

‘Second Opinion’ on Aquafin’s Green Bond framework

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1. Summary

Overall, Aquafin's green bond framework and the governing laws and institutions of Flanders provide a holistic and sound framework for climate-friendly investments. The green bond framework lists eligible projects that are generally supportive of the dual objective of promoting a transition to low-carbon and climate-resilient growth, and improving the environment. Aquafin provides regular and transparent reports to investors and the public on on-going projects and their total impacts. Overall, we grade Aquafin's green bond framework Medium green, but very close to Dark green. Clearer strategic plans, goals and reporting obligations when it comes to climate change would give the framework a Dark green grading.

Aquafin and Flanders are subject to a variety of EU and national laws governing their environmental footprint and reporting. This comprehensive legal coverage provides a solid foundation for Aquafin projects that consider both climate change and biodiversity impacts.

In general, Aquafin take an integrated approach since they are responsible for water management and water quality. Both water retention and ecological potential are considered in combination.

It is also a great strength that Aquafin has a strong in-house research capacity that together with a network of research partners focuses on development of a climate and environmental friendly wastewater management regime.

2. Introduction and background

As an independent, not-for-profit, research institute, CICERO (Center for International Climate and Environmental Research - Oslo) provides second opinions on institutions' framework and guidance for assessing and selecting eligible projects for green bond investments, and assesses the framework's robustness in meeting the institutions' environmental objectives. The second opinion is based on documentation of rules and frameworks provided by the institutions themselves (the client) and information gathered during meetings, teleconferences and e-mail correspondence with the client.

CICERO has established the global Expert Network on Second Opinions (ENSO), a network of independent non-profit research institutions on climate change and other environmental issues, to broaden the technical expertise and regional experience for second opinions. CICERO works confidentially with other members in the network to enhance the links to climate and environmental science, building upon the CICERO model for second opinions. In addition to CICERO, ENSO members include Basque Center for Climate Change (BC3), International Institute for Sustainable Development (IISD), Stockholm Environment Institute (SEI), and Tsinghua University's Institute of Energy, Environment and Economy. CICERO encourages the client to make this Second Opinion publically available. If any part of the Second Opinion is quoted, the full report must be made available.

CICERO's Second Opinions are normally restricted to an evaluation of the mechanisms or framework for selecting eligible projects at a general level. CICERO does not validate or certify the climate effects of single projects, and, thus, has no conflict of interest in regard to single projects. CICERO is neither responsible for how the framework or mechanisms are implemented and followed up by the institutions, nor for the outcome of investments in eligible projects.

This note provides a Second Opinion of Aquafin's Green Bond Framework and policies for considering the environmental impacts of their projects. The aim is to assess Aquafin's Green Bond Framework as to its ability to support Aquafin's stated objective of low-carbon and climate resilient growth.

Climate change will have a significant impact on economic development, both from the perspectives of sustainable future development pathways and from the perspective of adapting to changing circumstances. The recently released Intergovernmental Panel on Climate Change report (IPCC, 2013) on the physical science of climate change highlighted the seriousness of human-induced climate effects. The report can be viewed as an immediate call to action on the challenge of reducing greenhouse gas (GHG) emissions. The 195 countries that have ratified the United Nations Framework Convention on Climate Change (UNFCCC) have agreed to reduce GHG emissions to limit global temperature increase to below 2°C above pre-industrial level. Reaching this target requires shifting development pathways towards low- or zero-emitting economies without delay, and avoiding locking-in high-emitting capital.

CICERO takes a long-term view on activities that support a low-carbon climate resilient society. In some cases, activities or technologies that reduce near-term emissions result in net emissions or prolonged use of high-emitting infrastructure in the long run. CICERO strives to avoid locking-in of emissions through careful infrastructure investments, and moving towards low- or zero-emitting infrastructure in the long run. Proceeds from green bonds may be used for financing, including refinancing, new or existing green projects as defined under the mechanisms or framework. CICERO assesses in this second opinion the likeliness that the issuer's categories of projects will meet expectations for a low carbon and climate resilient future.

Expressing concerns with 'shades of green'

CICERO Second Opinions are graded dark green, medium green or light green, reflecting the climate and environmental ambitions of the bonds. The grading is based on a broad qualitative assessment of each project type, according to what extent it contributes to building a low-carbon and climate resilient society.

This second opinion will allocate a 'shade of green' to the green bond framework of Aquafin:

- Dark green for projects and solutions that are realizations today of the long-term vision of a low carbon and climate resilient future. Typically this will entail zero emission solutions and governance structures that integrate environmental concerns into all activities.
- Medium green for projects and solutions that represent steps towards the long-term vision, but are not quite there yet.
- Light green for projects and solutions that are environmentally friendly but do not by themselves represent or is part of the long-term vision (e.g. energy efficiency in fossil based processes).
- Brown for projects that are irrelevant or in opposition to the long-term vision of a low carbon and climate resilient future.

The project types that will be financed by the green bond primarily define the overall grading. However, governance and transparency considerations also factor in, as they can give an indication whether the institution that issues the green bond will be able to fulfil the climate and environmental ambitions of the investment framework.

3. Brief description of Aquafin's Green Bond framework and environmental policies

Aquafin was established by the Flemish Region in Belgium in 1990 and is 100% publically owned by the region. The core business of the company is the development, financing and management of the water treatment infrastructure of the Flemish Region.

Aquafin collects household wastewater from the municipal sewers in collector sewers and transports it to wastewater treatment plants, where it is treated in accordance with European and Flemish standards. Aquafin is responsible for the operation of 287 sewage treatment plants on 31st January 2014. Aquafin also manages 5,505 km pipelines, for the transportation of wastewater to the treatment plants. Aquafin has 1,472 supra-municipal pumping stations and sedimentation basins.

Aquafin operates under strict regulatory and regional supervision through the Management Agreement signed by Aquafin and the region. The Management Agreement defines the company's mission, its funding structure, its budgetary and accounting principles. Aquafin is also closely scrutinised by the region at every stage of its investment activities.

Aquafin has a strong in-house research team (25 people) and a research strategy that focuses on three main areas:

- Sustainable wastewater treatment

Research projects addressing the minimization of greenhouse gas emissions (direct as well as indirect) and recovery of valuable resources (energy, nutrients, water) contribute to the development of future wastewater treatment concepts that minimize the ecological impact without compromising the effluent constraints.

- Integrated water resources management

Aquafin R&D explores a wide range of options to improve receiving water quality by a set of research projects focusing on the mitigation of the impact of the sanitation system caused by combined sewer overflow spills and effluent discharges into the water ecosystem.

- Asset Management

Managing ageing or expanding infrastructure needs a lot of expertise. In order to bring its network up to optimal condition and maintain it at that level, Aquafin invests in developing expertise, techniques and methodologies by measurement campaigns, pilot and field research for assessing the current condition, improving it and prevention and resolving problems.

To help Europe to realize its 2020 climate goals, Aquafin adopted in 2012 the following targets, taking 2010 as the year of reference:

- Reduce the consumption of primary energy with 20%
- Reduce (sludge) transport with 20% (by augmenting the dry matter component by 1%)
- Produce 13% of green energy

The energy policy declaration (with its targets) is driving Aquafin's investments towards less energy consumption and smart use of energy, and hence a reduction of the CO₂ footprint.

On the adaptation side, the statutory aim of Aquafin is to address adaptation to one of the unavoidable effects of climate change, namely increased or more intense precipitation. It states: ‘To develop reliable wastewater and stormwater management, tailored to our customers’ requirements, with respect to those around us and the environment.’ Adaptation to more intense rain events may need hydraulic extension of some wastewater treatment plants (WWTPs) or more storage capacity on the combined sewerage system to cope with increased flow. Otherwise a separate sewer system and storm water reuse, infiltration or storage is the better solution. It is a challenge for Aquafin to justify appropriate investments at the right place.

Aquafin’s investment framework includes a Green Bond framework. The documents that can impact the environmental soundness of the bank’s investments are described briefly in this section, see Table 1 for an overview of all documents/references on which this second opinion is based.

Table 1: Document/reference overview

Document/reference	Title	Comments
1	Aquafin’s Green Bond framework	Brief memo on the Green Bond framework
2	Aquafin’s research	Describes the research strategy, focus areas and some current research projects, http://www.aquafin.be/nl/indexb.php?n=90&e=92
3	Aquafin sustainability	The environmental chapter from the 2014 annual report, http://jaarverslag.aquafin.be/en/annual-report-2014/corporate-social-
4	Management Agreement	The full text of the management agreement.
5	About VMM	Description of the environmental agency of the Flemish region, http://en.vmm.be/about-vmm
6	Investor presentation	A power point presentation of Aquafin for investors
7	Various relevant directives and regulations.	<p>European wastewater directive (1991)</p> <p>i. http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31991L0271&from=EN (1991)</p> <p>ii. http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31998L0015&from=EN (1998) concerning formats for reporting on the national programmes for the implementation of Council Directive 91/271/EEC (2014)</p> <p>iii. http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014D0431&from=EN European water framework regulation (2000)</p> <p>iv. http://ec.europa.eu/environment/water/water-framework/index_en.html Flemish Regulations on the Environmental permit Vlareme I (1991) and Vlareme II (1995):</p> <p>v. http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=1995040557&table_name=loi Decree on Integral Water Policy (2003): http://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=2003071872&table_name=loi</p>
8	Allocation agreement and addenda	Various documents describing the allocation agreement between Aquafin and Flanders, added comments and clarifications by e-mail dated 26.6.2015.

Eligible projects

Proceeds from Green Bonds will exclusively fund Aquafin’s investments under the Management Agreement signed with the Flemish Government. Eligible Projects may include projects that target (a) mitigation of climate change, being water management (“Mitigation Projects”) (b) adaptation to climate change, including investments in climate-resilient growth (“Adaptation Projects”) or (c) “Water Treatment Projects” and (d) “Biodiversity Projects”, which are related to water projects rather than directly climate related.

Examples of Eligible Projects are shown in Table 2.

Table 2: Eligible project categories

Primary objective	Eligible project types
Mitigation	<ol style="list-style-type: none">1. Wastewater sludge to pellets2. Pellet ash to cement
Adaptation	<ol style="list-style-type: none">1. Water purification (drinking water and industrial cooling water)2. Storm water management3. Pumping stations4. Wastewater transport infrastructure
Water treatment projects	<ol style="list-style-type: none">1. Wastewater collection infrastructure2. Wastewater treatment facilities
Biodiversity	<ol style="list-style-type: none">1. Sanitation and dredging of waterbeds2. Water treatment3. Transport and cleaning of wastewater4. Disposal of sewage sludge

Selection

The Eligible Projects under the Management agreement signed with the Flemish Government are selected according to the procedure described in art. 2 and 3 of the Management Agreement.

The Flemish Region determines the basin priorities and/or functional objectives to be followed in the concrete drafting of the Investment Programmes in order to systematically pursue the realization of the surface water quality objectives. The hydrographic (sub)basin approach is the central guideline for the selection. The basin committees set up by the Flemish Government are systematically involved in the drafting of the Investment Programmes in order to fully guarantee an ecologically integrated approach.

Both the Flemish Region and Aquafin undertake to make all relevant information duly available to the basin committees during the drawing up of the draft Investment Programme by VMM (Vlaamse Milieumaatschappij) on the one hand and the execution of the Investment Programme and the operation of the treatment infrastructure by Aquafin on the other. The project proposals drawn up by Aquafin, the VMM, the River Basin Committee or other parties are investigated on different aspects and prioritized mainly by the ecological benefits of the proposal. The draft program is then elaborated by VMM and submitted to the Flemish Government by the Ministry of Environmental affairs. The final decision is taken by the Flemish Government that orders Aquafin to execute the program. Aquafin will use the funds to finance climate and environmental related projects according to the criteria described above. If, against all expectations, a project should show negative impact on the climate, this project will not be financed with the proceeds of the Green Bond specifications.

Reporting

The financing of the projects will match the repayments by the Flemish Government and the drinking water companies. Aquafin will inform the investors of the categories of projects which were financed by their green investment on its website (e.g. the names and categories of the projects). The VMM monitors the chemical water quality and the biota status (phytoplankton, macrophytes and phytobenthos and macro-invertebrates) of Flemish surface water on a regular basis. Moreover fish populations are monitored by the Research Institute for Nature and Forest (INBO) and the Flemish Nature and Forest Agency. Their reports and detailed data are available on internet. Using this information Aquafin studies the evolution of the water quality of the brooks and rivers impacted by its activities. Regularly a water quality map of the Flemish region with the location of newly built WWTP's is updated. Results are used for presentations and publications. This information will be summarized and provided on a regular basis. A dedicated specific page on Aquafin's website will be updated on a yearly basis.

4. Assessment of Aquafin's Green Bond framework and environmental policies

Overall, Aquafin's green bond framework is a robust framework for low-carbon, climate-resilient, and environmentally friendly investments. The framework and procedures for Aquafin's environmental investments are assessed according to both the micro or project level impacts and the wider (macro-level) impacts in this section.

Eligible projects under the Green Bond framework

The eligible projects listed in the Green Bond framework are generally supportive of Aquafin's identified objective of promoting a transition to low-carbon and climate-resilient growth. To the extent that environmentally friendly projects are climate unfriendly, they will not be eligible. Table 3 shows our assessment of the likelihood of meeting the objective for eligible project categories with respect to the long-term environmental objectives.

Table 3: Eligible project categories and likelihood of meeting objectives

Eligible project types		Classification and likelihood of meeting objective
Mitigation	<ol style="list-style-type: none"> 1. Wastewater sludge to pellets 2. Pellet ash to cement 	Dark Green. Pellets from sludge can substitute for fossil fuel leading to net life cycle emission reductions of greenhouse gases. This can also reduce methane emissions. Disposal of pellet ash in cement is good.
Adaptation	<ol style="list-style-type: none"> 1. Water purification (drinking water and industrial cooling water) 2. Storm water management 3. Pumping stations 4. Wastewater transport infrastructure 	Dark green. Clean water and storm water management are valuable adaption projects. Adequately designed pumping stations and wastewater transport infrastructure will allow real time control of flooding hazards in a climate with more intense precipitation, thus contributing to stronger climate resilience.
Water treatment	<ol style="list-style-type: none"> 1. Wastewater collection infrastructure 2. Wastewater treatment facilities 	Dark green. New concepts and process in wastewater treatment shows promise in delivering substantial energy savings and recovery of valuable resources, thus improving on best available technologies.
Biodiversity	<ol style="list-style-type: none"> 1. Sanitation and dredging of waterbeds 2. Water treatment 3. Transport and cleaning of wastewater 4. Disposal of sewage sludge 	Medium green. One of the criteria for the selection of the sludge disposal routes is the possibility to recuperate as much energy as possible, both within Aquafin in the form of e.g. biogas which is reused in part of the water treatment plants and for the potential client in the form of pellets or other energy commodity.

Strengths

Aquafin and Flanders are subject to a variety of EU and national laws governing their environmental footprint and reporting. This comprehensive legal coverage provides a solid foundation for Aquafin projects that consider both climate change and biodiversity impacts.

In general, Aquafin takes an integrated approach since they are responsible for water management and water quality. Climate concerns, water retention and ecological potential are considered in combination.

It is also a great strength that Aquafin has a strong in-house research capacity that together with a network of research partners focuses on development of climate and environmental friendly wastewater technologies and management regimes.

Weaknesses

We find no serious weaknesses in the Green Bond Framework of Aquafin. However, a more pronounced strategic vision for climate related work and reporting could be wished for.

Pitfalls

Consideration of dual climate change and biodiversity goals

Climate change and biodiversity objectives are not always mutually reinforcing. Aquafin's framework could have stated more clearly that biodiversity projects will be viewed through a climate lens, thus reinforcing

the aim of the bond to support low-carbon and climate resilient growth. Later clarification with Aquafin has made it clear that only projects that do not have negative climate impacts will be eligible.

Macro level impacts

Beyond the consideration of specific project types, it is important to evaluate the potential for macro-level impacts of climate activities, including impacts beyond the project boundary.

Due to the complexity of how socio-economic activities impact the climate a specific project is likely to have interactions with the broader community beyond the project borders. These interactions may or may not be climate-friendly, and thus need to be considered with regards to the net impact of climate-related investments. Supply chain climate impact considerations should ideally be included in procurements related to eligible projects.

Aquafin takes a holistic approach to environmental sustainability in their water management and security mandates, governed both by Flemish and EU environmental law. This integrated approach implies consideration of cross-boundary environmental impacts.

Transparency and reporting

Aquafin and the governing environmental laws at the EU and state level support comprehensive, regular and transparent updates to investors and the public. Annual reports will be made available to investors including a list of project groups financed, a selection of project examples, and a summary of Aquafin's Green Bond development.

The VMM monitors the chemical water quality and the biota status (phytoplankton, macrophytes and phytobenthos and macro-invertebrates) of Flemish surface water on a regular basis. Moreover fish populations are monitored by the Research Institute for Nature and Forest (INBO) and the Flemish Nature and Forest Agency. Their reports and detailed data are available on internet. Using this information Aquafin studies the evolution of the water quality of the brooks and rivers impacted by its activities. Regularly a water quality map of the Flemish region with the location of newly built WWTP's is updated. This information will be summarized and made available to investors and the public. Aquafin's annual reports are also publically available.

5. References

IPCC (2013). Climate Change 2013: The Physical Science Basis, Fifth Assessment Report, Intergovernmental Panel on Climate Change.