CLEAR Info

Action 3.6
Summary Report

Developing methods to enhance the view of a company's performance across the EU

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Contents

List of Tables and Figures

Executive Summary

Company hierarchies present a barrier to stakeholders interrogating the true environmental performance of a company. Large organisations with many subsidiaries often have adverse effects on the environment that are hard, if not impossible, to attribute back to the parent company. This fact is due to a number of what appear to be, manageable issues, such as mapping out a company hierarchy, availability of environmental data, and matching different companies and sites within, and across datasets.

As part of CLEAR Info's Action 3.6, Trucost has been investigating the barriers to linking environmental data throughout a company hierarchy, as well as the possible solutions that could be employed to gain insight into a parent company's environmental performance. Over the course of four stakeholder action groups, Trucost has presented its analysis and gained feedback on its many facets in order to identify ways in which various stakeholders can meaningfully assess parent company environmental performance in the EU. Trucost analysed the information that was available from European environment agencies, as well as a number of private sector information providers, and presented solutions that enabled stakeholders to gain meaningful insights from environmental data within a company hierarchy.

During this process, Trucost discovered a number of barriers and challenges that prevented the use of some datasets, as well as the use of some methods in linking environmental data within a company hierarchy. Some of the main barriers included the lack of company hierarchy data, the lack of environmental information published by European environment agencies, and the lack of a unique referencing system that enabled a user to match companies and sites between datasets. As a result of these and many other challenges, Trucost developed solutions that enabled stakeholders to interrogate an array of environmental information from across the EU so that environmental performance could be easily assessed. Trucost also developed ways that stakeholders could interrogate company hierarchy environmental data so that poor environmental performance and exposure to environmental risk could be assessed.

Feedback from stakeholders has been collected systematically across the four workshops so that the usefulness of data, and the solutions that have been developed, could be maximised. In addition to the solutions highlighted above, this work has resulted in a number of recommendations being formulated, so that if the European Commission wishes to further develop this approach, these should be the starting points for the work. The recommendations include developing a unique referencing system for companies and sites throughout Europe, publishing permit data on a regular basis and in a consistent format, as well as requiring the mandatory reporting by companies of their parent companies, as well as their subsidiaries. By tackling these issues, it will greatly increase the likelihood of the proliferation of this work, and increase the use of this approach in the long-term.

Introduction

Trucost held four stakeholder action groups (SAGs) in London over the course of 2014. The workshops brought together public and private sector stakeholders in order to gather feedback on Trucost's approaches, present barriers to linking environmental data and to identify and potential solutions that enable the interrogation of company environmental around Europe. The workshops also provided a platform for stakeholders to provide feedback on the usefulness and the challenges of using the information that was presented. The outputs of each of these workshops can be found in the supporting interim and summary reports submitted to the European Commission.

The initial workshops focussed on identifying the data needs of participants, as well as gathering feedback on the potential challenges that may be encountered when attempting to link environmental information throughout a company hierarchy. Trucost found that the main problems in linking environmental data throughout a company hierarchy were that it was not possible to obtain subsidiary and parent company information from outside the UK, that there is no unique referencing system used throughout Europe to identify companies and sites, and that regulated environmental information is published and reported in a non-standard, ad hoc way.

Due to the difficulties mentioned above, the latter stages of Trucost's work focussed on the refinement and inclusion of geo-spatial data, the creation of a company hierarchy, and exploring how linking complete and consistent, albeit fictitious, environmental information throughout a company hierarchy may be useful to various stakeholders. Trucost focussed on using GIS datasets related to water quality and water availability, as well as relevant information that is collected by the English Environment Agency, henceforth referred to simply as the EA. The rationale for these decisions were based on the feedback received in earlier workshops, as well as the quality of data that could be sourced.

The sections that follow present the outputs from Trucost's final workshop, the processes undertaken and challenges encountered. The aim is to demonstrate to various stakeholders, that if the barriers identified by Trucost in the early stages of the project are overcome, the analysis that follows could become commonplace. The analysis outlines that stakeholders would be able to identify the environmental performance companies and sites, at any stage within a company's hierarchy, as well as their exposure to environmental related risks.

In order to provide greater clarity for the information that follows, the overarching aims for Action 3.6 are shown below.

Action 3.6 Aims

i. Explore how UK environmental datasets can be linked to other datasets across the EU regulatory environment
ii. Identify barriers to linking and integrating environmental data relating to company performance
iii. Evaluate these challenges to improve information data exchange across Europe
iv. Develop solutions to linking and integrating UK datasets with other global data

Overview

Trucost's case study focusses on a fictitious water company that owns and operates sites around Europe. The fictitious company is called British Water Utilities, and it has 839 sites located in seven countries – Austria, Belgium, England, Finland, Italy, Poland and Spain. Of these sites, 475 abstract water. Company sites that are located in England relate to real company locations that can be found in the EA's National Abstraction Licencing Database (NALD). The remaining company locations around Europe are predominantly fictitious due to a lack of data that is available from other European environment agencies.

Water abstraction amounts were allocated to 475 companies using the NALD database from the EA as a guide, so that realistic permitted abstraction figures could be assigned. Trucost also recreated some key features of other EA datasets and applied them to all water abstracting companies and sites in the company hierarchy. Trucost copied the location banding that is used in the EA's Operational Risk Appraisal (OPRA) database, which scores a site's proximity to sensitive areas. This was highlighted by participants in earlier workshops as being of particular interest due to its site specific nature and its link to reputational risk. Trucost also replicated the number of permit breaches found in the EA's database. The ratio of different type of permit breaches in England, designated from Category 1 (60-points) to 4 (0.1 points), was used to assign breaches at random throughout British Water Utilities' company hierarchy.

Finally, a site-level environmental score was applied to each of the sites that abstract water. Trucost scored a company's location banding, its score for breaching permit conditions and water abstraction. The scores are relative to other sites within the company hierarchy with the worst score. Scores ranged from 0, the lowest score, to 100, the best. Trucost combined these three scores to create a combined site score that again ranged from 0 to 100, which was intended to give participants a broad overview of the environmental performance of a site. This approach mirrors the company-level environmental score that was presented in earlier workshops. Trucost combined this information with a number of geo-spatial datasets to provide the user context to the information outlined above. These datasets are outlined in the section below.

GIS Analysis

Water Stress

Source: Pfister (2009) ETH Zürich

Trucost used this global dataset of water stress in order to be able to show the ratio between total annual freshwater withdrawals and hydrological availability of water in the locations where British Water Utilities has operations. Water stress in this dataset is defined as a percentage, where 20% is defined as moderate water stress and anything above 40% is generally defined as severe. Sites in British Water Utilities' company hierarchy were located in places where the water stress varied between 7% and 100%.

Water Quality

Sources: European Environment Agency (2013) Waterbase; European Environment Agency (2013) WISE Groundwater; Eurostat (2013) Water abstraction by river basin district

Trucost used a combination of four datasets in an attempt to analyse the quality of groundwater at British Water Utilities' site locations. The sole GIS dataset, WISE Groundwater, plotted the position of the groundwater bodies (GWBs) around Europe. Member States collect this information and submit it to the European Environment Agency (EEA) once per year. The GWBs are broken into different horizons which relate to the positioning and location in the ground.

Subsequently, Trucost appended three additional datasets from the EEA which contain information on the concentration of pollutants per GWB, the amount of water abstracted per river basin district (RBD) as well as the amount of hazardous substances emitted within RBDs. Once all files had been amalgamated, significant data gaps remained in all the datasets as Member States had not been consistently reporting information, or information had never been reported. For example, the locations of GWBs were not present in a number of countries in Eastern Europe and the data for the United Kingdom was missing.

Natura2000

Source: European Environment Agency (2013) Natura2000

This dataset plots the locations of Natura2000 sites around Europe. These are sites that form part of either the Birds or Habitats Directive. The former consists of Special Protection Areas (SPAs) and the latter of Special Areas of Conservation (SACs). They are areas which are protected in order to provide habitats for migratory birds, as well as vulnerable and rare animal species.

The dataset was included in the analysis in order to show the sensitivity of the locations that the company is abstracting water in. Trucost analysed the number of hectares of Natura2000 sites that are situated within 10km of a British Water Utilities water abstracting site, as well as the total number of hectares that are within the same RBD.

Irrigated Cropland

Source: Goethe Universitat Frankfurk Am Main (2010) MIRCA2000

This is a global dataset which describes the density and distribution of irrigated cropland. Exact locations of irrigated farmland remains unknown but the general area and density of the farmland is. To begin with, Trucost included all crop data in its analysis – 26 crops – and then focussed its attention on the 3 most produced grains (by quantity) in the EU, namely wheat, sugar beet and maize[1]. This enabled a more targeted analysis and allowed the user of the information to target the crops and identify farmland that could materially affect water abstraction in their company locations.

River Basin Districts

Source: European Environment Agency (2011) River Basin Districts

As part of the Water Frameworks Directive, Member States have to submit river basin management plans that outline the quality of water and how water resources are being managed in that region. The official delineation that Member States are required to report on is 'river basin districts' (RBDs) as well as their 'sub-units' (SU). This dataset was incorporated into the analysis so that all of the outputs from the analysis could be included in the management plans for the RBDs and their sub-units.

[1] http://faostat3.fao.org/browse/rankings/commodities_by_regions/E [accessed 01/10/14]

Case Study – Water Abstractions in the EU

Trucost's case study focusses on the water abstractions of British Water Utilities, a fictitious company operating in 7 countries across 839 sites as highlighted above. The analysis of its environmental performance and exposure to environmental risk has been broken down into the following levels:

i. ***Country-level***: Trucost analysed the distribution of company and site-locations within British Water Utilities' company hierarchy. Trucost provided examples of how environmental risk could be assessed at a country-level, and how this could be used to identify parent companies to engage with.

ii. ***Parent company-level***: This focussed on companies in the second tier of British Water Utilities' company hierarchy i.e. companies that are directly controlled by British Water Utilities.

iii. ***Subsidiary-level***: Once level 2 parent companies had been highlighted for their environmental performance or exposure to environmental risk, lower-level subsidiaries and sites that regulators and parent companies may want to engage with were identified.

iv. ***Proximity to other sites***: Trucost analysed the proximity of company and site locations to irrigated cropland and Natura2000 sites. Irrigated cropland was used as a proxy for demand on water resources and Natura2000 site data was used as a proxy for the sensitivity of the location where a company was located.

Figure 1 below shows the distribution of company locations that abstract water in British Water Utilities' company hierarchy.

Figure 1: *Distribution of company sites operated by British Water Utilities*

Country-Level Analysis

The figure below is showing three main pieces of information that are broken down into the seven countries that British Water Utilities operates in. The size of each block represents the total amount of water abstracted, the colour of each section corresponds to the rate of change of water stress, and the label refers to the average water stress at the locations where the company is abstracting water.

Throughout the analysis, dark green colours refer to a desirable level of performance or exposure to environmental risk compared to other companies or sites, whereas grey or red colours refer to poor performance or a high level of exposure to risk.

The way that Trucost performed the analysis means that all of the information is relative to the other sites in the company hierarchy. For example, if British Water Utilities operated in a country where the rate of change of water stress is three times higher than that in Belgium, currently highlighted in red, then Belgium in Figure 2 would subsequently be depicted in green.

Figure 2: *Rate of change of water stress, average water stress and the total amount of water abstracted per country where British Water Utilities abstracts water*

The figure above shows that for British Water Utilities, if a stakeholder wanted to start addressing risks by targeting the countries that it operated in, then based on average water stress and the rate of change of water stress, Belgium and Spain are highlighted as countries that should be analysed in more depth. This conclusion could be reached despite the vast majority of the water abstractions within British Water Utilities' company hierarchy taking place in Austria and England.

Parent Company Analysis

After highlighting the countries that a stakeholder may want to analyse in more depth, Trucost highlighted the various parent companies that may be exposed to this risk, or have a poor environmental performance in these regions. The figure below shows how one component of Trucost's environmental score can be viewed throughout a company hierarchy. Information is only shown for companies and sites that abstract water so it may appear as if there are gaps in the data. British Water Utilities, the ultimate parent company, directly owns the 11 companies shown below, and indirectly owns the sites and subsidiaries that subsequently form part of the company hierarchy.

The environmental score that is shown in the figure displays the location banding score, which is a replication of the score that the Environment Agency (EA) in England assigns company sites. The closer the score is to zero, the closer the site is located to sensitive areas and population centres so if an accident were to occur at the site, the potential for damage to the environment, humans and built infrastructure, would be severe.

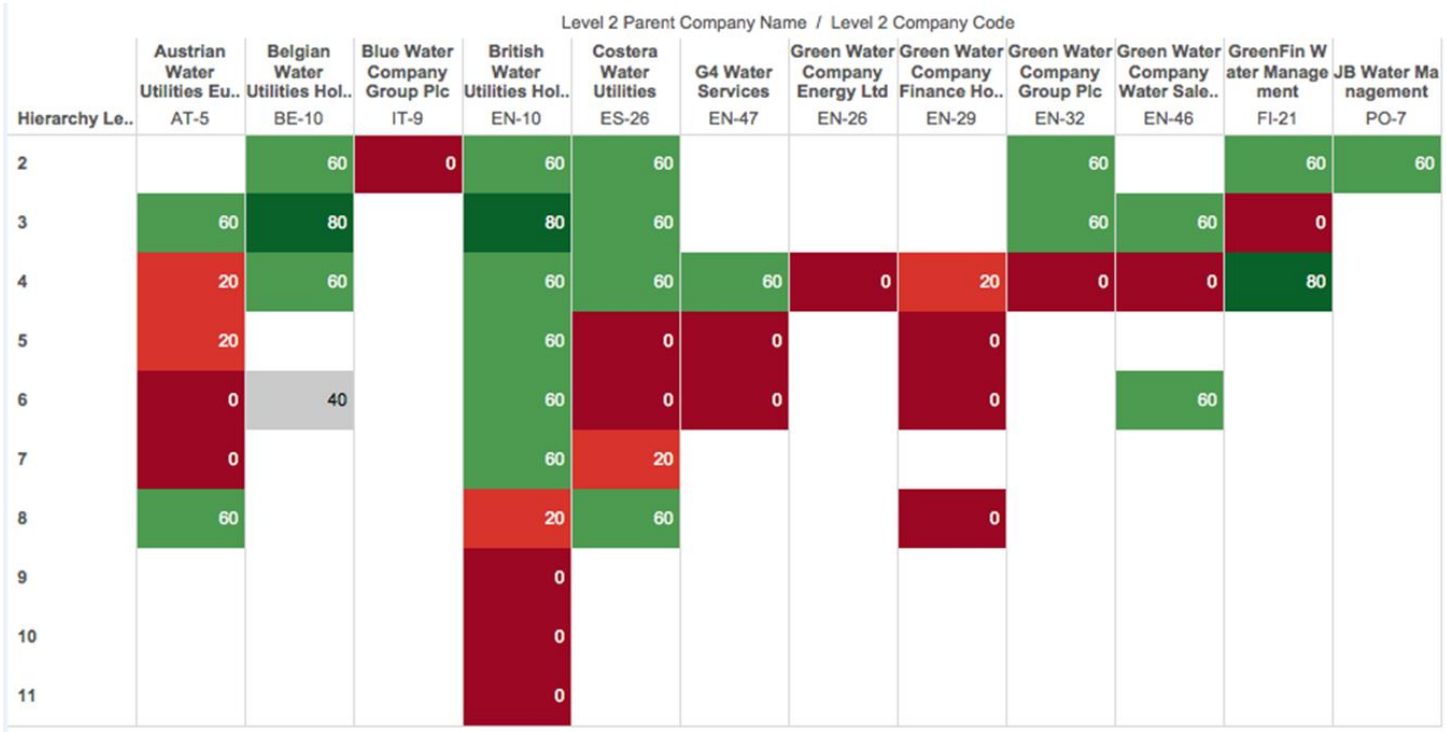

Figure 3: *Highlights the lowest location score of water abstracting sites in the hierarchies of each of the level 2 companies in British Water Utilities' company hierarchy*

Figure 3 above shows the distribution of sites within all level 2 company hierarchies. Not all companies have subsidiaries right the way to level 11, and not all have sites that abstract water at each level. What this figure can show a stakeholder is where water is being abstracted and how sensitive the locations are to where this water is being taken out of the ground.

Figure 3 is showing that there are a number of sites towards the lower levels of British Water Utilities Holdings that are located in very sensitive areas. This enables a user to either start a conversation with the operator of each of the companies in levels 8, 9, 10 and 11 of the company hierarchy, or it tells the user that speaking to the parent company in level 7 may help them to understand why its subsidiaries may be operating in very sensitive areas. It is important to remember that at this stage, there is no indication as to the regions that these companies and sites are located, only the companies that own or are ultimately responsible for them.

Trucost replicated this environmental score for the number of breaches of permit conditions, the water abstraction intensity and the combined site score for each site.

Subsidiary Analysis

In order to find out more about the location of the companies in British Water Utilities' company hierarchy that may have poor environmental performance or be exposed to more environmental risk, it is necessary to delve a little deeper. Figures 4 and 5 show how this may be done. Both figures show the average water stress at the sites where each company is abstracting water, denoted by a percentage and by the colour of the bars, as well as the total amount of water abstraction occurring in that company. Once again, the red colours indicate a higher level of average water stress whereas the green bars indicate a lower level. Figure 4 shows that a user would want engage with British Water Utilities Financial Investments Ltd (EN-7) and Green Water Company Total Solutions (EN-43).

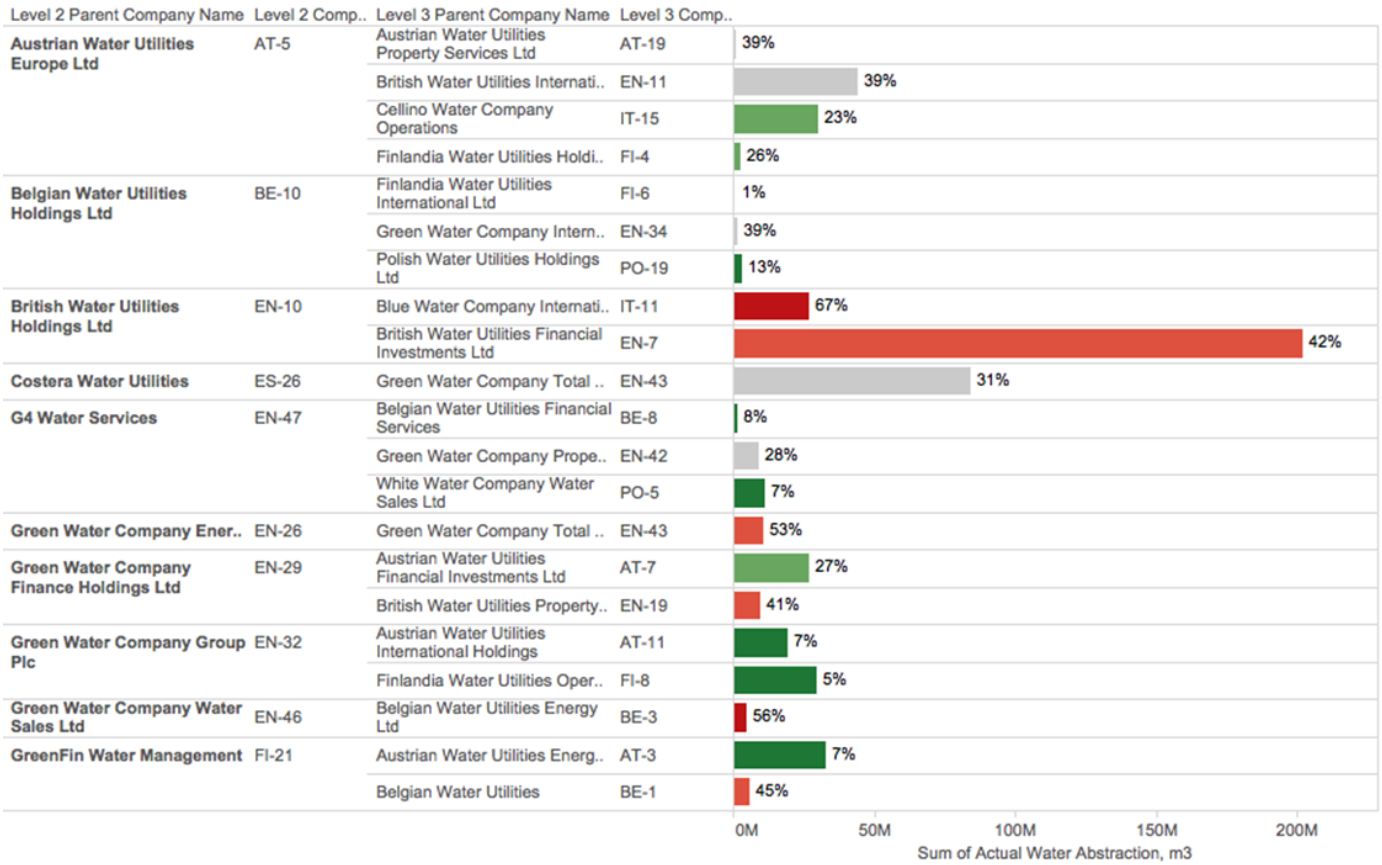

Figure 4: *Highlights the water abstraction by level 3 companies and the average water stress at the sites where these companies are abstracting water*

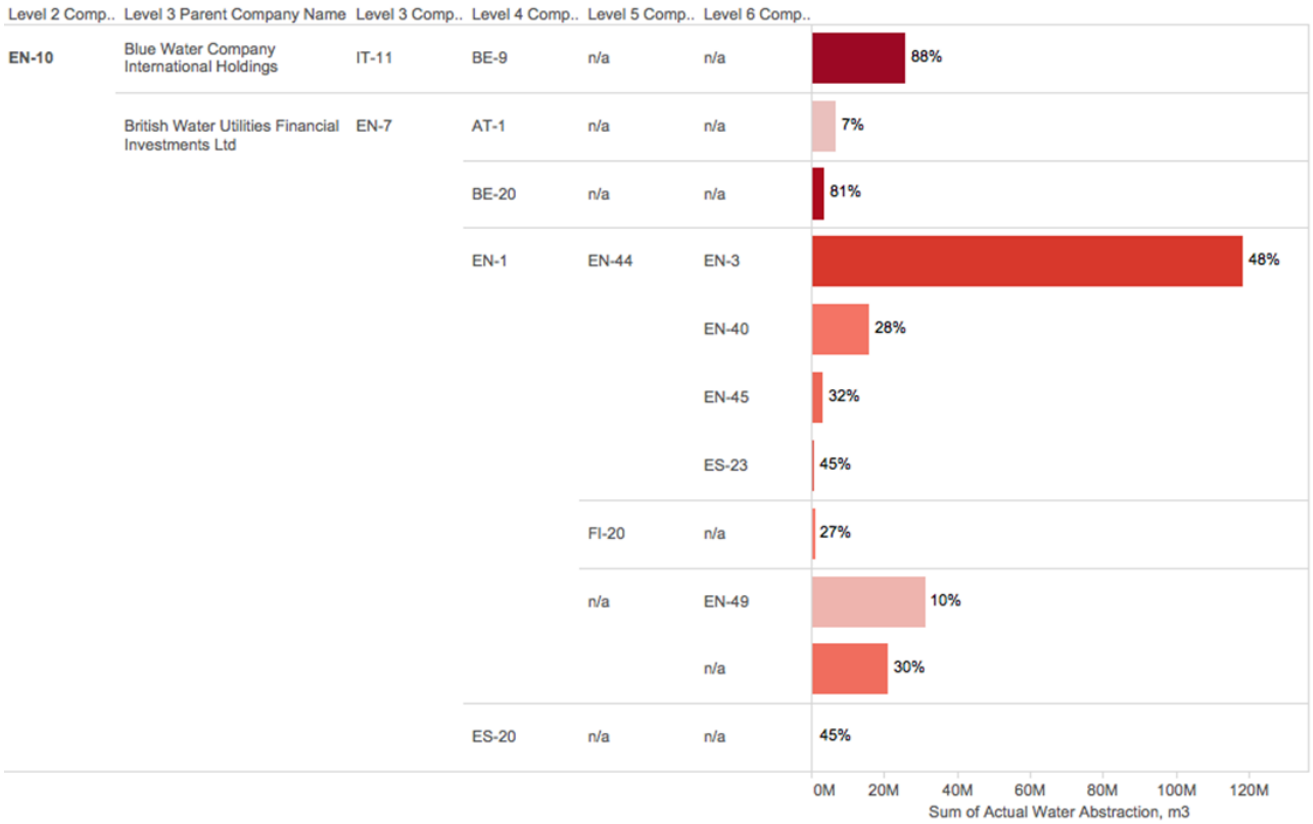

Figure 5: *Highlights the water abstraction by level 6 companies and the average water stress at the sites where these companies are abstracting water*

After performing a 'deep dive' into the inherent risks and environmental performance within a company hierarchy, a user is able to narrow down the sites, companies and countries in which these are situated. This enables either the company, or a regulator if this type of information was widely available, to engage with relevant stakeholders within the business and with other regulators.

In many instances, British Water Utilities owns sites which abstract water in international river basins. In one instance, a company within this fictitious company hierarchy owns and operates sites that span 11 different international river basins. This provides examples of where transboundary cooperation may be needed in order to improve the environmental performance of a company, or where cooperation may be needed between environment agencies in the result of an environmental incident.

From Trucost's analysis, it is evident that the majority of the water abstraction of British Water Utilities Financial Investments Ltd (EN-7), is caused by the company in level 6, coded EN-3. This company code denotes that it is located in England however, it may own and operate sites that continue further down the company hierarchy into level 11. The next section analyses the site-level environmental performance and exposure to environmental risk of locations in EN-3's company hierarchy.

Site-Level Analysis

Figure 6 plots the sites on a map that EN-3 owns and which abstract water. The size of marker indicates the level of water abstraction and the colour denotes the average level of water stress.

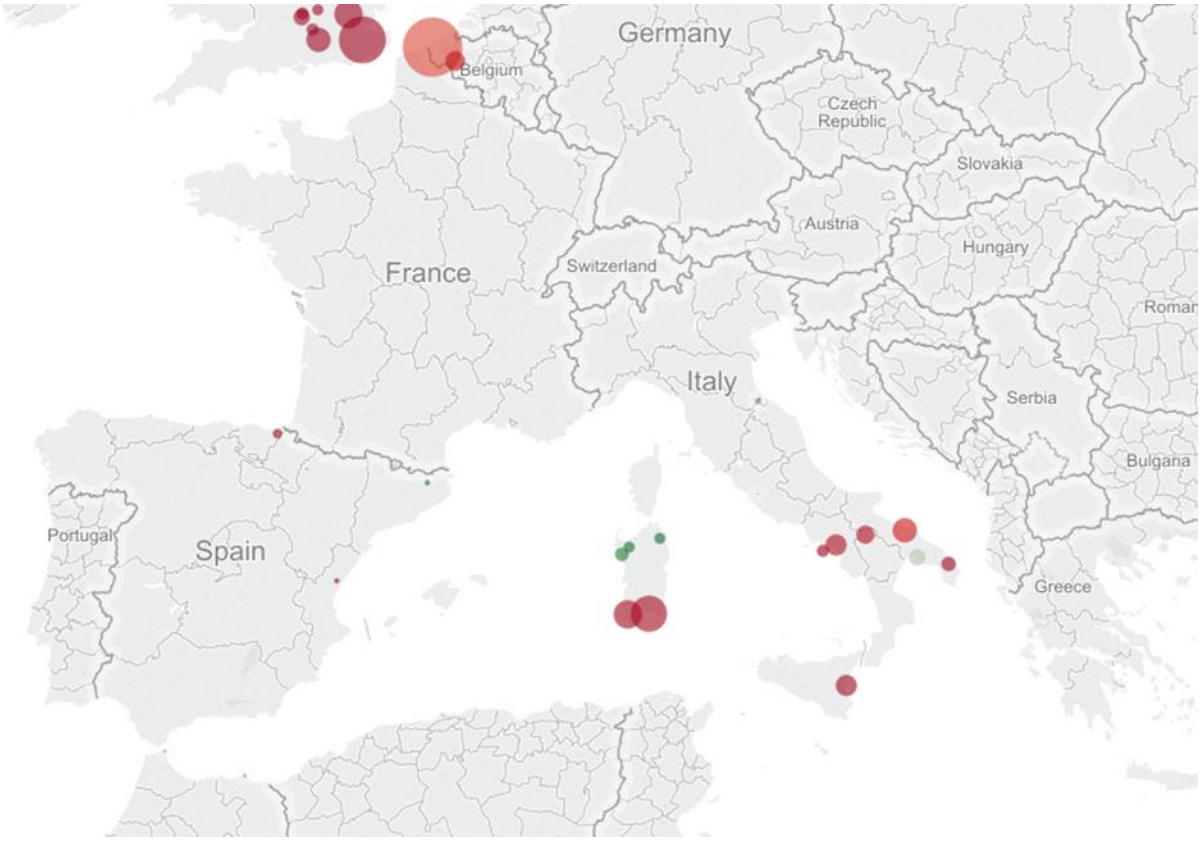

Figure 6: *Highlights the distribution of water abstraction by level 6 companies and the average water stress at the sites where these companies are abstracting water*

The figure above shows that the sites that should be prioritised for engagement or management purposes operate in Southern England, Belgium, Sicily and some parts of Southern Italy. It provides an easy way for stakeholders to interpret where environmental performance, or exposure to environmental risk, is poor and if this needs to be addressed. This approach is flexible enough to account for many different indicators, which can be combined to form an environmental score which can make the environmental assessment of a site, or a company, easier.

This analysis has shown how a company hierarchy can be interrogated based on relatively simple information but due to the lack of publically available data, and the benefits that have been identified to date, this analysis has had to rely on fictitious company data and locations.

Spatial Analysis

The figure below shows how a company may use publically available data on the location of irrigated cropland and Natura2000 sites in order to assess competing water demand, as well as its proximity to sites protected in European environmental directives. It shows this information according to level 2 parent companies, but gives no indication as to what countries the cropland or Natura2000 sites may be situated. In order to a user to interrogate the information in this way, the same steps would be followed as was highlighted above for water stress.

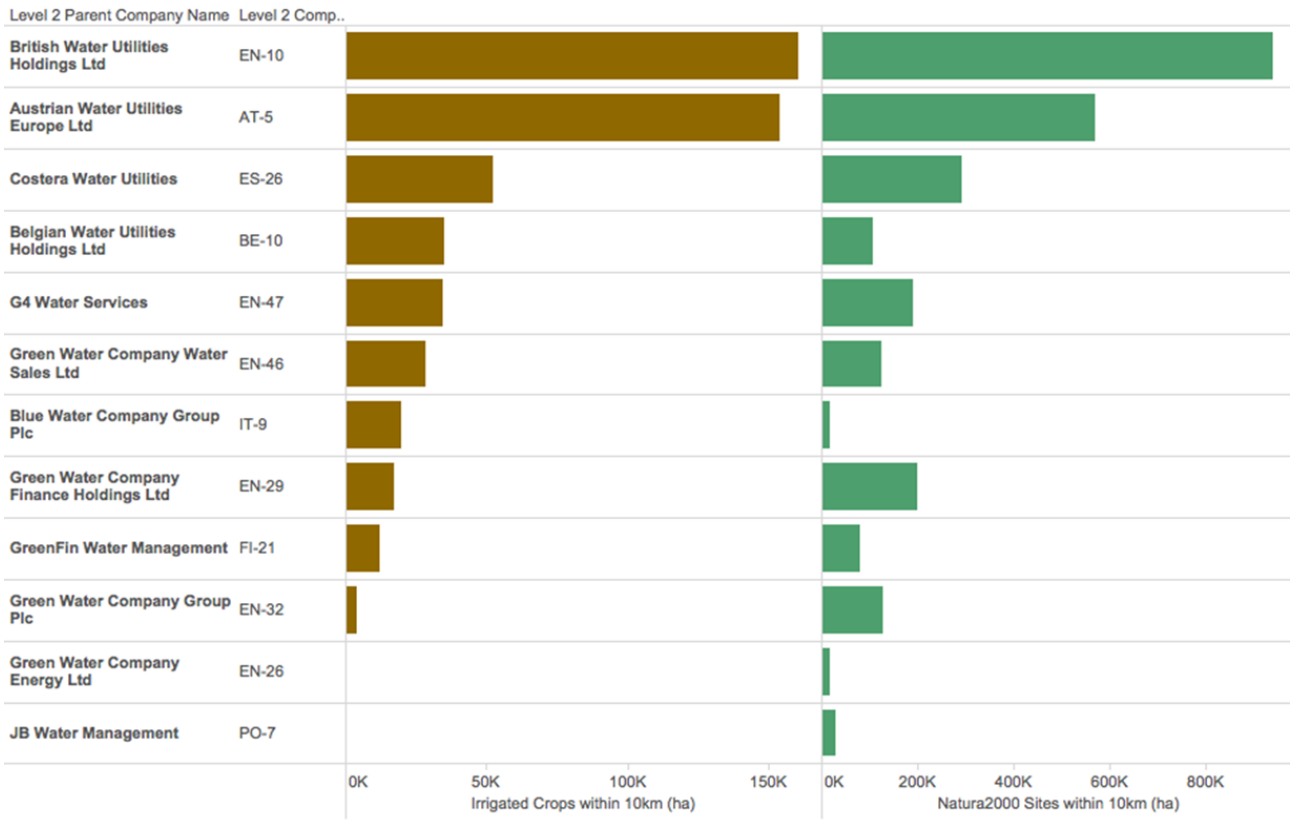

Figure 7: *Highlights the proximity of level 2 companies to irrigated cropland and Natura2000 sites*

CLEAR Info Explorer

Trucost also produced an interactive and online GIS tool that could enable users to use the information in this analysis to actively manage environmental performance. A subset of the data was loaded into the tool so that users could select the datasets they wanted to display. This included company locations, river basin districts, regional boundaries, population centres and water stress information. Company locations were displayed using the colour of the marker as well as its size. The strength of the colour indicated the environmental score that Trucost had created whereas the size of the marker indicated the amount of water abstracted at each location. A snapshot from this tool can be seen below.

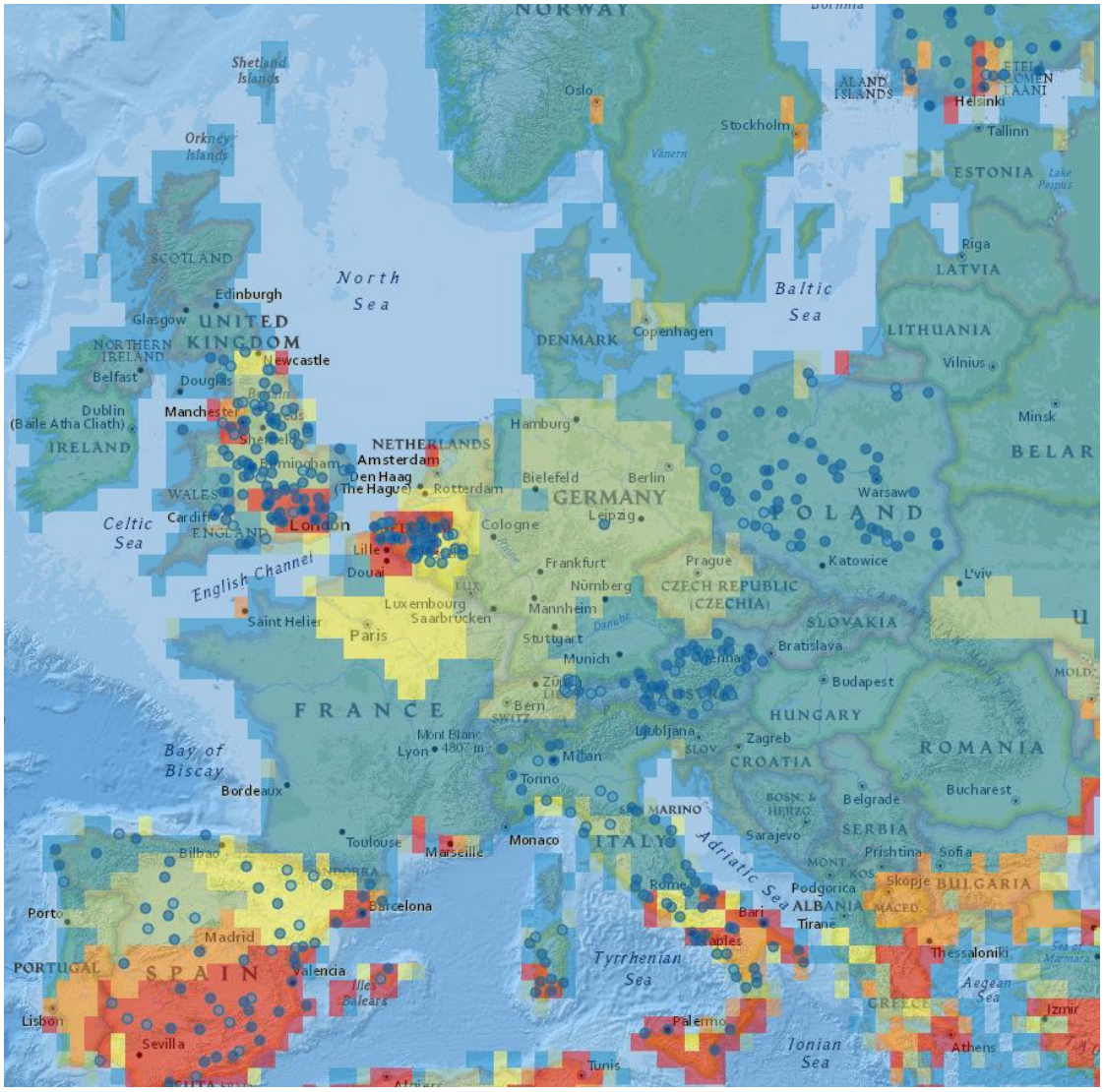

Figure 8: *CLEAR Info Explorer online GIS tool*

Conclusions

Trucost found that the data presented in this report represents a new way of analysing company environmental performance and their exposure to environmental risk. The report mainly focusses on the data being used by a company for internal management decisions. This is due to the limited amount of publically available data. If the type of data that was used in this case study was published by national bodies, then it would enable stakeholders to assess the various ways in which a company could be exposed to environmental risk, or could have poor performing subsidiaries in its company hierarchy that may not have otherwise been known.

The limitations that prevented this approach using real company data were many. Firstly, permit data was not available from other European environment agencies in the majority of cases, and on the few instances that it was, the information was not comparable and/or usable. Secondly, company hierarchy information could not be attained beyond UK borders, which meant identifying company structures in the EU was not possible. This was due to the fact that companies outside of the UK are not required to report who their parent companies are. Thirdly, matching companies and sites between, and within datasets. Therefore the matching process had to be conducted using only their names. This left a large room for error, and also significantly lengthened the analysis process. Lastly, multiple barriers and limitations specific to the datasets used in the project prevented Trucost from either using these datasets in their entirety, or their use was limited.

Trucost presented a pathway for analysing company water abstractions around Europe, and demonstrated that if this information was available, how it could be used by stakeholders to interpret environmental performance and exposure to environmental risk. Throughout its work, and in work that supplements this report, Trucost demonstrated the way in which this information should be reported, and subsequently collected, so that this approach could be scaled to benefit a wider audience. Trucost will make recommendations to the European Commission so that it can construct the platform that it needs to address the most material issues highlighted in Trucost's analysis.

The section below goes onto to provide a high-level overview of the policy recommendations that will be made to the European Commission. These recommendations are based on the difficulties that Trucost experienced throughout the project, as well as the feedback that was given by participants in all four workshops.

Action 3.6 Policy Recommendations

The following list outlines the recommendations that Trucost believes represents the highest priorities areas for expanding the approach that has been conducted in CLEAR Info's Action 3.6. They are listed in no particular order.

i. ***Require mandatory reporting of parent company ownership, as well as subsidiary ownership, including percentage ownership and who this shares this ownership.***

ii. ***Implement a unique referencing system for identifying sites and companies in the EU***

iii. ***Standardise the way that permit information is recorded, and establish a platform where permit data can published***

iv. ***Publish permit data on an annual basis***

v. ***When permit data is published, make sure that it can be accessed using an API***

vi. ***Standardise the use of codes and other information within the European Environment Agency, Eurostat and other European agencies.***

At a broad level, these recommendations form the basis of a call for better organisation European environmental data, as well as coordination between agencies collecting and reporting data.