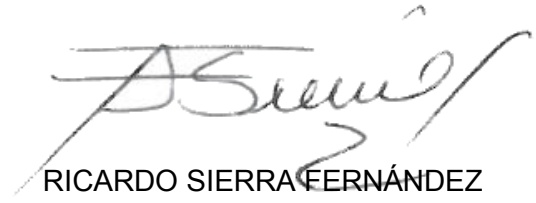
Celsia CEO Message

Water represents a fundamental part of the business for Celsia and is vital for the process of power generation, raison d'etre of our company. That is why we have established our water policy in order to ensure the sustainability of water resources through management initiatives and efficient use, technological improvements, watershed protection, among other actions aimed at efficient resource management.

The availability of resources is one of the material issues for Celsia among which is water, as a basic resource for business. In its commitment to water care, Celsia takes part in global initiatives and voluntary measures among which the adherence to the CEO Water Mandate is highlighted, this being the reason behind this report.

This report discloses stakeholders about the current state of water resources reported in the areas of influence, potential water risks the company may face and the efforts made for proper management of the resource.

In this way, Celsia reaffirms its commitment to sustainability and interest in line with Sustainable Development Goals.



RICARDO SIERRA FERNÁNDEZ

CEO CELSIA S.A E.S.P

CEO WATER MANDATE REPORT

2016

AUGUST, 2016

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INTRODUCTION

This report is presented to comply the commitment acquired by Celsia when joining the Global Compact initiative of the United Nations CEO Water Mandate.

The structure of the report is based on the recommendations made in the Guidelines in “Corporate Water Disclosure" CEO Water Mandate, which recommends starting with a corporate water profile which briefly describes water issues related to the company and the company's commitment and response in this subject.

The current state of the company is subsequently defined, in which the overall context of water use is described, specifying amounts. Assessment methods of risk assessment and water scarcity are described for the zones of influence of the power plants. Actions for efficient use of the resource are also mentioned.

In a separate section, presenting water use specifications, the risks related to quantity and quality of water are analysed and finally disclosed the response strategies of the company related to water resources.

The information used for the preparation of this report is taken from publications on the Celsia website, the Integrated Report and the results of the Corporate Water Footprint of the company, among other sources.

1. GENERAL DESCRIPTION OF THE ORGANIZATION

Celsia is a utility company specializing in the business of generation and distribution of electricity. In 2015 it had a power generating capacity of 2.388MW in 27 plants located in Colombia, Panama and Costa Rica. In the transmission and distribution business it participates through the company EPSA, which serves 570,000 customers in southwestern Colombia.
The generation business consists of 27 plants, 21 of which are hydraulic, 5 thermal 1 wind and 2 generation projects. By 2015 a total of 7,752 GWh of energy was generated.

Its transmission and distribution business, through EPSA, consists of 7 transmission substations and 274 km transmission networks (≥ 220kV); for the distribution of a total of 20,069 km network (≤ 220 kV) and 72 substations in total.

In 2015, Celsia redefined its strategy by refocusing on the customer, with the idea that plants, transmission lines and substations are a means to improve the quality of life of people. To this end it has expanded its portfolio to include three new businesses: Cities-Sustainability, Productivity-Business and Homes-Wellbeing, in line with new trends and needs of the electricity market. This new commitment by the company is cantered and focused on innovation as a central axis and is based on certain key elements to achieve this goal: distributed generation, storage, mobility, automation and remote control of devices supported by ICT (information and communication technologies), as well as new proposals aimed at savings, efficiency, and minimizing greenhouse gas emissions.

Aware of the importance of sustainability in the energy sector, in 2012 Celsia made its first **materiality analysis** in order to identify the most relevant topics for the organization and to stakeholders; as a result the company sustainability model was structured. The materiality analysis was revised and updated in 2015 after updating the strategy and the acquisition of power plants in Central America.

1.1 MATERIALITY ANALYSIS

The materiality analysis is a standard methodology to identify topics of interest, based on a comparative prioritization of issues that impact for the company and stakeholders. With this analysis it is possible to focus efforts, prioritize resources, set goals and adequately communicate the results. Given the importance of the relationship between the company and its stakeholders, Celsia makes the materiality analysis in which the most relevant for both the company and stakeholders issues involved.

The materiality analysis process initially involves identification stage, in which the most important material aspects for the organization and its stakeholders are identified, taking into account the internal and external context for which they should be governed. Subsequently, they are passed to the prioritization stage in which an exercise interrelation of internal and external importance of each aspect mentioned is performed. From this, seven

material aspects taking into account the impacts of the company, the degree of influence on decision-making of stakeholders and their ability to create value are defined. Finally, at the validation stage, the material aspects with the Steering Committee are validated.

These material issues, which are the lines of action of the company, with their respective external impacts are shown below in Table 1.

Table 1. Celsia material issues

Subject Material	External Impact
Economic Performance	Shareholders and investors
Client Management	Clients
Supplier Management	Suppliers
Innovation	Clients, employees and families, suppliers, government entities, associations and unions, communities
Culture and talent	Employees and families
Socio-Environmental management	Environmental authorities, government entities, associations and unions, suppliers, clients, communities
Availability of resources	Clients, suppliers.

Each of the defined material issues have impact on different stakeholders of the organization and develop in the points considered in the model of sustainability, detailed below.

1.2 SUSTAINABILITY IN CELSIA

Celsia understands sustainability as **generating value over time for all stakeholders** in an ethical and transparent manner, with a balance between economic efficiency, development and social inclusion and respect for the environment.

Sustainability is an integral part of the corporate and competitive strategies. For this reason, it is immersed in MEGA, principles and values, ADN and winning formulas, elements which make up the strategic framework of the organization.

Sustainability model

In line with the Argos Group Sustainability Policy, parent company of Celsia, the construction of the Sustainability Model started in 2012, based on the strategic objectives, the most significant risks facing the organization, industry best practices and issues relevant to its stakeholders.

Construction of the Sustainability Model was undertaken by representatives of employees and stakeholders of the organization.
The Celsia Sustainability model is based on four fundamental elements which, in turn, are composed of other points that make up each of these areas:

- Environmental dimension
- Social dimension
- Economic dimension
- Innovation

Figure 1. Celsia Sustainability Model

2. CELSIA WATER PROFILE

Water is a critical resource in the process of generating electricity in hydroelectric and thermoelectric plants. For hydroelectric generation, both in run of the river and reservoir plants, water is the fundamental element of the process as it is the use of this potential power that finally generates energy. Also, in thermoelectric power plants, water is an essential process for cooling and refrigeration of equipment; similarly, water is required for extraction, processing and transport of fuels used in thermal generation.

2.1 AVAILABILITY OF RESOURCES

Water, fuel, wind and sunshine are the fundamental resources for the company's operations. The availability of these resources is part of the elements that make up the Environmental Dimension of the Sustainability Model used by the company and are also included in the Materiality Analysis
By being considered in the material subjects, the relevance of water for Celsia is shown as well as for its interest groups.

Water resource

Water is a fundamental resource within the electricity generating process, and for that reason the organization established its Water Policy in 2014, in which we declared our commitment to sustainable management. Along these lines, Celsia takes part in initiatives and reports on a global level related with water resources such as the CEO Water Mandate and the Carbon Disclosure Project, water chapter.

Celsia promotes the treatment and care of watersheds and surrounding vegetation cover from supply and use, to disposal, through activities such as studies of water availability in the tributaries of some of its reservoirs, assessment of the state of mulches in the basins of some of the generation plants in Colombia and actions to mitigate these impacts, agreements with institutions for the care and conservation of intake basins, as well as care for the soil, water and forest.

Also it performs measurements and studies in this line such as the Corporate Water Footprint Measurement for the years 2012-2015, which have identified trends and opportunities in water management; these studies have been reviewed and verified by the Water Footprint Network, WFN, which confirmed the correct application of global standards set out in the Water Footprint "The Water Footprint Assessment Manual". WFN stressed that the work includes an operational risk assessment activities EPSA, which is one of the most innovative aspects of the work.

2.2 CORPORATE POLICIES

Corporate policies are documents that present the guidelines of behaviour of the company and its employees against its stakeholders.
For this report especially emphasizes the Socio-Environmental Policy comprising in turn four policies: social management, climate change, biodiversity and water.

2.2.1 Social and Environmental Policy

Celsia is an organization of the electricity sector that contributes to the development and welfare of society in the territory where it operates, makes a proactive, participatory and inclusive management, strengthening relationships of respect and trust with stakeholders, meeting socio-environmental regulation and implementing preventive actions and continuous improvement in the processes that are compatible with the viability of the business approach, creating sustainable value and contributing to the conservation, rational use of natural resources and the environment

Water Policy

For Celsia water resources are a priority for this reason it develops monitoring, protection, efficiency, technological improvements in their operations and actions to protect watersheds to ensure water sustainability for all stakeholders.
Includes the following premises:

- Continuously monitor resource use both in quantity and quality and its effect on the environment.
- Develop the necessary actions to reduce the intensity of water consumption in their processes.
- Build ties with local and regional civil society in support of the human right to water.
- Help our suppliers, neighbours and other stakeholders in improving their conservation practices, monitoring, wastewater treatment, reuse and recycling
- Influence the formulation of water policies and build capacity to understand the risks in the basins where we operate.
- Know and understand the problems of drinking water and sanitation in the communities where we operate and our impact.
- Sensitize our stakeholders in the problem of water stress.
- Disseminate the results of work of the organization in terms of water and support suppliers to publish their progress in the field.

Climate Change Policy

Celsia is committed to mitigation and adaptation to climate change by managing our emissions and developing eco-efficiency actions in their processes for sustainable growth of the company.

- Includes the following premises:
- Develop the necessary steps to lower GHG emissions intensity.
- Influence national policies to reduce and offset GHG emissions in the electricity sector.
- Research, develop and innovate on projects related to renewable technologies and carbon markets.
- Incorporate climate change variables in long-term planning of the organization.
- Raise awareness and work with stakeholders on the risks and opportunities of climate change.

Biodiversity Policy

Celsia recognizes and understands the importance of natural resources and is committed to promoting awareness, conservation, recovery and enrichment of biodiversity in the areas where it operates.
Includes the following premises:

- Undertake studies in the areas where the operator to identify the species that are present and their degree of threat according to the UICN
- Participate in national policies for investigation, Count Conservation, recovery and enrichment of biodiversity.
- Develop conservation activities, recovery and enrichment of biodiversity with the participation of stakeholders.
- Support IWRM as a tool for biodiversity management in watersheds.
- Consider protocols assessing the sustainability of hydropower sector as adequate to protect biodiversity practices.
- Disseminate the results of work of the organization in terms of biodiversity.

Social Management Policy

The organization recognizes communities and their characteristics, developing a participatory management based on respect for human rights and ethnic and cultural diversity, establishing mutually beneficial relationships that contribute to the integral development of the neighbouring communities of the areas of influence and sustainability business.
Social policy management is supported on the following premises:

- Building bonds of trust and mutual respect with the different social actors in the territory.
- Management of public-private partnerships that allow for comprehensive intervention synergies in the areas of influence.

- Social development plans and projects giving priority lines of action that contribute to improving the quality of life, community development, promoting education and access to energy stocks.
- Implementation of participation and communication strategies that promote intercultural dialogue.

3. CURRENT STATE OF WATER RESOURCES

In this chapter the company's operations related to water resources are defined, the different facilities through which it develops its operations, the use of water in these facilities and river basins in which conducts its operations, detailing information amounts of water, and water availability assessment of risks, compliance with regulations, among others.

3.1 CONTEXT

According to the United Nations World Water Development Report of the World Water Assessment Programme (WWAP) an area experiences water stress when water supply is less than 1700 m3 / person-year; if this value is less than 1000 m3 / person-year there will be water scarcity and if it falls below 500 m3 / person-year then there will be absolute water scarcity.

According to the analysis made by Celsia and the definition of the area with water shortage, **the company does not operate any plants in water scarcity areas.** To evaluate the water scarcity risk, we applied the methodologies of the ***Water Business Council for sustainable development (WBCSD)*** with its Global Water Tool (GWT)**.**

Celsia water risks in its operations in Latin America were assessed with the AQUEDUCT World Resources Institute tool (WRI). From this we can conclude that most plants are at low – medium risk, with some variations between plants and between risks.

To better understand the company's operation, in Table 2 below the different facilities are described, both those belonging to Celsia as well as those belonging to EPSA, and the type of generation in each one. The location (city and department), water source (rivers) and the river subzone, which is the way the Institute of Hydrology, Meteorology and Environmental Studies of Colombia IDEAM categorizes areas and basins is also specified to apply the analysis reported in the National Water Study (ENA, 2014) made for basins in Colombia.

Table 2. Celsia Colombia y EPSA generation plants

Installation	Company	Generation Type	Location	Department	Supply	Hydrographic subzone
Zona Franca Celsia	**Celsia**	Thermal	Barranquilla	Atlántico	Magdalena River	Ciénaga Mallorquín
						Direc to Lower Magdalena, Calamar - floows into Caribbean Sea
Meriléctrica	**Celsia**	Thermal	Barrancabermeja	Santander	Ciénaga San Silvestre Aqueduct	Opón River
Piedras River	**Celsia**	Run of the river hydroelectric	Jericó	Antioquia	Piedras River	Tapias River and others direct to the Cauca River
Hidromontañitas	**Celsia**	Run of the river hydroelectric	Donmatías	Antioquia	Grande River	Porce River
Admin. Office Celsia	**Celsia**	Offices	Medellín	Antioquia	EPM	
Alban	**EPSA**	Dam hydroelectric	Dagua	Valle del Cauca	Anchicayá River	Anchicayá River
Alto Tuluá	**EPSA**	Run of the river hydroelectric	Buga	Valle del Cauca	Tuluá River	Amaime and Cerrito Rivers
Bajo Tuluá	**EPSA**	Run of the river hydroelectric	Tuluá	Valle del Cauca	Tuluá River	Tuluá and Morales Rivers
Calima	**EPSA**	Hydroelectric Dam	Darién	Valle del Cauca	Calima river	Calima and Bajo San Juan Rivers
Salvajina	**EPSA**	Hydroelectric Dam	Suárez	Cauca	Cauca River	Piendamó River
Río Cali I y II	**EPSA**	Run of the river hydroelectric	Cali	Valle del Cauca	Cali River	Cali River
Nima I y II	**EPSA**	Run of the river hydroelectric	Palmira	Valle del Cauca	Nima River	Guachal River (Bolo - Fraile and Párraga)
Hidroprado	**EPSA**	Hydroelectric Dam	Prado	Tolima	Prado River	Prado River
Amaime	**EPSA**	Run of the river hydroelectric	Palmira	Valle del Cauca	Amaime River	Amaime and Cerrito Rivers
El Rumor	**EPSA**	Run of the river hydroelectric	Tuluá	Valle del Cauca	Tuluá River	Tuluá and Morales Rivers
Río Frío I y II	**EPSA**	Run of the river hydroelectric	Tuluá	Valle del Cauca	Ríofrio River	Tuluá and Morales Rivers

3.1.1 WATER CONSUMPTION

Water withdrawal in the organization is intended primarily for use in the generation of hydropower in its various plants, both reservoir and run of the river. To do this, Celsia has concessions and licenses to exploit the flows of the different basins where it operates. In some plants it has established an ecological flow assigned by the environmental agency; this makes it Celsia flow control through gauges to ensure proper delivery. The organization **does not undertake water withdrawal in areas with water stress**, according to the results given by GWT (***The Global Water Tool***), developed by *WBCSD* (World Business Council for Sustainable Development). The following section of this report explains in detail the tool and the corresponding results are presented.

For thermal generation in the Zona Franca Celsia, power plant in Barranquilla, water water is harnessed mainly for refrigeration processes, steam production and auxiliary services, taking water from Magdalena River, which is recirculated in the process. Its excess is returned with better quality as to be used must undergo a process of physical-chemical treatment ensuring the quality is adequate. Meriléctrica power plant also has these uses of water but water is taken from *Cienaga de San Silvestre*.

3.1.2 EFFICIENT USE OF WATER

As regards the efficient use and saving of water, the organization is developing preventative action controlling losses in hydroelectric generation systems, through preventive maintenance of pipes and water transport system to the turbines and the change of ball valves to prevent leakage.

In this sense, Celsia partners in each operation centre, identify and permanently propose actions for saving and efficient use of water resources. This process and associated with the consumption of the liquid, are studied by the partners to seek opportunities for savings. In addition, the power generation flowmeters have to know at all times the use of water in operations.

Water is one of the most vital aspect in the business, therefore in 2014, Celsia carried out the purchase and transfer of property in high plains grassland zones from Environmental Authority in Antioquia, Corantioquia, thus contributing to the conservation of water resources for its neighbours and for the operation.

On the other hand, for the purpose of preserving and conserving baseflows of the contributors to major sources of funding micro sources, EPSA forward reforestation in the upper and middle basins, speaking a total of 193 hectares. In addition, an agreement with National Parks of Colombia, aimed at strengthening conservation actions through processes of restoration and land reclamation and development of a training component with social

participation in the Farallones and Las Hermosas national parks was signed specifically in the middle reservoirs of the rivers that supply power plants like Anchicayá, Amaime, Nima, Alto and Bajo Tulua Tulua and upper basin.

In addition, activities for the conservation of flora and fauna in the territory of Calima El Darien in partnership with the Autonomous Corporation of Valle del Cauca (CVC), City Hall, Technical Committees Interagency Environmental Education (CIDEA), National Authority developed Aquaculture and Fisheries (AUNAP) and EPSA, achieving:

- Diagnosis of the state of coverage of springs and tributaries.
- Recovery strip of forest protection Quebrada El Vergel.
- Support for government authorities for the development of town aqueduct of zones of influence of the Alto Tulua and Salvajina power plants, and improving treatment processes aqueduct that supplies the Prado power plant.

All these above actions aimed at the conservation of water resources, confirm the commitment of Celsia with the care and conservation of the environment and the concern to minimize and mitigate potential impacts that may come to have their operations in different areas.

3.1.3 RESULTS OF THE EVALUATION METHODS

Earlier it was mentioned that the company has no plants in areas with water scarcity neither water withdrawal in areas with water stress. To affirm this, it was necessary to use tools that provide accurate information on the state of water resources information.

To analyse the issue of water scarcity the Global Water Tool -GWT- of World Business Council for Sustainable Development (WBCSD) is used; meanwhile, for the analysis of water stress the Aqueduct tool of World Resources Institute (WRI) is used. The results of these analyses with each tool are shown below:

Global Water Tool

Global Water Tool -GWT- is a tool developed by the World Business Council for Sustainable Development (WBCSD) that uses coordinates and water usage data for each of the facilities analysed. The water usage data are used for standardized reporting but not to assess water use in a given business in the environment in which it is located. Compares the location area of the company and its operating locations to determine if they are in areas of scarcity and water risks.

For this study, the following plants were considered for analysis in the GWT tool: Thermal, run of the river and water reservoir, located above all in Colombia. For plants located in Central America the analysis was undertaken with the Aqueduct tool explained below.

The results can be seen in Table 3.

Table 3. Results water shortage Celsia Colombia – Global Water Tool (GWT)

a) Total Renewable Water Resources (TRWR) (actual) (m^3/person/year) (Source: FAO, 2008-2012)

Value Chain type	No Data	Extreme Scarcity <500	Scarcity 500-1000	Stress 1000-1700	Sufficient 1700-4000	Abundant >4000
All Value Chain Units						12
						100%
Industrial						10
						100%
Office/Retail						2
						100%
Supplier						
Other						

Total renewable per person (actual) (2008-2012)
Total annual actual renewable water resources per inhabitant

b) Projected Total Renewable Water Resources (TRWR) (actual) for 2025 (m^3/person/year) (Source: FAO, 2008)

Value Chain Type	No Data	Extreme Scarcity <500	Scarcity 500-1000	Stress 1000-1700	Sufficient 1700-4000	Abundant >4000
All Value Chain Units						12
						100%
Industrial						10

		100%
Office/Retail		2
		100%
Supplier		
Other		

Projected total renewal per person (actual) for 2025

Projected total annual actual renewable water resources per inhabitant not taking into consideration climate change (2025)

c) Projected Total Renewable Water Resources (TRWR) (actual) for 2050 (m^3/person/year) (Source: FAO, 2008)

Value Chain Type	No Data	Extreme Scarcity <500	Scarcity 500-1000	Stress 1000-1700	Sufficient 1700-4000	Abundant >4000
All Value Chain Units						12
						100%
Industrial						10
						100%
Office/Retail						2
						100%
Supplier						
Other						

Projected total renewal per person (actual) for 2050

Projected total annual actual renewable water resources per inhabitant not taking into consideration climate change (2050)

d) Total Water Withdrawal (m^3/person/year) (Source: FAO, Around 2002)

Value Chain Type	No Data	1-250	251-500	501-1000	1001-2000	>2000
All Value Chain Units		12				
		100%				
Industrial		10				
		100%				
Office/Retail		2				
		100%				
Supplier						
Other						

Total water withdrawal per capita

e) Dependency Ratio (%) (Source: FAO, 2006)

Value Chain Type	No Data	0-5	5-20	20-50	50-85	85-100
All Value Chain Units		12				
		100%				
Industrial		10				
		100%				
Office/Retail		2				
		100%				
Supplier						
Other						

Dependency ratio (%)
Indicator expressing the percent of total renewable water resources originating outside the country

f) Industrial Water Withdrawal as part of Total Water Withdrawal (%) (Source: FAO, Around 2002)

Value Chain Type	No Data	0-25	26-50	51-75	76-90	91-100
All Value Chain Units		12				
		100%				
Industrial		10				
		100%				
Office/Retail		2				
		100%				
Supplier						
Other						

Industrial water withdrawal as part of total (%)
Industrial water withdrawal as percentage of total water withdrawal.

g) Population Served with Improved Water (%) Source: WHO/UNICEF, 2008)

Value Chain Type	No Data	Very Low <25	Low 26-50	Medium 51-75	Medium High 76-90	High 91-100
All Value Chain Units						12
						100%
Industrial						10
						100%
Office/Retail						2
						100%
Supplier						
Other						

Access to Improved Water

h) Population Served with Improved Sanitation (%) (Source: WHO/UNICEF, 2008)

Value Chain Type	No Data	Very Low <25	Low 26-50	Medium 51-75	Medium High 76-90	High 91-100
All Value Chain Units					12	
					100%	
Industrial					10	
					100%	
Office/Retail					2	
					100%	
Supplier						
Other						

Access to Improved Sanitation

Based on the results shown by the tool, is concluded that there are no critical water resource situations in any of the areas where different power plants are located. Quite the contrary, the information shows an abundance of water availability in all areas.

Water is abundantly available in all areas of operation and is projected to continue like this until 2025 and even until 2050. Total water withdrawals are at the lowest level considered: 1 to 250 m3 / person-year. Meanwhile, the population in the intake areas has access to water and sanitation.

Aqueduct

Aqueduct is a global risk mapping tool that helps water companies, investors, governments and users in general to understand how and where the areas risks for water resources are located.

With geographical location of the company, this tool provides a series of data and maps showing the potential physical, regulatory and reputation water risks.

The tool provides results taking into account different variables, each of which has an associated measurement scale.

For this analysis three of the nineteen risks offered by the tool are taken into account, they are considered to be very important for the company:

General water risk
With a scale: 0-5
It identifies areas higher exposure to risks relating to water and is an aggregate of all risk category indicators: Quantitative Physical Risk, Qualitative Risk and Reputational and Regulatory Risk.

Base line water stress
With a scale of: 0-100%
It measures the amount of water shortages versus the annual availability of renewable supply, taking into account the upstream consumptive use. Higher values indicate greater competition among users.

Reputation and regulatory risk
With a scale of: 0-5
It identifies areas of concern regarding insecurity in changes in regulations, as well as conflicts with the public on water related issues.

The consolidated results of water risks for Colombia and Central American stations is presented inTable 4:

Table 4. Results water risks Celsia Colombia – Aqueduct Tool

Type	Plant / Risk	General water risk	Reputation and regulatory risk	Base line water stress
Hydroelectric power plants with reservoirs	**Alto Anchicayá**	Low to medium risk (1-2)	Medium to high risk (2-3)	Low (<10%)
	Bajo Anchicayá	Low to medium risk (1-2)	Medium to high risk (2-3)	Low (<10%)
	Calima	Low to medium risk (1-2)	Medium to high risk (2-3)	Low (<10%)
	Hidroprado	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Salvajina	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)

Type	Plant / Risk	General water risk	Reputation and regulatory risk	Base line water stress
Run-of-river power plants	Alto Tuluá	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Amaime	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Bajo Tuluá	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Cucuana	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Nima 1-2	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Rio Cali 1-2	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Rio Frio 1-2	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Rumor	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Hidromontañitas	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
	Rio piedras	Medium to high risk (2-3)	Medium to high risk (2-3)	Low (<10%)
Thermoelectrics power plants	Zona Franca	Low to medium risk (1-2)	Medium to high risk (2-3)	Low (<10%)
	Meriléctrica	Low to medium risk (1-2)	Medium to high risk (2-3)	Low (<10%)

Despite presenting values of medium risk - high for some plants, there are no critical values that show water risks in areas of operation. The results of medium risk make it necessary to pay special attention in these areas, to be alert to any eventuality and have defined contingency plans and activities to minimize risk.

Table 5. Results water risks Celsia Central America– Aqueduct Tool

Type	Plant / Risk	General water risk	Reputation and regulatory risk	Base line water stress
Run-of-river power plants	Gualaca	Low to medium risk (1-2)	High risk (3-4)	Low (<10%)
	Lorena	Low to medium risk (1-2)	High risk (3-4)	Low (<10%)

Type	Plant / Risk	General water risk	Reputation and regulatory risk	Base line water stress
	Prudencia	Low to medium risk (1-2)	High risk (3-4)	Low (<10%)
Thermoelectric power plants	**Complejo Termoeléctrico Colón**	Low risk (1-2)	Medium to high risk (2-3)	Low (<10%)
Wind power plants	**Guanacaste**	Low to medium risk (1-2)	Low to medium risk (1-2)	Low to medium (10-20%)

For Celsia Central America no risks in quantity or quality of water are shown but there are high reputational and regulatory risks which may conflict with the population in run of the river plants in David and Chiriqui, Panama.

In general, the Aqueduct tool yields favourable results in relation to water risks which may be faced by the company. There are special points and specific plants where special care should be taken to minimize risks.

3.2 PERFORMANCE

Information on company water use is included in this Performance section, specifying information on the quantity of water withdrawal, dicharged, recycled, among others; external factors are also considered such as suppliers and the manner in which Celsia engages them in the sustainable management of water resources.

3.2.1 WATER WITHDRAWAL

As we mentioned through this report, water is a key for generating electrical energy resource, which is Celsia's main operation. To access this resource, water should be collected from different sources and stored for later use in the different processes that are involved; such action is defined as water withdrawal.

Celsia takes water from different sources previously mentioned, and for different uses, including electricity generation, cooling, domestic services and other uses listed.

In Table 6 and Table 7 total water withdrawal for each use are presented.
The information on data power generation plants in Colombia are for the years 2012-2015 For Central America, the data presented are only for 2015. We only have records from this date as we only acquired the plants located there the year previously.

Colombia

Table 6. Celsia Colombia Total water intake

Water intake (m^3)	2012	2013	2014	2015
Total Intake	**9,104,393,275**	**9,612,914,362**	**10,190,279,490**	**7,485,229,773**
Total intake for cooling	2,330,812	3,130,027	2,923,925	3,171,317
Total intake for electricity generation	9,101,980,959	9,609,647,815	10,187,233,520	7,481,926,098
Total intake for other productive processes	3,711	2,947	1,458	1,971
Total intake in offices	77,793	133,573	120,587	130,387

Central America

Table 7. Celsia Cental America Total water intake

Water intake (m^3)	2015
Total intake	**5,937,634,702**
Total intake for cooling	1,060,617,287
Total intake for electricity generation	4,876,964,941
Total intake for other productive processes	51,688
Total intake in offices	786

Given the nature of the business, the greatest amount of water is captured to generate electricity in hydroelectric plants. For plants located in Colombia, this value shows a progressive increase in 2014 compared with previous years, however, in 2015 a decrease

is shown in this figure because of climatic phenomena (El Niño) which led to elevated temperatures and droughts in some reservoirs and so it was necessary to resort to other forms of generation. Progressive reductions in collection for other production processes are also shown, reflecting the company's proper handling and good management in relation to water.

3.2.2 WATER DISCHARGE

Water discharge is considered as *any final discharge made to a body of water to a sewer or to the ground of elements, substances or compounds contained in a liquid environment*[1].

In Celsia, all discharges of power generation, transmission facilities and power distribution have treatment systems whose effectiveness is verified during the year with monitoring by a reputable third party to ensure their operation and comply with regulations.

A flow meter was installed in the Zona Franca Celsia power plant in 2015 to monitor discharges from the plant into the Magdalena River. Similarly, the impact that the implementation of Resolution 0631 of 2015 the Ministry of Environment and Sustainable Development, which sets the parameters and maximum limits for discharges in Colombia and entered into force in 2016 was evaluated.

During 2015, no significant spills occurred in Colombia´s power plants or associated business operations. In Panama there was a spill of 41m^3 which was treated under the emergency plan, containing it in booms and disposing it according to environmental regulations of this country.

Discharges generated by the organization do not affect ecosystems nor the quality of the receiving sources; all company facilities and plants have treatment systems that discharge effluent water with qualities that fit the discharging parameters established by respective regulations.

In Table 8 and Table 9 total discharges for 2015, both for plants in Colombia and Central America are shown. The discharge volume and water quality taking into account parameters such as BOD, TSS and fats and oils is indicated.

[1] Source: Ministry of the Environment and Sustainable Development At: https://www.minambiente.gov.co/index.php/component/content/article?id=1700:minambiente-presenta-nueva-norma-de-vertimientos-que-permitira-mejorar-la-calidad-agua-del-pais

Colombia

Table 8. Celsia Colombia Discharge

Discharge point	Volume discharged 2015 (m^3)	Type of treatment implemented	Discharge water quality		
			DBO	SST	Fats and oils
			(mg/L)	(mg/L)	(mg/L)
Magdalena River	910.654,56	Sludge management and neutralization of liquid effluent	14,9	461,1	0
Caño NN	46.2	Primary treatment	2.49	3	5.8
Total discharge	**910,700.76**				

Central America

Table 9. Celsia Central America Discharge

Discharge point	Volume discharged 2015 (m^3)	Type of treatment implemented	Discharge water quality		
			DBO	SST	Fats and oils
			(mg/L)	(mg/L)	(mg/L)
Final discharge at vapour cycle (Caribbean sea mangrove)	764,234,482	–	1.6	28,948	10.0
Final discharge at combined cycle (Caribbean sea mangrove)	293,131,575	–	1.8	313,124	< 10,0
Oil and water separator combined cycle (mangrove Caribbean Sea)	38,125	Oil and water separator	6.5	240	< 10,0
Neutralisation tank (mangrove Caribbean Sea)	33,228	Neutralisation	114.6	1,524	< 10,0
Total discharge	**1,057,437,410**				

3.2.3 WATER RECYCLING

In the processes of generation in some of the plants and SHPs in Colombia, including Zona Franca, Hidromontañitas and Rio Piedras, there are water recirculation process reusing water which has been previously used in other processes.
Direct methods, water balances and internal calculations are used to quantify the quantities of recycled or reused water. In Table 10 the figures are shown.

Table 10. Celsia Colombia Plants water recycling

Recycling or reuse of water (m3)	2012	2013	2014	2015
Recycled or reused water	**2,033,081**	**3,969,675**	**4,000,345**	**2,117,294**
Percentage of water recycled or reused	0.022%	0.041%	0.039%	0.028%
Evaporated water	2,671,504	3,248,876	3,092,796	3,816,184

The quantity of recycled or reused water shows a progressive increase from 2012 until 2014. This is the result of an adequate water management and a implementation of programs to reduce water withdrawal and increase the use of reused water. Nonetheless, for 2015 a reduction in the volume of reused water is observed. This may be explained by a reduction in water withdrawal among the hydroelectric plants (among them Río Piedras and Hidromontañitas) owing to climate phenomena.

3.2.4 SEDIMENT MANAGEMENT

Water sources bring with them solid matter known as sediment which, after having been suspended in the water, is finally deposited through gravity. Lakes and reservoirs are especially prone to greater sedimentation given that the flow of water is reduced in them and gravity can take effect over this solid material. To manage sediment adequately, Celsia has updated the protocol for managing the sediment in the reservoirs.

Related to these, studies to reduce the amount of sedimentation in the intake processes along the waters of the Magdalena River and Zona Franca Celsia were undertaken along with investigations to handle the sediments in small hydroelectric plants and thermal generation plants.

3.2.5 SOURCE OF WATER SIGNIFICANTLY AFFECTED

Given the size of the water sources were some of the hydroelectric plants can be found or those plants that capture more than 5% of the flow, some of the sources could eventually be significantly affected. Nonetheless, these have not happened yet because Celsia has developed programs to avoid it which have been mentioned throughout this report.

To avoid these significant effects, Celsia has identified these plants and is continually following up to avoid any serious problem. In order to accomplish this certain parameters are taken into account such as:

- The source is designated as a protected area, either nationally or internationally.
- Biodiversity Value (diversity and endemism) and total number of protected species
- Value or importance of the source of water for local communities and indigenous peoples

The corresponding information is shown on Table 11 plants in Colombia; in Panamá, none of the hydroelectric plants capture more than 5% of the volume of the source.

Table 11. Source of water significantly affected

Hydroelectric power stations that harness more than 5% of the tributary; or where the source is classified as sensitive due to its size	Size of the basin (km2)	Captured water volume (m3) / 2015	1. Is the water source designated as a protected area? Yes (Indicate if it is national or international)	1. No	2. Biodiversity Value (diversity and endemism) and total number of protected species	3. Value or importance of the source of the water sourde for local communities and indigenous people
Piedras River	85	56,948,786		x	NA	NA
Grande River	150	130,885,324		x	NA	NA
Alto Anchicayá	385	1,012,985,053	National		Farallones National Natural Park	Fishing, recreational and domestic use
Bajo Anchicayá	720	1,272,388,536	National		Farallones National Natural Park	Fishing, recreational and domestic use
Calima	267	487,505,737		X	29 threatened species of flora (trees and palms) 13 endemic species of flora Five endemic bird species One vulnerable species of mammal Two vulnerable bird species near threatened category Two vulnerable bird species One vulnerable mammalian species One threatened mammal species	Town aqueducts, fishing and tourism
Prado	1,698	1,505,113,759		X	Three fish species in vulnerable category Four fish species near threatened category One bird species endemic category of interest One mammalian species in danger One endangered species of reptile	Irrigation districts, fishing, tourism

Hydroelectric power stations that harness more than 5% of the tributary; or where the source is classified as sensitive due to its size	Size of the basin (km2)	Captured water volume (m3) / 2015	1. Is the water source designated as a protected area? Yes (Indicate if it is national or international)	1. No	2. Biodiversity Value (diversity and endemism) and total number of protected species	3. Value or importance of the source of the water sourde for local communities and indigenous people
Salvajina	3,652	2,380,695,925		X	Three protected species of flora Seven threatened species of flora Three species of migratory birds One endemic species of reptile One bird species near threatened One species of endemic bird	Exploitation of dragging materials and agricultural activities. Downstream lies the city of Santiago de Cali, which supplies 70% of regulated flow depends on the Cauca River in dry season
Alto Tuluá	494	76,688,355		X	14 species of endemic flora	Recreational and agricultural
Bajo Tuluá		94,393,440		X		Recreational and agricultural
Cucuana		32,772,511		X		Recreational and agricultural
Amaime	564	69,399,716		X		Recreational and agricultural irrigation
Río Cali I Río Cali II	112 114	30,875,009		X		The Santiago de Cali municipal and recreational water system can be found downstream from the power plant

Hydroelectric power stations that harness more than 5% of the tributary; or where the source is classified as sensitive due to its size	Size of the basin (km2)	Captured water volume (m3) / 2015	1. Is the water source designated as a protected area? Yes (Indicate if it is national or international)	1. Is the water source designated as a protected area? No	2. Biodiversity Value (diversity and endemism) and total number of protected species	3. Value or importance of the source of the water sourde for local communities and indigenous people
Nima I Nima II	85 95	38,422,169		X		The Palmira municipal water system can be found downstream from the power plant
Riofrío I	160	66,874,798		X		Recreational and fishing
Riofrío II	313	99,317,469		X		Recreational and fishing
Rumor	780	125,407,096		X		Recreational and fishing
Total volume of water intake (m3)		**7,480,673,683**				
Total number of water sources significantly affected	**16**					

3.2.6 WATER MANAGEMENT WITH SUPPLIERS

Since late 2014, Celsia has been developing a voluntary sustainability assessment of some suppliers, seeking support in managing their services, identifying water management as an aspect subject to continuous improvement.

3.2.7 FACILITIES WITH WATER SERVICES, SANITATION AND HYGIENE FOR ALL WORKERS

All Celsia facilities permanently offer their workers water services, sanitation and hygiene as well as adequate access to health services with its own system of waste water treatment.

3.3 COMPLIANCE

This section provides information about how Celsia responds to the regulations concerning water resources and some strategies used to address the challenges related to environmental care.

3.3.1 LEGAL COMPLIANCE REGARDING WATER RESOURCES

None of the plants and facilities of the company has been subject to any penalty or fine for breach of environmental regulations related to water resources, or by extraction or by water discharges.

3.3.2 ADOPTION OF NORMS AND STANDARDS AND VOLUNTARY ALLIANCES

Celsia, as a company committed to the environment and in line with its commitment to environmental management, implements strategies that allow it to meet the challenges of the contemporary world, through alliances, certifications and volunteer studies.

The Environmental Management System of the company is certified under ISO 14001 version 2014 for all its facilities: Celsia Colombia, EPSA, and Celsia Panama.

In addition to the certifications already mentioned, since 2012 Celsia has been measuring the Corporate Water Footprint, which is reviewed and certified by the Water Footprint Network (WFN) who confirm that it is being developed under global standards.

4. IMPLICATIONS

In this chapter we seek to interpret and understand the current state of the company in relation to water resources, clearly specified in the previous chapter, with the aim of analysing risks and opportunities that as a result may be generated for the company.

4.1 RISKS RELATED TO THE AMOUNT OF WATER

The water footprint report made for Celsia in 2015 indicates the risks associated with the amount of water are determined using national information on usage data for hydroelectric generation, analysis by IDEAM Instituto basins Hydrology, Meteorology, and environmental studies and the data reported in the National Water Study (ENA, 2014).
The analysis of water availability in the basins which Celsia generation plants can be found is made based on indicators such as:

- **Retention and Water Regulation Index (IRH)** which expresses the behaviour of the flows annually according to climatic variations and regulation capacity of water systems to maintain these volumes in time (IDEAM, 2014).
- **Water use index (IUA)** corresponds to the amount of water used by different user sectors in a given period (annual, monthly) and spatial analysis unit (area, zone, subzone, etc.) in relation to surface water supply available for the same temporal and spatial units (IDEAM, 2014).

- **Water shortages vulnerability Index (IVH)** IVH measures the degree of fragility of the water supply system to maintain water in which to threats such as long periods of drought or events like the warm Pacific phenomenon (El Niño) - could create risks of shortages (IDEAM, 2014).
- **Ecosystems Water stress index (IPHE):** approach to the vulnerability of them to water use in a subzone, give the intensity of agricultural and livestock activities that do not require irrigation.

The analysis are made by geographic subs on taking into account those in which Celsia plants in Colombia are located as is shown in Table 12.

Table 12. Analysis related with water quantities in Celsia areas of influence in Colombia

Installation	Location	Hydrographic Subzone Name	Retention and Water Regulation Index (IRH)	Water use index (IUA) average year	Water use index (IUA) dry year	Vulnerability to water shortages Index (IVH)	Water not returning the basin Index (IARC)	Water Pressure on Ecosystems Index (IPHE)
			Category	Category	Average dry year (m^3/s)		Category	Category
Zona Franca	Barranquilla	Ciénaga Mallorquín	Low	Critical	Critical	Very High	Critical	Very High
	Barranquilla	-Des Direct Lower Magdalena Calamar. Caribbean Sea	Low	Critical	Critical	Very High	Critical	Critical
Meriléctrica	Barrancabermeja	Opón River	Moderate	Low	Low	Low	Very Low	Critical
Piedras River	Jericó	Tapias River and others direct to the Cauca River	Moderate	Low	Low	Low	Very Low	High
Hidromontañitas Admin Headquarters. Celsia	Medellin, Donmatías	Porce River	High	High	Very High	Average	Very Low	High
Alto y Bajo Anchicayá	Dagua	Anchicayá River	Moderate	Very Low	Very Low	Low	Very Low	Critical
Alto Tuluá Amaime	Buga	Amaime and Cerrito Rivers	Moderate	Very High	Critical	High	Low	Critical
Calima	Darién	Calima and Bajo San Juan Rivers	High	Low	Low	Low	Very Low	Very Low
Salvajina	Salvajina	Piendamó	Moderate	Very High	Critical	High	Very Low	Average
Río Cali I y II	Cali	Cali River	Moderate	Critical	Critical	Very High	Low	Critical

Installation	Location	Hydrographic Subzone Name	Retention and Water Regulation Index (IRH)	Water use index (IUA) average year	Water use index (IUA) dry year	Vulnerability to water shortages Index (IVH)	Water not returning the basin Index (IARC)	Water Pressure on Ecosystems Index (IPHE)
			Category	Category	Average dry year (m^3/s)		Category	Category
Bajo Tuluá Rumor Río Frío I y II	Tuluá	Tuluá and Morales Rivers	Moderate	High	Very High	High	Very Low	High
Nima I y II	Palmira	Guachal River (Bolo - Fraile and Párraga)	Moderate	Very High	Critical	High	High	Critical
Hidroprado	Prado	Prado River	Moderate	High	Critical	High	Very Low	Average

Given the information yielded by the rate of water regulation, in the area where Zona Franca power plant is located, problems may be seen since dry seasons in less regulation and this may decrease the water supply.

The rate of use of water for half a year, indicates that in Barranquilla and Cali, where the Zona Franca and Rio Cali plants are located, there are critical values because demand exceeds water supply. To a dry year other areas are added to this critical situation, such as the central Alto Tulua, Amaime, Salvajina, Rio Cali I and II, Nima I and II and Hidroprado are located.

These areas should have a greater water monitoring because of this vulnerability, taking into account that in case of shortages and water shortages, human consumption prevails, which could be affected energy production

According to the water not returning to the basin index, there are critical values in the case of the Zona Franca plant and high values for Nima I and II plants. The remaining plants show low and very low values according to this index.

According to the water pressure on ecosystems index, the Zona Franca, Meriléctrica, Alto and Bajo Anchicayá, Alto Tuluá, Amaime, Río Cali I y II y Nima I y II plants show critical numbers as there is deterioration and protected areas, therefore there are unsustainable conditions. Higher values indicate that no ability to support agriculture and livestock, as in the case of Rio Piedras, Medellin, Bajo Tulua, Rumor and Rio Frio I and II.

4.2 RISKS RELATED TO WATER QUALITY

To analyse the risks related to water quality indicators that account for the pressure of pollutants discharged to surface (organic matter, suspended solids and nutrients) water systems, affecting water quality conditions were used. The IACAL calculation includes parameters such as: DBO, DQO, SST, NT, PT and water supply (IDEAM, 2014). On Table 13 the risk analysis undertaken for the Celsia plants in Colombia are shown.

Table 13. Risk analysis related with water quality in Celsia Colombia areas of influence.

Installation	Location	Hydrographic Subzone Name	Index of potential change in water quality (IACAL) average year	Index of potential change in water quality (IACAL) dry year
			Category	Category
Zona Franca	Barranquilla	Ciénaga Mallorquín	High	Very High
	Barranquilla	-Des Direct Lower Magdalena Calamar. Caribbean Sea	Very High	Very High
Meriléctrica	Barrancabermeja	Opón River	Average	High
Piedras River	Jericó	Tapias River and others direct to the Cauca River	Average	High
Hidromontañitas Admin Headquarters. Celsia	Medellin, Donmatías	Porce River	Very High	Very High
Alto y Bajo Anchicayá	Dagua	Anchicayá River	Very low	Very low
Alto Tuluá Amaime	Buga	Amaime and Cerrito Rivers	Very High	Very High
Calima	Darién	Calima and Bajo San Juan Rivers	Very low	Very low
Salvajina	Salvajina	Piendamó	Average	Average
Río Cali I y II	Cali	Cali River	Very low	Very low
Bajo Tuluá Rumor Río Frío I y II	Tuluá	Tuluá and Morales Rivers	Very High	Very High

Installation	Location	Hydrographic Subzone Name	Index of potential change in water quality (IACAL) average year	Index of potential change in water quality (IACAL) dry year
			Category	Category
Nima I y II	Palmira	Guachal River (Bolo - Fraile and Párraga)	High	Very High
Hidroprado	Prado	Prado River	Very low	Low

The results show that Barranquilla, Buga, Tuluá and Medellín have a high pressure for pollution, which is maintained for dry years. In Palmira the change in water quality is high and very high for a dry year. In the rivers in Barrancabermeja and Jericó the IACAL is Medium, but in a dry your it rises to High. For Salvajina it is medium but stays at medium for a dry year

5. RESPONSE

The following paragraphs show the strategies, policies, goals and activities undertaken by the company to manage risks, opportunities and effects that have been previously identified in this report.

They include the goals stated by the organization to contribute to climate, environmental and social change. Similarly, the processes undertaken by Celsia to mitigate impact and alliances made by the company with different initiatives and associations.

5.1 GOALS

In terms of sustainability, Celsia has set goals in different social and environmental areas defined in the organization, based on the 2015 year and setting them for different periods.

Climate change, Celsia aims to achieve the following:

- 100% of the organization with a Greenhouse Gas Inventory (GHG) to reach 3 from 2016.
- 5% maximum variation in emission intensity by 2020, while energy production will increase by 50%.
- 100% reduction in emissions by refrigerants R22 (air conditioners) 2020.

In the field of eco-efficiency the following have been established:

- 100% replacement of equipment with PCB 2024.
- Utilization of 80% of waste by 2016.
- 4% decrease in final disposal of distribution transformers burned to 2017.
- 5% decrease in domestic water consumption in hydroelectric administrative and headquarters to 2018.

The goals set in relation to water resources are:

- 15% increase to 2016 or reuse water reuse in the process of thermal generation.
- Water use reduction per MW generated in:
- 5% in Rio Cali plant in 2016.
- 4% in Prado plant in 2016.
- 5% in unit 4 Prado to 2018.

Biodiversity goals, such as:

- Intervention in 800 hectares of degraded areas and ecological importance, with reforestation (500,000 native trees), restoration and isolation, 2016.
- Characterization of 100% of the flora and fauna of the generation areas of influence by 2020.
- Arboreal inventory in 50% of areas with vegetation in transmission and distribution circuits, 2020.

- Conservation programs in 3 species of fauna and 1 species of endangered flora, 2020.

As for social management, Celsia has set as goals:

- For 2018 to have a perception analysis in 100% of the communities in the Celsia areas of influence.
- For 2016 to have 100% of operating plants and new projects in development, with their social and environmental programs.
- Social characterization developed in 100% of plants operating in Colombia for 2018.
- Investment of 40,000 million through Celsia and EPSA Foundations 2026.
- 50% of the investments of EPSA Celsia and foundations aimed at issues of educational quality.
- 50% of the investments of EPSA Celsia and foundations aimed at issues of favorable water and electricity conditions for education.

5.2 WATER MANAGEMENT

In consideration of the alliance of the company with CEO Water Mandate initiative of Global Compact of the United Nations, we have taken the following actions in terms of water management:

The study of water availability diagnosis of the state of mulches in the basins of some of the generation plants in Colombia was made in the tributaries of the Salvajina reservoir in the department of Cauca, as well. As a result, the following actions were undertaken:

- Reforestation with native tree species in supplying watersheds of aqueducts that drain the Salvajina reservoir.
- Planting of 800 trees in the watersheds of Riofrio and isolation of two kilometers (km) of the watershed that contributes to the Tulua River.
- Reforestation and isolation in the basin of hydroelectric Alto Tulua and Bajo Tulua in Valle del Cauca.
- Recovery of 359 hectares and 25 km of isolation, including livestock conversion of 17 hectares in the Amaime and Nima plants in the Valle del Cauca, through the agreement with National Parks of Colombia (NPSC), Asocaña and EPSA Foundation.
- Isolation of 5 hectares of Palermo creek, a tributary of the reservoir of the hydroelectric plant in Calima Valle del Cuaca.

Similarly, the company signed an agreement for $ 215 million Water Fund for Life and Sustainability, to enhance care actions and conservation in the contributing watershed hydroelectric Amaime, Nima I and II and Rio Cali I and II in the Valle del Cauca.

Also, continuity was given to joint work with Vallenpaz -Corporación nonprofit that helps to create peace in areas of southwestern Colombian-through an agreement for $ 250 million for the care and conservation of soil, water and forest in the middle and upper basin of the river Amaime and Tulua, achieving:

- Implement rotational grazing systems in 3 ha and recovery of native grasses in 36 hectares.
- Isolate three km to protect four water sources.
- Conduct an agro-toxic waste collection day in partnership with the Campo Limpio organization.

Under an agreement signed with the Regional Autonomous Corporation of Valle del Cauca (CVC), progress was made in the operation of hydrometric stations in the basin of the Cauca River (entrance to Salvajina reservoir) and in the Anchicayá river basin in order to obtain the flow estimates and forecasts and begin testing and transfer of connection time series of the hydroclimate databases.

In December 2015 the installation of hydro and environmental stations in central Rio Piedras, Hidromontañitas, Meriléctrica and Zona Franca Celsia were completed and they have been operating on a trial basis using the Ubidots platform. Additionally, the first report to the Carbon Disclosure Project (CDP) in the Water chapter was presented this year.

For these same plants, in late 2015, the qualitative study of water risk was completed, in which climate change scenarios were generated using the AQUEDUCT tool World Resources Institute (WRI), which concluded that these plants are located in areas of medium to low risk in terms of availability and quality of water and reputational impact for water management.

Hydroelectric plants in Panama use turbine water from another water plant, which is the largest contribution to the generation and is complemented by contributions from small rivers, over which they have a direct influence, however actions aimed at preserving and maintaining canals and riverbanks is taken.

A reduction of 3% was achieved in the domestic water consumption compared with 2014 In the power generation and administrative headquarters in Valle del Cauca,, thanks to hydrosanitary and housing adaptations, to strengthening the program of inspections and corrective maintenance of hydraulic systems and repairs and replacement of water distribution networks. A new awareness of the efficient use of water to all staff was also carried out.

5.3 EXTERNAL COMMITMENT

Celsia is part of national and international initiatives, organizations, committees and associations. Below are mentioned:

- ICH – International Center of Hydraulic Energy (Centro Internacional de Energía Hidráulica)
- Global Compact Colombia (Red Pacto Global Colombia)
- CEO Water Mandate
- ACOLGEN – Colombian Association of Generators (Asociación Colombiana de Generadores)
- ANDESCO – National Association of Public Services and Communications Businesses (Asociación Nacional de Empresas de Servicios Públicos y Comunicaciones)
- CIDET – Corporation Investigation Center and Technological Development – Colombian electric sector (Corporación Centro de Investigación y Desarrollo Tecnológico – sector eléctrico colombiano)
- ANDI – National Association of Businessmen of Colombia (Asociación Nacional de Empresarios de Colombia)
- ICONTEC International
- CIER – Commission for the Regional Energetic Integration (Comisión de Integración Energética Regional)
- COCME – Colombian Committee of the World Energy Council (Comité Colombiano del World Energy Council)
- CON – National Council of Operation (Consejo Nacional de Operación)
- CCS – Colombian Security Council (Consejo Colombiano de Seguridad)