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AGENCE DE LA TRANSITION ÉCOLOGIQUE

CLIMATE CHANGE ADAPTATION

FOCUS ON ACTION

How to embark your company upon its climate change adaptation journey?

30 French companies who are already taking action

epe entreprises pour l'environnement

This document is produced by ADEME

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A WORD FROM **ADEME** AND **EpE**

The passing months, seasons and years are all similar in one respect: record-breaking increases in average temperatures and extreme weather events. The latter are already destabilising ecosystems, territories and economic activities, and this is only the beginning according to the warming trajectories predicted by scientists. While the challenges of decarbonising economic activities are becoming better known, the challenges of adapting to climate risks need to be better understood. Participants from 3,000 companies in a recent survey we performed also expressed a growing need for guidance, particularly from those who have already taken action, to make progress and gain resilience in the face of climate change.

Therefore, in partnership with the *Ministry of Ecological Transition and Territorial Cohesion* and the *Entreprises pour l'Environnement* (EpE) association, we have decided to highlight 30 examples of companies of different sizes, stages and sectors to encourage action. These examples also illustrate the adaptation process and its steps, which necessarily involve all concerned players in the sectors and territories.

This guide is also a means of continuing to build skills in climate change adaptation, with a view to developing strategies based on the ACT Adaptation methodology. It completes the series of three compendiums published by ADEME to provide a better understanding of the ISO NF EN 14090 standard, and will contribute to the implementation of the third national climate change adaptation plan.

When I was a company director, I was always keen to learn from the experiences and examples of other companies who shared their successes or difficulties, their convictions or doubts. This is always a rich source of information. I hope that this guide will inspire companies to take action.

Sylvain Waserman
Chairman and CEO, ADEME

In 2014, Entreprises pour l'Environnement (EpE - the French Enterprises for Environment Association) published, in collaboration with Onerc, a guide presenting the challenges of climate change adaptation for large companies and the first solutions implemented, mainly for designing large infrastructures.

Nearly ten years later, many companies are now embracing this issue in all its complexity, and can draw on an increasingly varied arsenal of tools and methods. Far from taking adaptation for granted, they are questioning its implications for their buildings and their employees, their investments and their markets, their locations and their value chains, since uncertainties are high in all of these areas.

Thus, adaptation is no longer so much a new challenge as one with many facets and ramifications: as it becomes an integral part of corporate activity and transformation, it must be managed in an integrated way with mitigation.

This guide shows how everyone can respond, individually and collectively. It also offers an interesting perspective on the increased experience with climate change adaptation among EpE members.

Claire Tutenuit
Managing Director, EpE

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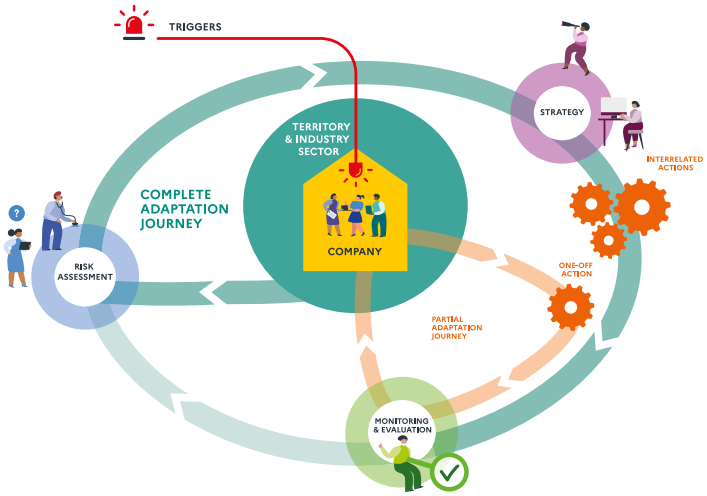

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To clarify certain terms.

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INTRODUCTION

According to the World Economic Forum's Global Report 2023[1], climate change is the source of the top three global risks of the decade, with direct and indirect implications for companies and their value chains. Two complementary approaches are needed to address these risks. The first, "**mitigation**" of climate change, **involves acting on the root causes** by reducing greenhouse gas emissions to achieve carbon neutrality (Net Zero). The second, "**adaptation**", involves **anticipating and managing the inevitable consequences of climate change**. While more and more companies are taking initiatives or implementing ambitious strategies to reduce their GHG* emissions, the integration of adaptation seems to be less common.

To prepare France for the impacts of climate change, the government has set a reference warming trajectory for adaptation to climate change (TRACC*)[2], which will serve as a framework for all French adaptation actions. TRACC is based on current policies and government commitments, which according to IPCC*, would lead to a warming of 2.7°C in 2050 and 4°C by the end of the century in Metropolitan France. In particular, the TRACC will direct the revision of the French National Climate Change Adaptation Plan (PNACC*)[3], which places particular emphasis on the adaptation of economic activities.

This **guide** has been designed to help companies tackle the issue of adaptation, as it is an essential step in guaranteeing the sustainability and continuity of their activities. Through the examples of **30 French companies**, it shows that it is possible to embark on an adaptation process, whatever the activity size or sector. The guide is primarily aimed at companies and organisations that federate or support them, to encourage them to act. It highlights examples of actions, vulnerability assessment approaches, strategy development and monitoring and evaluation processes, rooted in the experience of benchmark companies. It also provides theoretical and methodological elements to help better understand the issues at stake, and identify best practices and tools to mobilise. Finally, it suggests and encourages companies to embark on a complete adaptation journey.

The guide comprises six chapters, following a logical progression:

- **Triggers:** *What factors prompt companies to embark on an adaptation process?*
- **Actions:** *What does adaptation actually look like? What types of actions can be implemented? What are company costs, results and benefits?*
- **Climate risk assessment:** *Why assess climate risks? What is the process? What tools can be used?*
- **Adaptation strategy:** *Why is a strategy needed? What are the long-term benefits? What resources and methods should be used?*
- **Monitoring and evaluation of the adaptation process:** *What is the purpose of monitoring and evaluation? Which methods can be used?*
- **Link with the industry and the territory:** *What is the purpose of extending the adaptation process beyond the company's borders? What are the benefits in return?*

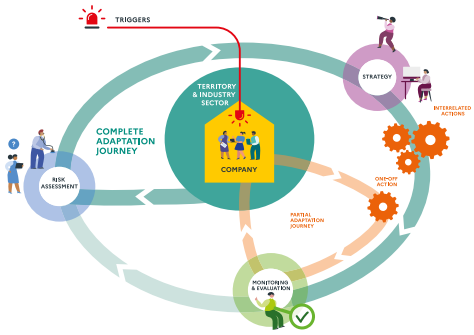
The chapters and their contents can be consulted independently, and can be read in a variety of ways: by case study, by activity sector, by company size, or by methodological insight through the zooms.

[1] www3.weforum.org/docs/WEF_Global_Risks_Report_2023.pdf
[2] www.ecologie.gouv.fr/sites/default/files/document-reference-TRACC.pdf
[3] www.ecologie.gouv.fr/adaptation-france-au-changement-climatique

THE ADAPTATION JOURNEY

The company begins an adaptation journey triggered by one or more factors. The process differs from company to company.

Generally speaking, however, there are two distinct journeys: a complete and a partial one.



THE PARTIAL ADAPTATION JOURNEY

This is a two-stage process involving the implementation and evaluation of adaptation actions. Actions can be one-off or ongoing, in response to sudden or recurring climatic events that disrupt the company's activities. This is a partial approach because the actions cover a limited scope and are not developed as part of an overall approach covering all the climate risks facing the company. In this context, evaluation aims to improve the effectiveness of the actions taken, but does not aim to provide the necessary hindsight to adapt or even transform the company and its model.

A commitment to a partial journey does, however, represent a first step towards adaptation, making it easier to move on to a complete journey.

THE COMPLETE ADAPTATION JOURNEY

This is a three-phase process that follows the adaptation cycle: diagnosis, strategy and monitoring-evaluation. Diagnosis assesses the physical risks (threats and opportunities) posed by climate change and its consequences for the entire company. This leads to various proposals for actions, which are prioritised, coordinated, budgeted and planned over time as part of an adaptation strategy. Evaluation focuses on the whole strategy and on the actions implemented. It can be carried out upstream (*ex-ante*), during (*in itinere*) or downstream of the process (*ex-post*), facilitating continuous improvement of the adaptation strategy.

Ideally, a company should embark on a complete adaptation journey, which is the only one that integrates long-term risks, some of which are invisible or even unthinkable today.

Underlying these two types of journeys, which are not mutually exclusive and which, in practice, very often follow one another over time, are the **territories and industry sectors in which companies originate, produce and develop**.
Companies do not exist in a vacuum. The territories and industry sectors on which they depend are also confronted with the impacts of climate change, and are striving to respond to them. Companies therefore need to think about their adaptation journey in synergy with them and in cooperation with the stakeholders and associated initiatives.
Considering territories and industry sectors is especially likely to foster coherent efforts, solidarity and the emergence of multiple co-benefits.

TABLE OF CASE STUDIES

COMPANY / INSTITUTION	SIZE	SECTOR
ATALU	SME	Construction
AUCHAN	LE	Retail
AXA	LE	Insurance
BARJANE	ETI	Construction
BIC BRIQUETS	LE	Consumer goods
CDC HABITAT	LE	Construction
CHARLES ET ALICE	ETI	Food and drink
CLINIQUE SAINT-ROCH	SME	Healthcare
COMPAGNIE NATIONALE DU RHÔNE	LE	Energy
DREAL AUVERGNE-RHÔNE-ALPES	-	All
ELIS	LE	Hygiene
EVEREST ISOLATION	SME	Construction
GROUPE LA POSTE	LE	Postal and financial services
JAS HENNESY & CO	ETI	Winegrowing
JUS DE FRUITS D'ALSACE	ETI	Food industry
LEROY MERLIN	LE	Retail
MICHELIN	LE	Transport
NEXITY	LE	Construction
PERIFEM	-	Retail
POCHECO	SME	Stationery
PVCP GROUP	LE	Tourism
SAINT-GOBAIN	LE	Construction
SÉCHÉ ENVIRONNEMENT	LE	Water - waste - energy
SED / AGUR	-	Water
SNCF	LE	Transport
SOCIÉTÉ MARTINIQUAISE DES EAUX	SME	Water
SOLVAY	LE	Chemicals
SYSTÈME U	LE	Retail
VEOLIA	LE	Water - waste - energy
VINCI	LE	Construction
WORLDLINE	LE	Digital

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Actions

Territory & Industry

Assessment

Strategy

Monitoring

COMPANIES:
ADAPTATION JOURNEYS

Complete adaptation journey

The complete journey includes **risk assessment, strategy and monitoring and evaluation**. It is the only recommended way to address long-term climate risks.
Moreover, it leads the company to build **adaptation trajectories, from incremental adjustments to its activities and processes, to more far-reaching transformations**.

Climate risk assessment

Assess company risks and opportunities associated with climate change.

Partial adaptation journey

The partial journey is a response to specific events, leading to the implementation of **one-off actions** and their **evaluation** for short-term optimisation. It has no strategic perspective and does not represent an end goal in itself. **To be more effective, this initial approach should be extended to a complete adaptation journey.**

Triggers

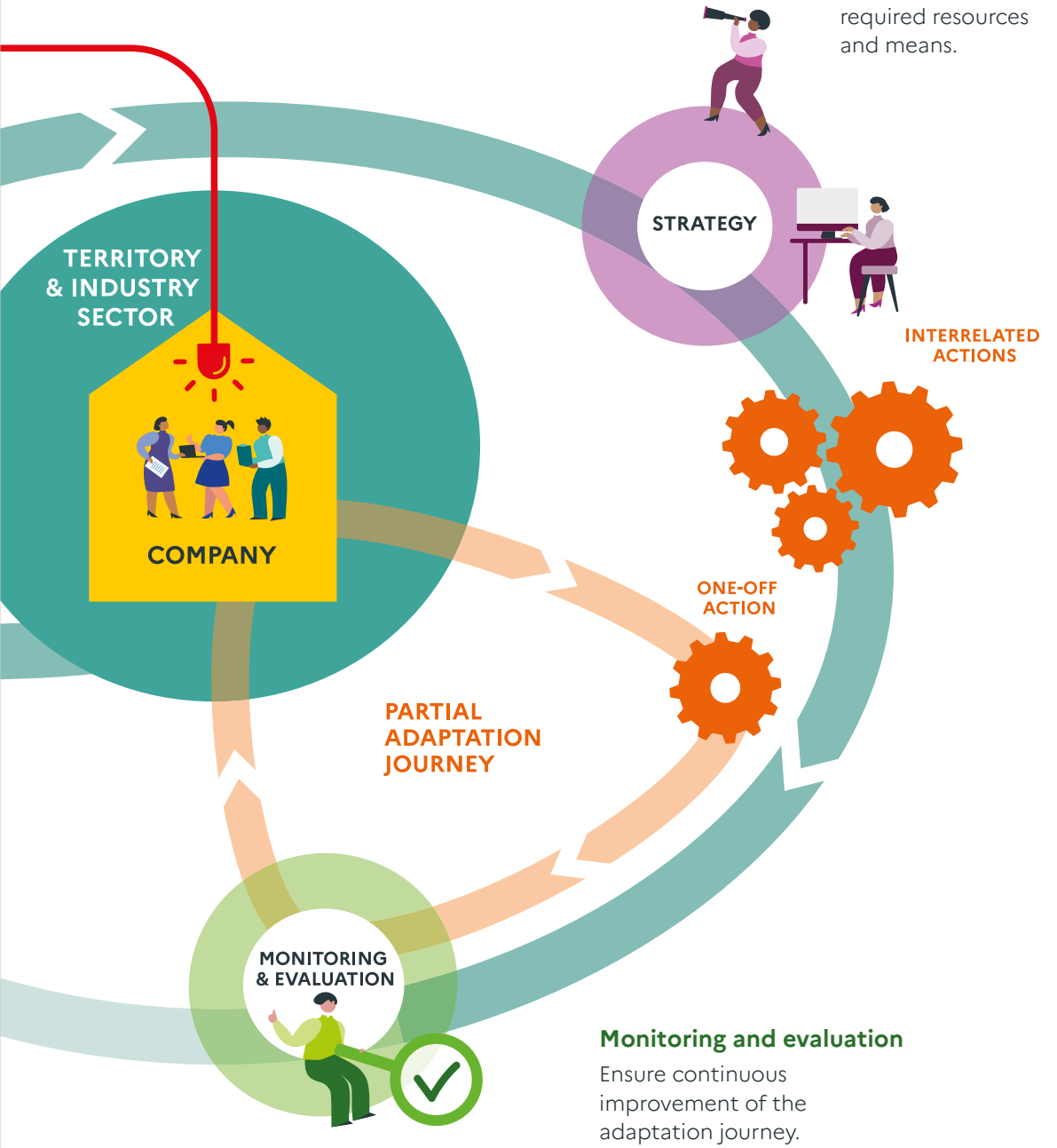
Five factors (or triggers) responsible for starting an adaptation process.

Territory and industry sectors

Companies benefit from anchoring their journey within existing local and industry dynamics.

Strategy

Prioritise, articulate and plan adaptation actions with the required resources and means.



Monitoring and evaluation

Ensure continuous improvement of the adaptation journey.

WHY ENGAGE IN ACC* AND WHAT ARE THE TRIGGERS ?

All companies featured in this collection have mentioned one or more factors that triggered their adaptation process. While each company has its own story to tell, the "triggers" - whether external or internal - are often common to all companies, whatever their size or activity sector.

KEY MESSAGES

Five main types of triggers

Experience with climate risks, regulatory pressure (current or anticipated) or company stakeholder demands (territory, customers, partners, etc.) are all external adaptation triggers. Additionally, there are sometimes internal company triggers: adaptation process as a complement to a more global approach, whether social (health, well-being in the workplace) or environmental (mitigation or biodiversity) or as part of a systemic risk analysis approach.

Climate risk experience as a key lever

Real-life experience with climatic risks remains the most widely shared and "effective" trigger for raising awareness and mobilising internal resources. Such an experience enables a tangible link between climatic events and their consequences on employee health, productivity, business continuity and, ultimately, profitability. *"The best leverage for operational teams is the climatic risks, which are already here, stronger and more frequent, with consequences on business."*

Management commitment: a prerequisite

Beyond triggers, a strong management team commitment is essential to achieve full support of the adaptation process (strategically and then operationally) and guarantee success.

COMPANIES
sharing their experience

You will find the complete interviews of the companies quoted here in the corresponding chapters:

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ZOOM

NOT ADAPTING: THE COST OF INACTION

Climatic hazards and climate change are already costly for society, and especially for businesses. In 2022, extreme weather events cost $264 billion worldwide (Lancet Countdown 2023 according to Swiss Re).

Against this backdrop, examples of the effects of climate on economic activity are multiplying. In Gironde, the 2022 **fires** impacted the entire timber industry (€10 billion in sales) and led to a 40% drop in tourism in the Bassin d'Arcachon, weakening the local economy (France Bleu Gironde, 22/07/22). In Texas, the economic impact of **Hurricane Harvey** (2017) is estimated at $125 billion. Nearly 90% of businesses in the disaster zone reported loss of revenue, and 40% direct damage, forcing many to halt operations for several weeks (Collier et al., 2020). Another example: lower Rhine water levels during the 2018 and 2022 **droughts** impacted freight traffic and curbed industrial production in Germany. One industrial giant cites a cost of €250 million, due to the disruption of logistics chains and reduced cooling capacity in factories (Les Echos, 26/02/2019).

Heatwaves are also becoming a major concern. In 2022, heat exposure led to a loss of 490 billion potential working hours (an average of 143 hours per worker worldwide), 42% more than the 1991-2000 annual average (Lancet Countdown 2023). In exposed sectors, the cost-benefit ratio of employee protection measures is already very favorable, and the benefits can be measured directly in terms of lower turnover and sick leave.

While companies of all sizes are affected by climate-related risks, SMEs* are particularly vulnerable. They generally have few cash reserves, less insurance coverage and greater difficulty in accessing financing to help them recover after a shock (Collier et al., 2020). Following the 2022 hail storms, for example, one of France's leading manufacturers of tow trucks was forced to file for bankruptcy despite a full order book: it was not possible to restart production due to the extent of the damage, which was not covered by insurance (France Bleu Périgord, 3/10/2022).

For businesses, anticipating risk is vital. One year after Hurricane Harvey, while 48% of companies in the disaster zone had not fully recovered, those with risk financing mechanisms in place (insurance, cash reserves) and those with a business continuity plan were respectively twice more likely and 30% more likely than others to have fully recovered (Collier et al., 2020).

With climate change, the impacts already observed are intensifying, and so far inconspicuous risks are gaining in magnitude, **particularly in relation to water**. Without adaptation, economic losses are to be expected in many sectors in situations where access to water is restricted (France Stratégie, 2023), which justifies efforts to save water now, and even to radically rethink production methods. On the subject of water, as on others, adaptation is less costly than inaction, and will provide a definite competitive advantage to companies that take the plunge. In 2022, 4,000 companies surveyed by CDP* estimated that the financial risk associated with water is 6.5 times higher than the cost of adaptation (CDP 2022). ●

REAL-LIFE EXPERIENCE WITH CLIMATE RISKS

Companies starting an adaptation process have generally already been affected by climate shocks to their products, services, supply chains and infrastructures.

REGULATORY INCENTIVE

Whether current or anticipated in the short or medium term, regulatory pressure can play a role in the decision to implement actions, initiate a diagnosis or formalise an adaptation strategy.

STAKEHOLDER DEMAND

Stakeholders outside the company can influence the decision to take a proactive approach to adapting to climate change as the issues of CSR*, climate and risk management gain in importance.

Some companies are intrinsically exposed to climate and have always incorporated this variable into their decision making (**SNCF**, **VINCI**). Regardless of company size, it is often a significant event that triggers the decision to take action: at **Everest Isolation**, in 2003, a health risk for employees followed by absenteeism and staff turnover led to changes in work organisation. At **Charles et Alice**, in 2017, a local governmental decree, limiting the company's water withdrawals during a drought, raised awareness of business interruption risk and initiated the decision to drastically reduce water consumption by relying on breakthrough technologies previously thought to be too costly.

Beyond the decision to act, the direct and recurring consequences of certain climatic events on business, such as customer dissatisfaction with summer comfort in 2022, make it easier to raise awareness among operational teams that are sometimes difficult to mobilise for adaptation (**Pierre & Vacances Center Parcs Group**). ●

Several major companies cite extra-financial reporting incentives or standards as one of the triggers for their approach. **Michelin** and **Veolia** cite the European **CSRD*** directive, which requires them to communicate the implementation of adaptation plans, while the **Pierre & Vacances Center Parcs Group** cites its voluntary CDP* reporting approach, which requires considering the financial risks associated with climate change and explaining the reasons for them.

Regulations specific to the company's sector of activity can also be a factor: **Clinique Saint-Roch** (health sector) mentions anticipation of the ageing plan and future obligations to cool premises where elderly people are housed as one of the considerations behind its climate change adaptation action. **Veolia** and **Perifem** cite changes to water regulations.

Finally, regulatory pressure can be exerted at local government level. For example, companies in the Puy-de-Dôme region are required to reduce their industrial water consumption via a **PURE***. ●

This can be the case, for example, when the CCI* Grand-Est proposes that companies voluntarily test the OCARA* tool (**Atalu**, **JFA**), or the ADEME proposes the testing of the ACT Adaptation method (**Worldline**, **SNCF**, **Séché Environnement**).
At Nexity, for example, individual homeowner customers are beginning to ask that climate adaptation be considered in their property management, rental management and intermediation services. This awareness made it easier for employees to embrace the global challenge of adaptation. At **Veolia**, the growing concerns of industrial customers and local authorities, particularly regarding water resources, have contributed to the integration of adaptation into the multi-faceted performance program.
It is also no longer unusual to see a business continuity plan requirement included in the criteria for awarding contracts to subcontractors in certain sectors (for example, aeronautics).

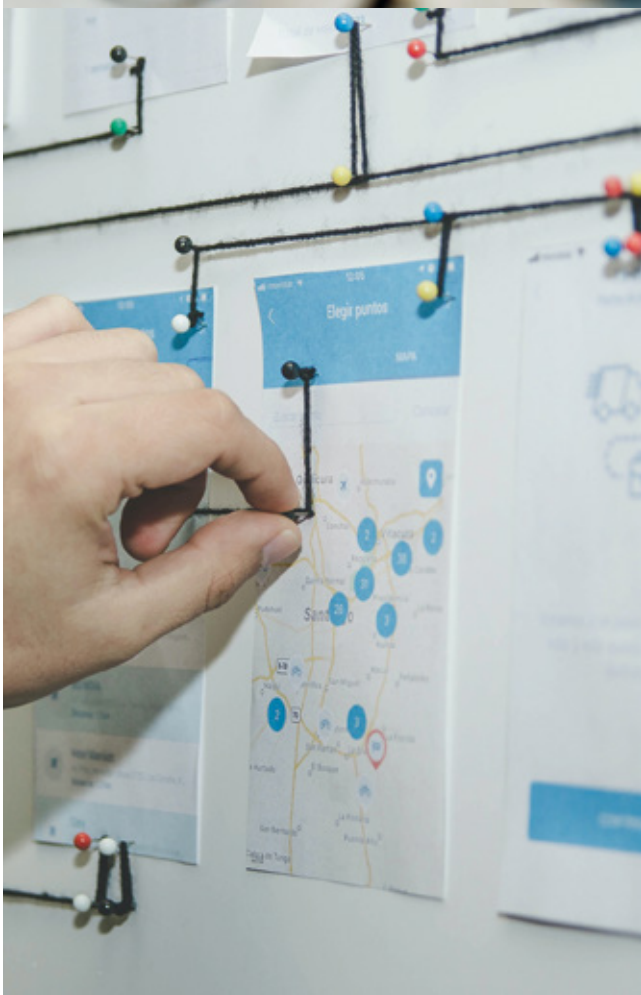
Last but not least, the industry plays a role: for **Perifem**, collective learning from the experiences of mass-market retailers can encourage action. ●

ADAPTATION AS A COMPLEMENT TO A MORE GLOBAL APPROACH

Adapting to climate change is sometimes a logical extension of another social or environmental initiative.

ADAPTATION AS PART OF A SYSTEMIC RISK ANALYSIS APPROACH

A risk analysis approach can also lead the company to integrate the physical risks of climate change, leading to a more comprehensive adaptation approach.



At **BIC Briquets**, the starting point was an analysis of energy consumption at the group's various sites, which highlighted variations depending essentially on geographical location and associated with climatic conditions. The risk of energy shortages also highlighted the need to reduce energy consumption at sites (and thus improve summer comfort) as a precaution against shortages. The adaptation process was therefore primarily designed to prevent short-term risks and reduce greenhouse gas emissions.

At **Jas Hennessy**, a carbon assessment highlighted the importance of the upstream value chain (the winegrowers) and the essential challenge of "getting them on board", which led to the adaptation of vineyards to climate change. The challenge of adaptation is now part of a more global approach that includes climate change mitigation and biodiversity, through the implementation of nature-based solutions.

At **Pocheco**, adaptation is a "co-benefit" of an approach promoting health and well-being in the workplace: adapting working conditions has also enabled the site to adapt to climate change.

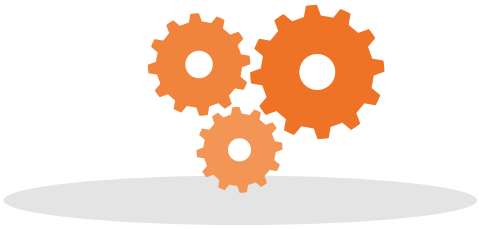
Regarding **Barjane**, adaptation is an integral part of the voluntary ISO 14001 certification process: vulnerability assessment was performed within this framework.

At **Michelin**, for example, awareness was raised as part of the updating of a group-wide environmental risk map, which led the company to assess the physical risks of climate change.

At **Veolia**, the water business sectors have historically managed adaptation from a resource protection perspective, and more generally on a risk management cross-functional basis. Adaptation is now integrated into the group's risk mapping.

Similarly, as **Séché Environnement's** operational teams are risk management specialists, they are particularly vigilant regarding factors that could exacerbate these risks, especially climate change.

WHAT IS A CLIMATE CHANGE ADAPTATION ACTION?



Fourteen companies report on how they are adapting to real-life climatic events and climate change. Their actions target working conditions, water savings, summer comfort in buildings, flood protection, including NbaS*.

KEY MESSAGES

Actions accessible to all

Actions to adapt to climate change are not exclusive to large companies: companies of all sizes and in all sectors are implementing them.

A wide variety of actions

These actions range from technical solutions (to cool workplaces or public areas, or to save water), to organisational solutions (to improve working conditions), to nature-based solutions (to better manage flooding, or adapt production process).

Immediate benefits

The benefits are operational, such as reduced staff turnover and sick leave, improved productivity, lower water consumption and operating costs, and reduced energy bills, sometimes with a rapid return on investment. In the case of NbaS, they also help to preserve biodiversity which has been weakened by climate change.

The need for further action

Although these actions are a "first step", as climate change intensifies, it is important for the company to consider future climate risks and opportunities that are not currently visible. Anticipating these risks and opportunities will ensure the company's long-term viability, which this is the subject of the next chapter.

COMPANIES
sharing their experience:

AUCHAN
LE / Retail sector
www.auchan.fr

BIC
LE / Consumer goods
www.corporate.bic.com

CHARLES & ALICE
ETI / Agri-food
www.charlesetalice.fr

CLINIQUE SAINT-ROCH
SME / Health
www.clinique-saint-roch.com

CNR
LE / Energy
www.cnr.tm.fr

ELIS
LE / Hygiene
www.fr.elis.com

EVEREST ISOLATION
SME / Construction
www.everest-isolation.fr

SAINT-GOBAIN
LE / Construction and Housing
www.saint-gobain.com

JAS HENNESSY & CO
ETI / Agri-food
www.hennessy.com

LEROY MERLIN
LE / Retail
www.leroymerlin.fr

POCHECO
SME / Stationery products
www.pocheco.com

SME SUEZ
SME / Water
www.smeaux.fr

SOLVAY
LE / Chemicals
www.solvay.fr

SYSTÈME U
Cooperative / Mass distribution
www.magasins-u.com

and

DREAL Auvergne-Rhône-Alpes

ZOOM SUCCESS AND DIFFICULTIES

Below is a summary of the success factors and difficulties encountered by companies in their adaptation process.

SUCCESS FACTORS:

- **Engaging high-level management**, because adapting to climate change can involve organisational changes, mobilise human and financial resources, and sometimes require anticipation of changes in business lines and in-depth changes in company practices.
- **Involving teams at all levels of the organisation chart**, to convince and facilitate the roll-out of the approach to all employees, but also to gain a better understanding of climate risks on a small scale, define operational actions accordingly and test them.
- **Choosing a "step-by-step" progressive approach**, to take the time to become acculturated, demystify the subject of adapting to climate change, test the recommended solutions before deploying them on a larger scale or initiating R&D projects.
- **Highlighting the tangible benefits of adaptation**, whether in financial terms, in terms of staff health and attractive work environment, industrial safety, etc., in order to facilitate decision-making and get operational teams "on board".
- **Seeking synergies with other CSR* issues** such as climate change mitigation, water, biodiversity, the circular economy, workplace well-being and health.
- **Getting support from institutional and local players** (ADEME*, CCI*, Water Agencies, the State, etc.), who can provide technical or financial support and link with adaptation initiatives underway at local and industry sector level (see chapter "The link with territory and industry sector").

DIFFICULTIES:

- **The lack of maturity of the ACC*** subject in most companies (compared with GHG* emissions reduction), with a perceived absence of reporting standards, guides and benchmarks, as well as reliable feedback.
- **The technical nature of certain stages in the adaptation process**, both in terms of diagnosis (analysis of climate scenarios, risk assessment, including those relating to the value chain, multiple issues to be addressed) and strategy (choice of actions, maturity of technical solutions, etc.). This complexity may require the use of external expertise to carry out certain stages and implement actions.
- **The time and energy required to build awareness internally and get teams on board**, due to the time lag between the objectives of operational staff and those of the teams in charge of steering the company's long-term vision, particularly the ACC: it can be difficult to raise awareness and mobilise people around climate risks before there are direct and recurring consequences for the business.
- **The difficulty of financialising climate risks and the benefits of adaptation**, due to methods of assessing the financial consequences that are still new and heterogeneous. On the other hand, when the financial risks are known, they are a powerful lever for taking action.
- **The time lag between climate scenarios (e.g. 2050 or 2100) and investment horizons**, which can make it difficult to integrate certain indicators into the investment process.

Auchan | RETAIL FRANCE

Water meter

Organisation of two pilot sites to improve water resource management

OBJECTIVE:
Ensuring water sobriety

AUCHAN, a major retailer, is incorporating rainwater management into its renovation work and installing smart sub-meters to monitor water consumption and detect leaks in real time in two pilot sites. These actions are part of a partnership signed with the Seine-Normandy Water Agency (AESN*), driven by Perifem (see zoom page 45) to tackle water stress linked to climate change.

MILESTONES

2020 – 2021

One-and-a-half-year diagnosis to identify the needs of Île-de-France sites regarding consumption management and technical sanitation requirements to determine which sites require the development of actions to improve water management.

In 2021

Definition of action objectives to be carried out in collaboration with the AESN and signing a partnership contract for technical support (performing studies) and financial support (subsidising eligible projects) from 2021 to 2024. The support covers 3 areas:

- reduction of pollutant discharges;
- stormwater management in place;
- water efficiency.

Vélizy Auchan site became the first site to benefit from the partnership with AESN. 27 sub-meters were installed to monitor water consumption and detect leaks in real time.

2021 to date

Four Auchan projects have benefited from an AESN grant. One concerns the installation of sub-meters to monitor consumption and leaks, one concerns the management of rainwater in place and two concern pollution reduction.

> "The announcement of the partnership (with AESN) was a springboard for improving water management."

2023 to date

Parking refurbishment work for the Taverny site with 2,087 m² of surface area fitted out for rainwater management in place (167 permeable parking spaces).

Since February 2022

Training campaigns for site technical operations managers (AUCHAN technical contacts within the stores) on the three areas of collaboration with the AESN, including rainwater management and water efficiency.

NEXT STEPS

Development of links with other water agencies to

set up more water management projects on other sites during 2024. These potential partnerships will benefit from feedback from AESN-supported projects at the first pilot sites.

COSTS AND RESOURCES

The cost of studies, equipment and construction and the rate of AESN grants vary according to the type of action undertaken.

SUBSIDIES

The AESN subsidy rate is up to 50%, with the remainder of the cost borne by Auchan.

€ 74,000

in total subsidies obtained from the AESN.

COSTS

€ 29,955

over one year

The installation of 27 connected sub-meters, including plumbing and maintenance of all equipment over a one-year period for the Vélizy site.

€ 2.7M

The entire parking lot refurbishment project for the Taverny site, **including more than € 200,000** for creating permeable parking spaces.

Internally, these actions have mobilised the company's national Technical Operations Department, the CSR* Department, the national Energy Efficiency Manager, and a technical employee at each site involved to report data.

Auchan uses external engineering firms to perform studies, which are monitored by in-house engineers.

RESULTS

- Installation of 27 sub-meters at an Auchan site in the Seine-Normandy watershed (Vélizy site).
- Parking lot refurbishment with integrated stormwater management for the Taverny site (work in progress).
- More than 120 technical operations managers trained in stormwater management and water efficiency, as well as 15 project managers.

BENEFITS

- Water savings not yet quantified.
- Internal acculturation to water resource management thanks to employee training.

LINK WITH THE TERRITORY AND THE INDUSTRY SECTOR

Active member of Perifem (see zoom page 45) through participation in committees and consultations on drafting proposals for regulatory documents.

Technical and financial partnership with AESN to reduce water consumption and pollution, and to manage rainwater in place.

An iterative approach combining energy performance and adaptation of industrial buildings

OBJECTIVE:
Preventing heatwave and energy shortage risks

Production site

BIC, consumer goods company, adapted its cigarette lighter production sites by limiting energy consumption for building temperature regulation, even during heatwaves.

MILESTONES

2013

Construction of a first building incorporating massive insulation work according to RT 2012* and BREEAM* certifications. The result was an average temperature that was ultimately too high, partly due to the highly artificial and mineralised structure.

2015

Installation of air conditioning, which did not solve the situation due to lack of consideration of existing air renewal flows.

2018

During a second building construction, installation of an airflow between offices and production machinery, to renew air and lower temperatures during the summer (without air conditioning, even during heatwaves) and to benefit from the machinery heat without additional heating during the winter.

SUMMARY: For a given building, one year is required for establishing building specifications. An additional year is required after building construction to measure the impact of the implemented solutions and optimise the system.

NEXT STEP

Launch of a second building renovation project without air conditioning. Consideration of NbaS* integration such as wall vegetation to facilitate rainwater retention and limit overheating during heatwaves, cognizant of Seveso* constraints.

THE COSTS of the energy recovery project: €1.2 million, reduced to less than €200,000 thanks to Energy Savings Certificates, enabling the savings to be reinvested elsewhere.

> "Success cannot be based on an entirely top-down approach: while the major strategic orientations come from the Sustainable Development Director, the approach is integrated in all businesses and translated into operational projects."

RESULTS

Building adapted to both heat and cold waves, while being 90% passive (100% target in progress).

INVESTMENT SAVINGS of
€ 500,000
thanks to the elimination of air conditioning.

BENEFITS FOR THE COMPANY

Integration of adaptation into a building eco-design approach.

Charles & Alice

A 20-year water-saving initiative in an area under water pressure

OBJECTIVE:
Securing its business

Adiabatic tower

Protecting the environment is a key concern for **Charles et Alice**, a fruit dessert manufacturer based in south-eastern France, that has drastically reduced its consumption of borehole water since 2003.

MILESTONES

In 2003

Adaptation of existing equipment to reuse water in several processes (spraying, cooling) resulting in an average savings of 18,000 m³/year over the first 5 years (equivalent to almost 5 Olympic-sized swimming pools).

In 2015

Installation of remotely-read meters (technical management of consumption) to monitor consumption, correct discrepancies in real time, target investments and monitor the results obtained.

In 2019

Management commitment to reduce water consumption per tonne manufactured by 80% over time.

In 2022

Deployment of 3 adiabatic towers (breakthrough technology) to provide a closed circuit for the refinery condenser cooling network resulting in savings of 76,000 m³/year (equivalent to more than 20 Olympic-size swimming pools).

NEXT STEP

To go below 1 m³/t thanks to the deployment of geothermal energy and the reuse of water for industrial use.

COSTS

Until the 2017 drought, "breakthrough" investments were considered too high regarding expected water savings. The company's determination to manage this major risk, coupled with financial assistance from the Water Agency, made these investments possible.

Investment cost of the 3 adiabatic towers:
€ 340,000
40% funded by the Water Agency

Cost of the pre-project study for a closed circuit:
€ 13,000
54% funded by the Water Agency

> "It's a matter of ensuring the long-term future of the company in a region that lives 6 months a year in one of the four levels of drought management (vigilance, alert, reinforced alert, crisis)."

RESULTS

A significant reduction in water consumption:
- 70 %
from 600,000 m³ in 2003 to 170,000 m³ in 2023
with a threefold increase in production

SAVINGS

Drilling water consumption of product manufactured
2 m³/t today compared with 10 to 12 m³/t in 2003.

THE BENEFITS

Securing the future of its business in an area under water pressure. ●

CLINIQUE SAINT-ROCH

Groundwater geothermal energy, a renewable energy source for improved summer comfort during heatwaves thanks to geocooling

OBJECTIVE:
Using geothermal energy on groundwater

Geothermal equipment

15 years ago, the **Saint-Roch clinic**, a care and convalescence establishment, opted for geothermal energy to meet its heating and cooling needs, as part of an overall project to construct a building and an eco-gymnasium.

The principle of ground source geothermal energy is that water from the borehole, at a constant temperature of 12°C, circulates and feeds radiant heaters in the ceilings. In summer, its circulation allows saving 3 to 4°C compared with the outside temperature. In winter, it is used to preheat water for heating.

MILESTONES

In 2008

Creation of an internal sustainable development committee.

In 2009

Decision to build the project in accordance with LEB* and HEQ* principles and to choose groundwater geothermal energy for heating and cooling the premises. It should be noted that 40% of the equipment was oversized from the outset, in anticipation of building extensions.

In 2010

Connection of the hospital and consultation rooms (1,253 m²) and the rehabilitation eco-gymnasium (823 m²).

In 2015

Connection of the bedrooms (150 m²).

In 2016

Connection of a new unit (1100 m²).

Other measures to adapt to climate change:
For patient comfort:
ventilation at night and lowered shutters, regular distribution of water to the elderly.

To save drinking water:
recovery of non-potable groundwater to supply sanitary facilities (in 2011) and eco-gestures.

Rainwater management:
a green car park with grassed paving stones to return water to the water table.

> "Reducing dependence on fossil and natural resources is a winning bet for the future."

COSTS AND FUNDING

INVESTMENT
€ 369,000
including a
€141,000
grant from ADEME* Renewable Heat Fund

and a **€27,000** grant for geothermal feasibility studies, the remainder being financed by bank loan

OPERATING COSTS
€ 53,985
upkeep, maintenance and electricity consumption

Ceiling radiant heaters

For further information on geothermal energy: *www.geothermies.fr/outils/les-guides*

The Chairman fully supports the operation's "long" return on investment (estimated at 8 years based on a carbon tax of €100/t and compared to a gas boiler), as he believes that "reducing dependence on fossil and natural resources is a winning bet for the future."

Groundwater recovery system for sanitary facilities:

INVESTMENT
€ 33,000
amortised over 3 years thanks to drinking water savings (of €12,000 per year).

RESULTS

- Improved thermal comfort noted in internal satisfaction surveys of healthcare professionals and patients.
- Reduced water consumption: 103,000 m^3 of drinking water saved between 2012 and 2021, €133,000 of water distribution cost avoided for sanitary facilities in favour of groundwater.

BENEFITS FOR THE COMPANY

- A reduction of more than 35% in gas and electricity consumption between 2011 and 2021, largely thanks to geothermal energy (no use of air conditioning to cool the buildings) and a 52% reduction in direct greenhouse gas emissions per day of hospitalisation.

ENERGY SAVINGS
35 %

GHG* EMISSIONS REDUCTION
52 %

- A hospital culture that is firmly rooted in day-to-day practices around preserving natural resources, combating waste and ensuring comfort and well-being in the workplace.

LINK WITH THE TERRITORY

Local involvement of the Chairman in a number of NGOs* and projects on sustainable development issues, the environment (e.g., organisation of a conference for the general public on environmental health in October 2023) and climate change (e.g., in the Climate Plan piloted by the Pays du Cambrésis).

Social sponsorship (loan of the eco-gymnasium for musical evenings, sports events and handibasket), which contribute to the clinic's reputation in the region.

LINK WITH THE INDUSTRY SECTOR

The chairman has been in charge of the FHP*'s national Sustainable Development Commission since it was set up in 2016. Its aim is to share experiences during regular webinars and encourage the deployment of best practices in healthcare facilities, regarding saving water resources, developing renewable energies, etc.

Experimentation to optimise the implementation of Nature-based adaptation Solutions (NbaS*)

OBJECTIVE:
Promoting ecological restoration to prevent floods

Restoration to reopen the Rhône River's arms

As part of its responsibility to develop and operate the Rhône River, **the Compagnie Nationale du Rhône** is implementing NbaS to prevent major floods thanks to flow improvement.

MILESTONES

2009 – 2011

Experiments to re-establish more natural processes and improve flows, including the reopening of river's arms with the dismantling of Girardon structures (submersible dykes).

2010 – 2013

Collective definition of a renaturation master plan for areas along the Rhône, identifying all restoration potential and prioritising sites with a cost/benefit analysis. Research work, with academic support, to identify suitable locations for this approach (diagnosis, issues, vulnerability) on the Rhône River. Case-by-case NbaS implementation along the river to respond to local issues (combating invasive species, restoring wetlands, etc.).

2000 – 2014

Voluntary (with the help of the Water agency) then regulatory increases in instream flow values (minimum flows optimising life, circulation and reproduction of river species living) with the support of the Rhône scientific community.

2017

Replication of the methodology tested on a larger scale on L'Île des Graviers at Péage-de-Roussillon.

2023

Consideration of climate scenarios. A study by the Rhône Méditerranée Corse Water Agency with local stakeholders evaluated the Rhône's flows by 2055 according to various IPCC* scenarios: the low-water flow in the south of the Rhône Valley is expected to decrease by 20%. This analysis highlighted the absolute necessity of redistributing water resources equitably throughout the river.

NEXT STEP

Integrating the interaction between humans and the natural environment into the scope of the study. The aim will be to strike

"Weak governance that is not NbaS-based will inevitably impede its implementation."

a balance between biodiversity tranquillity and human use of the area. New research topics are also emerging regarding the effects of global warming, such as water temperature in some river locations.

RESULTS

- Improved groundwater recharge and increased resilience of alluvial ecosystems to hydrological events.

- Use of instream flow values as input data for sizing the NbaS to be implemented on the river.

- Ecological restoration contributes to an improvement in flooding on two main levels: increasing flow capacity by river widening (lowering water levels during heavy floods) and re-establishing a slow, gradual flooding process in the major bed by reconnecting the main channel to the alluvial plain.

BENEFITS FOR THE COMPANY

Thanks to the increase of instream flow in 2014, small hydroelectric power plants (SHPP) were constructed, where possible, to harness the increased river water flow. To date six SHPPs have been built, one is under construction and six are planned. The expected annual output after completion of the seven future SHPPs is 312 GWh/year, or electrical power to 135,200 inhabitants. These SHPPs do not alter the hydrology of the Old Rhône and include crossing structures which reduce the impact of existing dams on fish continuity. ●

For more information:
Entreprises et solutions fondées sur la nature by IUCN*

The Île-des-Graviers after restoration

PRÉFÈTE DE LA RÉGION AUVERGNE-RHÔNE-ALPES
Liberté Égalité Fraternité

OBJECTIVE:
Consolidating water consumption reduction

Numerous companies involved with the Prefecture PURE program

A Plan for a Rational Use of Water (PURE*) offered to companies and conducted by the public authorities

When the framework drought decree was revised, the **public authority of Puy de Dôme** wanted to consider the efforts already made by some industrial companies to reduce water consumption and encourage others to do the same. The PURE must therefore include a precise diagnosis of all water consumption and associated discharges per site. Additionally, the plan must identify potential actions that could be gradually implemented to reduce withdrawals and discharges, depending on water restriction levels, which may lead to more permanent measures.

MILESTONES

2006

Implementation of a PURE by 12 ICPEs* in the region, either voluntarily or imposed by local governmental decree. Measures include: raising staff awareness, improving monitoring of volumes withdrawn and discharges into the environment, limiting use (postponing operations, increasing recycling, etc.), replacing equipment with more water-efficient equipment, searching for and repairing leaks in water supply networks, reusing water leaving an internal treatment plant.

2021

- Revision of the decree, introducing the possibility of adapting restrictions for facilities undertaking to update or implement these PUREs. ICPEs consuming more than 40,000 m^3/year will be encouraged to take part in the process.
- Working groups to agree on the objectives to be achieved and creation of a tool to help companies draw up their PUREs. Testing of the matrix with certain manufacturers, with technical support from the local CCI*.

From 2022

Examination of the PUREs by the official inspectors (from DREAL*, DDPP*) with the DDT* to ensure unbiased treatment throughout the region, considering the other challenges faced by ICPEs (accidental risks, air quality, waste management).

> "The PUREs are fantastic internal communication tools for raising staff awareness and anticipating the reorganisation of production throughout the value chain."

NEXT STEPS

Consideration of generalising best practice sharing between manufacturers (already underway within the CCI's Water Club). Development of an approach that also encompasses energy savings to capitalise on convergence points. Adopting the PURE approach in the Water Sobriety Plans, which are required for all ICPEs consuming more than 7,000 m^3/year in the Auvergne-Rhône-Alpes region.

RESULTS

- 23 PUREs validated, 7 under development.
- **In the mid-term, effective water savings of 25 to 70% for equivalent production** thanks to a variety of actions: elimination of open circuits, replacement of cooling towers by "dry" cooling systems, reduction in the frequency of purging or draining, putting manufacturing processes into closed or semi-open circuits, building up water reserves outside low-water periods, etc.

Circular services at work

Twenty years continuous water consumption reduction

OBJECTIVE:
Reducing water consumption

Water-saving washer

Elis, specialising in rental and maintenance of textile and hygiene articles, has been implementing measures to reduce water consumption in its industrial processes for over twenty years.

MILESTONES

2000

Replacement of washing machines by a continuous washing tunnel allowing 30% of water to be reused in each wash cycle (rinse water reused for the next wash cycle).

Since 2005

Progressive replacement of washing machines for workwear and smaller machines.

Since 2008

Work with detergent suppliers to reduce water consumption.
Monthly on-site visits to the supplier to ensure process optimisation, in addition to daily internal monitoring. R&D* work with chemical suppliers to optimise the product. Ex: Savings of 1l of water/kg of linen washed by replacing powder detergent with liquid detergents.

2022

Signing of the Plan for a Rational Use of Water (PURE*), considering the work carried out and identifying additional commitments to be implemented.

NEXT STEPS

Continued investment in new machinery.

Global forward-looking thinking on adapting to climate change at group level through the development of breakthrough technologies.

RESULTS

- **Reduction from 21 to 9 liters of water per kg of linen washed** between 2003 and 2020. The Auvergne site is in line with the Group's target of a 50% reduction in water consumption at European sites between 2010 and 2025.

- The replacement of machines also helps **to reduce energy consumption by 2 to 3%** in addition to water consumption.

> "We need to involve all of our teams in this approach because everyone has a role to play."

BENEFITS FOR THE COMPANY

- Less water withdrawn despite increased activity.
- Company's environmental consciousness facilitate team commitment and the recruitment of employees who are increasingly sensitive to environmental issues.

LINK WITH THE TERRITORY

Structuring a common, regional approach to sharing best practices between companies and forging links with local players as part of the PURE initiative.

LINK WITH THE INDUSTRY SECTOR

Ongoing collaborative work with suppliers to reduce process water consumption.

EVEREST
ISOLATION

A 20-year initiative to ensure the safety of company employees working on construction sites during the summer months

OBJECTIVE:
Ensuring the safety of its workers

Difficult working conditions

Everest isolation, specialising in roof insulation work, has been establishing a program for some twenty years to improve working conditions on construction sites during extreme heat periods.

MILESTONES

Since 2003

Adjustment of working hours to start at 6 am to avoid temperatures of 40-50 Celsius in the attic.

Since 2017

- **Financial incentive:** an additional bonus of 20 euros/day to compensate employees who start at 6 am (from June 21 until autumn).
- **Camel bag :** an individual hydration device adapted to working in attics.
- **Individual cooling vest.**
- **Fresh fruits:** melons and watermelons stored in site coolers to keep workers hydrated and recharge the body with minerals, calories and energy.

In 2023

Wristbands to monitor body heat and prevent overheating.

NEXT STEP

The company is currently considering the annualisation of working hours, with shorter working weeks in the summer and longer ones the rest of the year.

BENEFITS FOR THE COMPANY

- Faster worksite completion and on-time delivery.
- Greater team motivation and a positive working atmosphere.
- **A drastic reduction in sick leave (on average 3-4 days/year, compared with a national average of 16-17 days in the sector)** and staff turnover (previously, employees stayed for a few months, 2-3 years maximum).
- Less stress for the company manager, who no longer has to worry about staff shortages or inadequate work completion.

"Heat is a constant source of anxiety in our business, and we're concerned about cardiovascular risks and discomfort. If we don't want to lose our employees, it's essential to guarantee their safety in the workplace."

COSTS
€ 40,000
annual cost for the entire program

RESULTS
Increased employee safety and loyalty.

SAVINGS
at least
€ 80,000
of avoided costs of sick leave (manager's estimate). The benefits in terms of worksite efficiency and quality have not been assessed.

SAINT-GOBAIN

Local adaptation of working conditions identified by employee feedback

OBJECTIVE:
Ensuring the safety of its employees worldwide

Workers to be protected against heatwaves

Saint-Gobain, which specialises in the design, production and distribution of materials, wanted to facilitate spreading best practices to protect the health of its employees at all its sites.

> **"Thanks to a healthy social dialogue within the group, local decisions are made efficiently, regarding the different local contexts (cultural, regulatory, etc.) that may exist."**

MILESTONES

From 2005

Based on employee feedback, development and spreading of specific standards at group level for teams working in hot environments having equipment such as glass furnaces. These standards, which are regularly updated, combine organisational measures with collective and individual protection.

Head office is capitalising on this feedback so that the group's various entities can benefit from it. To deal with heatwaves, a catalogue of highly operational best practices has also been drawn up and shared, including:

- adapting working hours, increasing the number of breaks;
- providing individual equipments (cooling jackets, sun cream, lighter, ventilated protective clothing);
- thermal insulation of premises.

With the increase in heatwaves, head office has issued general, non-binding recommendations, leaving the local level to decide, with the cooperation of staff representatives, on the most appropriate measures to implement.

RESULTS

Contribution to improving the **rate of employee satisfaction over time, reaching 84% in 2022**, despite the increased frequency of heatwaves. ●

Hennessy

A nature-based approach to value chain adaptation

OBJECTIVE:
Better adapting vineyards to climate change

Hedge planting

Hennessy Cognac has launched the "Destination Forest" program, with a primary operational objective of planting 1,000 km of hedges in the Cognac area over 10 years (the "1000 Palisses" program).

MILESTONES

2020 – 2021

Starting agroforestry experiments in Maison Hennessy's own vineyard (180 hectares) with hedges around the vines and between fields.

2021 – 2022

Organising the program with local NGOs* and stakeholders (Vitinnov, Chambers of Agriculture, LPO*, Prom'haies, CETEF*) and establishing strategic decisions:

- Deployment methodology: prioritisation of areas within the territory, choice of local species, study of the territory's green and blue network etc.
- Financial organisation of the project: creation of a one-stop shop for winegrowers to apply for aid for hedgerow planting, with Hennessy subsequently advancing the funds.
- Operational organisation of the project: making winegrower responsible for tilling the soil and planting the hedges, to ensure ownership of the project; providing technical support and supplying necessary equipment from other stakeholders; raising awareness on the importance of hedge maintenance, mulching and protection to preserve the expected benefits.

Recruitment of first winegrowers. Various reasons for commitment: regeneration of biodiversity, mitigation (creation of carbon sinks) and adaptation to climate change (protection against strong winds, coolness generated by shading), development of new sources of income (timber or firewood, fruit production), beautification of farms and landscapes.

> "To tackle these complex subjects of adaptation and mitigation, biodiversity and water, which interact, you have to be pragmatic and accept the fact that you're learning as you go."

2023

Involvement of three town halls (Mosnac-Saint-Simeux, Asnières-sur-Nouère and Corme-Royal) and Cognac elementary school to contribute to the continuity of the green grid by planting actions starting in autumn.

NEXT STEPS

- Regular inventory of fauna, flora and entomology to measure benefits:

Hennessy collects technical information in a GIS* to identify interconnections between the various plantations in the area.

- Recruitment of a post-doctoral researcher to assess the impact of climate change on vines and the bioclimatic impact of trees on vineyard plots, and to provide more detailed recommendations for the positioning of hedges.

- Assessment of the impact on the water cycle - filtration of pollution, reduction of erosion, regulation of winter rainfall - as part of a blue network project.

- Experimentation with assisted migration of potentially more resilient tree species.

COSTS AND RESOURCES

One person is dedicated full-time to financing window for planting projects. Hennessy Cognac finances technical and regulatory support for winegrowers, as well as supplies (plants, protection, mulching). The winegrower is responsible for preparing the soil and plants.

RESULTS

32 km of hedges planted in 2022 and 54 winegrowers committed.
Local species planted: Blood Dogwood, Hazel, Fusain, Viorne Lantane, Field Maple, Hornbeam, etc.

BENEFITS FOR THE COMPANY

The benefits are disconnected from the commercial stakes, but common to all stakeholders in the region: the opportunity for winegrowers to be valued in their daily lives, the occasion for a different dialogue between the client and its suppliers, without contractual connotations, and establishing a longer-term relationship.

For more information:
Entreprises et solutions fondées sur la Nature by IUCN*

LINK WITH THE TERRITORY

Mobilisation of local players (local authorities, schools, associations, etc.) to set up the project and extend the action beyond the winery.

LINK WITH THE INDUSTRY SECTOR

Mobilisation and empowerment of winegrower suppliers to integrate NbaS* on their farms.

Hedge planting

Site renaturation and efficient water management since 2015

Leroy Merlin,
a home improvement company, is becoming environmentally committed and is adapting to the challenges of high heat and dwindling water resources at its sites. It is working with various stakeholders (Perifem and other companies, water agencies and local authorities) and its partners to meet these challenges.

OBJECTIVE: Promoting sustainable building

Infiltration swales, Haguenau store

> "We are the first generation to suffer from the effects of global warming and the last to be able to act."

MILESTONES

2015

Formalisation of a 10-year company vision of being the leader in "positive habitat", resulting in implementing actions reducing the company's impact on its environment.

2018 to present

Implementation of measures to reduce the company's ecological impact: energy renovation of buildings, re-insulation, white roofing membrane, replacement of gas boilers with electric heat pumps, real-time monitoring consumption via an EMS (Energy Management System). These actions have helped to reduce energy consumption while reducing the need for air conditioning during heatwaves.

2019

General management commitment to a CSR* strategy to renovate the entire truck fleet according to the energy transition.

2019 – 2023

Acceleration of fleet renovation and installation of rainwater retention basins at 15 sites during parking lot renovation. The first experiments in renaturation occurred at the Nancy and La Roche-sur-Yon sites.

Sept. 2023 – Febr. 2024

Installation of water meters connected to an EMS (Energy Management System) to monitor real time water consumption, detect leaks and implement a water-saving plan at all sites.

In 2023

Formalisation of a strategy:

- **Water resources:** development of on-site water treatment, disconnection from public networks to avoid flooding, groundwater recharge, measurement of consumption and leak detection, rehabilitation, implementation of rainwater harvesters, establishment of water-saving targets;

- **Climate and quality of life:** reduction of greenhouse gas emissions and creation of cooling islands by increasing the density of green spaces.

NEXT STEPS

- An acceleration in site renaturation is planned over the next 5 years.

- Two major 2024 projects:
  - Water treatment on a plot-by-plot basis (soil desiltation to replenish groundwater) and disconnection from public networks for the Clermont-Ferrand site;
  - Complete parking lot renovation on the Saint-Etienne / Villars site: exhaustive study to manage water in a 100% infiltrated way and disconnect from public networks using retention basins and infiltration devices.

- Renovation of 40 rainwater harvesters at 40 sites.

COSTS AND RESOURCES

Investment cost for the entire company ecological transformation exceeds €100 million.

RESULTS

- 1,200 water meters in 142 stores;
- **objective: reduce water consumption by 15%**;
- 30 roofs replaced with white membrane;
- **- 11% net electricity consumption (output from meters) between 2021 and 2022**;
- **- 12% net electricity consumption (output from meters) between 2022 and 2023**;
- 2 sites have experimented with renaturation.

BENEFITS FOR THE COMPANY

- Thanks to the installation of water meters and sub-meters, **the return on investment is between 6 and 7 years** due to leakage control.

- Creation of environmental value through optimal water management.

- Enhancing the value of a high-performance real estate portfolio, promoting biodiversity and contributing to the natural water cycle.

LINK WITH THE TERRITORY AND THE INDUSTRY SECTOR

Collaboration with France's seven water agencies for renaturation: La Roche sur Yon, Nancy, ...

Collaboration with VEOLIA and Métropole Européenne de Lille (MEL) to improve on-site water cycles, with other projects in the pipeline.

Flower meadow for direct infiltration, Mantes La Jolie store

POCHECO

A 25-year environmental transformation process leading to adaptation to extreme heat

POCHECO, an SME* specialising in the manufacture of envelopes, is transforming its site to respond effectively to the challenges posed by extreme heat and the increasing scarcity of water resources resulting from climate change.

OBJECTIVE:
Ensuring a pleasant working environment

Green fire-fighting road on the POCHECO site

> "Once you've dip your toe in the virtuous circle of change, you can't get out."

MILESTONES

1997

POCHECO's ecolonomy[1] approach begins.

2008 – 2009

One year of studies to replace a portion of the roof with a green roof.

2009

6 months to replace a small part of the roof (200 m²) with a green roof (phase 1). These roofs are clad with sedum, 10 cm thick, and are embellished with creeping plants of various colours adapted to the local climate.

2010 – 2011

One year to replace 2,000 m² of roofing with green roofing (phase 2).

2014

- Construction of a new 1,600 m² building with a green roof (phase 3).
- Installation of rainwater recovery tanks to cover 100% of the site's water needs.

Since 2010

Continuation of the project to green all roofs, walls and roads.

NEXT STEPS

- Continuing to convert the remaining 600 m² of roof space to green spaces.
- Transforming a building into a restaurant to use the 3 tons of vegetables harvested on the site per year, creating a link between local community and the plant.

COSTS AND RESOURCES

Over 25 years, for a 3-hectare site including 7,500 m² of buildings, the total investment (mitigation and adaptation actions) is

€10 MILLION

for all ecolonomy projects, with an average return on investment of 7 years

[1] "Ecolonomy = ecology + economy." It is a way of working with Nature that generates savings. It involves integrating ecological, social and economic criteria into every decision (POCHECO).

The company has received a **€400,000 grant** for:

- the wood-fired boiler from ADEME* (the company's energy mix is electricity and wood);
- the green roof from the European Regional Development Fund (ERDF);
- rainwater tanks from the Artois-Picardie Water Agency (AEAP).

The cost for phases 1 and 2 (2,200 m² of roof) was €2 million, with a 10-year payback period. This cost includes structural work, insulation and roofing, with a mix of vegetation, skylights and solar panels. By comparison, a conventional roof would have cost €800,000, with no return on investment.

RESULTS

- 50% of the 7,500 m² buildings have green roofs.
- 90% of buildings are renovated and insulated with bio-sourced materials.
- Numerous windows on facades and natural light wells on roofs have been installed for team comfort and energy savings.
- Of the site's total surface area of 3 ha, 85% is planted with vegetation.
- 100% self-sufficiency for process water and sanitary facilities from rainwater recovery tanks (recovery of 1,500 m³ /year).

BENEFITS FOR THE COMPANY

SAVINGS of € 75,000 per year

from adiabatic cooling[2] which replaces air-conditioning units, green roof which enhances building insulation and skylights, which reduce the need for artificial lighting

- A pleasant working environment for employees thanks to thermal comfort, skylights and permanent close contact with vegetation.
- Increased employee awareness.
- Increased talent attraction of future employees sensitive to environmental and climate issues (high number of unsolicited applications received).
- Roofs and walls provide refuge for a number of species: 270 living species have been recorded on the site (including the great newt, the melodious linnet, Kuhl's pipistrelle and the bee ophrys), 4 beehives in the orchards, and bees foraging throughout the planted site.

In 2012: creation of the "OUVERT" office within the company, which provides consulting activities to support other companies in their ecological transition (currently employs 15 people and has supported 350 projects since its creation). The consultancy business accounts for 8% of the company's sales. ●

LINKS WITH THE TERRITORY

The company cooperates with many local players, both to implement solutions and to inspire new actions. Among others, it collaborates with:

- the regional council and the European Metropolis of Lille (MEL) on ecological transition issues;
- AEAP* on rainwater harvesting;
- five academic institutions on climate change adaptation and mitigation (Lille University, ISA Lille, Lorraine University, Campus Pro and Supelec);
- the National Botanical Conservatory of Bailleul for research on the choice of plants to be used for roof and wall greening (suitable, non-invasive plants for the region).

Aerial view of the site

[2] An air-conditioning system that does not exchange heat with the outside.

SOCIETE MARTINIQUAISE DES EAUX

A water conservation approach on a regional scale

Martinique is divided into three urban communities: Cap Nord and Espace Sud, which have delegated the drinking water system to the **SME* (a SUEZ subsidiary)**, and CACEM*, which has set up a public water system. The SME wanted to adapt the water network after a severe drought and a number of tap water shortages at the beginning of 2020 in the CACEM and Espace Sud.

OBJECTIVE: Securing access to drinking water for the population

A drought-sensitive water distribution network

MILESTONES

Mid-2020

Establishment of a SME four-pronged action plan in collaboration with its contracting local authorities.

- **Better managing water shortages:** installing new booster pumps by Espace Sud to restore access to water for people living at high altitude, and motorised valves to secure a minimum amount of water and equalise "rotating cuts" during shortages.
- **Putting more water in the pipes:** repairing damaged supply pipes by the CTM*, and developing water resources by drilling boreholes to boost flows during a drought.
- **Keeping more water in the pipes:** replacing 20% of the most obsolete pipes in 10 years by the local authorities, improving pressure regulation by the SME, and finding and repairing the 6,000 leaks per year in its two operating territories.
- **Keeping users better informed in real time:** the SME will provide a smartphone app for leak alerts and reports, social networks, water bulletins, and will raise awareness of eco-actions and water sobriety during periods of drought.

End of 2020

Launch by the SME and the local authorities of their respective action plans. Based on a study by the Office of Water on water resources outlook, presented to the CEB* and including various investment scenarios for local authorities.

NEXT STEPS

- These issues are currently being considered in service delegation contracts because of the loss of operating margin generated.
- Discussions underway by the CTM*, the CEB*, in its SDAGE*, the ODE* and the urban communities, with the support of the DEAL*, to establish unified water governance for the island.
- Study of other technical solutions to avoid water resource consumption, including REUT* for agricultural irrigation.

> **"Faced with the uncertainty of growing risks, we need to be pragmatic and quickly consider climate scenarios to prioritise actions."**

COSTS

Investments made by the local authorities in charge of the project. The SME has increased its dedicated resources and therefore its operating costs.

RESULTS

Since 2021, avoidance of shortages and use of "rotating cut-offs" in the two territories operated by the SME during drought episodes in the first half of each year. **The avoided cost from not damaging the network as a result of a shortage is around €20m/year.**

BENEFITS

Improved dialogue with stakeholders and service user satisfaction. ●

A multisite approach to water risk management and the introduction of internal water prices

OBJECTIVE:
Reducing water consumption

Optimised water resources

In 2020, the chemicals group **Solvay** set a global target of reducing water consumption by 25% by 2030 compared with 2018. Therefore, it has carried out water consumption and leak detection assessments as part of a project to modernise its production sites. Accordingly, water savings are identified either by optimising or even completely transforming production processes, or by installing recycling loops.

MILESTONES

2021

Site mapping to identify and make an initial selection of at-risk sites according to criteria of location, volumes withdrawn and biodiversity, using the Water Risk Filter tool developed by the WWF* association.

2022

Deployment by the HSE* entity of a methodology for systematically analysing the various production units and opportunities for reducing withdrawals:

- raising local teams' awareness of water-related climate risks;
- identifying actions already taken, possible optimisations and sites sensitivity to water stress episodes or other climatic events that could affect operations;
- prioritising sites for investment, based on information relating to seasonal and annual flow variations, and the quality of aquatic environments.

2023

- Evaluating the full cost of the water resource (costs of abstraction, pre-treatment, treatment before discharge and pollution taxes), i.e., a range of internal prices from €3 to €10/m^3 for European sites, differentiating a cost for process water from cooling water.
- Presenting results and validation by Group management of a full cost based on average prices and water stress dependence at each site.
- Launching an experimentation period with different internal water prices on new projects, to identify priority investments specific to water. These prices are designed to meet reduction targets that may vary according to the water stress context, and may possibly become potentially "water neutral".

> **"With an executive committee already aware of financial and operational risks, the water "derisking" approach facilitated their buy-in."**

NEXT STEPS

- Reassessment of the Group's overall target to align with national target (e.g., -10% in France as →

part of ecological planning) but also to prioritise sites located in water stress areas.

- Case-by-case discussions with local authorities to develop REUSE* projects.

- Improved monitoring of site water footprint and implementation of NbaS*. An initial pilot project involves preserving an artificial water retention basin to become a 525-hectare natural reserve, together with a local NGO* and the local Authority.

- Value chain water-related risk assessment considering the supply chain footprint.

Production sites exposed to drought risk

COSTS

In some cases, investments of just a few tens of thousands of euros may be enough to meet the objectives, and therefore quickly prove profitable according to initial analyses.
At other sites, on the other hand, the targeted water savings require process changes, and are therefore part of a longer-term assessment and prioritisation process.

LONG TERM INVESTMENT

The investments required are often substantial about

€1 M / million m³ saved

RESULTS

Since 2018

a 12 M m³ reduction in withdrawals, i.e.

- 3,5%

projected to increase from major investments underway at 30 priority sites, including 6 in France.

SOLVAY

BENEFITS FOR THE COMPANY

- Better sites integration into local environment, considering water sensitivity use.
- Facilitating dialogue with the authorities as part of the Water Plan, by presenting concrete examples of water savings already achieved. ●

Commerçants autrement

A commitment to climate resilience through better store water management

OBJECTIVE:
Improving water management in stores

Biodiversity in the outdoor space of a store

Système U,
a cooperative of supermarket retailers (including Hyper U, Super U, U Express and Utile), supports its retail owner members through a partnership with the Seine-Normandy Water Agency (AESN*) to improve water resources resilient management, rainwater management on land plots and to encourage biodiversity integration in supermarket outdoor spaces.

MILESTONES

2020

Signing of a partnership agreement between Système U and the AESN for 2020 – 2024 period, enabling subsidies to be obtained.

2021

The Sainte-Geneviève (Oise) site is chosen as the pilot supermarket. The site project involves extending the retail space and completely renovating the 1,000 m² parking lot, including 400 m² reserved for non-motorised vehicles.
A draining parking lot with a honeycomb basin was installed to reduce the volume of rainwater going into the water network by:

- open-air water infiltration by creating permeable green spaces in pedestrian walkways, parking spaces and landscaping;
- porous pavements on pedestrian walkways with permeable honeycomb structures for water infiltration;
- roof water capture for watering green spaces.

2021 to present

Eligible actions for an AESN subsidy have been performed in more than a dozen supermarkets, especially for:

- setting up closed-loop car wash circuits;
- capturing roof water for car wash system reuse;
- installing water sub-meters to identify leaks.

> "Disseminating information and raising awareness among our associates is also part of the overall strategy for adapting to climate change."

Ongoing

As a cooperative, Système U:

- disseminates simplified information on the technical processes adopted by pilot supermarkets, monitors and analyses regulatory developments, and offers associates a range of tools to help them meet today's challenges;
- provides training and information for those involved in projects (distribution of technical guides, organisation of webinars, conferences and trade fairs): prime contractors, project teams and associates (to enhance their skills in dealing with current issues, →

to learn about what exists, to consult experts, etc.);

- distributes in-house booklets, such as on water agencies, to inform associates of the various existing subsidy programs to broaden the approach.

NEXT STEPS

- Annual meeting in 2024 to review the progress of the AESN - Système U partnership.

- In regions where water-related issues are predominant, Système U informs its retail owner members of the existence of Water Agencies subsidies and informs about eligible subsidise actions for their future extension, enlargement and renovation projects.

COSTS AND RESOURCES

Costs vary according to action and supermarket.

COSTS

For the Sainte-Geneviève pilot supermarket, the total cost for draining the parking lot with the basin is

€ 400,000

with a

€ 55,000 AESN SUBSIDY

Commerçants autrement

Drainage parking

COSTS

For the Vitré Hyper U supermarket,
the cost for installing a 50 m³ rainwater storage tank and a closed circuit for the car wash is

€ 50,000

RESULTS

The Sainte-Geneviève site recorded water savings of 150 m³ per year.

The Châteaugiron Super U, which has been recycling water from its car wash since 2020, capturing rainwater from its roof, storing it in a tank and reusing it for washing rollers, recorded the following results:

- **the store operates autonomously for the rollers;**
- **70% of the water used to wash a vehicle has been recycled; 60,000 m³ of water have been recycled in 3 years;**
- **3,000 m³ of rainwater have been captured over 3 years.**

For Hyper U in Vitré: installation of a system to capture rainwater in a 50m³ tank, and a system to recycle wastewater from five car wash lanes. Water savings have been approximately 80% on the gantry wash system. It also enabled closed-cycle operation during water restrictions.

Installation cost was around €50,000 (road and infrastructure, tank, machinery).

BENEFITS FOR RETAILERS

- Financial benefits: water savings and lower bills (not yet quantified).
- Prevention of operating losses during periods of drought and restrictions.
- A good reputation and a positive public image thanks to communicating actions.
- Talent attraction through unsolicited applications from people interested in environmental and climate issues (such as three CVs sent to Super U Bellevigny).

LINK WITH THE TERRITORY AND THE INDUSTRY SECTOR

Active member of Perifem (see zoom page 45).

Technical and financial partnership with AESN in resilient water resource management projects, parcel-based stormwater management and promotion of biodiversity integration in supermarkets outdoor spaces.

WHY EXPAND BEYOND THE COMPANY'S BORDERS?

In their interviews, eleven companies also describe how they have worked or cooperated with their local area or industry sector as part of their adaptation process. This openness gives the company the systemic vision it needs to be resilient.

KEY MESSAGES

The company is not isolated

In fact, it is a stakeholder in an economic and territorial ecosystem on which it is interdependent, if only through its consumption of resources. Since the territory and the industry sector are taking numerous initiatives to adapt to climate change, the adaptation process must integrate these two dimensions. The aim here is to share assessments and experiences, find synergies and establish cooperative ventures to jointly build climate resilience.

The issue of water is already central regarding industry sector and territory

It is often a common anchor point and the entry point for cooperative ventures (see zoom).

The link with the industry sector

This can be achieved through the company's participation in an industry-led adaptation process, involving shared best practices, providing methodological support or lobbying on key issues. It is worth noting the importance of the ambassadorial role played by companies that are already committed among their peers.

Le lien avec le territoire

This can take the form of the company's participation in local authorities' PCAET* and ecological transition initiatives, water agency or government initiatives, or adaptation initiatives involving other players.

For further information, the TACCT website: *www.tacct.ademe.fr*

COMPANIES

sharing their experience

AUCHAN
Link with territory and industry sector
p.20

CLINIQUE SAINT-ROCH
Link with territory and industry sector
p.24

COMPAGNIE NATIONALE DU RHÔNE
Link with territory
p.26

ELIS
Link with territory and industry sector
p.29

JAS HENNESSY
Link with territory and industry sector
p.32

LEROY MERLIN
Link with territory and industry sector
p.34

POCHECO
Link with territory
p.36

SYSTÈME U
Link with territory and industry sector
p.41

JFA
Link with territory
p.52

GROUPE PIERRE & VACANCES CENTER PARCS
Link with territory and industry sector
p.54

GROUPE LA POSTE
Link with territory and industry sector
p.60

ZOOM WATER RELATED INITIATIVES

WATER CANVASES SED / AGUR

Local players and businesses working together to save water

In 2018, the SED* defined a strategy for saving raw water to supply the industrial port of the Grand Port Maritime de Dunkerque. With AGUR*, the Industrial Water Canvases were created in 2020 to identify possible synergies for the circular economy of industrial water. It enables water flows and their characteristics to be visualised, their uses to be specified and recovery options to be identified. The project involved dozens of players in the Dunkerque Flanders area, including water stakeholders, approximately thirty companies and government departments. To create the canvases, the SED provided the data for the companies' water consumption, and these companies specified their internal water use: the qualities of water required (raw, softened, osmosed water, etc.) and the characteristics of their discharges. Based on this data, concrete circular economy options were studied. Two promising solutions have already emerged:

- total reuse, by an existing hydrometallurgy plant, of 600,000 m^3 of water discharged per year by a future hydrogen production plant;
- the reinjection into the public industrial water network of 1 million m^3 of water per year reclaimed from a petrochemical plant.

This innovative approach is a forerunner of the regional cooperation between public and private players that is bound to develop as water resources become increasingly scarce and extreme weather conditions multiply due to climate change. SED and AGUR were asked to present the Industrial Water Canvases at the World Water Forum in Dakar (2022) and at the UN Water Conference in New York (2023).
In addition, more than twenty urban planning agencies have been made aware of and/or trained in the development of canvases over the last 20 years in France.

Resources on Industrial Water Canvases: *www.agur-dunkerque.org/agur-water-canvases-6579* ●

PERIFEM

Uniting retail stakeholders to meet water management challenges in a changing climate

Recognised by public authorities for over 40 years, Perifem has been advocating on behalf of 130 integrated and independent retailers in the food and specialised retail sectors, as well as shopping centres. Perifem also brings together over 200 partners/solution providers focusing on environmental, energy, safety, and technological innovation issues. Its aim is to contribute to a more responsible retail ecosystem.

As the Technical Trade Federation (Fédération Technique du Commerce), Perifem deciphers regulations, promotes the development and deployment of dedicated technological solutions, and drives and contributes to the drafting of laws governing a more responsible commerce.

Faced with the challenge of water scarcity and climate change, Perifem worked with the AESN* to co-publish the guide *Comment gérer les eaux pluviales et la végétalisation dans les projets d'espaces commerciaux.* ("How to manage rainwater and vegetation in retail space projects").

This collaboration has led to a Water & Climate partnership for the period 2021-2024 between Perifem and the AESN, with the signing of contracts between seven-member chains and the AESN for technical and financial support in site water management. Some of these experiences are shared in this guide (Auchan, Leroy Merlin and Système U). ●

HOW TO ASSESS YOUR CLIMATE RISKS?

Here, five companies describe how they have carried out a climate risk assessment. The diagnosis assesses how, with the expected intensification of climate change, current risks (threats and opportunities) could increase, and whether others are likely to emerge. Scope, methods and common points are specified.

KEY MESSAGES

A variable scope

The scope of the assessment differs according to the company: it can be either a global assessment of climate risks of all its activities and its value chain, or a more targeted assessment, aimed, for example, at mapping the physical risks to its real estate assets.

A variety of methods

Some companies rely on methods (such as the ADEME compendium published in 2020, and certain standards such as OCARA or Climadiag Expert - see zoom), while others develop ad hoc tools tailored to their needs. It should be noted that the financial dimension of risks is sometimes integrated, but remains a difficult task.

Common points

The entry point for all assessments is either the comparison of the company's activities or assets with several climate futures and several time horizons, available thanks to the tools developed in particular by Météo-France, or with the reference warming trajectory (TRACC*) launched in 2024 (see zoom). Operational teams are always involved at some stage in the process.

The need to go further

Once climate risks have been prioritised, the company can draw up its strategy for integrating adaptation to climate change into its investments, or test solutions before deployment. This is the subject of the next chapter.

COMPANIES

sharing their experience

ATALU
SME / Construction and housing
www.atalu.fr

AXA
LE / Insurance
www.axa.com/fr

CDC HABITAT
LE / Building
www.cdc-habitat.fr

JUS DE FRUITS D'ALSACE (JFA)
ETI / Agri-food
www.lsdh.fr/nous/nos-sites/site-de-jfa

GROUPE PIERRE & VACANCES CENTER PARCS
LE / Tourism
www.groupepvcp.com

METHODOLOGICAL **ZOOM**

WHY A RISK ASSESSMENT?

A key step in the adaptation process, risk assessment identifies threats and opportunities for a company's activities, products and services.
Various assessment methods exist, depending on the objectives and scope of the analysis. Although the terminologies sometimes differ, they all share the same methodological principle: climate risk arises from the interaction between climatic factors (hazards) and non-climatic factors linked to the company and its environment (vulnerability).

ADEME's 2020 publication "Assessing the impacts of Climate Change on a Company" presents the main tools available to companies, according to NF EN ISO 14091 "Adaptation to climate change - Guidelines on vulnerability, impacts and risk assessment".

EXPLORING CLIMATE CHANGE

Analysing risk primarily means first analysing current and future climate trends and the associated hazards (reduced rainfall, drought, flooding, submersion, etc.). The IPCC* defines several emission scenarios, depending on the intensity of decarbonisation policies. It usually involved a median climate scenario (RCP*4.5) and a "pessimistic" one (with no ambitious climate policy such as RCP 8.5 for diagnosis), as well as several time horizons (e.g., 2030, 2050 or 2070). In France, from 2024, a reference warming trajectory (TRACC) will be established to standardise technical reference frames and simplify the appropriation of first assessment data.

Specialised websites such as DRIAS, Climat HD and Climadiag Entreprise, developed by Météo-France, provide useful climate analysis information. A range of climate data and indicators are available at particularly small spatial and temporal resolutions. Other products complete a growing range of climate services, such as the Canari* platform for agriculture, the BAT-ADAPT* tool for the building industry, and the various applications of the European Copernicus program.

ASSESSING AND PRIORITISING RISKS

The company must then translate the identified hazards into threats or opportunities for its most exposed components (facilities vulnerable to flooding, supply chains exposed to water shortages, products sensitive to raw material fluctuations, etc.).

Some companies, such as ATALU and JFA, have used the OCARA* tool to analyse current resilience and future risks in the value chain. OCARA is available as a free downloadable methodological guide and Excel file. As this approach is fairly exhaustive, its implementation requires companies to invest time and effort in data collection, which should be anticipated.

Another example is the Clim'ability program run by the Alsace CCI*, resulting in the development of the Climadiag Expert tool, currently supported by CCI nationally.

MOBILISING COLLECTIVE INTELLIGENCE

To produce a sufficiently shared assessment, co-construction and mobilisation of stakeholders' experience are essential to technical assessments. The Ateliers de l'Adaptation (AdACC) are a good example of a collective intelligence tool adapted to the corporate target. In a stimulating and participative format, these workshops enable stakeholders to understand key concepts and the causal links between climate and risks, while raising their awareness of the challenges of adaptation.

Whatever the tools used, it is important that the assessment process is not limited to the site and its immediate environment, and can be extended to the entire value chain, to consider the domino effects for the company. ●

Link to collection :
www.librairie.ademe.fr/changement-climatique-et-energie/4048-assessing-the-impacts-of-climate-change-on-a-company.html

ATALU
L'ALLIAGE DES SAVOIR-FAIRE

A vulnerability assessment of an SME*'s activities to ensure its long-term survival

OBJECTIVE:
Assessing the robustness of activities in the face of climate change

Roof vent for night cooling

Atalu, a company that designs, manufactures and installs aluminium exterior frames, with a focus on technology and top-of-the-range products made in France, is considering its long-term future. This has resulted in a "carbon footprint" assessment for its activity and a desire to better clarify its concerns about the future climate: in fact, the frame installation activity is already affected for at least 6 to 8 weeks a year (reduced working time and productivity in summer, impossibility of waterproofing when temperatures are too low, or going to sites during some snow events).

MILESTONES

A climate vulnerability analysis of the company's activities using the OCARA* methodology (see zoom).

En 2020

The CCI* Grand-Est, as part of the INTERREG* Clim'Ability programme, offered the manager the opportunity to test this methodology at a time when he was considering how his business should evolve, and he seized this opportunity!

March to October 2021

An analysis of the climatic vulnerability of activities (production plant and installation sites), the first stage in the OCARA approach. This consisted of making an inventory of critical issues from a functional point of view, assessing their sensitivity to climatic hazards and analysing the company's capacity to adapt. In practice: the manager collected the data and, with the help of the CCI, filled in a detailed questionnaire on the critical issues ("it forces us to ask questions we've never asked ourselves and to look for data we don't usually have or process"). A consulting company processed the data, produced the diagnosis and presented it to the manager.

> "As a manager, I need to have a 5-10 year vision of where I'm taking my company, and if I don't include the climate dimension, I'm way off the mark."

NEXT STEPS

Incorporate future climate resilience into all projects. For example, thinking about extending the production building has shifted towards reducing its vulnerability as maintenance or investment work progresses: taking advantage of electrical work to better protect the network against flooding, incorporating opening windows in the glass roofs to cool the building at night, choosing the highest operating temperature ranges for equipment to ensure continued operation in the middle of a heatwave, and so on.

COST AND RESOURCES

A high level of commitment on the part of the manager: for a small business, data collection is restrictive and very time-consuming for the manager, who has to do it alone. The time needed by the manager to collect the data and discuss it with the CCI and consulting company is estimated to be 10 days.

RESULTS

The company's survival is at risk if no action is taken: the diagnosis shows that extreme climatic events could cause the company to lose an extra month's business. Despite the company's ability to adapt, this increase in periods of inactivity (or drop in activity) could become so significant that it would jeopardise its survival.

Two climatic hazards that need to be addressed:

- flood risk: data collection revealed that the company was not covered by its flood risk insurance, even though it is located in a PPRI* zone;
- summer comfort for employees.

Three most vulnerable processes for the company:

- power supply equipment (integrity and operation);
- maintaining outdoor working conditions;
- mechanical production equipment (integrity and operation).

BENEFITS FOR THE COMPANY

- Raising manager and employee awareness regarding the need to anticipate climate risks in business development after the diagnosis was shared.
- Strengthening the company environmental commitment.

Roof vent for night cooling

A systematic analysis of assets' exposure to physical risks

OBJECTIVE:
Systematically analysing the physical risks of real estate assets

Real estate assets mainly subject to flood risks

Within the insurance group, the **AXA Investment Managers branch (AXA IM, asset manager)** assesses the level of exposure to natural risks for each investment project with the Natural Catastrophe (Nat Cat) teams.

MILESTONES

2020

AXA IM first pilot assessment of 90 assets to compare the results of several risk analysis tools and obtain initial feedback. Modelling of various risks (heatwaves, floods, forest fires, storms, etc.) based on climate projections (IPCC* RCP* 4.5 and 8.5 scenarios) and prioritisation of buildings with higher levels of historical risk. To obtain more asset-specific results, the analysis is based on building geolocation, main occupancy and more detailed information on physical components. Recommendations are issued to improve the resilience of the three most at risk assets (e.g., greening a hotel roof to reduce the urban heat island effect and improve rainwater management).

End of 2020

Prioritisation based on existing and historical factors using a tool (created by NatCat teams) for each new investment. Risk level has been integrated into each asset ESG rating to identify high-risk assets not yet subject to an emissions reduction plan. In parallel, a catastrophe modelling tool was used to calculate the average annual loss[1] (AAL) of these investments.

RESULTS

The 2022 analysis of more than €45 billion revealed that the portfolio's highest risks are floods (39%), hail (32%) and windstorms (28%). Total average annual losses are estimated at 5 million euros, or 0.01% of appraised assets under management, calculated as a prorata of the Group's interest in each asset.

"The experimental approach enabled us to identify the challenges involved in extending the approach to the entire asset portfolio."

BENEFITS FOR THE COMPANY

- AXA Investment Managers' CSR* teams better equipped to systematise the approach and create value locally.
- Local teams more aware of the need to move away from short-term and essentially cost-driven management.
- Increased analysis of resilience to physical risks during the technical due diligence acquisition phases. ●

[1] Average, calculated over a long period, of expected financial losses over the course of a year due to climatic hazards.

cdc habitat | Caisse des Dépôts GROUPE

An in-house Resilience Performance Diagnosis (DPR*) building tool

CDC Habitat, manager of a public real estate portfolio, has developed a tool to measure the resilience of its buildings to the impacts of climate change and prioritise its actions.

OBJECTIVE:
Structuring public real estate adaptation

Adapted housing

> **"The hardest part can be getting started, when you're starting from a blank sheet of paper with limited resources: you have to accept this initial construction time to end up with a robust approach."**

MILESTONES

2019

- Thermal simulations of buildings delivered in 2019 (France and overseas territories) in the 2019 and 2050 climate. Duration of discomfort period without air conditioning can reach 8-10% yearly (e.g., southern France, French overseas departments and territories) with variations by a factor of 2 to 4 from one region to another.

- Mapping of 5,000 buildings in terms of exposure and vulnerability to various climatic hazards. The analysis resulted in an overall criticality score from A to G, making it possible to prioritise the 10% most vulnerable buildings, since it is impossible to adapt the entire stock by 2050.

2020

- First on-site DPR trials for six critical residences, to adjust the criticality score. Recommendations for construction work - technical solutions or NbaS* - or maintenance to improve the score, coordinated to potential energy renovation actions, and an initial costing.

- **Elaboration of a prioritisation strategy between vulnerable and planned-to-be-renovated buildings to get the quickest possible impact.**

2021 – 2023

Roll-out phase and process automation, with 60 residences audited in 2021 and 100 per year planned from 2023 onwards.

NEXT STEPS

- Initial work, with first results in 1 to 2 years.

- Ongoing experimentation with innovative technical solutions.

RESULTS

Out of 60 assessed properties, an adaptation average cost of €3,000 to €4,000 per home was estimated, with considerable variability depending on the hazards: installation of metal cofferdams on openings, raising of electrical installations, ground vegetation, water detection for elevator pits, peripheral ground drainage channel, exterior thermal insulation, air blowers, greening of flat roofs, etc.

BENEFITS FOR THE COMPANY

Incorporation of experience feedback into specifications for new projects. ●

Aerial view of the JFA site

OBJECTIVE:
Ensuring business sustainability

A vulnerability assessment to secure the supply chain and production

Jus de Fruits d'Alsace (JFA), (part of the LSDH family group), an ETI* specialising in fruit juice and soft drink production and packaging, undertook an assessment of its vulnerability to climate change. The diagnosis reveals the vulnerability of its supply chain and production facilities to heatwaves and drought. It reinforces the company's CSR* approach by acting locally and contributing to economic and social wealth to meet today's and tomorrow's global challenges for the planet and humanity.

MILESTONES

2008

Adoption of a CSR program based on family-owned Laiterie de Saint-Denis de l'Hôtel (LSDH) group strong values: commitment to employee proximity and ambitious investment program, with common-sense solutions to improve working conditions. Given the company's dependence on agriculture and water resources, climate change is impacting supplies.

Since 2010

Implementation of targeted initiatives including the installation of rooftop air coolers[1], fans and blinds, to improve the thermal comfort of employees and production machinery operation.

2020

Addition of heat extractors on equipment (pasteurisers and ovens) to cool the production site interior.

2021

Proposal by the CCI* Grand Est to become one of the test sites for climate change vulnerability diagnosis tool using the OCARA* method (see zoom page 47), with a Clim'Ability INTERREG program diagnosis (method more suited to company size).

> **"The diagnosis enables us to understand local climate changes, identify their impacts and validate the actions to be taken."**

Since 2022

Integration of measures recommended by the diagnosis into the company's environmental program.

NEXT STEP

Setting up responsible purchasing channels to secure raw material supplies.

[1] This is an entirely natural cooling system using water evaporation. Rigid panels are kept moist using a water distribution system, then a fan draws in outside air and passes it through the panels. The result is water evaporation and air cooling.

COST AND RESOURCES

The OCARA and Clim'Ability diagnoses carried out by the CCI Grand Est took a year to complete, without financial cost to the company, as it was a tool-testing initiative led by the CCI Grand Est. The work involved the site's environment and safety manager.

The Clim'Ability diagnosis led in 2023 to the emergence of the Climatdiag Expert tool, proposed at national scale and piloted by the CCIs.

Data collection for the vulnerability diagnosis: over a 3-month period.

RESULTS

- Diagnosis results:

The main climatic hazards to which the production site is exposed now and in the future (RCP* 8.5) are heatwaves and hydrological droughts. The diagnosis reveals the most vulnerable elements to these hazards, which are: raw material supplies via suppliers, human resources and production equipment.

- Main recommendations:

Raw material supply:
Diversify suppliers and customers to ensure business continuity despite climatic constraints.

Human resources and production system: Implement more efficient cooling systems (greening outdoor spaces, creating shaded areas, etc.), to maintain employee productivity while avoiding additional costs related to summer energy consumption and equipment disruption.

- Additional actions implemented:

Regarding risk related to hydrological drought, optimisation work has been performed to reduce production water consumption **(5 l of water used for 1 l of finished product previously, compared with 2 l of water used for 1 l of finished product currently)**.

BENEFITS FOR THE COMPANY

After a 2008 carbon footprint assessment, which demonstrated the predominant impact of raw materials, this diagnosis confirmed company's CSR and environmental program approach (site certified ISO 14001).

Simple solutions such as air extraction and free cooling[2] were proposed. The latter has been implemented at the JFA site by installing window screens and filters in open areas.

[2] Free cooling is a natural cooling mechanism that consists of cooling a building by ventilation, using free energy from the outside air when the temperature is lower outside than inside of a building. (*www.advizeo.io*).

LINK WITH THE TERRITORY AND THE INDUSTRY SECTOR

Collaboration with the CCI Grand Est to perform climate change vulnerability diagnoses.

JFA site seen from the orchard

Groupe
Pierre & Vacances
CenterParcs

Mapping physical risks to operationalise adaptation to climate change

OBJECTIVE:
Assessing the physical risks associated with climate change

Drought consequences on a tourism site water level

The Pierre & Vacances Center Parcs Group is the European leader in local tourism. To meet its regulatory obligations and adapt its offerings to climate change, the Group has performed an in-depth risk assessment of the tourist sites it manages.

MILESTONES

A mapping of the most tangible physical risks of the Group's tourist sites:

In 2018

First macro qualitative diagnosis of the climatic risks of the Group's tourist sites. The study considered primary climate hazards (storms, temperature rises, heatwaves, droughts, etc.) and secondary hazards (snow cover, sea level rise, etc.), and provided a qualitative assessment of the potential physical consequences on geographical areas (mountains, sea, countryside, West Indies) and the associated financial stakes (impact on Opex*, Capex*, turnover). For example, some of their tourist sites are exposed to storms, which can cause direct damage to buildings, resulting in higher costs for major renovations, maintenance and insurance.

Since 2018

Annual assessment of the main risks and opportunities associated to physical and transition risks, as well as their quantified financial estimate for the CDP* questionnaire.

In 2022

Assisted by a consultancy, the Group performed a more in-depth analysis of climate risks (according to TCFD* recommendations):

- acquisition of current climate data and future climate projections (to 2030 and 2050) for each Group site under two IPCC* emissions scenarios (SSP*2-4.5 and SSP5-8.5);
- identification of the most exposed sites and ranking according to criteria related to financial impact, by 2030 in the SSP5-8.5 scenario.

In 2022

Voluntarily tested the ACT Adaptation* method, which formalised the process of adapting to climate change, assessed its progress and identified the criteria to be considered in the strategy, particularly governance and capacity to adapt.

"In addition to the involvement of risk management, the sponsorship of the General Secretary, at the Executive Committee level, and the involvement of general management were decisive for mobilisation within the company."

In January 2023

Sharing of results with the Executive Committee, the property development teams and the brands' operational departments.

During 2023

Sharing lessons learned with teams, and commitment to co-construction of the adaptation roadmap for 2024.

COST AND HUMAN RESOURCES

In addition to the cost of bringing in external experts, the team leading the adaptation needs to commit substantial resources to raise the issue of adaptation and engage relevant operational teams, because:

- the raw results of studies are often alarmist, so they need prior interpretation and message elaboration for internal communication;
- climate and business do not have the same time scales, making it difficult for some Group business sectors to project beyond 5 years;
- the high level of "perceived" uncertainty linked to physical risks needs to be corrected.

RESULTS

Mapping of major physical risks, including financial data for 300 sites (operating tourist parks, offices and data centres) up to 2030.
Adaptation action plans launched in early 2023:

- a systematic pre-analysis of climate and biodiversity risks was performed internally of all new development projects and presented to the investment committee;
- a "test and learn" approach is in place on existing sites to establish future roadmaps, with working groups on water management strategy and especially summer comfort[1];
- raising awareness among business teams (green spaces, sales, etc.) to co-elaborate an adaptation plan together.

[1] Summer comfort: it is the ability of a building to maintain a maximum pleasant indoor temperature in summer, without having to resort to an air conditioning system.

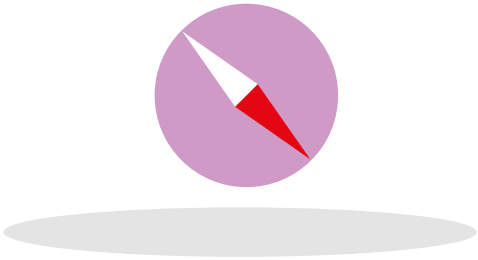
LINK WITH THE INDUSTRY SECTOR

The Pierre & Vacances - Center Parcs Group contributes to advocating for the tourism sector on certain sensitive issues (e.g., pool emptying) by participating in ministerial working groups.

LINK WITH THE TERRITORY

Participation in working groups and collegial reflections on the adaptation/transformation of the tourism sector. In progress: working a mountain group, bringing together a mountain region, leisure operators and resort stakeholders: discussions on the mountains of tomorrow, resort activities, changes, the role of citizens, and the transformation of the current model.

HOW TO ESTABLISH YOUR STRATEGY?



Six companies describe how they have developed a global adaptation strategy to secure business continuity and seize market opportunities. Their approach is based on key success factors similar to those described in the "Actions" chapter.

KEY MESSAGES

A process that impacts the company's strategic decisions

Building a strategy goes beyond piloting one-off adaptation solutions. A global adaptation strategy is essential, and it is in the company's interest to integrate climate risks into all of its investment decisions to reinforce the robustness of its value chain: supplies, production sites and resources, and products and services.

Mobilisation of all functions and hierarchical levels

A strategy requires clear governance, capable of arbitrating, monitoring actions and having teams adhere to them. It also requires coordination between management, functions and sites to share information and practices, refine assessments, co-construct tools and processes, and draw up action plans. Finally, it must integrate all corporate functions: risk management, finance, insurance, human resources, development, etc.

Strategy development and implementation

Initially, companies can use reference methods to define objectives and adaptation resources, then prioritise and coordinate actions (see zoom). Participating in regional and sectoral initiatives is also advisable (see zoom page 45).

In practice, a strategy can initially experiment on pilot sites/assets using tools, methods or actions before rolling them out on a larger scale.

COMPANIES
sharing their experience

BARJANE
ETI / Building and public work
www.barjane.com

GROUPE LA POSTE
LE / Postal and financial services
www.laposte.fr

MICHELIN
LE / Transportation
www.michelin.com

NEXITY
LE / Construction and public works
www.nexity.fr

VEOLIA
LE / Water, energy, waste
www.veolia.com

VINCI
LE / Construction and public works
www.vinci.com

METHODOLOGICAL **ZOOM**

WHY DEVELOP AN ADAPTATION STRATEGY?

In the face of climate risk, companies need to develop their ability to cope with a wide range of eventualities. This means preparing for gradual climatic changes that are sometimes almost invisible in the short term but are nonetheless present, and coping with increasingly frequent and unpredictable extreme climatic events. Adaptation can take several forms: from **marginal adjustments** (incremental adaptation) to activities and processes, to **greater transformations** of the company (transformational adaptation).

In this context, the development of an adaptation strategy should enable a company to go beyond one-off actions taken in response to a climatic shock, and adopt a proactive stance of anticipated risk management. It involves **setting long-term adaptation objectives and strategically aligning the resources, skills and efforts to be undertaken by the company. This strategy ensures that certain risks are not overlooked, and that the most cost-effective adaptation measures are identified for the long term**.

Drawing up and implementing an adaptation strategy also enables meeting new regulatory obligations regarding corporate transparency, especially the Corporate Sustainability Reporting Directive (CSRD*), which also requires the disclosure of a description of the company's adaptation policy.

HOW TO PROCEED?

While adaptation is becoming **indispensable**, adaptation planning presents a number of challenges, as decisions have to be made with **incomplete knowledge of the future**, related to climate change itself (speed, scale) and other **underlying trends** (regulations, markets, technologies, demographics, etc.). The strategy will therefore be based on a robust risk analysis (see previous section "Climate risk assessment") and the company's internal priorities.

Voluntary frameworks for transparency and risk management have been developed to mobilise companies. These include the **Task Force on Climate-related Financial Disclosures** (TCFD*) and certain **ISO standards, which propose methods for disclosing and managing the physical risks associated with climate change**.

Additionally, the 2021 ADEME compendium "*How to make business decisions to adapt to climate change*" reviews various decision-making methods for adaptation, grouped into three categories:

- **Scenario planning:** elaborating different scenarios of possible futures (generally between 2 and 4) with company's stakeholders, and testing them on the business model to inform the decision;
- **Robust decision-making:** testing a strategy in a multitude of possible future scenarios generated by computer simulation, and adjusting it to work in a satisfactory number of scenarios;
- **Flexible adaptation pathways:** building adaptation trajectories that combine and order immediate actions (generally "no regrets") with more ambitious actions to be implemented when the former are no longer sufficient.

These methods all share the same objective: to help companies confront an uncertain future by implementing actions compatible with several possible adaptation paths. These actions need to be assessed and corrected on a regular basis, hence the importance of setting up a monitoring-evaluation system (see next chapter).

AVOIDING MALADAPTATION*

Whatever adaptation planning approach is chosen, it is important to ensure that the strategies and measures put in place do not have a negative impact on other issues (reduction of GHG* emissions, biodiversity, resource management, social issues, etc.) or create new risks, e.g., by transferring the risk elsewhere or further aggravating future risks. ●

BARJANE

An adaptation process as part of a CSR* approach

OBJECTIVE:
Making property projects more resilient

Permeable parking and green spaces

BARJANE, a family-owned company founded in 2006 and specialising in logistics and industrial property, has been considering climatic hazards in the design and management of its sites since 2007, as part of its CSR approach.

OPERATIONAL ORGANISATION

A gradual approach based on a voluntary commitment to certification and labelling has made it possible to incorporate adaptation to climate change into CSR.

2009 – 2010

Construction and handover of the 65-hectare Parc des Bréguières, with the introduction of dual stormwater management to deal with flooding risk and rainwater retention. Obtaining of ISO 14001[1] certification for the entire park (design, construction, reception desk and management).

2010

In June, there was unprecedented flooding of the Var. The Parc des Bréguières, which had recently been handed over, was not damaged, and its hydraulic facilities also helped to protect the area downstream.

2010

Obtaining of ISO 14001 certification for all company activities (planning, development and management).

2015

Performing a mini vulnerability diagnosis of company activities to current and future climate risks. This diagnosis was performed within the ISO 14001 framework and using the company's internal resources, following the steps below:

- identification of climatic factors that could impact the company's activities;
- identification of the company's activities that could be affected by these hazards, followed by an assessment of their potential impact;
- identification of company responses already made or could be made;
- integration of these actions into an action plan implemented at company level and at each property project level.

2021

End of a 3-year cycle of ISO certification leading to a CSR maturity diagnosis with the support of a service provider. This process led to the establishment of a CSR roadmap for the period 2021-2025, including a climate strategy (mitigation and adaptation).

> **"Our aim is to be here for the long term. A building has to be adapted to what's going on today, but it also has to be adapted to what's going to happen tomorrow."**

2009 to present

Continuous site improvement to ensure resilience to climatic hazards such as flooding and heatwaves. Two examples of solutions integrated into the design of building stock are:

- quality of green spaces: designing green spaces so that they add value to biodiversity and user comfort;

- bioclimatic design of buildings: considering the orientation and openness of offices to the outside, the percentage of openings in the facade and roof, solar protection and "*freecooling*" (taking advantage of openings at the right time of day for a natural drop in temperature).

2013 to present

Systematic HEQ* or BREEAM* certification of new buildings for their environmental performance. While HEQ focuses more on mitigating carbon impact, BREEAM, its Anglo-Saxon equivalent, encourages project owners to consider adapting to climate change through dedicated credits.

NEXT STAGE

In 2024, at the end of a new 3-year ISO certification cycle, new objectives for adaptation to climate change can be formulated.

[1] ISO 14001 is the standard for environmental management systems (EMS). It provides a framework for organizations to design and implement an EMS, and continually improve their environmental performance. (www.iso.org)

In a transversal and continuous approach, BARJANE provides feedback on each project (site creation or management), based on indicators (monitoring indicators, opinions on installed equipment, building energy consumption, customer satisfaction, etc.) and customer feedback, to ensure that each new site is as resilient as possible.

COSTS AND RESOURCES

- The cost of the general strategic approach is integrated into the company's CSR approach.

- The cost of the solutions implemented depends on the nature of the projects (area developments, buildings), the constraints of the sites and the measures implemented in the design stage.

- Performing an internal mini-diagnosis: included in the company's operating costs.

RESULTS

- Improved climate resilience of building stock, such as the Parc de Bréguières, which suffered no damage from the Var 2010 flooding.

- Anticipation of problems, enabling upstream thinking on solutions and innovations.

BENEFITS FOR THE COMPANY

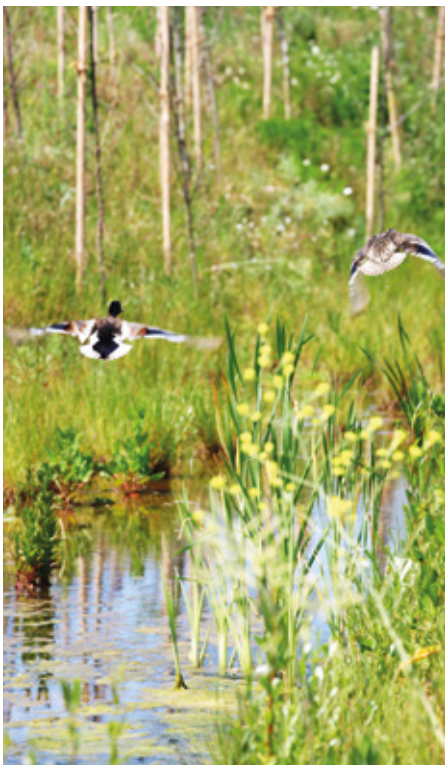
- Building stock that is more resilient to climate hazards, thereby avoiding repair or reconstruction costs in the event of a local disaster, as well as ensuring peace of mind for customers.

- Reduced water consumption in buildings: water-saving devices, rainwater recovery for appropriate uses (sanitary facilities, scrubber-dryers).

- Customer satisfaction measured regularly by questionnaires.

- Employee personal satisfaction with the results of the efforts made. ●

Biodiversity in retention basins



LA POSTE GROUPE

OBJECTIVE:
Adapting business units to climate change

A La Poste site

Moving from group strategy to branch planning

Groupe La Poste, a postal and financial services operator, has been committed since 2019 with its managers and various departments to a planning approach for adapting its organisation to climate change. This case study highlights the Group's progress since its previous case study in the 2021[1] ADEME guide.

GOVERNANCE

- **2020-2021:**

Start of Group-wide reflection on adaptation as part of TCFD* reporting, steered by a Climate Risks/TCFD Committee headed by the Corporate Social Responsibility Department. All CSR* departments of the Group's five branches were involved.

- **In 2023:**

Continuation of the strategic adaptation approach at branch level, with a study of sites' exposure to climate risks, co-piloted by the CSR Department of the Services-Mail-Parcels business unit and the Strategy Department of the same unit. A working group comprising the Risk, Real Estate, HR* and Finance departments oversaw the study.

OPERATIONAL ORGANISATION

2019 – 2021

Group-wide identification, mapping and prioritisation of climate risks (transition risks and physical risks) for TCFD reporting, especially based on the scenario planning method (see 2021 ADEME guide).

2022

Deployment of the branch level approach in response to the European Green Taxonomy, the CSRD,* and incentives from shareholders, especially Caisse des Dépôts.

January 2023

Start of internal exchanges within the Services-Mail-Parcels business unit, with various departments to raise awareness, inform and determine levels of involvement in the adaptation process underway, and integrate it into each department.

June – Nov. 2023

Within the Services-Mail-Parcels business unit, Axa Climate conducted an exposure study of more than 3,000 of La Poste Group sites to climate risks. The study covers three time horizons: present, 2030 and 2050, and refers to two IPCC* scenarios (RCP* 4.5 and 8.5). A dozen climate hazards were studied, divi-

> "We've got the scenarios, and now what do we do? How do they expose us? In the end, it's another way of asking the question, so that we can adopt a risk management approach."

[1] https://librairie.ademe.fr/changement-climatique-et-energie/4758-how-to-make-business-decisions-to-adapt-to-climate-change-.html

ded into four domains: temperature, water, wind, and solid masses (landslides). For selected sites, the study also adopts a "value chain" approach, considering suppliers, the supply chain and services and customers vulnerabilities, while also considering the interdependence of sites within the same local area. The analysis provides risk scores at global level, by site and by territory.

NEXT STEPS

From 2024 onwards, La Poste intends to formalise a global adaptation strategy at Group level, consolidating adaptation action plans at branch level.
Consideration of services using La Poste's "human" network (90,000 letter carriers who deliver to homes and businesses 6 days a week) to provide a local service for those most vulnerable to climate hazards.

COST AND RESOURCES

- Use of in-house human resources and expertise to steer and monitor the overall process, and recourse to consultancy firms to deal with specific issues.
- At this stage, costs are measured according to time spent by the steering teams and cost of consultancy firm support.

RESULTS

The initial stages of risk assessment (macro at Group level, then at site level) have made it possible to:

- emphasise adaptation within the Group;
- progressively integrate more and more professions and departments into the process, first at Group level, then at branch level;
- prioritise risks and deal with them at branch level, considering each branch specificities, and ensure operational deployment. ●

LINK WITH THE INDUSTRY SECTOR AND THE TERRITORY

The assessment of exposure to climatic hazards has considered the interdependence of sites and activities in the territorial ecosystem, which will form an integral part of the adaptation strategy and action plans.

La Poste Group regularly interacts with the CSR departments of other companies in the sector, participating in working groups on environmental issues, including adaptation to climate change within corporate networks such as Orée and EpE*.

A La Poste site

MICHELIN

A progressive adaptation strategy to integrate territories and value chains

OBJECTIVE:
Structuring the adaptation of the Group and its ecosystem in a pragmatic way

Employee health as a priority

The company, specialising in tire manufacturing, has embarked on an in-depth project to secure its activities and supplies at all its sites.

GOVERNANCE

Integration of climate risks into risk governance, in addition to strong management support (three members of the Executive Committee within environmental governance).

DIAGNOSIS

2021

Pilot vulnerability study on 13 sites based on RCP* 4.5 and 8.5 scenarios to identify the most exposed sites. Analysis of adaptation of people and infrastructure/processes for 2030/2050. While methodological work remains to be done to construct indicators, the group has first established priorities according to the size and typology of the sites, so as not to slow down the process.

2022 – 2023

Vulnerability study of around 100 sites worldwide (including 18 in France), based on the previously tested and refined method. Choice of climate scenarios according to the European taxonomy guidelines (criteria demonstrating the suitability of an activity) as well as a prudential[1] approach ("pessimistic" scenario).
Definition of the categories of purchased products and services to be prioritised for evaluation from 2024, regarding climate risks for suppliers.

From 2024

Analysis of each site at territorial level to complement the initial results: towns, local infrastructure suppliers (electricity, water, roads, railroads, etc.) during site visits. Targeting relevant external stakeholders by production sites. Exchanges with the territories hosting the sites to assess and, if necessary, encourage consider climate risks and raise their awareness.

> **"We need to support and explain with data and facts, and not get distracted with very short-term production issues. It's a change management approach."**

ACTION PRIORITISATION

Implementation of initial no-regret actions relating to people's health (HVAC*, insulation, fire-fighting systems, etc.) and product quality (e.g., maintaining temperatures in storage and

[1] An approach aimed at ensuring a company's solvency in the face of risk, for example by building up additional equity capital.

production areas to preserve raw materials and process conditions). Prioritisation of infrastructure-related actions will consider the economic consequences of a production interruption, and the type of activity (e.g., handling of chemicals).

COSTS AND RESOURCES

Creation of a dedicated position at head office to anchor the cross-functional nature of climate risk, with the network of risk managers in the various Group entities.

RESULTS

- A wide variety of hazards regarding worldwide Group sites: heatwaves (including humid heat), flooding risks, particularly from overflowing rivers or flash floods, tornadoes, water availability considering withdrawals (by the production site and globally in its watershed), etc.

- Prioritising adaptation to wet and dry heat, and flood risks (river, flash flood).

- Consideration of physical climate risks in new site or business projects, acquisitions and approvals of raw material suppliers. ●

Hevea plantations faced with climatic risks

nexity

A strategy being developed to manage business adaptation risks and opportunities

OBJECTIVE:
Integrating the operational challenges of adaptation into all business lines

Flood-proof housing area

"The subject of adaptation is too complex for us to have 'complete' in-house experts. The step-by-step co-construction approach, involving the business lines and the CSR department, is therefore a real asset for operationalising adaptation."

The group specialising in real estate development, private management and services wanted to enable its teams to systematically consider physical risks in their projects. The aim is to meet emerging customer demand for services adapted to climate change.

GOVERNANCE

From 2022 onwards, an initiative led by the Executive Committee, which is already aware of the challenges of adaptation. Strategic commitment, considering risks and opportunities for new offerings and alignment with the European taxonomy[1].

IDENTIFICATION OF TOOLS

2022

- Training of relevant CSR* department members with a MOOC* from OID*, to enable them to better understand the cost and reputational issues associated with the potential loss of insurability and liveability of property in the future.

- Identification of the OID *Bat-ADAPT* open-source tool as a tool to be deployed in the business, which can be used to assess French building vulnerability. Exposure is assessed against the climatic hazards currently in the tool (heat, drought, flooding, extreme cold): the building stock is mainly exposed to heat and drought hazards.

OPERATIONAL ORGANISATION

2022

Establishment of a bottom-up roll-out strategy, focusing on means-based objectives rather than top-down and centred on results-based objectives, to align adaptation as closely as possible with the operational challenges faced by the various business units. Definition of objectives related to adaptation awareness and tool deployment across all business units.

2023

- Creation of a cross-business working group to facilitate deployment:
  - At an operational level: how to deal with vulnera-

[1] Classification by the European Union of economic activities that have a positive impact on the environment.

bility to climate change considering what tools, which internal players, what time and what variations by business line.

- At a strategic level: structuring a "cost" vision of adaptation and non-adaptation, identifying opportunities for new business line offerings.

- Information and awareness-raising seminar for 60 CSR referents.

- Training of business referents in the use of Bat-ADAPT, for integrating risk exposure and vulnerability analyses into their missions.

- Exposure analysis for the entire commercial and residential property portfolio.

COSTS AND RESOURCES

- Full-time mobilisation of one CSR person and part-time mobilisation of another.

- Operational support for deployment is currently provided by the members of the Adaptation working group and the business line CSR referents.

RESULTS

- 108 employees trained in the Bat-ADAPT tool.

- 80% of assets under management already analysed for exposure to climatic hazards by October 2023.

- Different levels of business appropriation: property management uses the Bat-ADAPT tool to identify adaptation impact on the business model, while business development is beginning to use it for dialogue with local authorities.

Stilts

VEOLIA

A work in progress integrating the Group's different activities and local specificities

OBJECTIVE:
Developing a global strategy and apply it to the various sites

While the issue of adapting to climate change is not new to the Group, which specialises in the management of water, waste and energy services, it has been gaining momentum since 2022 with the creation of a dedicated team. The team's work is especially aimed to create the conditions necessary for the emergence of a global strategy and its implementation at the various sites managed for its customers.

Extensive experience feedback from the water activities

"Adaptation is a subject that puts our current modes of operation into perspective; consequently, it is necessary to deploy a pragmatic and progressive approach to engage all concerned stakeholders at the right time."

DIAGNOSIS

2020 – 2021

Study of the resilience of the business model and strategy, based on RCP* scenarios 2.6 and 8.5. Characterisation of physical and transitional risks and opportunities associated with climate change by 2030 and 2050.

2022 – 2023

Study of the exposure to climate-related hazards of the main assets managed by the Group, based on an RCP 8.5 scenario for the 2030 and 2050 horizons, supplemented by more detailed site-specific diagnoses. Launch of a process to assess the operational consequences of acute and chronic physical risks. The aim is to substantiate climate change consequences for each business line and geography, by identifying risks at different time horizons.

OPERATIONAL ORGANISATION

2022 – 2023

- Creation of a team dedicated to adapting to the effects of climate disruption, part of the Strategy and Innovation division, within the Plural Performance and Sustainable Development department. The aim is to build a continuum of expertise by capitalising on work already performed and existing in-house data and reference systems. Group level coordination and structuring to build a coherent global approach that meets the cross-cutting challenges of business lines and geographies. The introduction of exposure tools and local diagnoses made it possible to mobilise employees and stakeholders, both at the local level entities (Business Units, regions) and head office functional departments.

2024

- Development of the Group's methodology to equip all entities and initiate action plans, continuing with local diagnoses

in priority areas identified. Once the method and tools have been defined, each entity will be able to identify the local actions best suited to its challenges. The roadmap and associated local actions will also incorporate local and extra-financial regulatory developments.

COSTS AND RESOURCES

Resources include the central adaptation team and its budget. The functional organisation includes the risk and insurance, sustainable finance, business experts and environmental performance teams. The local organisation includes the local points of contact, notably the site teams.

For local diagnoses, the associated costs vary according to the scope covered (number of activities, number of sites and objects of study), the availability of the necessary climatic information, and the availability of the locally-trained project team.

The 2022 and 2023 studies were performed in two to six months.

RESULTS

- Estimated financial impacts of several tens of millions of euros for physical risks (direct impacts of rising temperatures) between now and 2030. This initial quantification has made it possible to establish orders of magnitude.
- Provision of two complementary tools, applied both functionally (exposure analysis) and locally to support operations (local diagnoses). Head office provides support to local teams, by enabling them to engage in dialogue with their customers regarding the adaptation actions identified during the study.

A strategy to be tailored to the specific needs of each site

A strategy for adapting new projects based on an internal tool

OBJECTIVE:
Integrating adaptation as a source of business opportunities

Cooling islands in the city thanks to nature

"We are developing 'Resilience as a business' mindset, where adaptation becomes a matter of profitability, competitiveness, but also of opportunity for our businesses."

The group, which specialises in concessions, energy and construction, wanted to equip its various businesses to systematically consider physical risks when analysing its projects. This approach enables the company to propose to its customers infrastructure projects adapted to climate change.

GOUVERNANCE

2021

Prioritisation by the Director of Environment (member of the Executive Committee of the VINCI Group) and the CEO* of Soletanche-Freyssinet (Group subsidiary, member of the Executive Committee of Vinci Construction).

OPERATIONAL ORGANISATION

2021

Creation of a working group to define the need.

2022

Launch of the 8-month ResiLens project to create a tool compatible with the wide variety of Group professions and the different levels of hierarchy and skills of users. Co-development of the tool by teams from the Group's Environment Department and the engineering firm Resallience.

2023

Operational launch of the tool to raise awareness among a critical number of employees. 1.5h of expert profile training.

2023 – 2024

Increase in the amount of data in the tool, implementation of a second level of advanced training, development of the tool for customer awareness.

COSTS AND RESOURCES

Involvement at every key stage of the project of all company's business lines (construction, energy, concessions, development), as well as in-house financiers and insurers, i.e., around 50 people.

RESULTS

An operational ResiLens pre-diagnosis tool comprising:

- The digital platform, with input from the modelling data based on the IPCC* RCP 8.5 scenario, quantifies exposure to 14 climate hazards in 2030, 2050 and 2070, and measures the criticality of each existing or future infrastructure project. The multi-hazard analysis combines the exposure of the territory at high resolution (e.g., 1km in France) with the vulnerability of infrastructures resulting in a criticality rating. This integrative and predictive approach enables more realistic projections (succes-

sion of different hazards, evolution in intensity, frequency or starting speed);

- Help in choosing the best adaptation solutions for each project, identified in the literature and validated by the Group's operational managers;
- The internal resource centre, which includes videos and information pages and explains the methodology and indicators;
- A collection of existing in-house best practices to fuel collective reflection and encourage the sharing of solutions.

Team training: Nearly 100 volunteers trained in 2 months, with strong demand for in-depth training, technical support and demonstration sessions. Faster appropriation by already relatively mature businesses, such as concessions. Analyses provide input for project negotiations, especially the quantification of risks in terms of insurance, depending on the customer's willingness to accept the additional cost of adaptation. ●

ADEME's collections

ADEME, 2021:

How to make business decisions to adapt to climate change ? Methods and case studies in France and internationally.

Summary: This collection points out the main challenges of adapting to climate change for businesses and presents the main methods (scenario planning, robust decision making, flexible adaptation pathways) for decision making in a changing environment and climate.

Each method is described in a pedagogical sheet and is illustrated by one or two case studies of companies, in France and internationally, that have developed climate change adaptation strategies. A comparative table of methods and a summary of what should be learned from these case studies conclude this collection.

ADEME, 2019:

Adaptive capacity of businesses to the impacts of climate change.

HOW TO MONITOR AND EVALUATE YOUR APPROACH?

Three companies describe how they have gone about monitoring and evaluating their adaptation process. The aim is to ensure that the approach is delivering the expected results, and to adjust it in the light of progress made and climate changes, involving continuous improvement.

KEY MESSAGES

Adaptation is never finished

Adaptation is an ongoing process. The climate continues to change, which is why it is so important to monitor and evaluate what has been put in place, to decide whether to continue, adjust, complete or roll out actions on a larger scale.

Monitoring and evaluation can answer a number of questions[1]

- Are the actions decided upon being implemented as planned (in terms of size, timetable, budget, etc.)? (action monitoring)
- Are they producing the expected results? (action evaluation)
- Does the adaptation plan remain effective and relevant in the face of changing circumstances, particularly climate change? (assessment of adaptation and resilience)
- How do the strategy and its governance compare with best practices? (based on common frames of reference, such as the ACT Adaptation method)

Monitoring and evaluation in practice

- It generally involves defining indicators to make things objective and collecting data from the teams in charge of action implementation.
- The frequency depends on what is being monitored and evaluated (e.g., monthly, annually, etc.). Evaluation involves taking a step back to assess the effectiveness of the system regarding the objectives set, and must be carried out over the long term.

COMPANIES

sharing their experience

SÉCHÉ ENVIRONNEMENT
LE / Water – Waste - Energy
www.groupe-seche.com

SNCF
LE / Transportation
www.sncf.com/fr

WORLDLINE
LE / Digital
www.worldline.com

[1] The case studies in this chapter correspond to an evaluation of the company's adaptation strategy based on the ACT Adaptation methodology (see zoom). Numerous examples of monitoring-evaluation of adaptation actions are given in the case studies in the chapter on actions.

METHODOLOGICAL **ZOOM**

WHY MONITOR AND EVALUATE A STRATEGY?

Monitoring and evaluating a climate change adaptation strategy are essential to ensure its long-term effectiveness for continuous improvement.

Climate change is fraught with uncertainty. Over time, climatic conditions and risks, as well as the socio-economic environment, may evolve, as may the effectiveness of adaptation actions. It is therefore important to periodically review the adaptation strategy to ensure that it can be improved, and to enable dynamic, flexible adaptation planning.

If the results of monitoring reveal that the approach taken is not producing the expected results, it is essential to be ready to revise and adjust the trajectory accordingly. This may involve implementing targeted corrective measures, revising the initial objectives to make them more realistic regarding the impacts of actual and future climate change, or even exploring new, innovative approaches to better respond to evolving climate challenges. The results of monitoring and evaluation can thus influence decision-making, be included in financial reporting and guide strategic planning coherently.

At the same time, stakeholder engagement plays a key role. This commitment can be ensured by regularly communicating monitoring results to a wide range of internal and external stakeholders. By actively involving them in this process, companies can gather valuable information that enriches the adaptation process, reinforces transparency and consolidates stakeholder confidence in the company's climate policy.

By integrating monitoring and evaluation into a company's culture and governance, it is possible to strengthen its ability to adapt proactively to climate risks and achieve its resilience objectives. This process clearly contributes to company success and competitiveness.

HOW TO PROCEED?

Evaluating and monitoring the adaptation strategy involves identifying and defining key performance indicators (KPIs). These may include climate risk reduction measures, financial savings, operational resilience improvements, etc. Before implementing a strategy, baseline data collection and a timetable should be established. This enables progress to be measured against the initial situation over a given period.

Tools exist to help companies especially the ACT Adaptation methodology, developed by ADEME and successfully tested with 13 volunteer companies (Séché Environnement, Worldline, SNCF, Vinci, etc.). This methodology is based on the most recent international standards: TCFD*, CSRD*, ISO 14090/14091, European Taxonomy, etc.

ACT Adaptation assesses companies' adaptation strategies in three dimensions: 1) governance, 2) physical climate risks and 3) adaptation capacity and activities. Each of these dimensions is assessed using a battery of indicators. A scoring system is then used to position the company within a maturity matrix (ranging from "basic" to "best practice"), thus identifying the gaps that still need to be filled.

ACT Adaptation is designed for all types of companies, whatever their size, business sector or geographical location. Moreover, the process can be combined with the company's GHG* emissions reduction program to obtain a complete climate strategy assessment.

Link to ACT Adaptation methodology:
www.actinitiative.org/wp-content/uploads/act-adaptation_final_october2023-1.pdf

Séché

ACT Adaptation* evaluation to fine-tune the operational approach

OBJECTIVE:
Testing the ACT Adaptation method

UV-breaking nets

ADEME asked the **Séché Environnement Group** to test the *ACT Adaptation method*, which consists in evaluating companies' climate change adaptation strategies. The environmental services company had recently begun implementing a global adaptation approach and wanted to validate its orientation.

INITIAL SITUATION OF THE COMPANY

2021

Resilience diagnosis of several pilot sites using OCARA* methodology.

2022

- Analysis of sites' vulnerability to the main environmental risks exacerbated by global warming, the risks of a low-carbon transition, and initial estimates of the cost of inaction.
- Inventory of actions already implemented on the most vulnerable sites, with first tangible results:
  - -2.2% water consumption between 2022 and 2021 with no reduction in activity;
  - +17.5% recycled water between 2020 and 2022;
  - business interruptions avoided by adapting a building to heatwaves using misters and UV-breaking nets;
  - reduced accident rates thanks to flexible working hours, while improving employee well-being.

RESULTS

The ACT Adaptation evaluation process followed in 2022 enabled to:

- structure and improve the overall approach (e.g., scenario-based analyses) through a checklist-based assessment;
- establish a continuous improvement approach across all sites;
- confirm the company choices (e.g., the need for global communication identified by the expert, while communication was planned two months later).

For more in-depth information, you can view the video of Séché Environnement interviewed following the ACT Adaptation test: *https://www.youtube.com/watch?v=ZFqExC5OMtg*

"The co-benefits between adaptation and safety, whether human or industrial, are worth highlighting to speed up adaptation."

NEXT STEPS

The short-term action plan includes:

- implementing a drought risk adaptation policy, to reduce water consumption by at least 10% by 2025;
- continuing to share risk knowledge internally; encouraging and financing adaptation actions;
- involving the value chain in climate risk assessment.

ACT Adaptation* evaluation to secure strategic choices

OBJECTIVE:
Testing the ACT Adaptation method

Climate hazards that can affect both the rail network and stations

ADEME asked the **SNCF Group** to test the *ACT Adaptation method*, which consists in evaluating companies' climate change adaptation strategies. The company, which specialises in passenger mobility and freight logistics, had launched a global adaptation strategy and wanted to validate the strategic choices it had made.

INITIAL SITUATION OF THE COMPANY

2021

Creation of a strategic committee on adaptation, comprising the Chairmen of the Group's companies. This committee meets twice a year, monitors progress and makes the necessary decisions.

2021 – 2023

Launch of macro-scale vulnerability assessments for all Group activities (first decision by the Strategy Committee):

- first under current climate to correctly characterise physical risks;
- second, under climate projections to identify possible future risks, and to determine the timeframe in which facilities could be impacted.

2023 – 2024

Cost estimation of climatic hazards (in total costs) for the company. This involves a considerable amount of data collection, consolidation and interpretation to obtain robust figures.

RESULTS

The ACT Adaptation assessment process validated company governance and physical risk analysis approaches. ACT Adaptation also helped to explore and question all potential climate change impacts (operational, financial, human, business, regulatory, etc.) on activities, by establishing ad hoc working groups.
Lastly, it enabled evaluating already implemented actions and identifying complementary actions and projecting future needs.

"Establishing strong governance at the top of the company for climate change adaptation sends a clear message internally and to stakeholders about its priority given, as well as the resources and changes required."

NEXT STEPS

Following the ACT approach, the 2024 action plan is as follows:

- small scale vulnerability diagnosis of the sectors most at risk;
- continued identification of adaptation solutions to elaborate action plans;
- estimation of human and financial resources to be deployed in the short, medium and long term;
- expansion of the risk analysis scope to include employees, customers, suppliers, other local economic activities and local authorities, to develop solutions that can be devised collectively. ●

WORLDLINE

ACT Adaptation*, an incentive approach to raise awareness of the issues and go further

OBJECTIVE:
Testing the ACT Adaptation method

Worldline headquarters

ADEME asked **Worldline** to test the *ACT Adaptation method*. The company, which specialises in digital data processing, applied to evaluate its flagship mitigation program, with a few adaptation initiatives.

INITIAL SITUATION OF THE COMPANY

Before the "ACT Adaptation" implementation, Worldline was mainly mobilised on its carbon footprint reduction and transition risks.
An initial risk analysis performed in 2019 had identified the first adaptation challenges (need for energy to cool data centres, risk of flooding in certain buildings, lower work productivity), and a business continuity plan was in place, based on telecommuting when a site is closed due to a climatic or other hazard.

RESULTS

The ACT Adaptation approach enabled the company to identify complementary action plans to better anticipate the physical risks of climate change.

For more in-depth information, you can view the video of Worldline interviewed following the ACT Adaptation test: *https://youtu.be/v6tmydIU86I?*

NEXT STEPS

Following the ACT Adaptation approach, the 2024 action plan is as follows:

- establish an in-house project team and select a service provider to provide support;
- complete an adaptation risk analysis (physical risks of climate change on the company's activities);
- elaborate a high-level adaptation strategy involving all stakeholders and the company's entire value chain, including financial planning.

"Adaptation to climate change is a priority to integrate all climatic risks and thus strengthen the company's sustainability."

GLOSSARY ABBREVIATIONS

ACC: Adaptation to Climate Change

ADEME: The French Agency for Ecological Transition

AEAG: Adour-Garonne Water Agency

AEAP: Artois-Picardie Water Agency

AELB: Loire-Bretagne Water Agency

AERM: Rhin-Meuse Water Agency

AERMC: Rhône Méditerranée Corse Water Agency

AESN: Seine-Normandy Water Agency

AGUR: Flandre-Dunkerque Region Agency for urbanism and development

AURA: Auvergne-Rhône-Alpes Region

BREEAM: Building Research Establishment Environmental Assessment Method

BRGM: Geological and Mining Research Bureau

CACEM: Central Martinique Urban Community

CCI: Chamber of Commerce and Industry

CDP: Carbone Disclosure Project

CEB: Water and Biodiversity Committee in Martinique

CETEF: Centre for Environmental and Forestry Technical Studies

CSR: Corporate Social Responsibility

CSRD: Corporate Sustainability Reporting Directive

CTM: Martinique local authority

CV: Curriculum Vitae

DDPP: Departmental Directorate for Population Protection

DDT: Departmental Directorate for Territories

DEAL: Martinique Department for the Environment, Planning and Housing

DOM-TOM: French Overseas Departments and Territories

DREAL: Regional Department for the Environment, Planning and Housing

EMS: Energy Management System

EPCI: Public inter-municipal cooperation bodies

EpE: Entreprises pour l'Environnement (the French Enterprises for Environment Association)

ETI: Intermediate-sized Enterprise

FHP: Federation of Private Hospitalisation

GHG: Greenhouse gases

GIS: Geographic Information System

HEQ: High Environmental Quality

HR: Human resources

HSE: Health, Safety, Environment

HVAC: Heating, ventilation and air conditioning

ICPE: Environmental Protection Classified Facility

IPCC: Intergovernmental Panel on Climate Change

IUCN: International Union for Conservation of Nature

LE: Large Enterprise

LEB: Low-Energy Building

LPO: French league for the protection of birds

MOOC: Massive open online course

NbaS: Nature-based Adaptation Solution

NGO: Non-governmental Organisation

OCARA: Operational Climate Adaptation and Resilience Assessment

ODE: Water Office in Martinique

OID: Green Building Observatory

PACA: Provence-Alpes-Côte d'Azur Region

ABBREVIATIONS CONTINUED

PCAET: Territorial Climate Air Energy Plan

PDG: Chairman and CEO

PNACC: French National Climate Change Adaptation Plan

PPRI: Flood Risk Prevention Plan

PURE: Plan for the Rational Use of Water

R&D: Research and Development

RCP: Representative Concentration Pathways

REUT: Reuse of treated wastewater

RT2012: 2012 Thermal Regulation

SDAGE: Master Plan for Water Development and Management

SED: Dunkerquois Water Syndicate

SSP: Shared Socioeconomic Pathways

TCFD: Task Force on Climate-related Financial Disclosures

TRACC: Reference warming trajectory for adaptation to climate change

VSE: Very Small Enterprise

WWF: World Wildlife Fund

GLOSSARY

ACT Adaptation : ACT Adaptation is a monitoring and evaluation method developed by ADEME. It assesses companies' adaptation strategies in three dimensions: 1) governance, 2) physical climate risks and 3) adaptation capacity and activities (see monitoring and assessment zoom on page 71).

Capex: CAPEX or capital expenditure refers to fixed assets, i.e., expenditure that has a long-term positive value.

Interreg: European programme to promote cooperation between European regions and the development of joint solutions in urban, rural and coastal development, economic development and environmental management.

Maladaptation: Maladaptation refers to the process that an intentional adaptation action may lead to negative effects which increase vulnerability, diminish wellbeing or undermine sustainable development. This can happen the same or other regions, systems, sectors, or social groups than those targeted by the adaptation action (REGILIENCE, 2022).

Opex: OPEX or operating expenses are the ongoing costs of running a product, business or system.

PNACC : *www.ecologie.gouv.fr/sites/default/files/2018.12.20_PNACC2.pdf*

Seveso sites : Seveso sites produce or store substances that may be hazardous to humans and the environment, subject to strict regulations designed to identify and prevent accident risks in order to limit their impact.

TRACC : *www.ecologie.gouv.fr/sites/default/files/document-reference-TRACC.pdf*

SYNTHESIS

WHAT CAN WE LEARN FROM THESE CASE STUDIES?

1. ADAPTATION IS GOOD FOR BUSINESS!

While climatic events are already costing companies a considerable amount of money (both in human and economic terms), they are set to intensify with climate change. Yet all recent studies and experience feedbacks show that doing nothing often costs more than adapting (see "Not adapting: the cost of inaction" page 13). Companies that anticipate are already reaping or will reap the benefits in terms of employee health and employer attractiveness, productivity, economic gains and competitive advantages.

2. ADAPTATION IS FOR ALL COMPANIES!

These case studies show that companies of all sizes and in all sectors are already adapting, each in their own way but for common reasons, such as experience of climate risks, regulatory pressure at all levels, and stakeholder demand. However, beyond the triggers (see chapter "Triggers", page 14), nothing can be achieved without a strong commitment from the management team, an essential condition for guaranteeing the success of the approach.

3. ADAPTATION IS A COMPANY-SPECIFIC PROCESS!

While there are many ways to adapt, there are generally two distinct journeys: a complete adaptation journey and a partial adaptation journey. The partial adaptation journey is a two-stage process: implementation of one-off or ongoing adaptation actions, and their evaluation to improve their effectiveness. This is a partial approach because it is not developed as part of a global approach addressing all company climate risks, and the actions only cover a limited scope.

Involvement in a partial journey may represent a first step towards adaptation, making it easier to move on to a complete adaptation journey. The latter is a comprehensive approach to managing all climatic risks that the company is or will be confronting. It consists of three phases that follow the adaptation cycle: climate risk assessment, strategy and monitoring-evaluation (see adaptation journey diagram on page 10).

Because it considers long-term risks into, it is highly advisable for the company to embark on a comprehensive adaptation program, which could generate far-reaching transformations essential to ensuring its long-term viability.

→

SYNTHESIS

CONTINUED

4. ADAPTING MEANS GOING BEYOND THE BOUNDARIES OF THE COMPANY!

As a stakeholder in an economic and territorial ecosystem, it is essential for a company to consider its adaptation journey in synergy with this ecosystem, and in cooperation with the associated stakeholders and initiatives. In fact, almost half the case studies mention this link with the industry or the territory, through the sharing of diagnoses and experiences, or the search for synergies and cooperation (see chapter "The link with the industry sector and the territory" page 44).

5. ADAPTING IS EASIER THANKS TO THE SUPPORT OF INSTITUTIONAL AND LOCAL ACTORS!

To adapt to climate change in France, companies can benefit from technical or financial support from ADEME*, CCI*, water agencies, the French government and regional authorities.

6. ADAPTING IS EASIER THANKS TO AVAILABLE METHODOLOGICAL FRAMEWORKS!

A wide range of resources and methods are available today, enabling companies to embark on a complete adaptation journey from the outset (see Climate risk assessment, Strategy and Monitoring-evaluation on pages 47, 57, 71).

7. ADAPTING TO CLIMATE CHANGE IS A NECESSITY!

All companies are concerned with the need to adapt to climate change today because they depend on resources or value chains that are sensitive to climatic hazards, or they are located in areas exposed to flooding, heatwaves, drought or marine submersion. Business executives are responsible for addressing these issues, just as they are for reducing their environmental impact, including greenhouse gas emissions. ●

ACCESS THE GUIDE ON:

www.librairie.ademe.fr/changement-climatique-et-energie/6861-how-to-embark-your-company-upon-its-climate-change-adaptation-journey.html

CLIMATE ADAPTATION CONSULTING

For the past 15 years, the CAC team has been assisting private and public sector clients with climate change adaptation and resilience. Our three main intervention areas to serve our customers' projects are: (1) adaptation support in all dimensions and levels, (2) pragmatic economic approaches and scenario-based planning to inform decision-making, and (3) the mobilisation of collective intelligence and consultation.

www.climateadaptationconsulting.com

ABOUT EpE

Entreprises pour l'Environnement (EpE), the French Enterprises for Environment Association, founded in 1992, brings together some sixty major French and international companies to exchange best practices and work together to better integrate the environment into their strategies and operations. The NGO is the French partner of the World Business Council for Sustainable Development (WBCSD).

www.epe-asso.org

ABOUT ADEME

Here at ADEME - The French Agency for Ecological Transition - we are firmly committed to fighting global warming and the depletion of our natural resources. On all fronts, we mobilise citizens, economic actors and territories towards a fairer, more harmonious, low carbon and resource-efficient society. Whatever the field - energy, circular economy, food, mobility, air quality, adaptation to climate change, soils, etc. - we advise, facilitate and help finance many projects, from research to solutions sharing. At every level, our expertise and forecasting capacities serve to guide and inform public policies.

ADEME is a public agency under the joint authority of the Ministry for an Ecological Transition and Territorial Cohesion, Ministry for the Energy Transition and the Ministry for Higher Education and Research.

www.ademe.fr

Acterra

ACTERRA is a pioneering consultancy and engineering firm in the field of climate change adaptation. For over 15 years, our 360° expertise in this field has enabled us to support public and private clients in the various stages of adaptation: modeling and diagnosis of climate change impacts, decision support, definition of strategies and action plans, project design and management assistance, monitoring-evaluation, research and innovation, awareness-raising and training.

www.acterra-consulting.com

ANNA KEDZ

Art director and graphic designer for over 10 years, Anna Kedz combines her university education in semiology and aesthetics with her skills in graphic design and communication. She designs visual solutions that combine aesthetic quality, communicative effectiveness and respect for eco-design rules.
She implements customized graphic creations in the cultural, SSE, environmental and institutional sectors.

www.annakedz.fr

ADEME
Collections

FOCUS ON ACTION
ADEME is a catalyst:
Actors and stakeholders talk about their experience and share their know-how.

EXPERTISE
ADEME is an expert:
ADEME reports on research, studies and collective work carried out under its supervision.

FACTS AND FIGURES
ADEME is a reference:
ADEME provides objective analyses based on regularly updated quantitative indicators.

KEYS TO ACTION
ADEME is a facilitator: ADEME compiles practical handbooks and guidelines to help actors implement their projects methodically and in compliance with regulations.

HORIZONS
ADEME looks to the future:
ADEME promotes a forward-looking and realistic view of the energy and environment transition and what is at stake for society, to build a desirable future together.

RÉPUBLIQUE FRANÇAISE
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AGENCE DE LA TRANSITION ÉCOLOGIQUE

FOCUS ON ACTION

HOW TO EMBARK YOUR COMPANY UPON ITS CLIMATE CHANGE ADAPTATION JOURNEY?

Summary: The aim of this **guide** is to help companies tackle the issue of adapting to climate change, an essential step in guaranteeing the sustainability and continuity of their activities. The examples of **30 French companies** show that it is possible to embark on an adaptation process, whatever the size or sector of activity.

Structured around the logic of an adaptation journey, the guide presents **examples of adaptation actions, assessment approaches, strategy development and monitoring and evaluation processes**, rooted in the real-time experience of the sample companies. The guide also provides **theoretical and methodological elements** to help better understand the issues at stake, and to identify the **best practices** and **tools** to mobilise throughout the process.

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