is entitled to benefit from these incentives?

All employees

Types of incentives

Monetary reward

Activity incentivized

Efficiency project

Comment

There are two major incentive schemes related to climate-related issues in CPF. First is SHE&En performance based scheme. SHE&En performances including GHG emission and energy reduction and energy efficiency are considered in yearly appraisal of all employees in order to conform with CPF SHE&En Standard (MS 1 – Leadership and organization management). Therefore, the performance evaluation would result in incentive provided for those who met the associated target. The incentive would be in form of yearly bonus. Second scheme goes under "CEO award". This scheme is organized yearly. The award is provided for innovation projects that significantly result in improving energy efficiency, reduction of GHG emission and so on. Monetary incentive is provided for the projects that met the set criteria. In addition, employees who participated in the innovation projects will award points to consider in yearly performance evaluation. This will be a benefit for bonus as well.

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	0	1	CPF considers climate-related risk and opportunities on a yearly basis under Enterprise Risk Management Framework. The risks and opportunities are yearly reviewed by Risk Management Sub-committee and reported to Executive Committee and Executive Board, respectively.
Medium-term			
Long-term	5	10	Risk and opportunities are projected for the next five years in order to determine reasonable and achievable GHG reduction target.

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Annually	>6 years	CPF has risk management processes both at the corporate and business line (BL) levels. Risk Management Subcommittee, appointed by the Executive Board, is tasked with assessing risks to CPF, in collaboration with risk owners, and determining actions to mitigate such risks in line with CPF's Enterprise Risk Management (ERM) guidelines. The Risk Management Subcommittee would follow up on the progress of risk management in each main business, review/assess effectiveness of risk management, and report directly to the Executive Committee. In year 2017, climate-related risks were identified including water scarcity and availability as result from climate change in Thailand. These risks could affects the company's operations and supply chain.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

Company level: The Company values an importance of a robust risk management process to yearly identify and assess events and risk levels.

The Risk Management Subcommittee is tasked to assess risks related to the Company and determine actions to mitigate such risks within the

Company's risk appetite following the guidelines of COSO's Enterprise Risk Management (ERM). Each year CPF ensures that changing risk factors

are assessed. Each risk is determined based on external factors in different risk type including transition and physical risks; factors those are

directly relevant to CPF and those affects CPF's supply chain (primary activities); and those affects any CPF's supporting activities. Risk mitigation plan is required in order to manage unacceptable risks.

The Risk Management Subcommittee meets quarterly to review the progress of the mitigation actions before reporting to Executive Committee.

The Executive Committee would then make necessary decision on management and governance to ensure that the Company's overall policy and objectives are followed and up to the changing environment. The result of annual risk assessment is also reported to the Audit Committee. All business units (BUs) are also required on annual basis to identify risks associated with the business and the risk level, and to formulate mitigation plan. Each BU is required to take ownership to manage its own risk and to monitor periodically.

Asset level: CPF enforced CPF Safety, Health, Environment and Energy Standard (CPF SHE&En Standard) in April 2015 for all of its operations to

adopt and implement. Climate Change is considered in a Technical Standard (TS). The Standard requires the implementing BUs to identify and

assess risks and opportunities related to climate change, which may affect their business, operation, revenue and cost of the BU. Significant risks

and opportunities shall be incorporated as part of the enterprise-wide risk management program and business strategy of the BU.

Moreover, risk related to water scarcity and availability would yearly determined. The WBCSD Global Water Tool and GEMI Local Water Tool™

(LWT) are used to annually conduct water scarcity risk assessment for all operation sites. Water Footprint Assessment is introduced as a tools to

actual determine water availability of each site taken into account geographical location and Water Scarcity Index (WSI) of major watersheds in

Thailand.

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Legal related risks are always considered in the assessment process. Current regulation and obligations are included, not only for CPF's operation but also for supply chain such as corn grower. Open burning is prohibited in Thailand. Therefore, this would be cause risk to raw material sourcing process of CPF.
Emerging regulation	Relevant, always included	CPF is aware of emerging regulation and obligations, not only in Thailand, but also imported countries and clients or imported country. More than 60% of CPF's products are sold internationally. Both local and international trade and regulations related to climate change as well as emission trading obligations are monitored, and taken into account in business operation.
Technology	Relevant, always included	Cost of technology is considered as enterprise risks particularly for improving energy efficiency and low emission technology since it cause potential financial impacts
Legal	Relevant, always included	In risk assessment process, CPF takes legal related risk seriously, not only local but also international requirements covering products, process and services. Therefore, legal on climate related risks are considered in the assessment.
Market	Relevant, always included	Market related issues are considered particularly those could cause in increasing cost of raw materials. Major raw materials of feed business are agricultural community such as corn and soy. Climate related risk could cause both financial impacts on raw material sourcing and balancing of demand and supply of the materials.
Reputation	Relevant, always included	Reputation on climate related risk is considered since it has impact on stakeholder concerns. Company's reputation could cause business both business risks and opportunities.
Acute physical	Relevant, always included	Acute physical for climate related risks are seriously addressed in risk assessment since CPF is doing agro-industrial business. Experience on flooding in Thailand in 2011 had direct impacts on raw materials, (particularly agricultural commodities), our farm operation, and distribution of products.
Chronic physical	Relevant, always included	Chronic physical for climate related risk is also considered as operation risk for CPF such as seasonal changing. This chronic physical cause impact on shrimp farm operation. Reduction of sea water salinity from raining effects crop management and shrimp health.
Upstream	Relevant, always included	Climate related factors press on upstream or CPF's supply chain is considered since it could significantly affect quantity, quality and prices of purchased raw materials.
Downstream	Relevant, always included	Climate related factors press on downstream or CPF's supply chain is considered since it could significantly affect customer's choices and revenue as consequences.

C2.2d

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

Climate change is one of the external factors to be assessed each year in the company-wide risk identification, assessment and management process. In year 2017, climate related risk remains one of corporate strategic risks those could significantly affect business operations in terms of

fluctuation of quantity, quality and prices of raw materials of animal feeds and shall also affect the efficiency of animal farming, including harvesting plan. These factors shall affect the human food production business in term of quantity, quality and prices. Therefore, the Company has been

committed to giving cooperation to maintain natural balance and to lessen the potential impacts by means of continuous development of innovation and improvement of guidelines for business operation. The Company has provided the integrated management of such challenges by using "4Rs"

Principle (Reduce-Reuse-Recycle-Replenish) under CPF Safety, Health, Environment and Energy Standard (CPF SHE&En Standard).

Projects have been developed and implemented to address mainly on transition risks. The following established projects could result in reduction of either direct or indirect GHGs emissions of the Company including:

- energy saving and improvement of efficiency of energy consumption particularly in cooling and air conditioning system which

resulted in the

reduction of energy consumption (30.49 million kWh per year) and GHGs emission (4,606 ton CO₂e per year);

- replaced water chillers with air chillers to reduce the remaining chicken temperature which could reduce energy consumption by 1.82 million MJ, was equivalent to GHG reduction of 3.403 ton CO₂e)

- Reducing usage of petroleum-based plastic "Polyethylene Terephthalate or PET" by using plant-based and biodegradable packaging "Polylactic

Acid (PLA) in food product which was equivalent to GHG reduction of 131,361 ton CO₂e.

- Changing animal feed containers from plastic bag to bulk feed tanks which could reduce plastic bag usage by 8,755 tons and was equivalent to

GHG reduction of 17,000 tons CO₂e.

Moreover, reduction of waste disposal by landfill and burning by approved disposers was implemented company-wide in year 2017. Sludge from

wastewater treatment plant of food processing factory is used as fertilizer. Approach to manage opportunity mainly focus on alternative energy

such as biogas generation from animal wastes. Swine manure from every swine farms is used to produce biogas for electricity generation. This

could reduce electricity consumption by 6.99 million MJ which was equivalent to GHGs reduction of 13,087 ton CO₂e.

Office of Safety, Health, Environment and Energy is working on behalf of secretary of Environmental Sustainable Management Subcommittee to

monitor progress of the projects' implementation. The results are then reported to Safety, Health, Environment and Energy Management

Committee (SHE&En MC).

Regarding the security of supply of agricultural raw materials, the Company has monitored the demand/supply balance of raw materials, and has

surveyed sources of main raw materials and has used satellite data for analysis of trends of weather condition in order to predict surrounding

factors which may affect the supply of raw materials; for examples, season change, harvesting time, quantity, prices and quality as well as

harvestable periods. Moreover, the Company has also given the importance to the development of formula of substitute animal feeds by taking

account of issues of risks of each type of raw materials which may be affected by the climate change.

The Company has been committed to operating its businesses with aims to reduce impacts to communities, society, and the environment and to

sustainably upgrade industries through the transfer of knowledge and technologies which will enable farmers who are the deliverers of raw

materials to adapt themselves for self-dependence in the midst of the climate change and sharing of innovation of CPF Green Farm

with farmers,

etc.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Enhanced emissions-reporting obligations

Type of financial impact driver

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

At the 21st session of the Conference of the Parties (COP 21) in Paris on 12 December 2015, countries agreed to a new global deal to tackle climate change. Intended Nationally Determined Contribution (INDCs) identifying the actions a national government intends to take under the Paris Agreement, are the basis of post 2020 global emissions reduction commitments included in the climate agreement. In INDCs (to be named NDCs, Nationally Determined Contributions, after the Agreement comes into force), UNFCCC Parties, including Thailand, are requested to outline the steps they are taking/will take to reduce emissions at national level. Thailand submitted its INDC to UNFCCC on 1 October 2015. It pledged a 25-30 percent reduction from business as usual by 2030. As a result, the most significant risk is changes in Thai regulatory after the pledge, CPF may be required to make contribution to the national GHG reduction target. However, at this point in time, specific target for each industry has not been announced. In 2017, CPF set long-term target to reduce its GHG intensity 15% by 2020 from base year 2015.

Time horizon

Short-term

Likelihood

Very likely

Magnitude of impact

Low

Potential financial impact

1070000000

Explanation of financial impact

Without CPF's voluntary GHG Reduction target, the Financial implications due to increasing energy cost accumulated from 2016 - 2020 is estimated at 1,070 million THB.

Management method

CPF has a long term corporate target to reduce its GHG intensity (kg CO2 eq. per production ton) 15% by 2020 from 2015 level. To achieve this target, CPF's emissions reduction actions and measures will include improve efficiency motor, variable frequency drive, replacement fluorescent with LED, PV solar rooftop, high efficiency chiller, fuel switch to biomass and improvement of refrigeration system steam contribution system and biogas production.

Cost of management

2280000000

Comment

To mitigate the impact from the consequence of international agreements, the Company is required to reduce its GHG emissions within 2030. In order to prepare for the potential impact, CPF has calculated the cost of the actions/measures during 2016-2020 is estimated at 2,280 million Baht.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Enhanced emissions-reporting obligations

Type of financial impact driver

Policy and legal: Increased operating costs (e.g., higher compliance costs, increased insurance premiums)

Company- specific description

According to Thailand's Market Readiness Proposal (MRP) report responsible by Thailand Greenhouse Gas Management Organization (TGO), Thailand is developing Energy Performance Certificate Scheme (EPC) (2016-2018) aiming to build market readiness components in energy intensive industrial units and commercial buildings, major GHG emitters, to be the foundation for establishing the future emission reduction trading scheme in Thailand. The EPC is a target and trade scheme designed to enhance energy efficiency and GHG emission reduction and to support achieving the national goal of energy intensity reduction by 25% in 2030, relative to 2010. The EPC scheme is also designed to improve data accuracy to set energy consumption standards and put in place effective monitoring system. The scheme aims to improve energy efficiency in industries by trading in energy efficiency certificates starting from energy intensive sectors and cover all sectors later. Once the pilot project is successful and the scheme is approved by the cabinet, it will be administered by TGO and DEDE to set mandatory, specific targets for energy consumption for larger, energy intensive facilities. The scheme imposes mandatory specific energy consumption targets on the designated facilities with less energy efficient facilities having a greater reduction target than the more energy efficient ones. A facility's baseline is determined by its historic specific energy consumption. Facilities making greater reductions than their targets receive "Energy Saving Certificates" which can be traded with facilities that are having trouble meeting their targets, or banked for future use. The EPC scheme establishes plant specific targets rather than a sector target. The approach is as follows: 1) Specification of specific energy consumption (SEC) norm in the baseline year and in the target year; 2) Verification of the SEC in the baseline year and in the target year by an accredited verification agency; 3) Issuance of Energy Savings Certificates to those designated consumers who exceed their target SEC reduction; 4) Trading of Energy Savings Certificates with designated consumers who are unable to meet their target SEC reduction after three years; 5) Checking of compliance, and reconciliation of Energy Savings Certificates at the end of the 3 year period. In case of noncompliance, a financial penalty is due.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium-low

Potential financial impact

34000000

Explanation of financial impact

After the pilot phase, the results will be presented to the cabinet and proposed for approval to implement countrywide. The participation in EPC scheme is likely to be mandatory basis. The transaction cost on EPC implementation consists of i.e. technical assistance, energy audits and MRV. The transaction cost is estimated at 5.28 million THB for large sized CPF's business units and 34 million THB when considering all CPF's business units.

Management method

The method to manage the risks include: i) To participate in the EPC scheme; ii) To improve corporate-wide energy and GHG measuring, reporting and verification (MRV) system; and iii) To implement CPF Safety Health Environment and Energy Standard (CPF SHE & En Standard) which cover energy efficiency and GHG management.

Cost of management

2259000000

Comment

To participate in the EPC scheme, the Company must be responsible investment cost. In case that CPF participates in the scheme, the investment cost for energy efficiency projects for our animal feed, farm, and food processing plants during 2016 to 2025, it is estimated at 2,259 million THB. The implementation of energy efficiency projects not only can manage the implementation of EPC scheme but also can help long term reduction of CPF's energy expense.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Rising mean temperatures

Type of financial impact driver

Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)

Company- specific description

According to the Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report (AR5), the global mean surface temperature change for the period 2016– 2035 relative to 1986–2005 is similar for the four RCPs and will likely be in the range 0.3°C to 0.7°C (medium confidence). When considering CPF's integrated agroindustrial and food business including livestock and aquaculture, CPF's chicken farm and food processing businesses are much related to temperature control, therefore, the change in mean temperature will definitely have impact on operation costs of these business units.

Time horizon

Current

Likelihood

Likely

Magnitude of impact

Low

Potential financial impact

40000000

Explanation of financial impact

In order to control the temperature in chicken housing, two types of evaporative cooling systems are commonly used: pad and fan, both of which consume electricity energy. If the ambient temperature is increased due to climate change, the energy will be required more for controlling the temperature. Furthermore, in food processing business, the cooked food is kept cool with chillers. As a result, the energy expense is likely to be higher. The financial implication due to increase in energy cost of chicken farm and food processing is 40 million THB.

Management method

The management methods include improvement and maintenance of temperature control equipment such as improvement of refrigeration system, automatic air purge, defrost on demand system, economizer installation, automatic control compressor, magnetic bearing motors for ammonia compressor and chilled water and air conditioning system improvement, high efficiency chiller, magnetic bearing chiller.

Cost of management

141000000

Comment

Cost associated with improvement and maintenance of temperature control equipment such as refrigeration system and chilled water and air conditioning system is estimated at 141 million THB. The implementation of energy efficiency projects not only can manage the temperature control but also can help long term reduction of CPF's energy expense.

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

Type of financial impact driver

Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)

Company- specific description

According to the Intergovernmental Panel on Climate Change (IPCC) 5th Assessment Report (AR5), water scarcity is expected to be a major challenge for most of the Asian region as a result of increased water demand from increases in population, irrigated agriculture and industry, and lack of good management. Since CPF's business, in particularly, aquaculture farming and food businesses require a relatively high amount of water, water scarcity is one of our physical climate change risks.

Time horizon

Current

Likelihood

Likely

Magnitude of impact

Medium-low

Potential financial impact

Explanation of financial impact

Based on our self-assessment using WBCSD Global Water Tool, 38% of our production sites in Thailand are located in water stressed areas (<1700 m3/person*year). The percentage of cost of goods sold (COGS) of the sites located in water stressed area is 59% of our total COGS.

Management method

Method to manage the risks include; (1) conducting water scarcity assessment (WBCSD Global Water Tool), water risk assessment (Aqueduct), and develop water management plan (GEMI Local Water ToolTM) for our facilities and key suppliers located in water stressed areas. (2) conducting an assessment of water withdrawal and water consumption in processes throughout the value chain to conduct planning on effective water consumption (e.g. reduction, reuse, and recycle) (3) setting water reduction target.

Cost of management

5500000

Comment

In 2017, the total cost associated with these actions is estimated at 5.5 million THB, which include; (1) Material and Equipment, (2) Personnel Costs, (3) Expenses (accommodation, travel, etc.).

Identifier

Risk 5

Where in the value chain does the risk driver occur?

Supply chain

Risk type

Physical risk

Primary climate-related risk driver

Chronic: Changes in precipitation patterns and extreme variability in weather patterns

Type of financial impact driver

Increased operating costs (e.g., inadequate water supply for hydroelectric plants or to cool nuclear and fossil fuel plants)

Company- specific description

Climate change has caused storms, floods and droughts to occur more frequently and have more severe affects than the past. There natural disasters directly impact agricultural productivity, as they affect harvesting and cultivating schedule, as well as quality and quantity of agricultural output, This leads to fluctuation in quality and price of raw materials used in animal feed production, animal husbandry, and food processing. Impact from volatility of agricultural commodity prices of raw materials used in animal feed production due to climate change.

Time horizon

Current

Likelihood

Likely

Magnitude of impact

Medium-low

Potential financial impact

105000000

Explanation of financial impact

According to a study by European Commission; CAPRI Long-term Climate Scenario Analysis: The AgMIP Approach, it projects rises in the global agricultural prices in response to the predominantly adverse impacts of climate change on crop yields between 6% to 13% in 2030 and 2050. However, there are variation of price change across commodity aggregates and regions. The financial implication due to the price increase is estimated at 105 million THB per year.

Management method

CPF has dedicated and given the importance to the development of experts on purchasing and supply of raw materials of animal feeds which required the analysis of risk factors possibly affecting prices, quantity quality and harvesting time through the development of statistical models of each type of raw materials of animal feeds, thus was able to roughly predict the quantity and harvesting time and to use the data as part of its purchasing plan. Policy was implemented to prioritized purchase of raw materials from domestic sources in order to support local farmers. Moreover, CPF's strategic management guideline for climate change was planned to build capacity of agricultural suppliers through dissemination of knowledge and technology in order to enable them to adapt and become self-sufficient amidst climate change.

Cost of management

39.27

Comment

CPF has a central procurement special unit responsible for securing raw material for animal feed production. Cost associated with maintaining and administering this procurement unit, the specialist, and use of satellite data for prediction is estimated at 39.27 million THB per year.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.**Identifier**

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Participation in carbon market

Type of financial impact driver

Please select

Company- specific description

The Paris Agreement establishes a fundamentally different framework from Kyoto. Rather than binding emission limits, which readily lend themselves to market approaches, the new climate regime requires all parties to undertake nationally determined contributions of their own choosing. Thailand submitted its NDC to UNFCCC in October 2015. It pledged a 25-30 % reduction in its emissions of GHG by 2030. Thailand is investigating various approaches to achieve the National GHG reduction target after 2020. Since 2009, Thailand Greenhouse Gas Management Organization (TGO) has studied a Thailand Voluntary Emission Trading Scheme (Thailand VETS), which follows the cap and trade system. Furthermore, other carbon market tools and mechanisms are being prepared and piloted. According to Partnership for Market Readiness (PMR) workshop at USA in Sep 2015, TGO presented initiatives to promote the domestic carbon market are; 1) Thailand Carbon Offsetting Program (TCOP) is a carbon offsetting program, launched in August 2013, aiming to use contributions from participants for supporting domestic GHG emission reduction activities, 2) Thailand Voluntary Emission Reduction Program (TVER) is a domestic GHG crediting mechanism launched in 2013 (project based), using methodologies which developed by TGO. 1) and 2) are the existing initiative instruments 3) Energy Performance Certificate Scheme (EPC) is a target and reward scheme aiming to achieve energy efficiency in energy intensive factories & buildings and to build core market readiness components in order to be a foundation for establishing the future ETS. 4) Low Carbon City Program (LCC) is a GHG crediting mechanism which will be a part of TVER program, aiming to achieve GHG emission reductions implemented by municipalities and local communities. 3) and 4) are the initiative instruments proposed to PMR and have being piloted since 2016. These schemes are designed to incentivize private and industrial sectors to reduce their GHG emissions. CPF believes that these schemes not only provide opportunities to develop cost effective projects that result in enhanced energy efficiency, increased renewable energy share and GHG emission reductions, but also encourage low carbon technology transfer, developing our people, improve competitiveness, and integrate carbon in business models.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium

Potential financial impact

1070000000

Explanation of financial impact

After 2020, schemes/initiatives such as Thailand VETS and EPC are likely to be mandatory. In case that CPF develops GHG emission reduction projects that comply with the TGO's requirements (e.g. Additionality, Cobenefit, MRV), potential financial implications from cost saving from 2016 – 2020 are estimated at 1,070 million THB.

Strategy to realize opportunity

CPF has been developing internal MRV (Measurement, Reporting, and Verification) system in order to prepare for participating the voluntary schemes. The potential types of emission reduction projects that are being under preparation include; high efficiency motor, variable frequency drive, replacement fluorescent with LED, PV solar rooftop, high efficiency chiller, fuel switch to biomass and improvement of refrigeration system stream contribution system and biogas production. Furthermore, four of CPF factories are currently joining Thailand VETS as pilot factories for food sector including Pakthongchai plant, Sriracha plant, Pitsanulok plant and Saraburi plant to learn TGO's MRV system and prepare the organization to be ready for any future rules.

Cost to realize opportunity

3150000

Comment

In 2017, the total cost associated with these actions is estimated at 3.15 million THB, which include; (1) material and Equipment, (2) personnel Costs, (3) MRV preparation costs, (4) expenses (accommodation, travel, etc.).

Identifier

Opp2

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Energy source

Primary climate-related opportunity driver

Use of lower-emission sources of energy

Type of financial impact driver

Reduced operational costs (e.g., through use of lowest cost abatement)

Company- specific description

Thailand has a Climate Change Master Plan 2012-2050 with the vision: Thailand has achieved climate resilience and low carbon growth in accordance with sustainable development agenda. Other climate related regulations include; Environmental Quality Management Plan 2012-2050, Environmentally Sustainable Transport Master Plan, and Thailand Integrated Energy Blueprint which incorporated Power Development Plan (PDP 2015- 2036), Energy Efficiency Development Plan (EEDP 2015- 2036), and Alternative Energy Development Plan (AEDP 2015-2036) together. The national energy policy also target 25% renewable in total energy consumption by 2021, from 11.91% in 2014. CPF believes that these long term plans will increase demand for low carbon technologies and renewable energy, and consequently help reduce investment cost. Furthermore, the "Paris Agreement" ties together Nationally Determined Contributions (NDCs) with international rules and procedures. This stimulates new and innovative business models to deploy renewable energy technologies (RET) and energy efficiency (EE) measures. For example, PPAs create an energy delivery agreement between commercial & institutional (C&I) buyers and renewable energy project developers that allow the organization to lock in energy prices for up to 20 years. This is the opportunity to replace low efficiency equipment with high efficiency and low carbon ones or invest in renewable energy projects such as solar photovoltaic energy.

Time horizon

Short-term

Likelihood

Likely

Magnitude of impact

Medium-low

Potential financial impact

600000000

Explanation of financial impact

Currently, an average payback period of implementing energy efficiency technologies is around 4 years. Although, technologies such as high efficiency motors or boilers has payback period lower than 4 years, some potential technologies such as solar PV systems have 79 years payback periods. According to a study of the International Energy Agency (Technology Roadmap: Solar Photovoltaic Energy, 2014 edition), the projected average levelised cost of energy (LCOE) for new built utility scale and rooftop PV systems will be halved by 2030 or before from the 2013 level. Based on this projection, it is estimated that the capital costs for solar rooftop PV systems of 20 sites will be decreased by 600 million THB within 2030 or before. The renewable energy project may also be able to generate and sell renewable energy certificates or carbon emission reduction certificates.

Strategy to realize opportunity

As stated in CPF Safety Health Environment and Energy Standard (CPF SHE & En Standard), CPF commits to keep exploring opportunity to increase renewable energy and cleaner energy utilization and self generation of power in order to reduce consumption of onrenewable Energy. To achieve this mission, CPF has a special team responsible for this activity.

Cost to realize opportunity

3150000

Comment

In 2017, the total cost associated with these actions is estimated at 3.15 million THB, which include; (1) material and equipment, (2) Personnel Costs, (3) expenses (accommodation, travelling etc.).

Identifier

Opp3

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Move to more efficient buildings

Type of financial impact driver

Reduced operating costs (e.g., through efficiency gains and cost reductions)

Company- specific description

According to the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5), all aspects of food security are potentially affected by climate change, including food access, utilization, and price stability. Climate change impacts on livestock will include effects on forage and feed, direct impacts of changes in temperature and water availability on animals, and indirect effects via livestock diseases. And there is high confidence that high temperatures tend to reduce animal feeding and growth rates. Currently, CPF employs modern technologies and information system in managing livestock farms. The computerized

control system is used in monitoring the animals' wellbeing, which can help prevent contagion as well as diseases caused by animals and other carriers from outside. Animal housings are temperature and environmental controlled to fit the animals' nature with the use of closed evaporative cooling system technology. As the animals live comfortably, they are subject to less stress, grow fast and healthy. In addition to CPF's current practice of using closed evaporative cooling system technology, we are trying to minimize heat penetration into our swine housings by investing in cost competitive natural infrastructure.

Time horizon

Current

Likelihood

Likely

Magnitude of impact

Low

Potential financial impact

180000000

Explanation of financial impact

Cost for insulating construction of swine-housing is reduced over 1.6 million THB per farm or about 102 million THB in comparison to typical insulating swine-housing. Revenue generated from decreasing abortion rate in sows about 78 million THB per year in 2017.

Strategy to realize opportunity

CPF positively make use of the nature by planting Heliconia, bananas and bamboos alongside our swine farms in Thailand for natural heat protection (temperature inside swine-housing can go down 1-2 degrees Celsius), minimizing swine stress from heat (this leads to decrease abortion rate in sows up to 0.5%), dust absorptions and CO2 emission reduction. This initiative helps to save cost and generate revenue.

Cost to realize opportunity

23900000

Comment

The cost for planting and other related Construction was 50,000 THB per Swine housing or approximately 23.9 million Thai Baht for 64 farms in Thailand.

Identifier

Opp4

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Type of financial impact driver

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

Company- specific description

According to Top 10 Global Consumer Trends for 2016 (the Euromonitor International's report, 2016), saving time is often about new attempts to buy time, beyond convenience. Consumers are more willing to outsource aspects of their lives. Many perceive time as the key luxury. As a result, ready meals and in particular frozen ready meals have become their preference on busy working days. In 2016, sales of ready meal were 6,332.9 million THB. Furthermore, in 2015 it was found that 66% of consumers said they were willing to pay more for sustainable brands. (Nielsen Global Survey of Corporate Social Responsibility, 2015). These trends together can become a great business opportunity for CPF. Therefore there are 3 important elements that addressed this opportunity; i.e. (1) Increase return by growing value added business (processed and readytoeat foods), (2) Strengthen CP brand and expand retail food business, and (3) Moving towards sustainability.

Time horizon

Current

Likelihood

Likely

Magnitude of impact

Medium-low

Potential financial impact

294000000

Explanation of financial impact

The financial implication of business opportunities from changing consumer behavior is estimated at 294 million THB based on our retail value share in both ready meals and frozen processed food markets in Thailand in 2017.

Strategy to realize opportunity

(1) CPF conducted self assessment of sustainability performance and participate in the DJSI Sustainability Assessment 2017, (2) CPF was able to reduce over 185 tons of plastic and paper consumption in packaging production in year 2017. During 2007-2017, CPF has saved over 2,315 tons or cost reduction over 260 MB. (3) In 2017, apart from CP Shrimp Wonton, three more products namely, CP fresh chicken, live chicken and baby chick received "Carbon Footprint Reduction Label" from TGO. On average, the fresh chicken product has 50 % less carbon emissions than other Thai chicken manufacturers. Shrimp wonton, which was the first Thai shrimp product that received this label, also has 23 % less carbon emissions, compared to database of 145 grams CP Shrimp Wonton registered Carbon footprint label in 2012. (4) Since 2013, over 700 of CPF's chicken products have been awarded ProSustain® certification by the DNVGL, one of the world's leading certification bodies for product sustainability. CPF were the first company with sustainable chicken products and plans to expand Product Sustainability to cover more chicken products. (5) CPF has implemented CPF SHE & En Standard which cover water management, energy efficiency, climate change, and waste management technical standards. (6) CPF communicates CPF's sustainability performance through annual GRI based sustainability reporting.

Cost to realize opportunity

2000000

Comment

In 2017, the total cost associated with these actions is estimated at (Prosustain+Carbon Reduction) 1,000,000 THB per product group, which include; personnel costs software licensing 3rd party certification / verification, business traveling and administration.

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted	CPF realized an opportunity raised from changing customer behavior. Therefore, the company has implemented CPF's product sustainability project since 2012, by applying the assessment of product life cycle and operational eco-efficiency to the design, development and management of product throughout the value chain. This is to create sustainable products with an emphasis on 4 dimensions; economy, environment, society, as well as food quality and safety. In 2013, DNV-GL, a global certification body, certified our chicken product as the first sustainable chicken products in the world. Additionally, we have also undertaken Carbon Footprint Label Project since 2018, and Carbon Footprint Reduction Label Project since 2015 until present.
Supply chain and/or value chain	Impacted	CPF place great emphasis on climate-related risks that may affect the security of agricultural sourcing for our production. Strategic management guideline has been established covering 1) monitoring the balance of demand and supply, exploring sources for our critical raw materials, and utilizing satellite information to support the analysis on the likelihood of past climate, to aid the forecasts of future external factors that may impact current raw material sourcing; 2) conducting research and development on alternative materials that may substitute critical raw materials, particularly those with the risk being affected by climate change; and 3) building capacity of agricultural suppliers through dissemination of knowledge and technology to enable them to adapt and become self-sufficient amidst climate change.
Adaptation and mitigation activities	Impacted	Adaptation of new technologies to mitigate climate-related risks have been addressed companywide. Efforts in the development and implementation of energy saving and energy efficiency projects have been continuously carried out. In 2017, 59 new projects were initiated including Cooling and Air Conditioning System Efficiency Improvement Project, and Highly Efficient Motor Project. It was projected that upon their implementation, it could reduce energy consumption by 41,760 GJ per annum, while GHG emission would be reduced by 16,658 tons CO2e annually, with cost saving of 47.58 million Baht yearly. Efforts are also put on reduction of fossil fuel consumption and increasing renewable energy use by installation of solar rooftop. CPF has been working on 40 MW solar rooftop installation in order to reduce GHG emission from electricity consumption. This project would be largest solar rooftop in Thailand. It shall be completed and operated in 2018.
Investment in R&D	Impacted	Investment in research and development was spent both for products, as mention earlier, and process. Process development to mitigate risk from changing in mean average temperature were considered both in farming and food processing business. The development to improve housing ventilation and proper temperature in poultry husbandry was introduced.
Operations	Impacted	Risk and opportunity have impacted all CPF business operations. All operations shall established their own specific GHG emission reduction targets in line with CPF annual and long term target. Improvement projects shall be formulated, implemented and monitored. Results and/or progress of the projects shall be reported to SHE&En Management Committee in the meeting held twice a year.
Other, please specify	Please select	

C2.6

(C2.6) Describe where and how the identified risks and opportunities have factored into your financial planning process.

	Relevance	Description
Revenues	Impacted	According to CPF's Product Sustainability Project implementation since 2012, the Company established CPF Green Revenue Project in 2017, aiming to measure our revenue generated from green product groups. It is included product under Product Sustainability as well as product with Carbon Footprint, Carbon Footprint Reduction and Water Footprint Labels certified. And the revenue generated from the green products was 21,978 million Baht or equivalent to 12.32% of Thailand's revenue.
Operating costs	Impacted	Risk and opportunities have significant factors on operating cost as mentioned.
Capital expenditures / capital allocation	Impacted	Capital expenditure were invested mainly to improve energy efficiency such as replacement and/or installation of high efficiency motor, variable frequency drive, high efficiency chiller, construction of biogas treatment plant, LED light bulb, for example. Capital expenditure in 2017 would approximately million Baht.
Acquisitions and divestments	Not evaluated	Climate related risks and opportunity were considered for business those CPF's direct operation only
Access to capital	Not evaluated	Climate related risks and opportunity were considered for business those CPF's direct operation only
Assets	Not evaluated	Climate related risks and opportunity were considered for business those CPF's direct operation only
Liabilities	Not evaluated	Climate related risks and opportunity were considered for business those CPF's direct operation only
Other	Please select	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

Yes, qualitative and quantitative

C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b) Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.

Yes

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

CPF, in the capacity of the operator of integrated agricultural and industrial businesses, unavoidably encountered challenges from natural changes, Therefore, the Company has been committed to giving cooperation to maintain natural balance and to lessen the potential impacts by means of

continuous development of innovation and improvement of guidelines for business operation. The Company has provided the integrated

management of such challenges by using "4Rs" Principles (Reduce-Reuse-Recycle-Replenish) under CPF Safety, Health, Environment and Energy

Standard (CPF SHE&En Standard).

Projects have been developed and implemented according to the prescribed goals; for example, project of energy saving and improvement of

efficiency of energy consumption which resulted in the reduction of energy consumption, reduction of release of greenhouse gas and more

effective waste management, project of improvement of walls of poultry houses for adaptation to the global warming by placing PVC wall with

ISOWALL solid walls to improve the efficiency of the ventilation system and to control proper temperature in poultry houses, worthily using energy in the animal husbandry process, reducing the use of water and reducing the release of greenhouse gas leading to efficient animal husbandry and

reduction of environmental impacts. Moreover, the Company has been committed to designing packages by taking account of environmental impacts by reducing the quantity of use of plastic and paper in the production of food packages by using PLA (Poly Lactic Acid) packages with frozen

products in the category of fresh foods, which were biodegradable natural materials made from plants.

Regarding waste management, in the past, the Company had disposed of wastes by means of landfilling or burning, then, the Company developed

projects to increase value and to reuse of wastes; for example, project of breeder chicken and meat-type duck anaerobic ponds, project of

wastewater precipitation to fertilizer and soil conditioners, etc.

Regarding the security of supply of agricultural raw materials, the Company has monitored the demand/supply balance of raw materials, and has

surveyed sources of main raw materials and has used satellite data for analysis of trends of weather condition in order to predict surrounding factors which may affect the supply of raw materials; for example, season change, harvesting time, quantity, prices and quality as well as harvestable

periods. Moreover, the Company has also given the importance to the development of formula of substitute animal feeds by taking account of

issues of risks of each type of raw materials which may be affected by the climate change.

The Company has been committed to operate its business with aims to reduce impacts to communities, society, and the environment

and to

sustainably upgrade industries through the transfer of knowledge and technologies which will enable farmers who are the deliverers of raw materials to adapt themselves for self-dependence in the midst of the climate change and sharing of innovation of CPF Green Farm with farms, etc.

C3.1d

(C3.1d) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenarios	Details
Nationally determined contributions (NDCs)	At the 21st session of the Conference of the Parties (COP 21) in Paris on 12 December 2015, countries agreed to a new global deal to tackle climate change. Intended Nationally Determined Contribution (INDCs) identifying the actions a national government intends to take under the Paris Agreement, are the basis of post 2020 global emissions reduction commitments included in the climate agreement. In INDCs (to be named NDCs, Nationally Determined Contributions, after the Agreement comes into force), UNFCCC Parties, including Thailand, are requested to outline the steps they are taking/will take to reduce emissions at national level. Thailand submitted it INDC to UNFCCC on 1 October 2015. It pledged a 25-30 percent reduction from business as usual by 2030. In order to meet national target committed, therefore, NDCs is used for the climate-related scenario analysis.

C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e

(C-AC3.1e/C-CE3.1e/C-CH3.1e/C-CO3.1e/C-EU3.1e/C-FB3.1e/C-MM3.1e/C-OG3.1e/C-PF3.1e/C-ST3.1e/C-TO3.1e/C-TS3.1e)
Disclose details of your organization's low-carbon transition plan.

CPF has applied scenario analysis to understand climate-related risks as well as opportunities to its operations. CPF's climate change-related

scenarios include both transition risks and physical risks as following details:

Transition risk: Change of policy and regulation, Thailand submitted its INDCs to UNFCCC in 2015. It pledged a 20-25% reduction from BAU by

2030. The most significant risk is changes in Thai regulatory related to GHG emissions. However, no specific target for each sector has been

announced. In 2017, CPF set a long-term target to reduce its GHG intensity 15% by 2020 from base year 2015. CPF's actions for emissions

reduction include energy efficiency projects, i.e. high efficiency motor and chiller, LED replacement, and renewable energy projects, i.e. solar PV

rooftop, biomass and biogas energy. The cost of the actions during 2017-2020 has been calculated approximately 2,280 million THB. Moreover, the

estimate financial implication with CPF's voluntary GHG reduction target, financial implications due to energy cost accumulated from 2016 -2020

is estimated to be approximately 1,070 million THB.

Physical risk: Induced changes in natural resources (water scarcity), according to the IPCC AR5 RCP4.5 and RCP8.5, water scarcity is expected to be a major challenge for most of the Asian region as a result of increased water demand from increase in population, irrigated agriculture and industry, a lack of proper management. Since CPF's business, especially in aquaculture farming and food businesses, consumes relatively high amount of water, water scarcity is one of physical climate change risks. Measures to manage risks include: 1) Conducting water scarcity assessment (using WBCSD

Global Water Tool; GWT), water risk assessment (using Aqueduct), and develop water management plan (GEMI Local Water Tool TM) for facilities

and key suppliers located in water stress areas; 2) Conducting an assessment of water withdrawal and water consumption in process throughout

the value chain to conduct planning on effective water consumption (3Rs); and 3) Setting water reduction target. In 2017, CPF set a long-term target to reduce water withdrawal per production unit 25% by 2020 from base year 2015. The annual total cost associated with this action is estimated

at 5.5 million THB which includes materials and equipment, personnel costs, and expense (accommodation, travelling, etc.). For estimated financial

implication, based on self-assessment by GWT, there are 39% of CPF production sites in Thailand are located in water stressed areas (<1,700 m³/

person/year). Percentage of cost goods sold (COGS) of the sites located in water-stressed area is 61% of our total COGS.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Both absolute and intensity targets

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Scope

Scope 1+2 (location-based)

% emissions in Scope

100

% reduction from base year

15

Base year

2015

Start year

2016

Base year emissions covered by target (metric tons CO2e)

916845.51

Target year

2020

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% achieved (emissions)

6.98

Target status

Underway

Please explain

CPF established both intensity and absolute GHG emission reduction target. The absolute target is determined from intensity target set taken into account production forecast. Scope 1 emission focused only combustion sources those generated energy. Fugitive emission is excluded. Reduction percentage (column 4) was calculated from actual emission in reporting year comparing with emission in base year when operating business as usual.

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Scope

Scope 1+2 (location-based)

% emissions in Scope

100

% reduction from baseline year

15

Metric

Metric tons CO2e per metric ton of product

Base year

2015

Start year

2016

Normalized baseline year emissions covered by target (metric tons CO2e)

111.89

Target year

2020

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

% achieved (emissions)

6.98

Target status

Underway

Please explain

CPF established long term target of GHG emission reduction by 15% in year 2020 using year 2015 as based year. Annual reduction target also set to ensure achievement of the set target. The target cover scope 1 and scope 2. The emission within same boundary has been monitored against the target.

% change anticipated in absolute Scope 1+2 emissions

18.17

% change anticipated in absolute Scope 3 emissions

0

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

Target

Waste

KPI – Metric numerator

kilogram of wastes disposed by landfill and/or incineration

KPI – Metric denominator (intensity targets only)

kilogram of wastes per metric ton of production

Base year

2015

Start year

2016

Target year

2020

KPI in baseline year

4.04

KPI in target year

2.74

% achieved in reporting year

9

Target Status

Underway

Please explain

CPF are tempting to reduce waste generation particularly those are sent to be landfilled and/or incinerated. Reduction target of such wastes by 30% in year 2020 using generated volume in year 2015 as based year are set. Annual reduction target also set to ensure achievement of the long term target.

Part of emissions target

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	34	28000
Implementation commenced*	37	17911
Implemented*	26	1627
Not to be implemented	0	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Activity type

Energy efficiency: Processes

Description of activity

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

4606

Scope

Scope 1

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in CC0.4)

20560000

Investment required (unit currency – as specified in CC0.4)

182000000

Payback period

4 - 10 years

Estimated lifetime of the initiative

11-15 years

Comment

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Compliance with regulatory requirements/standards	To comply with Energy Conservation Act and applicable regulations, some CPF's operation sites are required to established energy reduction target. Action plan shall be formulated and implemented. Achievement of target and/or progress of the action shall be reported to Ministry of Energy annually.
Dedicated budget for energy efficiency	Budget was allocated for energy efficiency. In 2017, 59 new projects were initiated, including Cooling and Air Conditioning System Efficiency Improvement Project, and Highly Efficient Motor project. It was projected that upon their implementation, they could reduce energy consumption by 41,760 GJ per annum, while GHG emission would be reduced 16,658 tons CO2e annually, with cost saving of 47.58 million Baht.
Employee engagement	Employee awareness and engagement on emission reduction is as part of CPF's SHE&En Standard implementation. Training for all employee and communication process were invested.
Other	New business model was introduced in Egg integrated business. Energy efficiency and waste minimization concept were implemented in designing of Egg Complex and operation, Biogas system is installed to treat chicken manure, rather than dispose outside the site. Generated biogas is used for electricity generation to supply within the complex.

C-AC4.4/C-FB4.4/C-PF4.4

(C-AC4.4/C-FB4.4/C-PF4.4) Do you implement management practices on your own land with a climate change mitigation and/or adaption benefit?

Yes

(C-AC4.4a/C-FB4.4a/C-PF4.4a) Specify the agricultural or forest management practice(s) implemented on your own land with climate change mitigation and/or adaptation benefits and provide a corresponding emissions figure, if known.

Management practice reference number

MP1

Management practice

Afforestation

Description of management practice

CPF has collaborated with Thailand Greenhouse Gas Management Organization (TGO) to registered and certified Low Emission Support Scheme (Less) to increase carbon sink in CPF own land by afforestation.

Primary climate change-related benefit

Increase carbon sink (mitigation)

Estimated CO2e savings (metric tons CO2e)

4665

Please explain

GHG emission saving was calculated from number of tree planted under the LESS project. The emission saving was calculated and verified by TGOs.

Management practice reference number

MP2

Management practice

Other, please specify (New business model)

Description of management practice

New business model was introduced in Egg integrated business. Energy efficiency and waste minimization concept were implemented in designing of Egg Complex and operation, Biogas system is installed to treat chicken manure, rather than dispose outside the site. Generated biogas is used for electricity generation to supply within the complex.

Primary climate change-related benefit

Other, please specify (Use of alternative clean energy)

Estimated CO2e savings (metric tons CO2e)

13087

Please explain

Estimated emission saving was calculated from electrical energy generated from biogas. Generated electricity will replaced purchased local-based electricity.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Product

Description of product/Group of products

In 2012, CPF began the “CPF Product Sustainability Project” which applied the concept of product life cycle assessment following ISO14040 and ISO14044 as well as eco-efficiency analysis – the assessment of cost efficiency and the environmental and social impacts of products. Since 2013, over 700 of our chicken products have been awarded ProSustain® certification from the DNV-GK, one of the world’s leading certification body for product sustainability. Presently, there are 4 CPF’s products received “Carbon Footprint Reduction Label” from TGO. In 2017, CPF implemented “CPF Green Revenue Project” with the aim of measuring our revenue generated from green product groups. It is included product under Product Sustainability, Carbon Footprint Reduction and Water Footprint Label certified.

Are these low-carbon product(s) or do they enable avoided emissions?

Low-carbon product

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (TGOs Certification scheme)

% revenue from low carbon product(s) in the reporting year

12.32

Comment

Revenue generated from green product group is approximately 12.32% of total revenue generated in Thailand. This group of product cover “Carbon Reduction Label” and ProSustain® product.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1 2015

Base year end

December 31 2015

Base year emissions (metric tons CO2e)

226625

Comment

Scope 1 emission was calculated only from combustion sources those generates energy for directly consume in the Company's operation sites. Exclusion was made to fugitive emission which was initially calculated and found emission less than 5% of total organization emission.

Scope 2 (location-based)

Base year start

January 1 2015

Base year end

December 31 2015

Base year emissions (metric tons CO2e)

659210

Comment

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

Thailand Greenhouse Gas Management Organization: The National Guideline Carbon Footprint for organization

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

The Greenhouse Gas Protocol Agricultural Guidance: Interpreting the Corporate Accounting and Reporting Standard for the Agricultural Sector

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Row 1

Gross global Scope 1 emissions (metric tons CO2e)

256820.19

End-year of reporting period

<Not Applicable>

Comment

Gross global scope 1 emission of CPF was calculated from combustion sources those generates energy for consuming within direct operation only i.e. stationary sources (biomass and bunker oil used in boiler, fossil fuel consumed in electrical generator, and pump), and mobile sources (fuel filled in Company's vehicles). Exclusion was made to fugitive emission.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have no operations where we are able to access electricity supplier emission factors or residual emissions factors and are unable to report a Scope 2, market-based figure

Comment

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Row 1

Scope 2, location-based

668178.63

Scope 2, market-based (if applicable)

<Not Applicable>

End-year of reporting period

<Not Applicable>

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source

Emission from other sources rather than fuel combustion are excluded. They cover: (1) Process emission such as CO2 emission from IQF (individual Quick Freezing) process, (2) Fugitive emission such as (wastewater treatment, manure management).

Relevance of Scope 1 emissions from this source

Emissions are relevant but not yet calculated

Relevance of location-based Scope 2 emissions from this source

No emissions excluded

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not relevant

Explain why the source is excluded

Those excluded emissions mentioned in column 1 had been initially determined and found to be less than 5% of total gross emission. Therefore, they are excluded.

C6.5

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Relevant, calculated

Metric tonnes CO2e

694160

Emissions calculation methodology

i. Data used: Total quantities of main feed raw materials in year 2017 are used to calculate. The emission factors are national specific emission factors. ii. Methodology: The emissions are calculated by multiplying total quantities of feed raw materials by the emission factors. iii. Quality: The quality of activity data is high and the quality of secondary data is medium. Therefore, the quality of the emission data is considered medium.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only main feed raw materials in Thailand were accounted.

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

23427

Emissions calculation methodology

i. Data used: Total quantities of capital goods in year 2017 are used as the primary data. The emission factors are national specific emission factors. ii. Methodology: The emissions are calculated by multiplying total quantities of capital goods by the emission factors. iii. Quality: The quality of activity data is medium and the quality of secondary data is medium. Therefore, the quality of the emission data is considered medium.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only total quantities of capital goods in Thailand were accounted.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

34951

Emissions calculation methodology

i. Data used: For the assessment of this category, total electricity consumed in year 2017 is used as the primary data. The emission factors of the electricity are national specific emission factors. ii. Methodology: The emission is calculated by multiplying total electricity consumed by the emission factors. iii. Quality: Because the quality of activity data is high and the quality of secondary data is medium, therefore, the quality of the emission data is considered medium.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only total electricity consumed in Thailand was accounted.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

58450

Emissions calculation methodology

i. Data used: The primary data used for this category are data of transportation from the suppliers and farmers to CPF's feed mill factories comprising quantities of main feed raw materials (tonnes), distance (km), and number of trips. The emission factors are national specific emission factors for transportation. ii. Methodology: The emissions are calculated by multiplying quantities of transported main feed raw materials (tonnes), distance (km), and number of trips by the emission factors. iii. Quality: The quality of activity data is high and the quality of secondary data is medium. Therefore, the quality of the emission data is considered medium.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only total quantities of transported main feed raw materials in Thailand were accounted.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

238670

Emissions calculation methodology

i. Data used: Total quantities of treatable waste generated in year 2017 are used as the primary activity data. The emission factors for waste disposal are referred from IPCC 2006. ii. Methodology: The emission is calculated by multiplying waste quantities by the emission factors. iii. Quality: The quality of activity data is high and the quality of secondary data is low. Therefore, the quality of the emission data is considered low.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only total quantities of treatable waste generated in Thailand were accounted.

Business travel

Evaluation status

Not relevant, explanation provided

Metric tonnes CO₂e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

CPF is in the process of collecting the data.

Employee commuting

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

328471

Emissions calculation methodology

i. Data used: The estimated data used for this category are data of volumes of fuels (Litres) from employees' residence to factories, number of employees and number of commuting days. The emission factors are national specific emission factors for transportation. ii. Methodology: The emissions are calculated by multiplying quantities of fuels (Litres) from employees' residence to factories, number of employees and number of commuting days by the emission factors. iii. Quality: The quality of activity data is low and the quality of secondary data is medium. Therefore, the quality of the emission data is considered low.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only total number of employees in Thailand was accounted.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO₂e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

CPF's standard business model and operation do not involve upstream leased assets. Upstream leased assets have a negligible contribution to CPF's emissions.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

12728

Emissions calculation methodology

i. Data used: The primary data used for this category are data of transportation from food processing factories to distribution centers comprising quantities of transported sold products (tonnes), distance (km), and number of trips. The emission factors are national specific emission factors for transportation. ii. Methodology: The emissions are calculated by multiplying quantities of transported sold products (tonnes), distance (km), and number of trips by the emission factors. iii. Quality: The quality of activity data is high and the quality of secondary data is medium. Therefore, the quality of the emission data is considered medium.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only total quantities of transported sold products in Thailand were accounted.

Processing of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO₂e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

Most of CPF's products are sold for direct consumption, which therefore does not involve further processing. The processing of sold products has a negligible contribution to CPF's emissions

Use of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

643989

Emissions calculation methodology

i. Data used: Directions of use indicated at sold products are used as an assumption for calculating electricity consumed during use of products. The emission factor of the electricity is a national specific emission factors. ii. Methodology: The emission is calculated by multiplying total electricity consumed during use by the emission factor. iii. Quality: The quality of activity data is high and the quality of secondary data is medium. Therefore, the quality of the emission data is considered medium.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only total quantities of sold products in Thailand were accounted.

End of life treatment of sold products

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

74747

Emissions calculation methodology

i. Data used: sold products in year 2017 and weight per unit of plastics packaging purchased from the supplier are used to calculate total quantity of packaging. This quantity deducted by %recycle of plastics in Thailand is used as the primary data for waste to be treated. The emission factor for waste disposal is referred from IPCC 2006. ii. Methodology: The emission is calculated by multiplying total quantity of packaging by the emission factor. iii. Quality: The quality of activity data is high and the quality of secondary data is low. Therefore, the quality of the emission data is considered medium.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Only total quantities of sold products in Thailand were accounted.

Downstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO₂e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

CPF's standard business model and operation do not involve downstream leased assets. Downstream leased assets have a negligible contribution to CPF's emissions.

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

CPF's standard business model and operation do not involve franchising. Franchises have a negligible contribution to CPF's emissions.

Investments

Evaluation status

Relevant, calculated

Metric tonnes CO2e

405899

Emissions calculation methodology

i. Data used: For the assessment of this category, GHG Scope 1 and 2 emissions by CPALL and the share of emissions corresponding to CPF's investment in year 2017 is used as the primary data. ii. Methodology: The emission is calculated by multiplying CPALL GHG Scope 1 and 2 emissions by the share of emissions corresponding to CPF's investment. iii. Quality: Because the quality of activity data is high and the quality of secondary data is medium, therefore the quality of the emission data is considered medium.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

In 2017, CPALL was one of the companies in which CPF had an investment but no financial control was taken into account. Their activities related to emission of GHG Scope 1 and 2 were considered as our GHG scope 3 emissions which was the share of emissions corresponding to CPF's investment of 405,899 tCO2e.

Other (upstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

The categories already disclosed on cover the majority of CPF's emissions.

Other (downstream)

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

Emissions calculation methodology

Percentage of emissions calculated using data obtained from suppliers or value chain partners

Explanation

The categories already disclosed on cover the majority of CPF's emissions.

C-AC6.6/C-FB6.6/C-PF6.6

(C-AC6.6/C-FB6.6/C-PF6.6) Can you breakdown your Scope 3 emissions by relevant business activity areas?

Yes

C-AC6.6a/C-FB6.6a/C-PF6.6a

(C-AC6.6a/C-FB6.6a/C-PF6.6a) Disclose your Scope 3 emissions for each of your relevant business activity areas.

Activity

Consumption

Scope 3 category

Use of sold products

Emissions (metric tons CO2e)

643989

Please explain

Only total quantities of sold products in Thailand were accounted. i. Data used: Directions of use indicated at sold products are used as an assumption for calculating electricity consumed during use of products. The emission factor of the electricity is a national specific emission factors. ii. Methodology: The emission is calculated by multiplying total electricity consumed during use by the emission factor. iii. Quality: The quality of activity data is high and the quality of secondary data is medium. Therefore, the quality of the emission data is considered medium.

Activity

Consumption

Scope 3 category

End of life treatment of sold products

Emissions (metric tons CO2e)

74747

Please explain

Only total quantities of sold products in Thailand were accounted. i. Data used: sold products in year 2017 and weight per unit of plastics packaging purchased from the supplier are used to calculate total quantity of packaging. This quantity deducted by %recycle of plastics in Thailand is used as the primary data for waste to be treated. The emission factor for waste disposal is referred from IPCC 2006. ii. Methodology: The emission is calculated by multiplying total quantity of packaging by the emission factor. iii. Quality: The quality of activity data is high and the quality of secondary data is low. Therefore, the quality of the emission data is considered medium.

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

Yes

C6.7a

(C6.7a) Provide the emissions from biologically sequestered carbon relevant to your organization in metric tons CO2.

202722.01

C-AC6.8/C-FB6.8/C-PF6.8

(C-AC6.8/C-FB6.8/C-PF6.8) Is biogenic carbon pertaining to your direct operations relevant to your current CDP climate change disclosure?

Yes

(C-AC6.8a/C-FB6.8a/C-PF6.8a) Account for biogenic carbon data pertaining to your direct operations and identify any exclusions.

CO2 emissions from land use management

Emissions (metric tons CO2)

Methodology

Please select

Please explain

CO2 removals from land use management

Emissions (metric tons CO2)

Methodology

Please select

Please explain

Sequestration during land use change

Emissions (metric tons CO2)

Methodology

Please select

Please explain

CO2 emissions from biofuel combustion (land machinery)

Emissions (metric tons CO2)

Methodology

Please select

Please explain

CO2 emissions from biofuel combustion (processing/manufacturing machinery)

Emissions (metric tons CO2)

202722.01

Methodology

Default emissions factors

Please explain

Biogenic emission data was calculated from biofuel combustion process using IPCC Guideline 2006. Biofuel consumption volume was collected from all operation sites within CPF's defined boundary.

CO2 emissions from biofuel combustion (other)

Emissions (metric tons CO2)

Methodology

Please select

Please explain

(C-AC6.9/C-FB6.9/C-PF6.9) Do you collect or calculate greenhouse gas emissions for each commodity reported as significant to your business in C-AC0.7/FB0.7/PF0.7?

Agricultural commodities

Fish and seafood from aquaculture

Do you collect or calculate GHG emissions for this commodity?

Yes

Please explain

Fish and seafood from aquaculture produced by CPF, is farmed shrimp. Activity data in year 2017 were collected from all operation sites within the reporting boundary. GHG emission was calculated covering both Scope 1 and Scope 2 emission.

Agricultural commodities

Other (Poultry (Egg/ Chicken/ Duck))

Do you collect or calculate GHG emissions for this commodity?

Yes

Please explain

Poultry commodity produced by CPF includes chicken, duck and egg production. Activity data related to GHG emission were collected from all operation sites within the reporting boundary. GHG emission was calculated covering both Scope 1 and Scope 2 emission.

Agricultural commodities

Other (Swine)

Do you collect or calculate GHG emissions for this commodity?

Yes

Please explain

Livestock commodity produced by CPF is mainly swine. Activity data related to GHG emission were collected from all operation sites within the reporting boundary. GHG emission was calculated covering both Scope 1 and Scope 2 emission.

C-AC6.9a/C-FB6.9a/C-PF6.9a

(C-AC6.9a/C-FB6.9a/C-PF6.9a) Report your greenhouse gas emissions figure(s) for your disclosing commodity(ies), explain your methodology, and include any exclusions.

Fish and seafood from aquaculture

Reporting emissions by

Total

Emissions (metric tons CO2e)

153862.19

Denominator: unit of production

<Not Applicable>

Change from last reporting year

Lower

Please explain

Activity data in year 2017 were collected from all operation sites (aquaculture farm) within the reporting boundary. The data from scope 1 calculation was limited only from fuel combustion sources. Exclusion was made for process and fugitive emissions. The GHG emission was calculated covering both Scope 1 and Scope 2 emission using IPCC methodology. National default emission factors were used for calculation where available.

Other

Reporting emissions by

Total

Emissions (metric tons CO2e)

378262.38

Denominator: unit of production

<Not Applicable>

Change from last reporting year

Higher

Please explain

Activity data in year 2017 were collected from all operation sites (egg/ chicken, duct and swine farm) within the reporting boundary. The data from scope 1 calculation is limited only from combustion sources those generated energy. Exclusion was made for process and fugitive emissions. The GHG emission was calculated covering both Scope 1 and Scope 2 emission using IPCC methodology. National default emission factors were used for calculation where available.

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

110

Metric numerator (Gross global combined Scope 1 and 2 emissions)

924998.82

Metric denominator

metric ton of product

Metric denominator: Unit total

8409441.03

Scope 2 figure used

Location-based

% change from previous year

5.99

Direction of change

Decreased

Reason for change

Emission intensity was reduced from previous year (2016) since efforts put to reduce fossil fuel consumption and to increase renewable energy use as well as decreasing in emission factor of GHG emission from Thailand's electricity generation in 2017.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization have greenhouse gas emissions other than carbon dioxide?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	252514.61	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	1542.31	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	2763.26	IPCC Fourth Assessment Report (AR4 - 100 year)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Thailand	256820.19

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Feed (Livestock/Poultry)	34673.1
Feed (Aquaculture)	50747.48
Chicken Integrated Business	105497.72
Egg Integrated Business	5767.72
Food Poultry Integrated Business (Duck)	13242.64
Swine Integrated Business	3827.56
Aquaculture Business	5484.27
Food (Ready to eat)	35258.15
Training Business (Distribution center)	34.67
Food outlet business (Five star)	2286.88
CP Freshmart (Minimart)	0

C-AC7.4/C-FB7.4/C-PF7.4

(C-AC7.4/C-FB7.4/C-PF7.4) Do you include emissions pertaining to your business activity(ies) in your direct operations as part of your global gross Scope 1 figure?

Yes

C-AC7.4a/C-FB7.4a/C-PF7.4a

(C-AC7.4a/C-FB7.4a/C-PF7.4a) Select the form(s) in which you are reporting your agricultural/forestry emissions.

Emissions disaggregated by category (advised by the GHG Protocol)

C-AC7.4b/C-FB7.4b/C-PF7.4b

(C-AC7.4b/C-FB7.4b/C-PF7.4b) Report the Scope 1 emissions pertaining to your business activity(ies) and explain any exclusions. If applicable, disaggregate your agricultural/forestry by GHG emissions category.

Activity

Agriculture/Forestry

Emissions category

Total

Emissions (metric tons CO2e)

26664.4

Methodology

Default emissions factor

Please explain

Activity data collected in agricultural activity could not be divided into emission category as per GHG Protocol advice. Relevant data from fuel consumption in the agricultural activity within CPF's reporting boundary was used to calculate GHG scope 1 GHG emission. Exclusion was made for processing and fugitive emission.

Activity

Processing/Manufacturing

Emissions category

Total

Emissions (metric tons CO2e)

230121.49

Methodology

Default emissions factor

Please explain

Activity data collected in processing and manufacturing of agricultural commodity covers fuel consumption both for stationary and mobile sources. The data was collected from all processing plants within CPF's reporting boundary. The data was used to calculate GHG scope 1 GHG emission. Exclusion was made for processing and fugitive emission.

Activity

Distribution

Emissions category

Total

Emissions (metric tons CO2e)

34.67

Methodology

Default emissions factor

Please explain

Transportation between processing/manufacturing to distribution center is belong to suppliers (Scope 3 emission). Direct emission (Scope 1) contributes in distribution activity is only fuel consumption at distribution center for both mobile and stationary sources. Data activity of such sources was collected. The data was limited for CPF's own machinery and vehicle only. The data was collected from all distribution centers within CPF's reporting boundary. The data was used to calculate GHG scope 1 GHG emission. Exclusion was made for processing and fugitive emission.

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
Thailand	668178.63	0	1284958.9	0

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Feed (Livestock/Poultry)	96817.71	0
Feed (Aquaculture)	54188.27	0
Chicken Integrated Business	215639.2	0
Egg Integrated Business	28040.81	0
Food Poultry Integrated Business (Duck)	7785.57	0
Swine Integrated Business	28295.29	0
Aquaculture Business	148378.64	0
Food (Ready to eat)	59773.93	0
Trading Business (Distribution Center)	4988.07	0
Food Outlet Business (Five Star)	5702.71	0
CP Freshmart (Minimart)	18568.44	0

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption		<Not Applicable>		
Other emissions reduction activities		<Not Applicable>		
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers		<Not Applicable>		
Change in output	17787.08	Increased	1.96	
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 0% but less than or equal to 5%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	613857.17	975774.36	1589631.53
Consumption of purchased or acquired electricity	<Not Applicable>	281406	1003552.9	1284958.9
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	895263.17	1979327.26	2874590.43

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Bituminous Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

72514.54

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

72514.54

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Subbituminous Coal

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

174379.57

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

174379.57

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Residual Fuel Oil

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

152286.48

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

24882.07

MWh fuel consumed for self-generation of steam

127404.41

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Diesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

97039.82

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

97039.82

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Biodiesel

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

1010.63

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

1010.63

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Motor Gasoline

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

5305.65

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Liquefied Petroleum Gas (LPG)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

84642.33

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

55857.13

MWh fuel consumed for self-generation of steam

28785.2

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Compressed Natural Gas (CNG)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

4489.94

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

4489.94

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Biogas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

164267.8

MWh fuel consumed for the self-generation of electricity

164571.21

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

2696.59

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Other, please specify (Solar cell)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

2.88

MWh fuel consumed for the self-generation of electricity

2.88

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Other, please specify (Agricultural wastes)

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

448578.74

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

448578.74

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Fuels (excluding feedstocks)

Natural Gas

Heating value

LHV (lower heating value)

Total fuel MWh consumed by the organization

385116.03

MWh fuel consumed for the self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

381669.4

MWh fuel consumed for self-generation of cooling

<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration

3446.63

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Biodiesel

Emission factor

0.0058

Unit

kg CO2 per liter

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - Petroleum Authority of Thailand (PTT)

Comment

Biogas

Emission factor

0.0011

Unit

kg CO2 per m3

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - Thailand Energy Efficiency Situation

Comment

Bituminous Coal

Emission factor

2.4587

Unit

metric tons CO₂e per metric ton

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - 2006 IPCC Table 1.2

Comment

Compressed Natural Gas (CNG)

Emission factor

2.1294

Unit

metric tons CO₂ per m³

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - Petroleum Authority of Thailand (PTT)

Comment

Diesel

Emission factor

2.7383

Unit

metric tons CO₂ per liter

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - 2006 IPCC Vol.2 Table 3.2.1, 3.2.2 - Thailand Energy Efficiency Situation

Comment

Diesel (Stationary) = 2.7080 (2006 IPCC Vol.2 table 2.3) Diesel (Mobile) = 2.7446 (2006 IPCC Vol.2 Table 3.2.1, 3.2.2)

Liquefied Petroleum Gas (LPG)

Emission factor

3.1135

Unit

metric tons CO₂e per metric ton

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - Thailand Energy Efficiency Situation

Comment

Motor Gasoline

Emission factor

2.0619

Unit

kg CO₂ per liter

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - 2006 IPCC Vol.2 Table 3.2.1, 3.2.2 - Thailand Energy Efficiency Situation

Comment

Stationary = 2.1896 (2006 IPCC Vol.2 table 2.3) Mobile = 2.2376 (2006 IPCC Vol.2 Table 3.2.1, 3.2.2) Biogasoline (Gasohol 91, 95) = 2.0145 Biogasoline (Gasohol E20) = 1.7915 (2006 IPCC Vol.2 Table 3.2.1, 3.2.2)

Natural Gas

Emission factor

59.2433

Unit

kg CO2e per million Btu

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - Thailand Energy Efficiency Situation

Comment

Residual Fuel Oil

Emission factor

3.0883

Unit

kg CO2e per liter

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - Thailand Energy Efficiency Situation

Comment

Subbituminous Coal

Emission factor

1.8295

Unit

metric tons CO2 per metric ton

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - 2006 IPCC Table 1.2

Comment

Other

Emission factor

0.0302

Unit

metric tons CO2e per metric ton

Emission factor source

- 2006 IPCC Vol.2 table 2.3 - Thailand Alternative Energy Situation

Comment

Wood Chips = 0.0311 Charcoal = 0.1788 Corncob = 0.0326 Oil Palm Shell = 0.0360 Sawdust= 0.0211 Cashew Nut = 0.0246

C8.2e

(C8.2e) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	161574.19	161574.19	161574.21	161574.21
Heat	188585.23	161574.19	1010.63	161527.21
Steam	1236025.47	161574.19	451272.35	161571.21
Cooling	0	0	0	0

C8.2f

(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.

Basis for applying a low-carbon emission factor

No purchases or generation of low-carbon electricity, heat, steam or cooling accounted with a low-carbon emission factor

Low-carbon technology type

<Not Applicable>

MWh consumed associated with low-carbon electricity, heat, steam or cooling

<Not Applicable>

Emission factor (in units of metric tons CO₂e per MWh)

<Not Applicable>

Comment

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Waste

Metric value

30889397

Metric numerator

kilogram of landfilled/incinerated wastes

Metric denominator (intensity metric only)

kilogram per ton production

% change from previous year

15.73

Direction of change

Increased

Please explain

Increasing of disposed wastes in year 2017 is from construction in feed manufacturing and ash from boilers those could be sent out for disposal from previous reporting year.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No third-party verification or assurance

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Page/ section reference

Completed document of CPF Sustainable Report 2017 could be accessed from https://www.cpfworldwide.com/download/sustainability/report/Final_CPF_SD_2017_ENG.pdf Assurance Statement could be found in pp.129-131.

Relevant standard

A1000AS

Proportion of reported emissions verified (%)

100

Scope

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

Assurance Statement_CPF_SD_2017.pdf

Page/ section reference

Completed document of CPF Sustainable Report 2017 could be accessed from https://www.cpfworldwide.com/download/sustainability/report/Final_CPF_SD_2017_ENG.pdf Assurance Statement could be found in pp.129-131.

Relevant standard

A1000AS

Proportion of reported emissions verified (%)

100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C5. Emissions performance	Year on year change in emissions (Scope 1 and 2)	AA1000AS	GHG emission was identified as materiality issue for CPF in year 2017. Therefore, emission performance is verified as part of CPF Sustainable Report 2017. Verified information cover emission methodology (in C5.2).
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	AA1000AS	GHG emission was identified as materiality issue for CPF in year 2017. Therefore, emission data was verified as part of CPF Sustainable Report 2017. Verified information cover gross global scope 1 emission (C6.1), gross global scope 2 emission (C6.3), exclusion (C6.4), scope 1 and scope 2 emission intensity (C6.10).
C7. Emissions breakdown	Year on year change in emissions (Scope 1 and 2)	AA1000AS	GHG emission was identified as materiality issue for CPF in year 2017. Therefore, emission breakdown was verified as part of CPF Sustainable Report 2017. Verified information cover gross global scope 1 emission by GHG type providing the used GWP (7.1a).
C8. Energy	Year on year change in emissions (Scope 1 and 2)	AA1000AS	GHG emission was identified as materiality issue for CPF in year 2017. And energy consumption is major source of GHG emission of CPF. Therefore, energy consumption data was verified covering energy-related activities (C8.2), total energy consumption (C8.2a), consumption of fuel (C8.2b), average emission factor (C8.2d).

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

No, but we anticipate being regulated in the next three years

C11.1d

(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?

Thailand Voluntary Emission Trading Scheme, known as "Thailand V-ETS" is a mechanism under Thailand voluntary carbon market developed by

Thailand Greenhouse Gas Management Organisation (TGO) to encourage private and public sector to reduce domestic GHG emission. Since 2015, TGO has implemented a pilot project on Thailand V-ETS to test its MRV system and develop operational rules, where the project was designed to

work with various sectors. After 2020, the Thailand V-ETS is expected to be in place and private sector including CPF anticipate to participate.

CPF's strategy to involve in Thailand V-ETS includes 1) to involve in MRV consultation to provide feedback and opinion in MRV and 2) to participate in Thailand V-ETS as pilot factories for food sector to learn how mechanism work and be ready for the scheme and 3) to develop process

innovations and energy efficiency project to reduce GHG emission and disseminate gained knowledge to supplier chain.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

No

C11.3

(C11.3) Does your organization use an internal price on carbon?

No, but we anticipate doing so in the next two years

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

Yes, our customers

Yes, other partners in the value chain

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Compliance & onboarding

Details of engagement

Included climate change in supplier selection / management mechanism

% of suppliers by number

25

% total procurement spend (direct and indirect)

50

% Scope 3 emissions as reported in C6.5

100

Rationale for the coverage of your engagement

i. Data used: Total quantities of main feed raw materials in year 2017 are used to calculate. The emission factors are national specific emission factors. ii. Methodology: The emissions are calculated by multiplying total quantities of feed raw materials by the emission factors. iii. Quality: The quality of activity data is high and the quality of secondary data is medium. Therefore, the quality of the emission data is considered medium.

Impact of engagement, including measures of success

All of critical suppliers in animal feed raw materials, food ingredients and packaging groups were communicated on the "CPF's Sustainable Sourcing Policy and Supplier Guiding Principles". And 100% of them signed acknowledgement of the policy and participated in sustainability self-assessment. The 94% of those identified as high-risk critical suppliers were audited on ESG aspects which cover environmental management practices as required by the Policy.

Comment

CPF established and endorsed "CPF's Sustainable Sourcing Policy and Supplier Guiding Principle" reiterates CPF's long term commitment to sourcing sustainably. The policy and guiding principles were developed based on environmental, social, and governance (ESG) factors. One of 4 principles focuses on raising supplier awareness on environmental management. Business partners shall comply with all environmental laws and regulations and should adhere with environmentally friendly practices as by utilizing energy and water efficiently and manage waste effectively as well as contribution to climate change mitigation, biodiversity and ecosystem conservation. In 2017, we also implemented the Online Supplier Sustainability Self-Assessment and used the result of the assessment as part of our new supplier selection criteria in order to manage risks at the starting point of our procurement process by piloting in animal feed raw material suppliers.

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement

Education/information sharing

Details of engagement

Share information about your products and relevant certification schemes (i.e. Energy STAR)

Size of engagement

12.32

% Scope 3 emissions as reported in C6.5

100

Please explain the rationale for selecting this group of customers and scope of engagement

CPF has implemented CPF's product Sustainability Project since 2012, by applying the assessment of product life cycle and operational eco-efficiency to the design, development and management of production throughout the value chain. This is to create sustainable products with an emphasis on 4 dimensions; economy, environment, society as well as food quality and safety. In 2013, DNV-GL, a global certification body, certified our chicken products as the first sustainable chicken product in the world. Additionally, we have also undertaken Carbon Footprint Label Project since 2008, and Carbon Footprint Reduction Label Project since 2015. Until now, there are 3 products are Carbon Footprint Reduction certified by TGO. Moreover, CPF launched ready meal product those required no energy for heating which reduce GHG emissions.

Impact of engagement, including measures of success

In 2017, we implemented CPF Green Revenue Project with the main of measuring our revenue generated from green product groups. It is included products under Product Sustainability as well as products with Carbon Footprint, Carbon Footprint Reduction, and Water Footprint label certified by TGO. Total revenue generated from green product in year 2017 is 21,978 million Baht or equivalent to 12.32% of Thailand revenue.

C12.1c

(C12.1c) Give details of your climate-related engagement strategy with other partners in the value chain.

Climate-related engagement strategy with other partners in the value chain is focused on both agricultural commodity and transportation activity.

Our target in 2020 is 100% of key agricultural raw materials are responsible sourced and traceable. Our progress towards responsible sourcing in

year 2017 include:

Corn : 100% of corn used in animal feed production in Thailand has been sourced using the corn sustainability system. The system helps to ensure

that all corns are grown on land with legal title and not in forest area.

Soybean : 23.4% of soybean used in animal feed production in Thailand has come from responsible sources. In 2016, CPF have collaborated with

AG Processing Inc. (AGP), the leading agricultural cooperative in the US to develop the Sustainable Soybean Sourcing System.

Palm oil : CPF are in the process of developing the Palm oil Traceability System which is expected to be implemented in 2018. Currently, 89% of

palm oil used in our food business has been Roundtable of Sustainable Palm Oil (RSPO) certified.

Engagement with transportation and logistics providers includes to measure energy and GHG emissions, promotion of resource efficiency and GHG emission reduction along supply chain.

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

- Direct engagement with policy makers
- Trade associations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Cap and trade	Support	Since 2009, Thailand Greenhouse Gas Management Organization (TGO) has studied a Thailand Voluntary Emission Trading Scheme (Thailand VETS), which follows the cap and trade system. Furthermore, other carbon market tools and mechanisms are being prepared and piloted. According to Partnership for Market Readiness (PMR) workshop at USA in Sep 2015, TGO presented initiatives to promote the domestic carbon market are; 1) Thailand Carbon Offsetting Program (TCOP) is a carbon offsetting program, launched in August 2013, aiming to use contributions from participants for supporting domestic GHG emission reduction activities, 2) Thailand Voluntary Emission Reduction Program (TVET) is a domestic GHG crediting mechanism launched in 2013 (project based), using methodologies which developed by TGO. 1) and 2) are the existing initiative instruments 3) Energy Performance Certificate Scheme (EPC) is a target and reward scheme aiming to achieve energy efficiency in energy intensive factories & buildings and to build core market readiness components in order to be a foundation for establishing the future ETS. 4) Low Carbon City Program (LCC) is a GHG crediting mechanism which will be a part of TVET program, aiming to achieve GHG emission reductions implemented by municipalities and local communities. 3) and 4) are the initiative instruments proposed to PMR and have being piloted since 2016. These schemes are designed to incentivize private and industrial sectors to reduce their GHG emissions. CPF has been developing internal MRV (Measurement, Reporting, and Verification) system in order to prepare for participating the voluntary schemes. The potential types of emission reduction projects that are being under preparation include; high efficiency motor, variable frequency drive, replacement fluorescent with LED, PV solar rooftop, high efficiency chiller, fuel switch to biomass and improvement of refrigeration system stream contribution system and biogas production. Furthermore, four of CPF factories are currently joining Thailand VETS as pilot factories for food sector including Pakthongchai plant, Sriracha plant, Pitsanulok plant and Saraburi plant to learn TGO's MRV system and prepare the organization to be ready for any future rules.	On process
Energy efficiency	Support	CPF has engaged in the Development and Implementation of Energy Saving and Efficiency Project" originated by Department of Alternative Energy and Development and Efficiency. Initiated new projects include cooling and air conditioning system efficiency improvement, highly efficient motors.	

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

Yes

C12.3c

(C12.3c) Enter the details of those trade associations that are likely to take a position on climate change legislation.

Trade association

Climate Change Workgroup, The Joint Standing Committee on Commerce Industry and Banking (JSCCIB)

Is your position on climate change consistent with theirs?

Consistent

Please explain the trade association's position

The Climate Change Workgroup, The Joint Standing Committee on Commerce Industry and Banking (JSCCIB), supports the development of Thailand Climate Change Master Plan (2015-2050) and want to see Thailand Achieves climate resilience and low carbon growth in accordance with sustainable development agenda. The Master Plan has 4 missions: (1) develop appropriate knowledge base, databases and technologies to support climate change adaptation and low-carbon development (2) build climate resilience for Thailand's development by mainstreaming climate change adaptation into development planning of all sectors and levels, (3) reduce GHG emission and establish policy instrument to encourage sustainable and low-carbon development, and (4) enhance capacity and awareness of development partners and all levels to enable effective engagement in executing climate change policy and plan. In addition, the Climate Change Workgroup, JSCCIB, also supports Nationally Determined Contributions (NDCs) that "Thailand will endeavor to lower CO2 emissions in the range of 20-25% in 2030 compared to the BAU." The measure after 2020 include (1) setting GHG reduction targets for large corporations of government agencies, state enterprise, and private sectors, (2) establishing climate funds to support the GHG reduction, (3) enforcing the minimum energy performance standard (MEPs) for office equipment and vehicles, (4) adjusting the structure of excise tax on commonly used fuels by including environmental externalities and GHG reduction capital, (5) establishing the National GHG reporting system, (6) develop prototypes of environmental friendly cities, communities, organisations, and industries, (7) creating collaboration among government, private sectors and local communities to develop the GHG MRV system, (8) supporting research on GHG reduction technologies, (9) capacity building and competency development of governmental personnel on GHG reduction activities and (10) disseminating knowledge and awareness on climate change and GHG reductions to Thai people.

How have you, or are you attempting to, influence the position?

Office of Natural Resources and Environmental Policy and Planning, Thailand Greenhouse Gas Management Organisation (TGO), Ministry of Energy, Ministry of Agriculture and Cooperatives are now working on national climate change policy development. The major climate change policies or planning that the Workgroup has provided inputs and opinions includes: (1) Thailand Climate Change Master Plan (2015-2050) and Nationally Determined Contributions (NDCs)

C12.3f

(C12.3f) What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

To ensure that all of Company's direct and indirect activities that influence policy are consistent with the Company's overall climate strategy, the Company has CPF Environmental Sustainability Subcommittee, which directly reports to CPF SHE&En Management Committee, to be responsible for setting CPF's environmental sustainability (including climate change) related policies, strategies, long-term targets and plans, overseeing, following up,

evaluating, reporting either process or obstacles of environmental sustainability projects including presenting operational results, proposing environmental sustainability related budgets, and appointing the environmental sustainability working group for implementation on specific topics.

C12.4

(C12.4) Have you published information about your organization’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication

Other, please specify (Annual Report)

Status

Complete

Attach the document

Content elements

Strategy

Risks & opportunities

C13. Other land management impacts

C-AC13.1/C-FB13.1/C-PF13.1

(C-AC13.1/C-FB13.1/C-PF13.1) Do you know if any of the management practices implemented on your own land disclosed in C-AC4.4a/C-FB4.4a/C-PF4.4a have other impacts besides climate change mitigation/adaptation?

Yes

C-AC13.1a/C-FB13.1a/C-PF13.1a

(C-AC13.1a/C-FB13.1a/C-PF13.1a) Provide details on those management practices that have other impacts besides climate change mitigation/adaptation and on your management response.

Management practice reference number

MP1

Overall effect

Positive

Which of the following has been impacted?

Soil

Description of impact

In 2014, CPF successfully conducted "Self-sufficient Farmers, Sustainable Corn Project" in collaboration with Agricultural Land Reform Office, Ministry of Agriculture and Cooperative, Royal Thai Government. We provided training for farmers in the proximity with legal title deed. This is in accordance with Thai Agricultural Standard – Good Agricultural Practices for Maize. The good agricultural practices, those could result in GHG reduction, include proper use of pesticide, no burning of maize stubbles prior to soil preparation for pre-harvest quality management, for example. In 2017, we further expanded the scope to cover the entire supply chain from production to selling, by collocating with Agricultural Extension Office to develop agricultural efficiency both in productivity and capital cost aspects. This was achieved through implementation of modern agricultural technology, promoting farmer conglomeration for leveraging smaller agricultural plots to larger plots, via demonstration of pilot agricultural plots using modern technology. This is to enable competitiveness at a global level, and drive towards sustainable plantation.

Have you implemented any response(s) to these impacts?

Yes

Description of the response(s)

Farmers in the areas in the project can sell their products to the animal feed factories directly.

Management practice reference number

MP2

Overall effect

Positive

Which of the following has been impacted?

Other, please specify (Traceability)

Description of impact

100% of corn used for animal feed has been sourced using the corn traceability system which we developed in 2016. The system helps to ensure that all corns are grown on land with legal title deed and not in forest areas.

Have you implemented any response(s) to these impacts?

Yes

Description of the response(s)

100% of corn used for animal feed has been sourced using the corn traceability system which we developed in 2016. The system helps to ensure that all corns are grown on land with legal title deed and not in forest areas.

C14. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Mr. Suchart Wiriyapa Senior Vice President , Safety, Health, Environment and Energy Office	Environmental, health and safety manager

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

With the vision of becoming the Kitchen of the World, Chareon Pokphand Foods Plc. continuously develops and operates its agroindustrial and food businesses, with its objectives to offer products of high quality in terms of nutritional value, taste, and traceability. The Company strives to operate businesses that focuses on modern production process, conforms with international standards, efficiently uses natural resources, environmental

friendly and able to compete in the front line of the food industry. The Company takes into account the interests of all stakeholders to ensure

sustainable growth, while being able to continuously generate appropriate return to shareholders.

Thailand operations involve agroindustrial and food business operations for domestic distribution and export covering approximately 30 countries across 5 continents. The Company's Thailand operations cover livestock and aquaculture including swine, broilers, layers, ducks, shrimps and fish.

Its integrated production process starts from production of animal feed, animal breeding, animal farming, processing of meat, production of

semicooked or cooked meat products and ready-to-eat products with retail and food outlets as the Company's distribution channels.

The Company's products can be classified into three categories: 1) Feed; 2) Farm (including animal breed, commercial animal, and primary processed meat); and 3) Food Products (such as processed semicooked and cooked meat, and readytoeat food products under the company's brands, brand, and customers' brands).

All information provided in this questionnaire is scoped for operation in Thailand only.

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	178403000000

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

Yes

SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	TH	0101010005

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Diversity of product lines makes accurately accounting for each product/product line cost ineffective	

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

Yes

SC1.4a

(SC1.4a) Describe how you plan to develop your capabilities.

On requests

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

No

SC3.1

(SC3.1) Do you want to enroll in the 2018-2019 CDP Action Exchange initiative?

No

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2017-2018 Action Exchange initiative?

Please select

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services, if so, what functionality will you be using?

No, I am not providing data

SC4.2d

(SC4.2d) Have any of the initiatives described in SC4.2c been driven by requesting CDP Supply Chain members?

No

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Non-public	Investors Customers	Yes, submit Supply Chain Questions now

Please confirm below

I have read and accept the applicable Terms