°CICERO Shades of Green

Municipality Finance Plc ("MuniFin")
Green Bond Second Opinion

15 August 2022

Executive Summary

Municipality Finance Plc ("MuniFin") is one of Finland's largest credit institutions and the only one specialised in the financing and financial risk management of the municipal sector and state-subsidised housing production. MuniFin's customers include Finnish municipalities, joint municipal authorities, municipally controlled entities, and non-profit housing organisations. MuniFin allocates most of its lending (not only green) to housing corporations and municipalities.

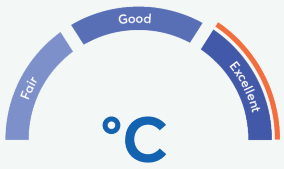
Green proceeds will finance or refinance MuniFin's green loans or leases that in turn finance, in whole or in part, eligible green projects in Finland. Proceeds will be mostly allocated to new financing related to green buildings. The updated framework provides more specific eligibility criteria, and MuniFin has also removed three project categories from the previous framework (i.e., energy efficiency (now integrated into other categories, in particular buildings), waste management, and environmental management). Under the updated framework, projects directly powered by fossil fuels will be excluded, with the exemption for bioenergy facilities (only for start-up, peak load and as back-up).

We rate the framework **CICERO Medium Green** and give it a governance score of **Excellent.** For this updated framework, MuniFin expects to allocate most proceeds to green buildings (approx. 54%) shaded Light to Medium Green, clean transportation (approx. 32%) shaded Dark Green, to water and waste water management (approx. 12%) shaded Medium to Dark Green, as well as to renewable energy (approx. 2%) Shades Medium to Dark Green. MuniFin has set relevant targets for its financing portfolio and aims to publish emissions from 2020 and 2021 in the next reporting, together with actions and targets to further reduce its carbon footprint. MuniFin has strong reporting procedures. It reports on various indicators, and discloses methodologies used, including transparency on the grid factor. However, the issuer would benefit from having the impact reporting externally reviewed and from using climate scenarios.

SHADES OF GREEN

°CICERO Medium Green

GOVERNANCE ASSESSMENT



GREEN BOND PRINCIPLES

Based on this review, this framework is found to be aligned with the principles.

Strengths

MuniFin's inclusion of zero emission elements within its framework is a strength. Investing in zero emission elements, such electric transportation is a key avenue for decarbonization of the transport sector, and investments in electrification and hydrogen are important in a 2050 perspective.

Some elements of MuniFin's governance represents a strength. MuniFin is in the process of calculating and reporting own emissions and emissions from the loan portfolio to set goals and targets. CICERO Green is encouraged by the clear and relevant approach that MuniFin is setting up to reach its goals. Furthermore, the impact reporting has become more comprehensive and transparent to investors and customers over the years according to the issuer.

MuniFin encourages its customers to reduce their own emissions by, for example, offering a margin discount for green projects eligible under the framework, and giving more favourable conditions the greener a project is. Financial institutions are vital for achieving the Paris Agreement target and such initiatives can contributing to reach this goal.

Pitfalls

Pitfalls under the framework include the criteria for new buildings. While MuniFin is taking steps towards the low carbon 2050 perspective, there are climate risks associated with the criteria for new buildings. The Light Green shading of the category reflects that new buildings with energy performance 10% better than regulation are eligible without systematic consideration of embodied emissions; while the Medium Green shading reflects that investments representing steps towards a low carbon future, such as energy efficiency measures, biodiversity and adaptation measures, and renovation projects can also be financed. We welcome the fact that MuniFin aims to start assessing the life cycle of its projects and to integrate building materials considerations in its assessments in the future, however, as embodied emissions are significant, MuniFin is encouraged to systematically assess such elements.

Regarding climate risk assessment, the issuer does not yet report according to TCFD, nor use climate scenarios analysis. However, MuniFin assesses its customer's ESG risks and readiness to risks as part of the financial assessment of the customers, which emphasises the effects of climate and environmental impact on the customer's operations through direct physical risks and/or transitional risks. Increased rainfall, and snowfall being replaced by rainfall in winter will probably increase river flows and floods. Thus, developing projects with climate resilience in mind is critical.

Finally, the broad scope of the framework and numerous project categories, sub- categories, and thresholds, create some uncertainty when it comes to the specific future projects that can be eligible under the framework. Although the overall objectives in the framework are good and the criteria for the green categories are clear, the breadth of the framework can bring some challenges to MuniFin regarding data and information collection on the environmental benefits and risks of the underlying projects.

EU Taxonomy

CICERO Green has carried out a mapping of financed activities under the framework against taxonomy thresholds for substantial contribution. We find that MuniFin is likely aligned with the taxonomy mitigation criteria for most relevant taxonomy activities. However, MuniFin is only partially aligned with the following activities: construction of new buildings, acquisition and ownership of buildings, infrastructure for personal mobility, and production of heat/cool from bioenergy. It was not possible to assess alignment of the relevant taxonomy activities associated with the water and waste water management project category. The framework also includes biodiversity and adaptation measures, which are not covered by the technical screening criteria for climate change mitigation.

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1 MuniFin's environmental management and green bond framework

Company description

Municipality Finance Plc ("MuniFin") is one of Finland's largest credit institutions and the only one specialised in the financing and financial risk management of the municipal sector and state-subsidised housing production. MuniFin Group also includes the subsidiary company, Financial Advisory Services Inspira Ltd. MuniFin's customers include Finnish municipalities, joint municipal authorities, municipally controlled entities, and non-profit housing organisations. MuniFin allocates most of its lending (not only green) to housing corporations, following by municipalities. The new wellbeing services counties, established in connection with the new social and healthcare reform in Finland, will also become MuniFin's customers when they begin operating in January 2023. MuniFin's core mandate is to ensure that its customers have access to affordable funding regardless of the market situation. MuniFin's funding is guaranteed by the Municipal Guarantee Board, whose members are all the Finnish mainland municipalities.

MuniFin is 100% owned by the Finnish public sector. MuniFin's ownership structure is as follows:
- 53% owned by municipalities, municipal federations and municipality owned companies
- 31% owned by Keva, a local public sector pension fund
- 16% owned by the Finnish national government.

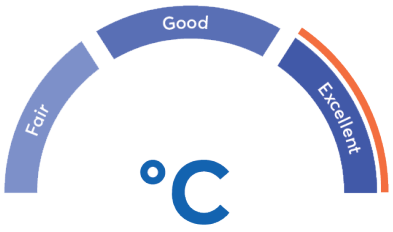
MuniFin started its work with green bonds in 2012 and has continued since. This is the fifth second opinion that CICERO has provided for MuniFin's framework, the first being in 2016, the second in 2017, the third in 2018, and the fourth in 2019. In the updated framework, MuniFin follows the four core components of the ICMA Green Bond Principles (June 2021). It aims to align with the EU Taxonomy and has considered EU Green Bond Standard as a guiding tool. The updated framework also provides clearer view on the criteria MuniFin uses to evaluate eligibility of the projects. MuniFin has also removed three project categories included in the previous framework, i.e., energy efficiency (now integrated into other categories, in particular buildings), waste management and environmental management. Furthermore, where in the past MuniFin has relied on an external green evaluation team, the project evaluation and selection will now be conducted internally by MuniFin's sustainability experts, and an external review is now introduced to assess compliance with the green bond framework and to assess the allocation of green bond proceeds. Since the previous framework, MuniFin has also improved its reporting with the aim of providing greater transparency to investors and customers by increasing the number of details in its reporting.

Governance assessment

MuniFin has set relevant targets for its financing portfolio and has started developing a methodology to report on scope 1,2,3 emissions for own business and for the financing portfolio, with the aim to set goals to reduce its carbon footprint. The issuer also aims to have the emissions and the goals publicly available in the next reporting. MuniFin also assesses its customer's ESG risks as part of the financial assessment of the customers, which include physical risks and/or transitional risks. The issuer also informed that it is currently developing its risk management capacity which includes the methods to assess customers resilience to climate change. MuniFin would however benefit from reporting in line with the TCFD and using climate scenario analysis.

MuniFin has a clear and well-defined selection process in place, including environmental competence, and the issuer is excluding controversial projects.

MuniFin has strong reporting procedures. MuniFin publicly reports on allocation and impact, as well as on various indicators, and disclosed methodologies used, including transparency on the grid factor. Over the years, the impact reporting become more comprehensive and transparent, according to the issuer. An annual external review is now introduced to assess compliance with the green bond framework and to assess the allocation of green bond proceeds, but the issuer would benefit from having the impact reporting also externally reviewed for more transparency.



The overall assessment of MuniFin's governance structure and processes gives it a rating of **Excellent**.

Sector risk exposure

Physical climate risks. According to the Finnish climate guide, increased extreme rainfall, and snowfall being replaced by rainfall in winter, will probably increase river flows and floods. According to this guide, Finland has property with a total value of at least EUR 550 million across all the flood risk areas (source: Climate change information from one address | Climate Guide (ilmasto-opas.fi))

Transition risks. The Finnish National Energy and Climate Strategy outlines the actions necessary to achieving an 80% - 95% reduction in greenhouse gas emissions by 2050 (source: National Energy and Climate Strategy of Finland for 2030 – Policies - IEA). Due to the profound changes needed to limit global warming to 2ºC, transition risk affects all sectors, MuniFin is exposed to transition risks from stricter national emissions reduction targets, and energy consumption policies.

Environmental risks. Local environmental impacts, such as on biodiversity, habitat, and landscape, can be of concern, particularly for renewable energy and large infrastructure projects. Specifically in the Nordic context and of particular concern for renewable energy projects, risks remain around the interference of projects with indigenous rights, in particular regarding reindeer herding.

Environmental strategies and policies

MuniFin aims to increase the share of green and social finance in its total financing portfolio. MuniFin targets a 20% share of green and social finance of the total financing portfolio by 2024. By the end of 2021, this share reached 12%. Furthermore, MuniFin informed using several KPIs (e.g., amount of green and social finance, number of green and social finance projects, green bond issued, etc.) to monitor its progress. MuniFin reports these indicators in a sustainability scorecard that is published as part of MuniFin's annual sustainability reporting. MuniFin informed being currently preparing for new long-term targets. The suggestions have been discussed in MuniFin's Executive Management Team, and the new targets will be set in the autumn 2022.

MuniFin is in the process to calculate its own emissions (scope 1, 2 and 3) as well as the emissions from its loan portfolio (part of scope 3) for 2020 and 2021. The portfolio emissions will be calculated for both long-term customer finance as well as for the long-term liquidity portfolio. MuniFin is not yet reporting on emissions but aims to publish emissions from 2020 and 2021 in the next reporting, together with actions and targets to further reduce its carbon footprint. In addition, MuniFin encourages its customers to reduce their own emissions by, for example, offering a margin discount for green projects eligible under the framework, but informed that many customers are already actively working to reduce their emissions, and many have already set their own carbon

reduction targets, according to the issuer. MuniFin is also analysing what kind of emission reduction targets, associated with the loan portfolio and with the institution's activities, can be set and how these goals could be reached. No specific targets or timeframe have yet been set.

MuniFin assesses its customer's ESG risks and readiness to risks as part of the financial assessment of the customers. The assessment emphasises the effects of climate and environmental impact on the customer's operations through direct physical risks and/or transitional risks. MuniFin also informed that it is currently developing its risk management capability which includes the methods to assess the physical risks of the projects it finances and its customers' resiliency to climate change. This work is still in progress. MuniFin is not yet reporting in line with the TCFD recommendations nor uses climate scenarios analysis but informed that it is looking at how it could report in line with the TCFD in the future.

Since the previous framework, MuniFin adhered to the UN Global Compact initiative, where it agrees to support basic values and principles related to human rights, labour rights, as well as environmental and anti-corruption practices.

Green bond framework

Based on this review, this framework is found to be aligned with the Green Bond Principles. For details on the issuer's framework, please refer to the green bond framework dated August 2022.

Use of proceeds

For a description of the framework's use of proceeds criteria, and an assessment of the categories' environmental benefits, please refer to section 3.

Selection

MuniFin describes in its framework the standard process it has established for evaluating and selecting eligible green projects. The selection process is carried out by MuniFin's green finance team. The green finance team is not an organisational team part of MuniFin's organisation structure, but a group of people selected to handle eligible green project evaluation and selection process. The green finance team includes sustainability experts. The team may draw on expertise from other parts of the organisation as well as from outside MuniFin.

The green finance team holds the right to remove any eligible green project already funded by green bond proceeds if, for whatever reason, it no longer meets the eligibility criteria or are to be found or becomes controversial during or after approval. In cases where an eligible green project requires additional funding, the evaluation should be conducted again if a) there is reason to believe that relevant facts on the projects have changed, or b) if the criteria relating to the type of project have changed. If neither of these conditions is met, additional finance can be granted to the project without the need to evaluate the project again.

Management of proceeds

MuniFin applies a portfolio approach, where it may refinance green bonds at maturity to maintain an appropriate balance between the outstanding amount of green bonds and the outstanding amount of green finance that has been granted to eligible green projects. Eligible green projects are classified as new projects if the projects have been completed less than 12 months before the project's approval date by the green finance team. The issuer informed that it has only financed such projects so far, but it can also finance or refinance older projects.

MuniFin tracks the development of the outstanding amount of green finance that has been granted to eligible green projects to ensure that the outstanding amount of green bonds does not exceed the outstanding amount of green finance. It is MuniFin's intention to maintain an aggregate outstanding amount of green bonds that is equal to or less than the aggregated outstanding amount of green finance. There may be periods due to unanticipated events when the outstanding amount of green bonds exceeds the outstanding amount of green finance. In this case, the

green bond proceeds will be placed in liquidity reserves and managed according to MuniFin's sustainability policy and sustainable investment framework.

Reporting

The issuer carried out its first green bonds impact reporting in 2016 and since then has published the green bonds impact report annually. Over the years, the impact reporting become more comprehensive and transparent, according to the issuer. MuniFin updated the impact of the portfolio to reflect the estimated share of the projects' total finance, distinguishing the shares financed by green bonds as well as by other type of financing. The issuer also reported on various indicators for each project category, and disclosed methodologies used, including transparency on the grid factor. The Capital Markets and Sustainability division at MuniFin is responsible for the green bond impact reporting.

For this updated framework, MuniFin will annually publish a green impact report on the allocation and impact of green bonds issued. The report will be made available on MuniFin's website. Data is provided on project level, project category level and for the entire eligible green project portfolio. The report will also, on a best effort basis, provide disclosure in relation to the EU Taxonomy.

The allocation report will, to the extent feasible, include the following components:

i. Outstanding amount of green bonds and green finance and share of "new projects"
ii. Proceeds allocated to eligible green projects on a project level and project category level
iii. Amount and share of unallocated proceeds, if any
iv. Contributions to the Sustainable Development Goals (SDGs).

For this updated framework, the impact assessment will include both quantitative and qualitative impacts. The impact reporting will be based on ex-ante evaluation conducted prior to project implementation. The impact reporting will be based on the recommendations of the Nordic Position Paper on Green Bonds Impact Reporting. MuniFin will keep reporting on various impact indicators for each project category and will keep disclosing the methodologies.

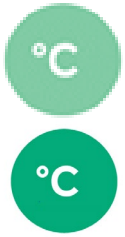
An annual external review is now introduced to assess compliance with the green bond framework and to assess the allocation of green bond proceeds. The impact reporting has not yet been externally reviewed, but the issuer informed considering this option moving forward.

2 Assessment of MuniFin's green bond framework

The eligible projects under MuniFin's green bond framework are shaded based on their environmental benefits and risks, based on the "Shades of Green" methodology.

Shading of eligible projects under MuniFin's green bond framework

- The net proceeds will be used to finance or refinance MuniFin's green loans or leases that in turn finance, in whole or in part, eligible green projects in Finland. Eligible green projects must provide clear environmental benefits and be conducted in accordance with the eligibility criteria defined below. The issuer confirmed that most of the proceeds will be allocated to new financing, and that it expects the allocation of green proceeds to be similar to previous allocation of green proceeds, when simultaneously considering the deleted categories, meaning a majority to green buildings.
- At the end of 2021, MuniFin had five outstanding green bonds. Based on the 2021 impact report, MuniFin allocated most of the green proceeds to green buildings (53.6%), followed by 32.2% to clean transportation, 12.1% to water and waste water management, 2% to renewable energy, and less than 1% to energy efficiency related projects.
- Since the previous framework, MuniFin has tightened the exclusion criteria. Under the updated framework, projects directly powered by fossil fuels will be excluded, including fuel powered hybrid solution, heating of buildings and facilities, peak load and backup systems, with the exemption for bioenergy facilities, in cases of start-up, peak load or in case of break down.

Category	Eligible project types	Assessment of alignment with the EU taxonomy technical screening criteria for substantial contribution to climate change mitigation	Green Shading and considerations
Green buildings 	• **Buildings** Buildings that have an Energy Performance Certificate (EPC) class A. In addition, the following non-compulsory criteria will be considered: i. For buildings larger than 5000 m^2, the building undergoes testing for air-tightness and	• **7.1 Construction of new buildings: Likely partially aligned**. While the EPC A requirement makes sure that the Primary Energy Demand (PED) is at least 10 % lower than the threshold set for the nearly zero-energy building (NZEB) requirements, the other criteria set out in the EU Taxonomy	**Light to Medium Green** ✓ In a low carbon scenario, passive or plus house technologies should become mainstream and the energy performance of existing buildings greatly improved. MuniFin is taking steps towards this long-term vision with adding new non-compulsory criteria for buildings, by setting criteria for energy efficiency measures and for biodiversity and

thermal integrity, upon completion.

ii. For buildings larger than 5000 m^2, the life-cycle Global Warming Potential (GWP) of the building resulting from the construction has been calculated for each stage in the life cycle and is disclosed.

ii. Buildings that self-supplies renewable energy, has undergone an environmental impact analysis, make use of recyclable and low-carbon materials or have obtained a certification according to Nordic Swan Ecolabel, LEED Gold, BREEAM Very Good, the Building Information Foundation RTS 3-stars or better, or other equivalent certifications with high ratings.

- **Other buildings**

Other buildings, such as transport and communications buildings, indoor swimming pools, indoor ice rinks, and portable buildings, where a) the building supplies at least 75% of its own energy from renewable sources or, b) there are other environmental benefits proven by a specialist study.

- **Renovations**

Renovations that lead to an overall reduction in primary energy demand for mitigation are only optional under the framework.

- **7.2 Renovation of existing buildings: Likely aligned**. Major renovations lead to a reduction of primary energy demand (PED) of at least 30 %.

- **7.3 Installation, maintenance, and repair of energy efficiency equipment: Likely aligned**. The examples of activities under the framework align with several of the individual measures set in the EU Taxonomy.

- **7.5 Installation, maintenance, and repair of instruments and devices for measuring, regulation and controlling energy performance of buildings: Likely aligned.** The examples of activities under the framework for individual energy efficiency measures (e.g., energy efficient light sources) will include some building energy management systems (BEMS), lighting control systems and energy management systems (EMS) as per required in the EU Taxonomy.

adaptation measures, as well as by including renovation projects. While these elements combined together are ambitious, the Light to Medium Green shading of the category reflects that new buildings with energy performance only 10% better than regulation are eligible without systematic consideration of embodied emissions. In the Nordic context, some 50% of lifecycle emissions from buildings are expected to come from the operation of the building (mainly energy use), and the other half from building materials and construction. The issuer has informed us that the energy label A in most cases corresponds to energy performance that goes beyond the taxonomy threshold (except for schools and day care where it corresponds to 10% better than NZEB), and that upcoming regulations in Finland will require life cycle calculations.

✓ The issuer informed that most buildings will be residential buildings and public buildings (day care centers, schools, and hospitals). Cabins are excluded. MuniFin has not set maximum age for the buildings it finances. However, in practice, it has only offered green financing to new buildings.

✓ The non-compulsory criteria set for buildings will be used by the issuer to determine the margin discount for the project, hence MuniFin will provide cheaper lending to customers which additionally fulfil these criteria.

✓ The issuer does not systematically consider emissions from construction materials, as well as decommissioning/demolition processes and related emissions. However, MuniFin mentioned that the

by at least 30% compared to the pre-investment situation.

- **Individual energy efficiency measures**

Installation of energy-efficient equipment such as energy efficient windows and doors, energy efficient light sources, ventilation and measures to ensure air-tightness leading to a 30% improvement in energy efficiency compared to the pre-investment situation. The list is not exhaustive.

- **Renewable energy in buildings**

Installation of renewable energy technologies such as solar power, heat pumps or heat recovery systems.

- **energy saving project (ESCO)**

Energy saving project including ESCO, leading to a 30% improvement of energy efficiency compared to the pre-investment situation.

- **Biodiversity and adaptation measures**

Measures that aim to promote and/or sustain biodiversity and eco-system services, such as roof-top beehives, green roofs and walls, and adaptation measures such as flood barriers,

- **7.6 Installation, maintenance, and repair of renewable energy technologies: Likely aligned.** The activities in the framework correspond to several of the individual measures mentioned in the EU Taxonomy.

- **7.7 Acquisition and ownership of buildings: Likely partially aligned**. The EPC A requirement of the framework is aligned with the mitigation criteria, and EPC A is at least 10% lower than NZEB (Finnish building regulation) according to the issuer. However, the issuer cannot provide sufficient information to assess the alignment regarding the criteria for large non-residential building.

Nordic Swan Label or Finnish Construction Information certification processes put special emphasis on the material emissions, however none of these are obligatory under the framework.

✓ MuniFin considers projects' proximity to public transportation, however this is not an eligibility criterion.

✓ It is positive that MuniFin includes biodiversity and adaptation measures as eligible.

✓ Eligible buildings are heated with district heating (approx. 75% of the buildings), geothermal heat, and heat pumps. About 70% of Finland's municipalities produce district heating with renewable energy sources or waste heat[1]. The issuer confirmed that any buildings directly heated by fossil fuels is excluded under the framework

✓ The issuer explained that criteria for "other buildings" relating to the supply of 75% of its own energy from renewable sources is defined as renewable energy produced onsite, and the remaining 25% will come from the grid, which is ambitious. However, it is uncertain how ambitious the second possible criteria for "other buildings" is, as no specific eligibility criteria has been set for the type of environmental benefits. "Other environmental benefits proven by a specialist study" refers to an engineering or project planning study on the environmental and sustainability aspects of a specific project and likely projects include ice rinks

[1] Why district heat? | Finnish district heating and cooling association; FinDHC ry

	reinforcement of the building structure and rainwater harvesting. The list is not exhaustive.		using low emission technologies. There are only a small number of eligible projects. ✓ From a climate perspective, refurbishment is preferred before new construction. The energy efficiency criteria of 30% improvements for renovation projects is good. ✓ For renewable energy in buildings, the issuer informed that solar energy can be rooftop or standalone, but the majority of the financing will go to rooftop projects.
Clean Transportation 	• **Public transportation** Public transport systems such as trains, metro, buses, trams, vessels, coaches, and light rail systems with zero direct (tailpipe) CO_2 emissions. • **Supporting infrastructure for public transportation** Supporting infrastructure that is dedicated for zero direct emissions transport and promotes an improvement in the fleet efficiency, or an improved efficiency of the overall transport system. • **passenger cars and light commercial vehicles** Passenger cars and light commercial vehicles with zero direct (tailpipe) CO_2 emissions and related charging infrastructure.	• **6.1 Passenger interurban rail transport: Likely aligned**. The framework activities comply with the zero direct (tailpipe) CO_2 emissions mitigation criteria. • **6.3 Urban and suburban transport, road passenger: Likely aligned.** The framework activities comply with the zero direct (tailpipe) CO_2 emissions mitigation criteria. • **6.5 Transport by motorbikes, passenger cars and light commercial vehicle: Likely aligned**. The criteria for the framework activity are aligned or go beyond the mitigation criteria set in the EU Taxonomy by requiring zero direct (tailpipe) CO_2 emissions.	**Dark Green** ✓ Electrification is a key avenue for decarbonization of the transport sector, while public transport is more resource efficient than private modes of transportation. ✓ Concurrent investments in electrification and hydrogen are important in a 2050 perspective. However, in the maritime sector, electric technologies are still in their early stages. ✓ MuniFin has not set additional criteria for eligible projects under this category, such as emissions reduction thresholds and recyclability of the material used. ✓ The issuer confirmed that fossil fuels powered service vehicles and fossil fuels powered equipment are excluded. ✓ Under “public transportation”, the issuer informed that at the end of fiscal year 2021, it had different types of financed projects related to public transport: metro

- **Infrastructure for personal mobility**[2]

Infrastructure dedicated to personal mobility such as pavements, bike lanes, pedestrian zones, street lighting and electrical charging installations for personal mobility devices. This list is not exhaustive.

- **Biodiversity and adaptation measures**

Measures that aim to promote and/or sustain biodiversity and eco-system services such as wildlife crossings, noise barriers, and climate change adaptation measures such as flood barriers, reinforcement of the infrastructure.

- **6.7 Inland passenger water transport: Likely aligned**. The vessels have zero direct (tailpipe) CO_2 emissions.

- **6.8 Inland freight water transport: Likely aligned.** The vessels have zero direct (tailpipe) CO_2 emissions.

- **6.10 Sea and coastal freight water transport, vessels for port operations and auxiliary activities: Likely aligned**. The vessels have zero direct (tailpipe) CO_2 emissions.

- **6.11 Sea and coastal passenger water transport: Likely aligned**. The vessels have zero direct (tailpipe) CO_2 emissions.

- **6.13 Infrastructure for personal mobility, cycle logistics: Likely partially aligned**. While all the examples mentioned in the framework for relevant activities are covered by the Taxonomy mitigation criteria, the street lighting is not covered by the criteria for this taxonomy activity.

extension (>75%), tramway (> 20%), and hybrid ferry (not eligible under the updated framework).

✓ MuniFin confirmed that it expects to finance mainly fully electric vehicles. However, it does not exclude any other zero direct (tailpipe) CO_2 emissions solutions, such as hydrogen, if proven to be effective. The issuer has however no hydrogen related projects at the moment nor plans for hydrogen in the near future.

✓ The issuer confirmed that the supporting infrastructure for public transportation may include metro stations and facilities such as depots, traffic lights, and light rail systems. Parking spaces and service roads are excluded. The issuer confirmed that metro stations and depots directly heated by fossil fuels are excluded under the framework. These buildings would however most likely be connected to the grid or the district heating according to the issuer, and an EIA is required prior to lending.

[2] Including the construction of roads, motorways bridges and tunnels and other infrastructure that are dedicated to pedestrians and bicycles, with or without electric assist.

		• **6.14 Infrastructure for rail transport: Likely aligned.** The infrastructure for rail transport under the framework is aligned with several of the criteria set in the EU Taxonomy and is dedicated to zero direct emissions transport. • **6.15 Infrastructure enabling low-carbon road transport and public transport: Likely aligned.** The infrastructure is dedicated to the operation of vehicles with zero tailpipe CO_2 emissions.	
Renewable Energy	• **Solar energy** Energy generation using solar power. • **Wind energy** Energy generation using wind power. • **Bioenergy** Facilities producing heat from biomass[3] as well as supporting infrastructure, such as mobile fuel storage and unloading systems.	• **4.1 Electricity generation using solar photovoltaic: likely aligned.** Financed projects are solar PV. No other mitigation criteria are set for solar power than the use of this technology. • **4.3 Electricity generation from wind power: likely aligned.** No other mitigation criteria are set than to generate electricity for wind power • **4.6 Electricity generation from geothermal energy: Likely aligned**.	**Medium to Dark Green** ✓ While renewable energy is key to a low carbon transition and represents a Dark Green solution, the Medium Green shading reflects that there are remaining uncertainties with regards to bioenergy. MuniFin cannot confirm that the biomass (woodchips) will be exclusively locally sourced, nor can confirm that the wood chips will come from certified forests. This thus creates a risk of wood harvesting linked to deforestation or other environmental risks in the supply chain. Furthermore, bioenergy facilities using fossil fuels for start-up, peak load or in case of break down can be included under the framework, representing a risk of lock-in.

[3] Excluding use of food and feed crops. Use of fossil fuels is excluded, with the exemption start-up, peak load or in case of break down.

- **Geothermal energy**

Geothermal energy-generation facilities and geothermal heating systems that operate at lifecycle emissions lower than 100gCO_2 e/kWh.

- **Waste heat**

Facilities that produce heat/cool using waste heat, such as excess heat from data centres.

The eligibility criteria respect the life cycle emissions threshold.

- **4.22 Production of heat/cool from geothermal energy**: **Likely aligned**. The eligibility criteria respect the life cycle emissions threshold.

- **4.24 Production of heat/cool from bioenergy: Likely partially aligned**. Directive (EU) 2018/2001 (RED II) (required under the mitigation criteria for the EU Taxonomy activity) were implemented in Finland in 2021 through several pieces of legislation. However, the issuer cannot provide sufficient information to assess the alignment regarding the greenhouse gas emission savings requirement of at least 80% from the use of biomass.

- **4.25 Production of heat/cool using waste heat: Likely aligned.** No other mitigation criteria are set than to produce heat/cool from waste heat.

✓ As the projects are MuniFin's customers, it does not have control over or requirements for the size for different types of energy.
✓ Construction of renewable energy projects may have significant impact on the environment and the local biodiversity. In this regard, MuniFin informed us that if a renewable energy project is considered eligible for financing, MuniFin will consider the local environmental impact of such projects. Furthermore, MuniFin has clarified that it only finances projects which have undergone an EIA and received the appropriate permits.
✓ The issuer informed having no projects related to wind and geothermal at the moment.
✓ Geothermal projects can be a source of heavy metal and other pollution. Moreover, high GHG emissions can occur, especially during malfunctions or abnormal operation periods.

Water and waste water management

- **New waste water facilities**

New treatment plants, systems and technologies designed for waste water collection (sewer network) and treatment where it is proven that substances (BOD7, phosphorus, nitrogen) have loading values better than required by the applicable environmental permit.

- **Existing waste water facilities**

Measures at existing waste water facilities, including capacity expansion and upgrades, that achieve one of the following: a) improved treatment quality, b) delivers a 20% increase in energy efficiency, c) reduces the use of chemicals or leakages, or d) recovering heat from waste water.

- **New water facilities**

New water collection, treatment and supply systems enabling water purification, improved drinking water quality, improved reliable fresh water supply and/or increased water use efficiency.

- **5.1 Construction, extension and operation of water collection, treatment and supply systems: Not possible to assess alignment**. MuniFin informed that it does not have the necessary data about the water and waste water management projects at the moment in order to assess whether it meets the mitigation criteria.

- **5.2 Renewal of water collection, treatment and supply systems: Not possible to assess alignment**. The framework activity requirement "Delivers a 20% increase in energy efficiency" is in line with the EU Taxonomy. However, MuniFin informed that it does not have the necessary data about the water and waste water management projects at the moment in order to assess whether it meets all the requirements under the mitigation criteria.

- **5.3 Construction, extension and operation of waste water collection and treatment: Not possible to assess alignment.** The type of measurements required by the EU Taxonomy is not standard in the

Medium to Dark Green

✓ Within the water and waste water sector, the level of maintenance of existing infrastructure is generally too low. Whenever maintenance is planned, it is highly needed for public health and climate resilience reasons.

✓ The issuer confirmed that the facilities will not be running on fossil fuels but would rather be connected to the electricity grid and district heating network. The issuer also informed that some plants are self-sufficient as they produce heat exceeding their own needs.

✓ Projects should seek to minimize emissions from the construction phase and supply chain (e.g., from cement production).

✓ Excessive storm water overflow is not a separate measure in evaluation according to the issuer, but in most cases, it is taken into consideration in the project plans and in the permitting process measures.

✓ Projects will be located in Finland where regulatory guidelines will lower the risks related to impacts on biodiversity, excessive overflows etc. which are otherwise associated with this category.

✓ The issuer mentioned having no control over the specific location of these facilities but informed that treatment plants are located in the vicinity of water bodies (river, lake, sea) or in the surrounding area of existing/old treatment plants. The largest facilities are built inside the bedrock to minimize environmental harm during operation.

• **Existing water facilities** Measures at existing water facilities, including capacity expansion and upgrades, that achieve one of the following: a) Delivers a 20% increase in energy efficiency or b) reduces the use of chemicals or leakages or c) improved water quality.	Finnish context for new waste water facilities. Thus, due to a lack of data, discrepancy of indicators and the Finnish conditions, it is currently not possible to assess the alignment with the mitigation criteria.
	• **5.4 Renewal of waste water collection and treatment: Not possible to assess alignment**. The framework activity requirement "Delivers a 20% increase in energy efficiency" is in line with the EU Taxonomy. However, the type of measurements used in the EU Taxonomy for the activity are not standard in the Finnish context for existing waste water facilities. Thus, due to a lack of data, discrepancy of indicators and the Finnish conditions, we are not able to assess the alignment with the mitigation criteria.

Table 1. Eligible project categories.

EU Taxonomy

The EU Taxonomy Regulation[4] is a classification system setting criteria for economic activities to be defined as environmentally sustainable. The regulation defines six environmental objectives. To be considered sustainable, an activity must substantially contribute to at least one of the six environmental objectives[5] without harming the other objectives ("Do No Significant Harm"), while complying with minimum social safeguards[6]. So far, the EU has adopted delegated acts under the regulation that set out the technical screening criteria for the climate mitigation and adaptation objectives, respectively. The DNSH-criteria are developed to make sure that progress against some objectives is not made at the expense of others and recognizes the relationships between different environmental objectives.

Where sufficient information was not provided by the issuer, and information was not easily accessible through searching other public available sources, CICERO Green has not been able to assess alignment. Under MuniFin's framework, it was not possible to assess alignment of the relevant taxonomy activities associated with the water and waste water management project category.

CICERO Green assesses that most of the relevant taxonomy activities for MuniFin, as listed in table 1, are likely aligned with the mitigation criteria in the EU Taxonomy. MuniFin is however partially aligned for the following activities: construction of new buildings, acquisition and ownership of buildings, infrastructure for personal mobility, and production of heat/cool from bioenergy (see table 1 above for more details on alignment). The framework also includes biodiversity and adaptation measures for green buildings and clean transportation, which are not covered by the technical screening criteria for climate change mitigation. CICERO Green has not assessed these measures' alignment with the technical criteria for climate change adaptation.

CICERO Green has not assessed detailed alignment with the DNSH-criteria for each of the relevant activities, nor the minimum social safeguards. The Shades of Green assessment includes an assessment of environmental harmful activities more broadly, and where relevant, makes reference to the taxonomy DNSH-criteria.

[4] Regulation EU 2020/852 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020R0852&from=EN
[5] The six environmental objectives as defined in the proposed Regulation are: (1) climate change mitigation; (2) climate change adaptation; (3) sustainable use and protection of water and marine resources; (4) transition to a circular economy, waste prevention and recycling; (5) pollution prevention and control; (6) protection of healthy ecosystems.
[6] Alignment with the OECD Guidelines for Multinational Enterprises and UN Guiding Principles on Business and Human Rights, including the International Labour Organisation's ('ILO') declaration on Fundamental Rights and Principles at Work, the eight ILO core conventions and the International Bill of Human Rights.

3 Terms and methodology

This note provides CICERO Shades of Green's (CICERO Green) second opinion of the client's framework dated **August 2022.** This second opinion remains relevant to all green bonds and/or loans issued under this framework for the duration of three years from publication of this second opinion, as long as the framework remains unchanged. Any amendments or updates to the framework require a revised second opinion. CICERO Green encourages the client to make this second opinion publicly available. If any part of the second opinion is quoted, the full report must be made available.

The second opinion is based on a review of the framework and documentation of the client's policies and processes, as well as information gathered during meetings, teleconferences, and email correspondence.

'Shades of Green' methodology

CICERO Green second opinions are graded dark green, medium green or light green, reflecting a broad, qualitative review of the climate and environmental risks and ambitions. The shading methodology aims to provide transparency to investors that seek to understand and act upon potential exposure to climate risks and impacts. Investments in all shades of green projects are necessary in order to successfully implement the ambition of the Paris agreement. The shades are intended to communicate the following:

Shading	Examples
Dark Green is allocated to projects and solutions that correspond to the long-term vision of a low-carbon and climate resilient future.	Solar power plants
Medium Green is allocated to projects and solutions that represent significant steps towards the long-term vision but are not quite there yet.	Energy efficient buildings
Light Green is allocated to transition activities that do not lock in emissions. These projects reduce emissions or have other environmental benefits in the near term rather than representing low carbon and climate resilient long-term solutions.	Hybrid road vehicles

The "Shades of Green" methodology considers the strengths, weaknesses and pitfalls of the project categories and their criteria. The strengths of an investment framework with respect to environmental impact are areas where it clearly supports low-carbon projects; weaknesses are typically areas that are unclear or too general. Pitfalls are also raised, including potential macro-level impacts of investment projects.

Sound governance and transparency processes facilitate delivery of the client's climate and environmental ambitions laid out in the framework. Hence, key governance aspects that can influence the implementation of the green bond are carefully considered and reflected in the overall shading. CICERO Green considers four factors in its review of the client's governance processes: 1) the policies and goals of relevance to the green bond framework; 2) the selection process used to identify and approve eligible projects under the framework, 3) the management of proceeds and 4) the reporting on the projects to investors. Based on these factors, we assign an overall governance grade: Fair, Good or Excellent. Please note this is not a substitute for a full evaluation of the governance of the issuing institution, and does not cover, e.g., corruption.

Assessment of alignment with Green Bond Principles

CICERO Green assesses alignment with the International Capital Markets' Association's (ICMA) Green Bond Principles. We review whether the framework is in line with the four core components of the GBP (use of proceeds,

selection, management of proceeds and reporting). We assess whether project categories have clear environmental benefits with defined eligibility criteria. The Green Bonds Principles (GBP) state that the "overall environmental profile" of a project should be assessed. The selection process is a key governance factor to consider in CICERO Green's assessment. CICERO Green typically looks at how climate and environmental considerations are considered when evaluating whether projects can qualify for green finance funding. The broader the project categories, the more importance CICERO Green places on the selection process. CICERO Green assesses whether net proceeds or an equivalent amount are tracked by the issuer in an appropriate manner and provides transparency on the intended types of temporary placement for unallocated proceeds. Transparency, reporting, and verification of impacts are key to enable investors to follow the implementation of green finance programs.

EU taxonomy assessment

CICERO Shades of Green has carried out a mapping of financed activities under the framework against taxonomy thresholds for substantial contribution. To assess activities' taxonomy alignment, CICERO Green has reviewed the issuer's green bond framework, other supporting documents provided by the issuer, and written responses to questions on each asset's taxonomy alignment.

Appendix 1: Referenced Documents List

Document Number	Document Name	Description
1	Municipality Finance Plc ("MuniFin")'s Gren Bond Framework	Green Bond Framework dated August 2022
2	Board of Directors Rules of Procedures.	Dated 22.04.2022
3	Corporate Governance Policy	Dated 22.04.2022
4	MuniFin annual report 2021	Municipality Finance Group's Annual Report for 2021 published - MuniFin
5	MuniFin green impact report 2021	MuniFin Plc Green Impact Report 2021 (kuntarahoitus.fi)
6	Risk Committee Rules of Procedures	Dated 22.04.2022
7	Sustainability Policy 2021	Dated 03.11.2022
8	Sustainable Investment Framework	Sustainable-Investment-Framework_.pdf (kuntarahoitus.fi)
9	Vastuullisuuden johtamismalli	Sustainability management model. In Finnish.
10	MuniFin investor presentation	MuniFin investor presentation (kuntarahoitus.fi)

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Appendix 2:
About CICERO Shades of Green

CICERO Green is a subsidiary of the climate research institute CICERO. CICERO is Norway's foremost institute for interdisciplinary climate research. We deliver new insight that helps solve the climate challenge and strengthen international cooperation. CICERO has garnered attention for its work on the effects of manmade emissions on the climate and has played an active role in the UN's IPCC since 1995. CICERO staff provide quality control and methodological development for CICERO Green.

CICERO Green provides second opinions on institutions' frameworks and guidance for assessing and selecting eligible projects for green bond investments. CICERO Green is internationally recognized as a leading provider of independent reviews of green bonds, since the market's inception in 2008. CICERO Green is independent of the entity issuing the bond, its directors, senior management, and advisers, and is remunerated in a way that prevents any conflicts of interests arising as a result of the fee structure. CICERO Green operates independently from the financial sector and other stakeholders to preserve the unbiased nature and high quality of second opinions.

We work with both international and domestic issuers, drawing on the global expertise of the Expert Network on Second Opinions (ENSO). Led by CICERO Green, ENSO contributes expertise to the second opinions, and is comprised of a network of trusted, independent research institutions and reputable experts on climate change and other environmental issues, including the Basque Center for Climate Change (BC3), the Stockholm Environment Institute, the Institute of Energy, Environment and Economy at Tsinghua University, the International Institute for Sustainable Development (IISD) and the School for Environment and Sustainability (SEAS) at the University of Michigan.

Environmental Finance
Bond Awards
2022
Winner
External assessment provider of the year

- **2021 Largest External Reviewer,** Climate Bonds Initiative Awards
- **2020 External Assessment Provider Of The Year,** Environmental Finance Green Bond Awards
- **2020 Largest External Review Provider In Number Of Deals,** Climate Bonds Initiative Awards
- **2019 External Assessment Provider Of The Year,** Environmental Finance Green Bond Awards
- **2019 Largest Green Bond SPO Provider,** Climate Bonds Initiative Awards
- **2018 External Assessment Provider Of The Year,** Environmental Finance Green Bond Awards
- **2018 Largest External Reviewer,** Climate Bonds Initiative Awards
- **2017 Best External Assessment Provider,** Environmental Finance Green Bond Awards
- **2016 Most Second Opinions,** Climate Bonds Initiative Awards