

ASSESSMENT

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Contacts

MJ Park

 Associate Lead Analyst-Sustainable Finance
 mj.park@moodys.com

Junying Lou

 Associate Lead Analyst-Sustainable Finance
 junying.lou@moodys.com

Melody Au

 Sustainable Finance Associate
 melody.au@moodys.com

Jeffrey Lee

 SVP-Sustainable Finance
 sukjoonjeffrey.lee@moodys.com

CLIENT SERVICES

Americas 1-212-553-1653

Asia Pacific 852-3551-3077

Japan 81-3-5408-4100

EMEA 44-20-7772-5454

China Modern Dairy Holdings Limited

Second Party Opinion – Sustainable Finance Framework Assigned SQS3 Sustainability Quality Score

Summary

We have assigned a SQS3 Sustainability Quality Score (Good) to China Modern Dairy Holdings Limited's (Modern Dairy) sustainable finance framework dated June 2025. The company has established its use-of-proceeds framework with the aim of financing projects across one eligible social category and five eligible green categories. The framework is aligned with the four core components of the International Capital Market Association's (ICMA) Green Bond Principles (GBP) 2021 (including the June 2022 Appendix 1) and Social Bond Principles (SBP) 2023, and the Loan Market Association, Asia Pacific Loan Market Association and Loan Syndications & Trading Association's (LMA/APLMA/LSTA) Green Loan Principles (GLP) 2025 and Social Loan Principles (SLP) 2025. The framework demonstrates a moderate contribution to sustainability.

Sustainability quality score


SQS3

Alignment with principles USE OF PROCEEDS

Overall alignment



FACTORS

ALIGNMENT



Contribution to sustainability

Final contribution to sustainability



Preliminary contribution to sustainability

Relevance and magnitude

Additional considerations No adjustment

POINT-IN-TIME ASSESSMENT

Scope

We have provided a Second Party Opinion (SPO) on the sustainability credentials of Modern Dairy's sustainable finance framework, including the framework's alignment with the ICMA's GBP 2021 (including the June 2022 Appendix 1) and SBP 2023, and the LMA/APLMA/LSTA's GLP 2025 and SLP 2025. Under the framework, the company plans to issue use-of-proceeds sustainable debt instruments to finance projects across one eligible social category and five eligible green categories, as outlined in Appendix 3 of this report.

Our assessment is based on the last updated version of the framework received on 3 June 2025, and our opinion reflects our point-in-time assessment¹ of the details contained in this version of the framework, as well as other public and non-public information provided by the company.

We produced this SPO based on our [Assessment Framework: Second Party Opinions on Sustainable Debt](#), published in March 2025.

Issuer profile

China Modern Dairy Holdings Limited (Modern Dairy) was established in September 2005, specializing in dairy farming and milk production. Modern Dairy was listed on the Hong Kong Stock Exchange on 26 November 2010. Modern Dairy has developed into one of the largest dairy farming enterprises, a high-quality raw milk supplier and a quality milk processor in China. Modern Dairy's farms are located close to a number of downstream dairy processing plants and feed sources in China. As of the end of 2024, Modern Dairy had 47 dairy farming companies in 13 provinces and autonomous regions across the country, with more than 490,000 dairy cows in total and annual production volume reaching 3.01 million tons.

Dairy farms typically generate biological wastes that may negatively affect surrounding communities. This may expose Modern Dairy to the risk of losing operating licenses in case of community opposition. Modern Dairy may also face regulatory and reputational risks from its reliance on labor from developing countries; however, these risks are mitigated by the provision of economic support through local hiring and procurement, and the existence of a detailed supplier code that covers provisions against forced and child labor, and is backed by audits and training. The water-intensive dairy value chain may expose companies, such as Modern Dairy, to risk of increased input costs in case of water management challenges. Other environmental risks that companies in the dairy sector are exposed to include biodiversity and land use, and carbon emissions.

Strengths

- » Eligible project categories address some of the key environmental objectives that are highly relevant to the dairy sector and the region in which the company operates.
- » The eligibility criteria are clearly defined, with an exhaustive list of financed projects.
- » The environmental and social (E&S) risk management system is robust, as illustrated by policies and procedures.

Challenges

- » Enteric emissions, which are the largest source of methane emissions for a dairy company, are not sufficiently addressed by the eligible project categories, although research for relevant solutions is underway to overcome monetary and regulatory barriers.
- » The environmental impact of procuring deforestation-free soybeans largely depends on the implementation effectiveness of the certification schemes.
- » Impact reporting is produced only until the full allocation of the proceeds, but not until the maturity of the bonds or repayment of the loans.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody's.com> for the most updated credit rating action information and rating history.

Alignment with principles

Modern Dairy's sustainable finance framework is aligned with the four core components of ICMA's GBP 2021 (including the June 2022 Appendix 1) and SBP 2023, and the LMA/APLMA/LSTA's GLP 2025 and SLP 2025. For a summary of alignment with principles scorecard, please see Appendix 1.

- | | |
|---|---|
| <input checked="" type="checkbox"/> Green Bond Principles (GBP) | <input checked="" type="checkbox"/> Green Loan Principles (GLP) |
| <input checked="" type="checkbox"/> Social Bond Principles (SBP) | <input checked="" type="checkbox"/> Social Loan Principles (SLP) |
| <input type="checkbox"/> Sustainability-Linked Bond Principles (SLBP) | <input type="checkbox"/> Sustainability Linked Loan Principles (SLLP) |

Use of proceeds



Clarity of the eligible categories – BEST PRACTICES

Modern Dairy has clearly communicated the nature of expenditures, the eligibility and exclusion criteria for financed projects, and the target populations for the social category. The company has provided an exhaustive list of project examples to be financed under the framework. All financed projects will be located in China, while certified soybeans will be imported from the US and Brazil, and canola will be imported from Canada.

Clarity of the environmental or social objectives – BEST PRACTICES

Modern Dairy has clearly outlined the E&S objectives associated with all the eligible categories. All the eligible categories are relevant to the respective E&S objectives to which they aim to contribute. The company has referenced the United Nations' (UN) Sustainable Development Goals (SDGs) in articulating the objectives of the eligible categories (see Appendix 2).

Clarity of expected benefits – BEST PRACTICES

Modern Dairy has identified clear and relevant expected E&S benefits for the eligible categories based on the projects to be financed. The company has established measurable indicators to assess the impact of these projects and will quantify the impact in its annual report. For capital expenditures, Modern Dairy has committed to a lookback period of no longer than three years from the time of issuance. The company has confirmed that it will disclose the estimated share of refinancing to investors before each issuance, and the actual share of refinancing will also be included in the annual allocation report.

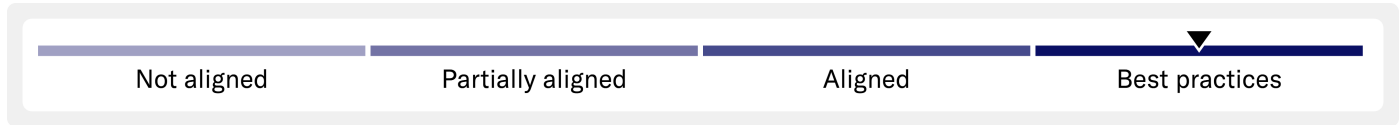
Process for project evaluation and selection



Transparency and clarity of the process for defining and monitoring eligible projects – BEST PRACTICES

Modern Dairy has established a clear and structured decision-making process for determining the eligibility of projects, formalized in its publicly available framework. The company has created a green financing working group (GFWG), consisting of representatives from the investor relations and finance departments, to oversee the assessment and selection of eligible projects according to the criteria outlined in the framework. The allocated projects will undergo final review and approval by the sustainability executive committee. The GFWG will also be responsible for periodically updating the eligible asset pool, including replacing projects or assets that no longer meet the established criteria. The company confirmed that it will monitor continued compliance of the financed projects throughout the life of the bond or loan. Modern Dairy has established a comprehensive E&S risk mitigation process, detailed in its policies and procedures, which are available on its [website](#).

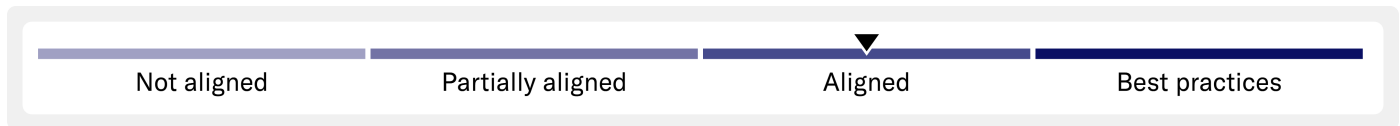
Management of proceeds



Allocation and tracking of proceeds – BEST PRACTICES

Net proceeds from any sustainable debt instrument will be placed in the company's general treasury and tracked through a register. The company has confirmed that there will be a periodic tracking of how funds have been matched to eligible categories and projects, and the balance will be adjusted annually to match allocations to eligible projects made during the preceding year. The allocation period will be no greater than 24 months. Unallocated proceeds will be held in cash or cash equivalents, or investment instruments, or will be used to repay debt of short-term or revolving nature, and will not be used to finance any greenhouse gas (GHG)-intensive projects.

Reporting



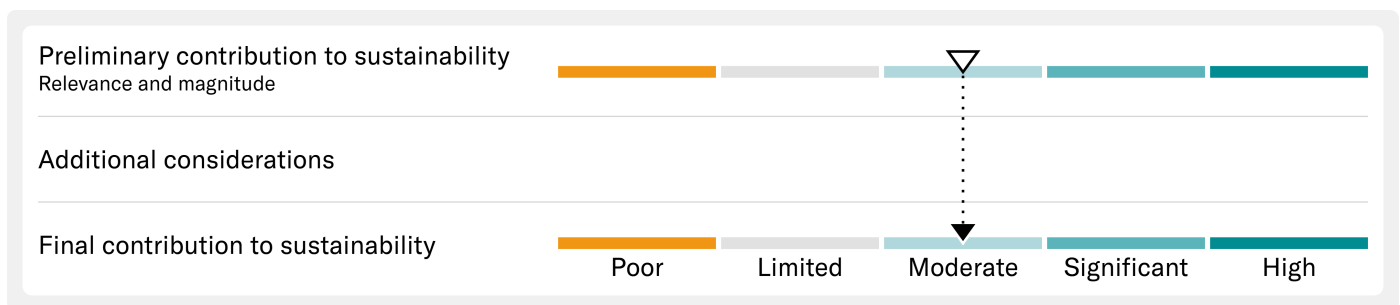
Reporting transparency – ALIGNED

Modern Dairy will produce annual update reports covering allocation, eligibility confirmation and impact reporting. These reports will be made available to lenders, at a minimum, for loans and will be publicly available on its website for bonds. The company has confirmed that it intends to update the reports until full allocation and in case of material changes thereafter. The reports will include the description of the eligible projects, the amount of net proceeds allocated to the eligible projects, the unallocated amount of net proceeds, and the environmental or social impacts of the eligible projects.

The company has also identified relevant E&S reporting indicators for the eligible categories in its framework. It has confirmed that relevant methodologies and assumptions used to report on E&S impacts will be disclosed. Additionally, Modern Dairy commits to independent external verification of both the tracking and allocation of funds, and the reported E&S metrics of the financed projects.

Contribution to sustainability

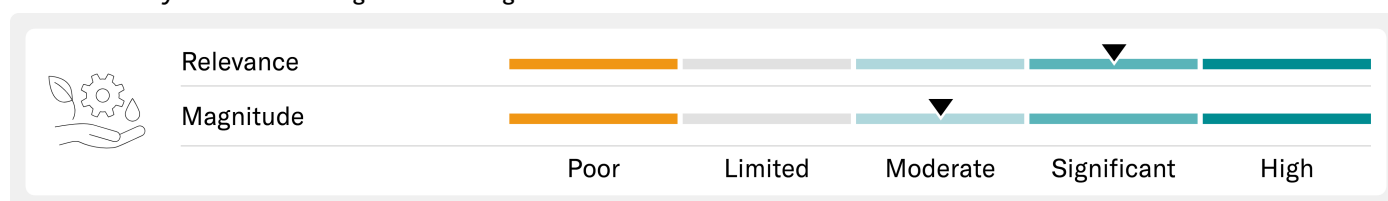
The framework demonstrates a moderate overall contribution to sustainability. This reflects a preliminary contribution to sustainability score of moderate, based on the relevance and magnitude of the eligible project categories, and we have not made an adjustment to the preliminary score based on additional contribution to sustainability considerations.



Preliminary contribution to sustainability

The preliminary contribution to sustainability is moderate, based on the relevance and magnitude of the eligible project categories. We expect most of the proceeds from forthcoming issuances to be allocated to the environmentally sustainable management of living natural resources and land use, employment generation and renewable energy categories, based on information provided by the company. A detailed assessment by eligible category is provided below.

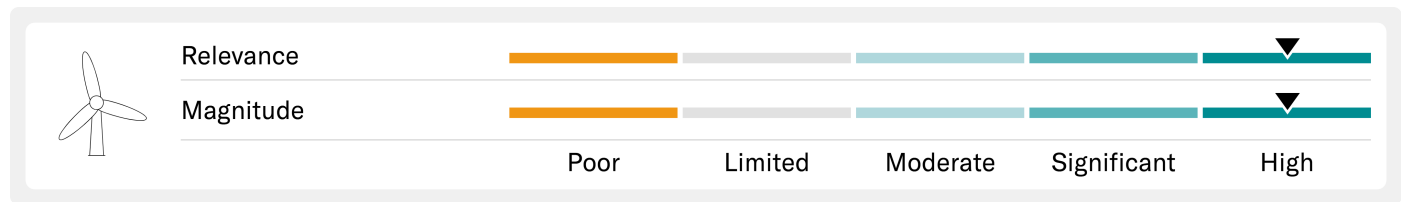
Environmentally sustainable management of living natural resources and land use



The projects financed under this category are significantly relevant for addressing the substantial emission footprint associated with feed production and cattle rearing in the project locations. China, being the largest food producer globally, attributes 14% of its total emissions to its food system². Reducing emissions linked to cattle farming through effective dietary strategies is crucial for mitigating overall methane emissions in China. Additionally, soybean is a key driver of tropical deforestation, particularly in Brazil. Chinese buyers, who are among the largest importers of Brazilian soybeans, are in a unique position to support deforestation-free progress in the soybean sector, especially considering that certified soy currently accounts for only about 3% of total soy volumes³. The environmental issues addressed by this category are also significantly relevant to the sector. This pertinence can be seen in two main aspects: first, feed production related to procured feed, particularly crops with high deforestation risks like soybeans, makes a substantial contribution to a dairy company's scope 3 emissions. Second, dietary strategies can aid in reducing enteric emissions, which significantly contribute to a dairy company's scope 1 emissions. A report by the World Wildlife Fund (WWF) estimated that 25% of carbon emissions from the milk supply chain are due to enteric fermentation, while 19% stem from feed production⁴. The overall relevance is significant as soybean procurement mainly aims to address feed production-related emissions. In addition, although high-protein feed such as soybeans and canola meals may influence rumen fermentation processes, they are not the most pertinent dietary strategies for mitigating enteric emissions. Other more well-documented methane inhibitors, including 3-nitrooxypropanol, are considered to be more relevant solutions for this purpose.

Projects financed under this category are expected to make a moderate contribution to the climate change mitigation objective. A larger portion of the proceeds will go toward the procurement of canola meals, with a smaller amount allocated to certified soybeans. Regarding soybean procurement, the company plans to increase the ratio of certified soybeans to total soybeans procured and strives to achieve "zero forest destruction" by 2030, primarily using COFCO International's Module 1 or 2 certification and Cargill's Triple S certification. Both certification schemes include farm-level traceability requirements to ensure sustainable land use and impose other requirements including good agricultural practices, community relations and human rights considerations. The company has confirmed it will pay a premium for certified soybeans. While certified soybeans will positively contribute to the establishment of a deforestation-free supply chain, concerns around their effectiveness remain due to potential conflicts of interest⁵ and indirect land use changes⁶. Both Cargill and COFCO use a mass balance chain of custody, which mixes certified and non-certified products, introducing additional deforestation risks. For the canola meal projects, research indicates that canola production could be more environmentally friendly than soybean production in terms of GHG emissions, land use efficiency and water use. Additionally, substituting soybeans with canola meals may improve production efficiency and reduce methane intensity per kilogram of energy-corrected milk. However, the effect on absolute methane reduction has been insignificant⁷. There is also insufficient data from the company to accurately measure the potential reduction in methane emissions resulting from the substitution of soybeans with canola meals.

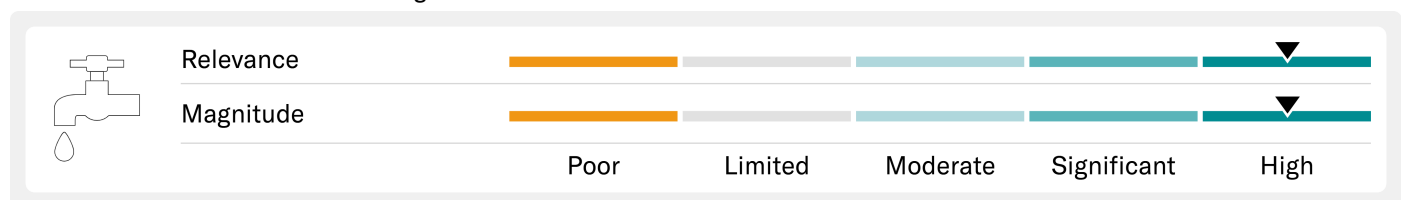
Renewable energy



Projects financed under this category are highly relevant for reducing China's dependence on fossil fuels for electricity production. Renewable energy generation plays a crucial role in China's transition to clean energy and the achievement of its dual carbon goals. From a sectoral perspective, companies in the dairy sector consume substantial amounts of electricity and fossil fuels in their operations, contributing to environmental impacts such as climate change and pollution. Additionally, manure is a significant source of emissions for dairy farms. However, it can also be part of the solution if it is used in energy production, replacing energy sources with higher emissions.

Under this category, the company aims to finance solar photovoltaic systems and anaerobic digesters on dairy farms. The projects are expected to have a high contribution to the stipulated environmental objective. Solar photovoltaic technology is one of the cleanest renewable energy options, with minimal externalities. For anaerobic digestion, the eligibility criteria adhere to EU taxonomy standards. The company confirmed that the only feedstock used will be manure and operational wastewater. The biogas produced will be used for heating and electricity generation, while the digestate will be used as fertilizer and bedding materials for cattle. Methane leak detection alarms, monitoring, and emergency response measures and plans are in place, with regular inspections and monitoring conducted. The company also affirmed that the biogas slurry used as fertilizer will comply with relevant regulatory requirements, as specified in its publicly available [manure utilization management standards](#).

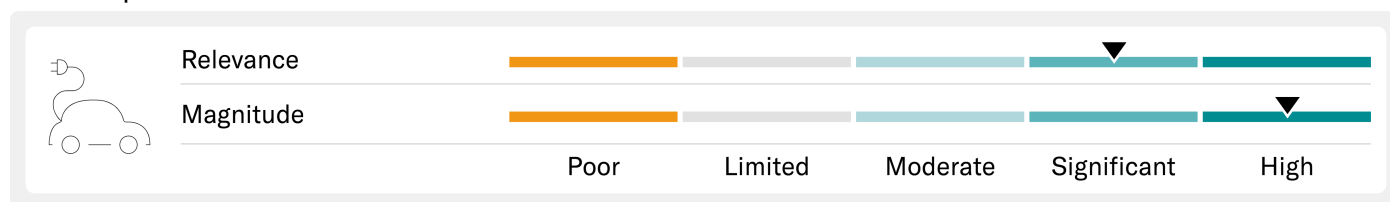
Sustainable water and wastewater management



Projects funded under this category are highly relevant for addressing water-related issues in China and within the dairy sector, including water usage and pollution. China faces considerable challenges due to water scarcity, as illustrated by its per capita water resources, which are significantly below the global average. The dairy industry consumes significant quantities of water for livestock husbandry and industrial processes. Additionally, wastewater generated from animal production poses potential risks of contaminating water bodies and soil.

The company has specified the six types of projects financed under the category, which are precision sprinkler systems, pre-milking udder hygiene optimization, smart irrigation for pasture management, replacement or repair of drainage ditches, recirculating cleaning system and dual-stage plate heat exchanger. Based on the quantified water- and energy-saving figures provided by the company, the financed projects demonstrate an overall high contribution to the water conservation objective. Precision sprinkler and smart irrigation technologies achieve average water savings of 25%–39% compared with the pre-installation period, along with additional energy savings and fertilizer reductions. Pre-milking udder hygiene solutions use an enzymatic and plant-based cleaner that is more environmentally friendly than chemical cleaners. This cleaner only requires a single wash and rinse cycle, instead of a two-rinse process, thereby conserving water. Furthermore, the recirculating cleaning systems save considerable amounts of water by reusing wastewater to clean milking machine surfaces, milking parlor areas and cow milking platforms. The dual-stage plate heat exchangers prevent water loss by recycling all cooling water used in the pre-cooling stage as drinking water for cows, and are recognized for their high energy efficiency. However, the refrigerant used will likely have a higher global warming potential, resulting in a significant magnitude if financed independently.

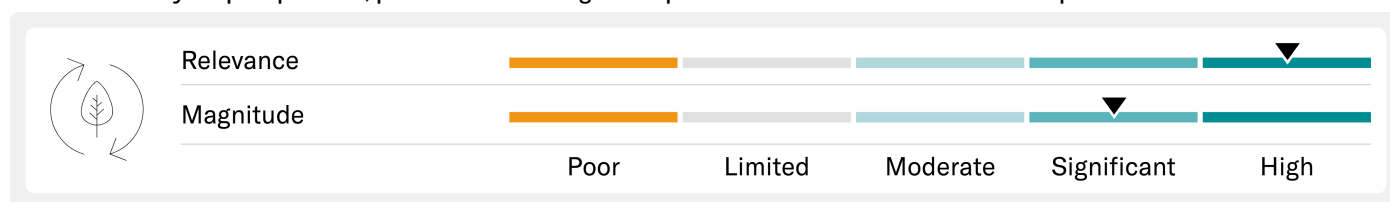
Clean transportation



This project category is significantly relevant for addressing air pollutants and carbon emissions resulting from fossil fuel-powered vehicles and equipment. Clean transportation initiatives are of significant importance to China, as the transportation sector accounted for around 8% of the country's total energy-related carbon emissions in 2022⁸ and contributes significantly to air pollution. However, decarbonization of the transportation is not the most pressing sustainability priority for the dairy sector and the company, given its relatively smaller emission footprint within the milk supply chain.

Projects financed under this category will have a high contribution to the climate change mitigation, and pollution prevention and control objectives. The company will exclusively finance fully electric assets, including electric loaders, stationary mixers, forklifts, calf feeding carts, feed pushers, aerial work platforms and milk tanker trucks. Fully electric vehicles and equipment do not produce direct emissions during the operating phase, and are considered the best available technology in the transport sector, helping avoid carbon lock-ins.

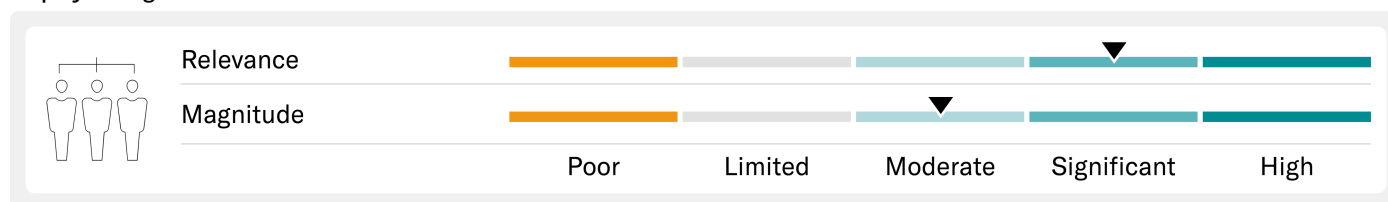
Circular economy adapted products, production technologies and processes and/or certified eco-efficient products



Projects financed under this category are highly relevant for tackling the challenges associated with manure management and its associated methane emissions. China produces significant amounts of agricultural waste from both crop production and livestock activities. In response, the government encourages the recycling of this waste and the development of circular agriculture⁹. Manure is a primary source of emissions for dairy farms, accounting for 19% of emissions within China's dairy supply chain¹⁰. On the other hand, converting manure into fertilizer can improve soil quality and crop yields while reducing dependence on commercial fertilizers, which produce GHGs during their manufacturing process.

The aerobic treatment systems financed under this category are expected to significantly contribute to the circular economy and natural resource conservation objectives. Following liquid-solid separation, the solid manure will undergo aerobic composting, while the liquid slurry will be treated in oxidation ponds. Most of the proceeds from forthcoming issuances will be allocated to composting equipment rather than the construction of oxidation ponds. The oxidation ponds will have impermeable liners to prevent nutrient runoff and groundwater contamination. After aerobic digestion, the liquid fraction from oxidation ponds will be used as fertilizer according to regulatory guidelines, while the pre-separated solid portion will be composted in a forced aeration system to produce cow bedding. The vast majority of the end products from manure treatment will be returned to the field as fertilizer, with a small portion converted to cow bedding. This aerobic treatment will have synergistic benefits, including reducing landfill-bound waste, reducing methane emissions and enhancing nutrient recycling. However, there is uncertainty regarding the aeration conditions of the oxidation ponds, which could become anoxic during periods without sunlight, potentially increasing methane release. The company confirms that there is no direct monitoring of methane emissions, although it has estimated emissions using conversion factors and has adopted liquid-solid separation to minimize potential methane release.

Employment generation



Projects financed under this category are significantly relevant for addressing employment gaps in rural and remote areas of China, particularly in the neighboring rural areas where Modern Dairy's farms are located. According to the National Bureau of Statistics, there were 297.53 million migrant workers in 2023, primarily from rural regions¹¹. Supporting rural revitalization has been a key focus of China's policy in recent years. The central government has been promoting private-sector investment in agriculture and rural communities to develop large-scale raw material production bases and modern agricultural supply chains, and create more job opportunities in these areas. The dairy industry, in particular, plays an important role in rural revitalization by integrating local farmers into its supply chain, thereby generating employment. This category is also significantly relevant to the company due to its connection with COFCO, a state-owned enterprise that aligns its interests with the national agenda of rural revitalization. However, employment generation may not be the most pressing social priority faced by the sector and the company compared with other issues such as health and safety.

The projects aimed at promoting forage agriculture will moderately contribute to employment generation objectives. Modern dairy partners with village collectives and rural cooperatives to establish a procurement program involving local farmers. These entities will manage the operation, which might include leasing land from rural households and hiring local farmers for forage cultivation. According to the relevant laws, the primary aim of these entities is to represent the collective interests of member farmers while managing land operations more efficiently, ultimately benefiting individual farmers. Modern Dairy has provided us with comprehensive information on the locations of its farms, along with statistics on disposable income levels in the areas where the farms are situated. The data, combined with the fact that regulatory requirements often result in farms being established in remote, low-income communities, indicates that most proceeds will benefit underserved populations. The farmers' interests are protected through a formal engagement process between the company and rural cooperatives, which includes signing cooperation intent letters and offering fair price quotations. The company confirmed that prices paid are consistent with market rates and the contracts are signed on an annual basis. The company also offers farmers some training and free services, including guidance on selecting high-yield crops and using manure-based fertilizers to reduce costs associated with purchasing synthetic ones. Despite these, concerns persist regarding the additionality of the financed activities as they are considered business-as-usual for the company. There are also inherent dependency risks¹² associated with establishing a supply chain consisting of smallholders, particularly in the absence of minimum purchase prices or long-term contracts with the farmers.

From an environmental standpoint, silage fermentation will occur entirely within the farms after corn forage is procured from the farmers, with completely sealed fermentation processes preventing potential methane leakage and silage effluent pollution. No land conversion risks are expected as all corn farming lands are existing croplands, and operations comply with regulations, supported by complete documentation. Establishing feed production near farms will further reduce emissions related to feed transportation. However, despite these environmental benefits, concerns remain regarding the significant aggregated land requirement for forage cultivation. This raises questions about the low efficiency of livestock in converting feed into human-edible protein and the competition between the use of cereals as livestock feed and their use for direct human consumption. Additionally, there is uncertainty about whether regenerative agriculture practices are systematically applied by the farmers.

Additional contribution to sustainability considerations

We have not made an adjustment to the preliminary contribution to sustainability score based on additional considerations.

Modern Dairy has a robust due diligence process to identify and manage E&S risks associated with the financed projects. The company has established an environmental, social and governance (ESG) governance framework comprising the board of directors, management and executives. Its operations are regulated by various E&S policies and practices, addressing issues such as biodiversity, water stress, carbon emissions, forest protection and community relations. The company's E&S mitigation strategy includes stakeholder

engagement to identify and mitigate E&S impacts. This involves conducting community impact assessments, establishing community councils at each farm and implementing grievance mechanisms.

The framework is coherent with the sustainability strategy of Modern Dairy. The company's sustainability efforts center on the FRESH Sustainability Development Strategy, which consists of five pillars, namely "Future, Responsibility, Environment, Society, and Health". The company uses a circular industrial chain of "Forage planting - Cow breeding - Manure treatment - Soil fertilization with organic waste (power generation with biogas) - Forage planting" to build environmentally friendly farms. Modern Dairy has set specific targets to reduce carbon emissions by 20% per unit by 2035, using 2021 as the baseline, and actively pursues initiatives to support national dual carbon goals. Additionally, targets are set for other environmental aspects, including water conservation and waste reduction. In assessing coherence, we have considered the local Chinese context, including nutritional needs and feasible technical solutions for the dairy sector. Therefore, we find the projects financed under the framework to be consistent with the company's overall sustainability strategy, even though there is no net-zero target.

Appendix 1 - Alignment with principles scorecard for Modern Dairy's sustainable finance framework

Factor	Sub-factor	Component	Component score	Sub-factor score	Factor score
Use of proceeds	Clarity of the eligible categories	Nature of expenditure	A	Best practices	Best practices
		Definition of content, eligibility and exclusion criteria for nearly all categories	A		
		Location	A		
		BP: Definition of content, eligibility and exclusion criteria for all categories	Yes		
	Clarity of the objectives	Relevance of objectives to project categories for nearly all categories	A	Best practices	
		Coherence of project category objectives with standards for nearly all categories	A		
		BP: Objectives are defined, relevant and coherent for all categories	Yes		
	Clarity of expected benefits	Identification and relevance of expected benefits for nearly all categories	A	Best practices	
		Measurability of expected benefits for nearly all categories	A		
		BP: Relevant benefits are identified for all categories	Yes		
		BP: Benefits are measurable for all categories	Yes		
		BP: Disclosure of refinancing prior to issuance and in post-allocation reporting	Yes		
		BP: Commitment to communicate refinancing look-back period prior to issuance	Yes		
Process for project evaluation and selection	Transparency and clarity of the process for defining and monitoring eligible projects	Clarity of the process	A	Best practices	Best practices
		Disclosure of the process	A		
		Transparency of the environmental and social risk mitigation process	A		
		BP: Monitoring of continued project compliance	Yes		
Management of proceeds	Allocation and tracking of proceeds	Tracking of proceeds	A	Best practices	Best practices
		Periodic adjustment of proceeds to match allocations	A		
		Disclosure of the intended types of temporary placements of unallocated proceeds	A		
		BP: Disclosure of the proceeds management process	Yes		
		BP: Allocation period is 24 months or less	Yes		
Reporting	Reporting transparency	Reporting frequency	A	Aligned	Aligned
		Reporting duration	A		
		Report disclosure	A		
		Reporting exhaustivity	A		
		BP: Allocation reporting at least until full allocation of proceeds, and impact reporting until full bond maturity or loan payback	No		
		BP: Clarity and relevance of the indicators on the sustainability benefits	Yes		
		BP: Disclosure of reporting methodology and calculation assumptions	Yes		
		BP: Independent external auditor, or other third party, to verify the tracking and allocation of funds	Yes		
		BP: Independent impact assessment on environmental and social benefits	Yes		
Overall alignment with principles score:					Aligned

Legend: BP - Best practice, A - Aligned, PA - Partially aligned, NA - Not aligned

Appendix 2 - Mapping eligible categories to the United Nations' Sustainable Development Goals

The six eligible categories included in Modern Dairy's framework are likely to contribute to six of the UN SDGs, namely:

UN SDG 17 Goals	Eligible Category	SDG Targets
GOAL 2: Zero Hunger	<i>Employment generation</i>	2.3: Double agricultural productivity and incomes of small-scale farmers through equal access to resources and opportunities
GOAL 6: Clean Water and Sanitation	<i>Sustainable water and wastewater management</i>	6.3: Improve water quality by reducing pollution, eliminating dumping and minimizing hazardous chemicals and materials 6.4: Increase water-use efficiency across all sectors and ensure sustainable supply of freshwater to reduce water scarcity
GOAL 7: Affordable and Clean Energy	<i>Renewable energy</i>	7.2: Increase substantially the share of renewable energy in the global energy mix
GOAL 12: Responsible Consumption and Production	<i>Environmentally sustainable management of living natural resources and land use</i> <i>Circular economy adapted products, production technologies and processes and/or certified eco-efficient products</i>	12.2: Achieve the sustainable management and efficient use of natural resources 12.5: Substantially reduce waste generation through prevention, reduction, recycling and reuse
GOAL 13: Climate Action	<i>Renewable energy</i> <i>Clean transportation</i>	13.2: Integrate climate change measures into national policies, strategies and planning
GOAL 15: Life on Land	<i>Environmentally sustainable management of living natural resources and land use</i>	15.2: Promote the implementation of sustainable management of all types of forests

The UN SDGs mapping in this SPO considers the eligible project categories and associated sustainability objectives/benefits documented in the issuer's financing framework, as well as resources and guidelines from public institutions, such as the ICMA SDG Mapping Guidance and the UN SDG targets and indicators.

Appendix 3 - Summary of eligible categories in Modern Dairy's framework

Eligible Categories	Description	Sustainability Objectives	Impact Reporting Metrics
Environmentally sustainable management of living natural resources and land use	<p>» Procurement of sustainable feed including feed additives, feed replacement and deforestation-free feed to promote sustainable agriculture practices and reduce greenhouse gas emissions. Examples include, but are not limited to:</p> <ul style="list-style-type: none"> - Deforestation-Free Soybean Sourcing: Procuring deforestation-free soybeans to avoid greenhouse gas emissions associated with land conversion for soy production. Avoiding deforestation preserves carbon stocks in forests and prevents the release of significant amounts of CO₂ into the atmosphere. Identifying and sourcing soybean meal exclusively from suppliers with certifications such as COFCO International Conversion-Free Soy Standard Module 1 or Module 2, Cargill Triple S, U.S. Soybean Sustainability Assurance Protocol (SSAP). - Canola Meal Substitution: Incorporating canola meal as a feed substitute to reduce enteric methane emissions through its natural fatty acid composition and by improving milk production efficiency to reduce emissions per unit of milk. 	Climate change mitigation	<ul style="list-style-type: none"> - Percentage of zero-deforestation soy in total soy procurement - Percentage of soybean meal replaced by canola meal
Renewable energy	<p>» Investments and expenditures related to development, construction, installation, operation and maintenance of renewable energy generation facilities to promote clean energy transition and reduce greenhouse gas emissions. Examples include, but are not limited to:</p> <ul style="list-style-type: none"> - Solar Power Installations: Photovoltaic systems on the south-facing steel roofs of dairy cow barns, which generate renewable energy and reduce carbon emissions from agricultural operations. - Biogas Generation: The purified biogas produced from the anaerobic digestion system is comprehensively utilized to generate steam for heating in farm operations and drying digestate through combustion. The biogas is also used for power generation, where electricity is first used for self-consumption, with excess power fed into the grid for additional revenue. 	Climate change mitigation	<ul style="list-style-type: none"> - MWh of renewable energy generated - Cubic meter of biogas production - MWh of electricity generated from biogas - Metric tons CO₂e reduced/avoided
Sustainable water and wastewater management	<p>» Expenditures related to sustainable water management, such as water reuse and recycling, efficiency, and conservation. Examples include, but are not limited to:</p> <ul style="list-style-type: none"> - Water Conservation Initiatives: Installation of precision sprinkler systems in cow barns for heat stress management. Transition to an enzymatic and plant-extract-based detergent for udder wiping, reducing water consumption by streamlining the cleaning process. Installation of smart water valves in pasture irrigation systems to improve water use efficiency and minimize water waste. - Sewage Treatment and Recycling: Regular replacement of sewage pipes and repair of drainage ditches/channels. Recycled cooling water from milk chilling is recycled as drinking water for cattle. Milking machine wastewater is recycled for cleaning milking equipment and facilities. 	Water conservation	<ul style="list-style-type: none"> - Percentage of freshwater saved from precision sprinkler - Cubic meter of freshwater saved from detergent - Cubic meters of rainwater prevented from entering cattle manure - Cubic meter of cooling water recovered - Percentage of milking machine wastewater recycling

Eligible Categories	Description	Sustainability Objectives	Impact Reporting Metrics
Clean transportation	<p>» Investments in assets, activities, technology and research and development that reduce the greenhouse gas emissions arising from transportation. Examples include, but are not limited to:</p> <p>- Electric Farm Equipment: Purchasing or leasing electric units, including but not limited to loaders, stationary mixers, forklifts, calf feeding carts, feed pushers, aerial work platforms and milk tanker trucks.</p>	Climate change mitigation; Pollution prevention and control	<p>- Number of electric units purchased or leased</p> <p>- Metric tons CO₂e reduced by replacing diesel machinery with electric equivalents</p>
Circular economy adapted products, production technologies and processes and/or certified eco-efficient products	<p>» Investments and expenditures related to the acquisition, construction, maintenance and operation of manure utilization facilities, decomposition and biorefinery technologies. Examples include, but are not limited to:</p> <p>- Establishment of Green Circular Industry Chains: Forage is grown to feed dairy cows, and the resulting manure undergoes solid-liquid separation and treatment. The separated liquid digestate serves as organic fertilizer, nourishing the forage growth and creating a closed-loop system of feed-cow-manure-fertilizer-forage. The separated solid digestate is then dried and used as bedding material in the cow barns, further maximizing resource utilization.</p>	Circular economy; Natural resources conservation	<p>- Tons of biogas slurry used as fertilizer</p> <p>- Cubic meter of bedding material production</p>
Employment generation	<p>» Procurement of silage to promote sustainable agriculture and generate employment, particularly for low-income farmers and their families in rural communities, in partnership with local governments and rural cooperatives. Examples include, but are not limited to:</p> <p>- Promotion of Forage Agriculture: Partner with local governments and rural cooperatives to support the employment of local farmers in cultivating silage corn near dairy farms. This includes providing technical guidance on silage planting, ensuring consistent procurement of silage, promoting sustainable agricultural practices (reducing reliance on chemical fertilizers and minimizing air pollution from stalk burning), and providing biogas slurry as fertilizer to further reduce the need for chemical fertilizers.</p>	Employment generation for vulnerable groups	<p>- Number of jobs created for rural farmers</p> <p>- Total tons of silage procured from rural households</p>

Endnotes

- [1](#) Point-in-time assessment is applicable only on the date of assignment or update.
- [2](#) [World Economic Forum: China: What the world's largest food system means for climate change](#), 23 February 2023.
- [3](#) [Planet Tracker: Increased soy certification would decrease deforestation risk](#), 5 April 2022.
- [4](#) [WWF: An environmental and economic path toward net zero dairy farm emissions](#), 27 January 2021.
- [5](#) See endnote 3.
- [6](#) [Center for Development Research \(ZEF\): Soybean certification and tropical deforestation in Brazil: how to move towards zero-net deforestation](#), November 2017.
- [7](#) [Journal of Dairy Science: Effects of soybean meal or canola meal on milk production and methane emissions in lactating dairy cows fed grass silage-based diets](#), November 2015.
- [8](#) [International Energy Agency: China Emissions](#), accessed on 18 March 2025.
- [9](#) [The State Council of the People's Republic of China: Circular economy gets 5-year regulator boost](#), 8 July 2021.
- [10](#) [The Nature Conservancy: Exploring the path to a low-carbon sustainable and equitable transition in China's dairy industry](#), accessed on 17 March 2025.
- [11](#) [National Bureau of Statistics: 2023 Migrant worker monitoring survey report \(in Chinese\)](#), 30 April 2024.
- [12](#) Dependency risks arise in supplier-buyer relationships when small suppliers face high switching costs, making them heavily reliant on larger buyers.

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