



*Act for a
sustainable world*

FLAGSHIP PROJECTS

Our operational responses

*Act for a
sustainable world*



EDITORIAL —

Helping to solve the great equation of the 21st century: “improving people’s quality of life and supporting communities in their social and economic development, whilst drastically reducing carbon emissions and achieving vital 2050 net zero targets” is our purpose.

Every day, we act to ensure that the projects entrusted to us take optimum account of environmental and social issues. This is what drives us and gives meaning to our work.

Since actions speak louder than words, in this book you will find some tangible illustrations of the solutions and innovations we are implementing to build more sustainable structures and, generally, more resilient communities.

Happy reading!

Martine Jauroyon
Chief Sustainability and Engagement Officer

CONTENTS

Transportation

Grand Paris Express, focus on metro line 16 <i>France</i>	Page 6
Tram line T6 North, for a permeable city <i>France</i>	Page 8
Capital line South extension, designing resilient public transportation <i>Canada</i>	Page 10
Nyabugogo eco-designed multimodal hub <i>Rwanda</i>	Page 12
Integrated urban mobility project <i>Thailand</i>	Page 14
Reducing the environmental impact of aviation <i>Cyprus</i>	Page 16
Mitigating the environmental footprint of air transport <i>Côte d’Ivoire</i>	Page 18
Responsible motorway management <i>Austria</i>	Page 20
Eco-operation of the A24 motorway <i>Portugal</i>	Page 22

Cities

Low-carbon and noise-free renovation <i>France</i>	Page 26
A pavilion combining design and sustainability <i>United Arab Emirates</i>	Page 28
Allianz Rivera Stadium, the first eco-stadium <i>France</i>	Page 30
Bioclimatic engineering serving urban projects <i>France</i>	Page 32
Green Riyadh, an ambitious urban greening project <i>Saudi Aarabia</i>	Page 34
Flaubert eco-district, reconquering urban space <i>France</i>	Page 36
Strengthening the resilience of urban services <i>Southeast Asia</i>	Page 38
Paris an air of change : the pathway to net zero <i>France</i>	Page 40

Embedding sustainability into policy <i>Ukraine</i>	Page 42
Adapating Senegal’s coastal tourism to climate change <i>Senegal</i>	Page 44
Designing a resilient coastal city <i>Senegal</i>	Page 46

Energy, Water, Biodiversity

Reducing flood risks and preserving biodiversity <i>Philippines</i>	Page 50
Forest restoration of the Fundão Dam <i>Brazil</i>	Page 52
Preserving biodiversity and depolluting lagoons <i>Qatar</i>	Page 54
Coral reef restoration <i>Saudi Arabia</i>	Page 56
Benefitting important local wildlife in Ontario <i>Canada</i>	Page 58
Clean and unlimited energy for all <i>France</i>	Page 60

SUSTAINABILITY DEVELOPMENT GOALS contributed to by projects

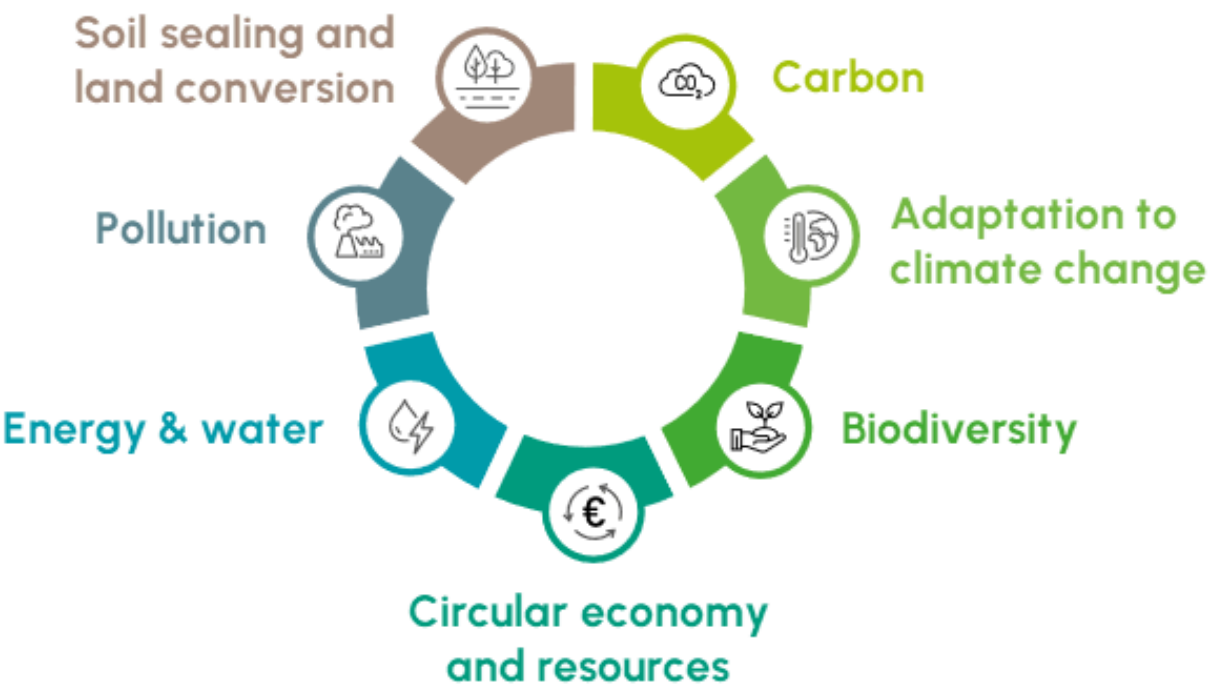
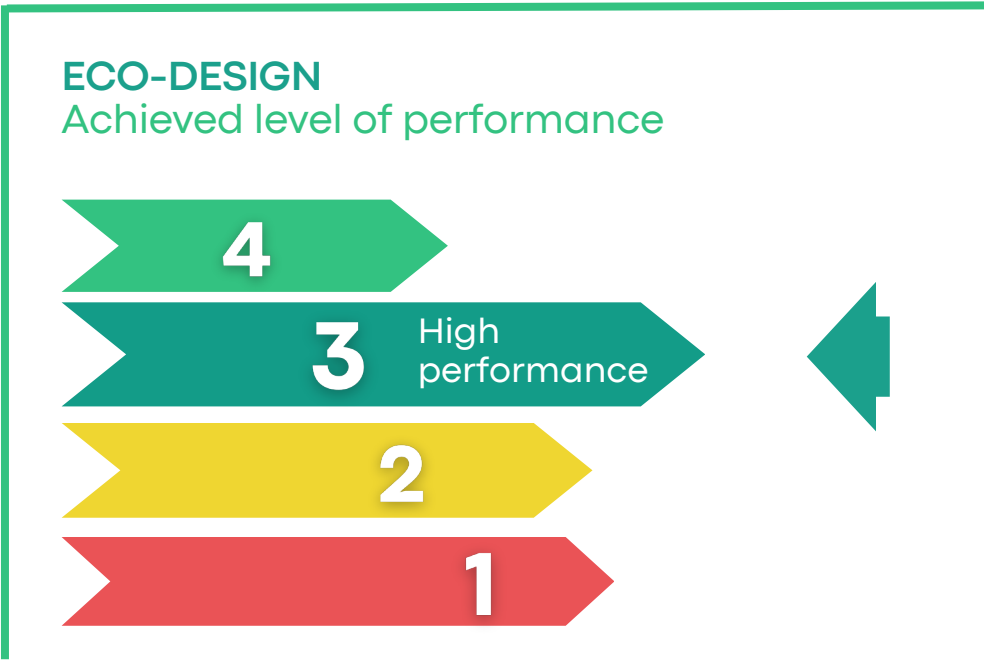
Since 2011, Egis has been a member of the Global Compact and contributes to the UN's 17 sustainable development goals through its activities.



EGIS' ECODESIGN APPROACH

Our projects are assessed according to 4 levels of performance...

and 7 **environmental** stakes



Act4ecodesign @egis

Projects and missions relating to land use planning have local effects on all environmental aspects and place the environment under pressure in different ways (pollution, encroachment on the natural environment, land take, energy consumption, etc.).

These impacts can compound one another, leading to global consequences that result in climate change, biodiversity erosion, resource depletion and ocean acidification.

With eco-design, we seek to reduce carbon emissions by acting on consumption of all kinds (energy, resources) through a systemic vision over assets' entire life cycle. With eco-design, we promote the re-use of materials and aim to reduce all local impacts that weaken biodiversity.



*Act for a
sustainable world*

TRANSPORTATION

*Act for a
sustainable future*

GRAND PARIS EXPRESS:

EUROPE'S MAJOR MOBILITY PROJECT

Expected to come on stream between
2024 and 2030

200 km
of automatic
metro

3 million
passengers
a day

14 million tonnes
of CO₂ emissions
avoided



ECO-DESIGN
Achieved level of performance



FLAGSHIP PROJECTS

METRO LINE 16 — PARIS, FRANCE

The ambition is to transform Paris into a denser city region, offering everyone more comfortable living conditions and improved mobility. As Europe's largest infrastructure project, Grand Paris Express is turning this vision into reality, alongside the thousands of professionals who are helping to create an unprecedented urban experience.

Grand Paris Express consists of 200 km of metro lines currently under construction. The overall project aims to reduce CO₂ emissions by almost 14 million tonnes by 2050 through better public transport services for the capital.

The new metro line 16, scheduled to open in 2026, will run between Saint-Denis Pleyel and Noisy-Champs in a journey time of 26 minutes. Catering to a population of 800,000 inhabitants, this new fully automatic line will help to improve access to the east of the Seine-Saint-Denis department, with direct connections with the hubs of Le Bourget and La Plaine Saint-Denis.

As lead contractor of the Keiros consortium, Egis is responsible for scheduling, supervision and general coordination of the line on behalf of Société des Grands Projets.



OUR RESPONSES



Development of low carbon rails and low carbon fibre reinforced concrete tunnel lining segments along the line

Recovery of braking energy by maximising rolling stock, thereby improving the system's energy efficiency

LED technology to light public spaces and introduction of a standard low consumption measure

Optimisation of Uninterruptible Power Supply (UPS) systems, contributing to **eco-responsible energy management**



Net zero loss of biodiversity through avoidance, reduction and compensation measures

Reuse and recycling of materials

Reduction in the volume of water and groundwater extraction

Development of eco-efficient technologies to minimise energy consumption in lifts and escalators (frequency variation traction and energy regeneration)



An alliance of urban sustainability and social inclusion

Grand Paris Express is a visionary project that addresses the shortcomings of the current transport network, extending the reach of the city while encouraging the transition to more sustainable, energy efficient mobility.

*Act for a
sustainable future*

TRAM LINE T6 NORTH, FOR A PERMEABLE CITY

Scheduled for 2026

55,000 journeys/day
expected in 2030

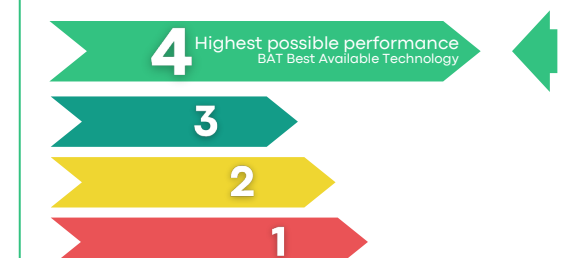
17,000 m²
planted track bed,
including in stations

30 %
reduction in urban
heat islands



FLAGSHIP PROJECTS

ECO-DESIGN
Achieved level of performance



TRAMWAY T6 NORTH — LYON, FRANCE

Part of the Greater Lyon Air Energy Climate Plan 2020-2030, which promotes a "permeable, green city" approach, the T6 North project will improve transport services and help combat global warming and air pollution. Aiming for 2030, this plan offers the opportunity to rethink urban life by disconnecting 500 residents from the sewerage system and planting 30,000 new trees, transforming the city's landscape and quality of life.

The extension of line T6 is in line with the "Destinations 2026" Urban Transport Plan of SYTRAL Mobilités, the Greater Lyon public transport authority. The project aims to link up major sites such as the La Doua campus (25,000 students), Villeurbanne city centre and the Grand Clément district. Featuring connections with most of the city's existing tram and metro lines, this extension will play a direct part in strengthening Lyon's public transport network. After carrying out design studies and on the basis of public enquiries, Egis proposed the implementation of an eco-design approach taking into account several environmental and social issues.



© Egis / Gautier Conquet AUP/ Atelier AIR

OUR RESPONSES



Calmer and inclusive areas through the creation of meeting spaces, pedestrian zones and a planted park promoting citizen renaturation and urban agriculture.



Combat flooding by soaking up rainwater where it falls with a capacity of 8 ha absorbed, or 55% of the disconnected surface area treated compared to zero previously.



Incorporating soil fertilisation and revegetation into the design, through the planting of over 380 trees, and the creation of habitats through structures to accommodate biodiversity.



Implementation of a genuine eco-design approach leading to the rationalisation of the works to be carried out, the reuse of materials from the site and the low-carbon transport of certain supplies



The tramway serving a permeable city

To meet the challenges of water conservation and flood protection, the project aims to soak up rainwater where it falls, with the objective of doing this over more than 50% of the redeveloped surface area. This involves harvesting water from neighbouring roofs and streets, and absorbing heavy rainfall. The engineering team has developed innovations in rainwater infiltration that are unique in France for a tramway project.

*Act for a
sustainable future*

EDMONTON'S CAPITAL LINE LRT SOUTH EXTENSION —

2022-2029

4.5 km
of new light rail infrastructure

6,000 weekly trips
with a train every 5 minutes

1.3 Bn CAD
project budget



FLAGSHIP PROJECTS —



[Find out
more](#)

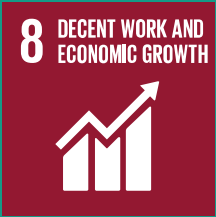
CAPITAL LINE SOUTH EXTENSION — EDMONTON, CANADA

The Capital Line LRT South Extension Project is a pivotal initiative by the city of Edmonton investing in the development of its future public transportation network to provide sustainable mobility options for its current and future residents. This project addresses the critical challenge of integrating new technologies into existing infrastructures, ensuring seamless and efficient operation. Given Edmonton's harsh climate, with temperatures plummeting to -40°C and heavy, constant snowfall, designing a reliable public transportation system that can withstand these extreme conditions is paramount.

With over 30 years of expertise in light rail projects, Egis will assist the City of Edmonton in its ambitious goal of enhancing its public transportation network. This initiative aims to provide sustainable mobility options for both current and future residents. As part of the Owner's Engineer team, our responsibilities will include overseeing railway systems, operations, and maintenance, as well as supporting the procurement of new Light Rail Vehicles (LRVs) to facilitate the network's extension.



OUR RESPONSES



The construction of the new maintenance centre will create job opportunities for the local community and contribute to the economic growth of the area.

This project meets the Transit Oriented Development (TOD) principles to integrate transportation, land use, and development across the city.



This project will reduce greenhouse gas emissions, optimize energy use and decrease air pollution.



Offering sustainable mobility options to Edmonton residents

With the Capital Line's first extension phase, the city seeks to serve the growing residential area in the south of the city, connect with the future hospital in the zone, and provide a reliable and fast alternative to automobiles. This extension also plans to improve intermodality with the existing bus network and with automobiles using the connection at the Heritage Valley park-and-ride.

*Act for a
sustainable future*

NYABUGOGO ECO-DESIGNED MULTIMODAL TRANSIT HUB

2023-2024 Ongoing study

250,000 travellers/day
will transit through the hub in 2037

70 bus lines
expected in 2037

13+ modes of transport
in perfect intermodality



FLAGSHIP PROJECTS

© Egis/ Kevin Joannet

ECO-DESIGN
Expected level of performance



NYABUGOGO MULTIMODAL TRANSIT HUB— KIGALI, RWANDA

The Nyabugogo multimodal transit hub, to the west of Kigali, is a terminus for intercity, international and urban buses, constituting a major gateway to the city and an interchange centre for passengers. The multimodal nature of the hub means that intermodality needs to be improved in order to facilitate connections between the different modes of transport. This point of convergence is also a major commercial hub, as it attracts significant economic activity.

The project, financed by the World Bank and carried out by Egis teams in partnership with United Contractors for the City of Kigali, aims to reorganise a transport and commercial hub to accommodate the rapid increase in bus passengers. It will incorporate future projects such as Bus Rapid Transit, the Urban Cable Car and bus electrification. The redevelopment, planned according to eco-design principles, will take account of local climatic conditions, particularly flood risk, passenger safety, and accessibility for people with reduced mobility.



OUR RESPONSES



Achieving eco-design level 4 requires an infrastructure that uses renewable energy, recovers rainwater, is resilient to flooding and improves passenger comfort and safety.

Boosting the local economy is at the heart of the redevelopment, which integrates local businesses and offers greater access to economic and educational opportunities for residents in outlying areas.



Accessibility for people with reduced mobility will make it easier for all citizens, including the elderly and those with disabilities, to travel.



Improving the urban fabric and promoting multimodality

Egis' Upstream Studies, Mobility and Planning teams carried out a feasibility study for the redevelopment of the Nyabugogo multimodal interchange, incorporating the opinions of stakeholders. During a collaborative workshop, the Ministry of Infrastructure, the City of Kigali, bus operators and various Rwandan institutions co-constructed a vision of the future multimodal interchange. The participants put forward various ideas and identified the key features to be incorporated into the design.

*Act for a
sustainable future*

INTEGRATED URBAN MOBILITY PROJECT FOR PHUKET ISLAND —

2019-2021

3

new lines

2 tramway lines and 1 cable transport line

23

%

reduction in carbon emissions compared to the
trend scenario

72

%

of the population located in the
immediate proximity of a public
transport stop



FLAGSHIP PROJECTS —

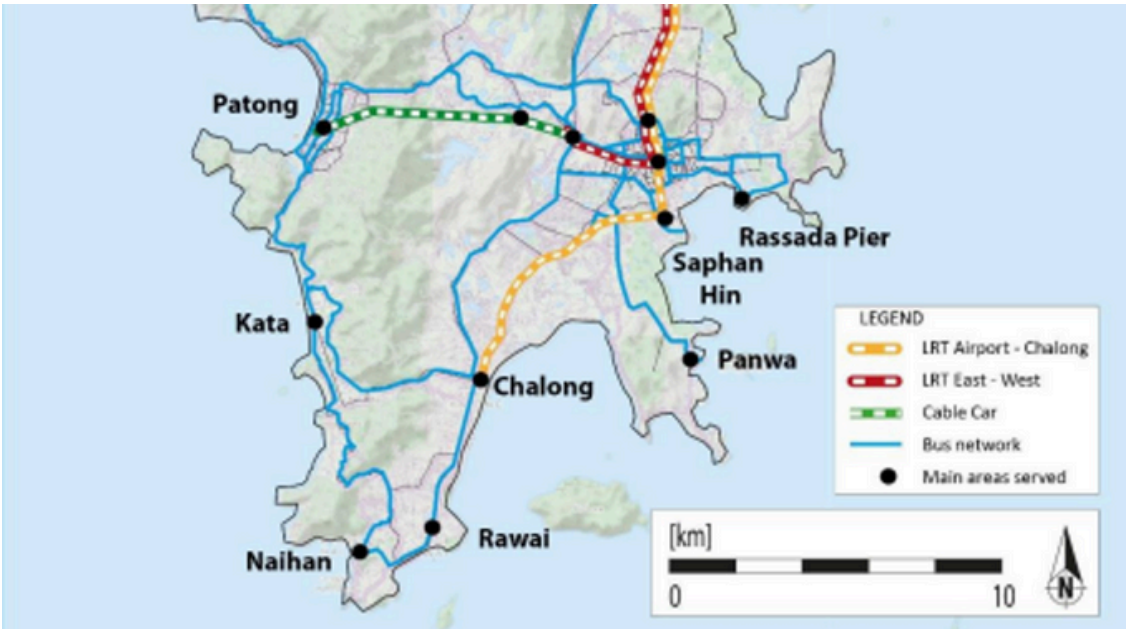


[Find out
more](#)

INTEGRATED URBAN MOBILITY — PHUKET, THAILAND

The draft transportation plan on the Thai island of Phuket seeks to meet several goals: offer the local population modes of transport other than cars or motorbikes, provide tourists with low-carbon footprint transport options, and define new public transport systems (including a cable car and two tram lines) to enhance mobility and promote modal shift from private to public transport.

This study was initiated by the French Development Agency in collaboration with the OTP (Thailand's Office of Transport and Traffic Policy and Planning) and the MRTA (Thailand's Mass Rapid Transit Authority).
Phuket, an island of 48 kilometres long and 21 kilometres wide, had a total population of 695,000 in 2019, an increase of 32% compared to the 2010 census. Foreigners, mainly tourists, account for 29% of the total resident population, which largely explains this demographic growth.



OUR RESPONSES



Review of the project's environmental and social impacts, with a view to energy sobriety and equality in terms of mobility between populations, regardless of income or gender.



Defining the transport systems to be implemented on an east-west corridor to provide an attractive connection with the north-south tram line in central Phuket City.



Willingness to offer local authorities a transfer of skills, applicable to other projects in Thailand, through workshops and training sessions on the themes of transport and mobility.



Enhancing Island prestige through sustainable mobility
The study, led by Egis teams from Thailand and France, encompassed several key tasks: reviewing an existing 42-km LRT study for a north-south corridor, optimising the design, and assessing environmental and social impacts with the overarching goal of enhancing the island's prestige while promoting a shift towards sustainable and energy-efficient mobility.

*Act for a
sustainable future*

PAFOS INTERNATIONAL



FLAGSHIP PROJECTS

REDUCING THE ENVIRONMENTAL IMPACT OF AVIATION —

ACA 4+

certification

in "carbon neutrality" since 2019 as
defined by the Airport Carbon
Accreditation programme

12

awards in 3 years

all presented to Hermes Airport by
regional and international
organisations



[Find out
more](#)

HERMES AIRPORT OPERATION — CYPRUS

The international airports of Larnaka and Pafos, the main gateways to Cyprus, are essential to the island's economic development, promoting tourism and generating local employment. The complex management of these airports, located near densely populated areas, raises concerns about noise pollution and environmental impact. These airports generate significant indirect economic spin-offs, but these externalities remain a major challenge.

Within the Larnaka airport grounds lie salt lakes with NATURA 2000 classified biodiversity, which constitute a particular challenge. As part of their ecological efforts, Egis is providing Hermes Airport with technical assistance and infrastructure maintenance and development studies.



OUR RESPONSES



Resource management with 590 tonnes of waste recycled in 2021 and a policy to combat single-use plastic, avoiding the use of 2.5 tonnes of plastic.

Airport decarbonisation through solar power plants with a total capacity of 4.6kWp, which covered 28% of their consumption in 2021.

Formulation of a roadmap, with the airport reducing its emissions by 46% compared with 2010.



Rainwater harvesting: 100% of the water used for irrigation is recycled.

Air quality monitoring in Larnaka, with a station measuring CO, NO₂, O₃, PM10 and PM2.5 installed in 2021.



Towards more sustainable and eco-friendly tourism

The complexity of managing Cypriot airports has led Egis to develop a monitoring strategy with the implementation of regular reporting based on the collection of a wide range of indicators to guarantee the sustainable development of these airports.

*Act for a
sustainable future*

MITIGATING THE ECOLOGICAL IMPACT OF AIR TRANSPORT —

2.6 hectares
of mangrove

ACA 4+ certification
in “carbon neutrality” since 2019 as
defined by the Airport Carbon
Accreditation programme



[Find out
more](#)



FLAGSHIP PROJECTS —

AERIA AIRPORT OPERATION — ABIDJAN, CÔTE D’IVOIRE

Since 1996, AERIA has held the concession for the Félix Houphouet-Boigny International Airport in Abidjan. This airport site has developed close to densely populated areas, including neighbourhoods with disadvantaged populations. In addition to its vast footprint, the airport encompasses extensive green spaces that are home to a rich biodiversity, including a wide variety of animal and plant life.

Managing an airport of this size is complex but significantly impacts local communities economically. The airport’s environmental impact is carefully monitored, and innovative projects are implemented to address it. Safety concerns have emerged, particularly due to birds attracted by nearby vegetable farms, posing risks to air traffic. Since 2021, our start-up project Soil.is has been developing engineering solutions for carbon sequestration at this airport. This new approach stems from R&D investments in soil carbon sequestration and "blue carbon." Inside the airport perimeter (1200 ha), the initial carbon stock of the land was analysed through laboratory sampling, mapping soil typologies. Based on this data, sustainable soil carbon sequestration scenarios were defined and are currently being deployed.



OUR RESPONSES



Land use optimisation through the development of agroecology on part of the airport's land and the restoration of the mangrove swamp located within the airport's boundaries.

Social impact for the benefit of local communities through support for local non-profit organisations, particularly in the field of education

Reducing carbon absorption through pilot runway strips and an energy audit



Use of compost through collection and donation to the airport’s market gardeners



Towards more sustainable and eco-friendly tourism

Egis contributes to the operation and development of the airport from a sustainable perspective. We provide technical assistance to help carry out studies on the maintenance or development of existing infrastructure. In addition to its major economic influence on the surrounding communities, the airport manages vast expanses of biodiversity-rich green space, while attentively monitoring its climate impact.



*Act for a
sustainable future*



FLAGSHIP PROJECTS

RESPONSIBLE MOTORWAY MANAGEMENT

IN AUSTRIA —

Since 2013

100 %
green electricity purchased
since 2022

100 %
use of HVO100 low carbon fuel

4.25 km²
green space areas

BONAVENTURA MOTORWAY **ECO-OPERATION** — AUSTRIA

Bonaventura Services GmbH, situated in Eibesbrunn, Lower Austria, has been managing the motorway since 2009. Egis assumed responsibility for operation and maintenance in 2013. This infrastructure encompasses the A5, running 23 km north of Vienna toward the Czech border, and the S1/S2, forming part of the Vienna outer ring. In total, these sections cover 52 km of motorway, including nearly 8 km of tunnels, and are used by more than 33,000 vehicles per day, while ensuring safer passage for local fauna with their four wildlife crossings.

Thanks to its long-standing commitment, Bonaventura is one of the most advanced projects regarding social and environmental challenges. Since 2018, the company has been certified ISO 45001, used exclusively electric vehicles as corporate cars and implemented policies exceeding regulatory expectations: most of the operation and maintenance tasks are now completed thanks to e-vans (the first of which was acquired in 2017). Office lighting has been switched to LED, while PV panels have been gradually installed since 2016 (totalling 718 kWp). Similarly, key resources are responsibly consumed: dry salt has been used less over the past five years thanks to its replacement by brine and the use of the Marwis optimisation tool.



OUR RESPONSES



All electricity comes from renewable sources: 4,200m² (718kWp) of photovoltaic panels for self-consumption and a green electricity contract for the remainder. All remaining thermal vehicles use 100% HVO-100. A switch from gas to woodchips for the heating system is upcoming.



Regular employee training and awareness on responsible resource use, with 100% of patrollers trained in eco-driving. All employees have free access to charging stations and are encouraged to carpool.



Biodiversity preservation initiatives, such as wildlife friendly structures, partnerships with local beekeepers, 50,000m² allocated to wildflower meadows watered with slow release watering bags and pesticide-free management.



Eco-operation promoting biodiversity

Bonaventura is responsible for the operation and management of a major ecological project covering a total area of 6 km², including 4.25 km² of green space and 2.67 km² of high potential environmental areas. This project is managed according to strict ecological criteria, with a dedicated team of ecologists employed to ensure monitoring and compliance, manage invasive species and spread knowledge to the various departments. Other biodiversity projects, including wildlife-friendly structures and a 10-hectare sheep grazing project, are being implemented in partnership with the Environment Agency.



*Act for a
sustainable future*



FLAGSHIP PROJECTS _

RESPONSIBLE MOTORWAY MANAGEMENT IN PORTUGAL _

Since 2000

529 ha
of green spaces

100 %
electric vehicles used for patrolling

39 structures
dedicated to fauna crossing

A24 MOTORWAY ECO-OPERATION — PORTUGAL

The A24 motorway, estending 157 km from the Spanish border at Vila Verde da Raia to the city of Viseu, serves as an excellent alternative for road travel between Portugal and Europe. It is It is considered to be Portugal's most beautiful motorway for its scenic beauty and engineering marvels, including 38 viaducts. However, its length and the diverse ecologically sensitive areas it traverses pose significant environmental challenges and operational costs.

Egis’ operating teams in Portugal are in charge of the operation and maintenance of the A24 motorway, ensuring its smooth functioning and safety. Our responsibilities include regular inspections, maintenance, and implementing improvements to enhance the overall driving experience and infrastructure resilience. For more than 10 years, Egis has exemplified advanced ESG practices through the use of innovative technologies such as drones and satellite images for vegetation management and optimised lighting, progressively transitioned to LEDs since 2015. Additionally, we have installed photovoltaic panels for self consumption since 2017 and 100% of remaining electricity purchased is green. As a result of these measures, we have achieved an annual decrease of 1,544 tonnes of CO₂ over the past decade.



OUR RESPONSES



Clean energy consumption by installing photovoltaic panels at O&M centers and transition to electric vehicles for service operations and the replacement of lightning by LED in the tunnels

Optimisation of activities and water consumption by conducting training and awareness campaigns for better resource management, such as water conservation through harvesting.



Fauna protection measures were implemented, including fences to prevent small animals crossing and road signs to inform users of the presence of animals and real-time monitoring using satellite images to avoid risks such as fire.



Promoting sustainable practices in eco-operation

Our goal is to reduce GHG emissions and promote sustainable consumption practices. To achieve this, we conduct regular training sessions for our patrollers, including eco-driving courses, and implement awareness campaigns for A24 road users in rest areas. In 2023 alone, we organised 18 Health & Safety sessions and three environmental awareness sessions. On Earth Day, the teams planted more than 350 trees. These initiatives are designed to encourage sustainable behaviours and contribute to our overall environmental objectives.



*Act for a
sustainable world*

CITIES

*Act for a
sustainable future*

RENOVATING LOW IN CARBON, NO DISRUPTION —

2020

10,000 m²
refurbished in 10 months
under occupation

7,500 m²
of facades refitted with
wooden cladding

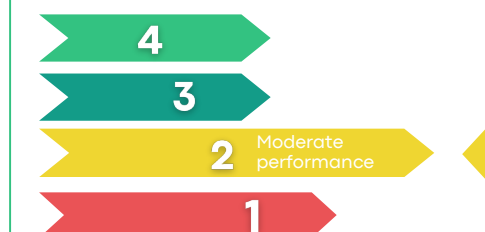
400 kg CO₂eq/m²
compared with 1,000 kg CO₂eq/m²
for newbuild

2.5 x cheaper
than a newbuild



FLAGSHIP PROJECTS —

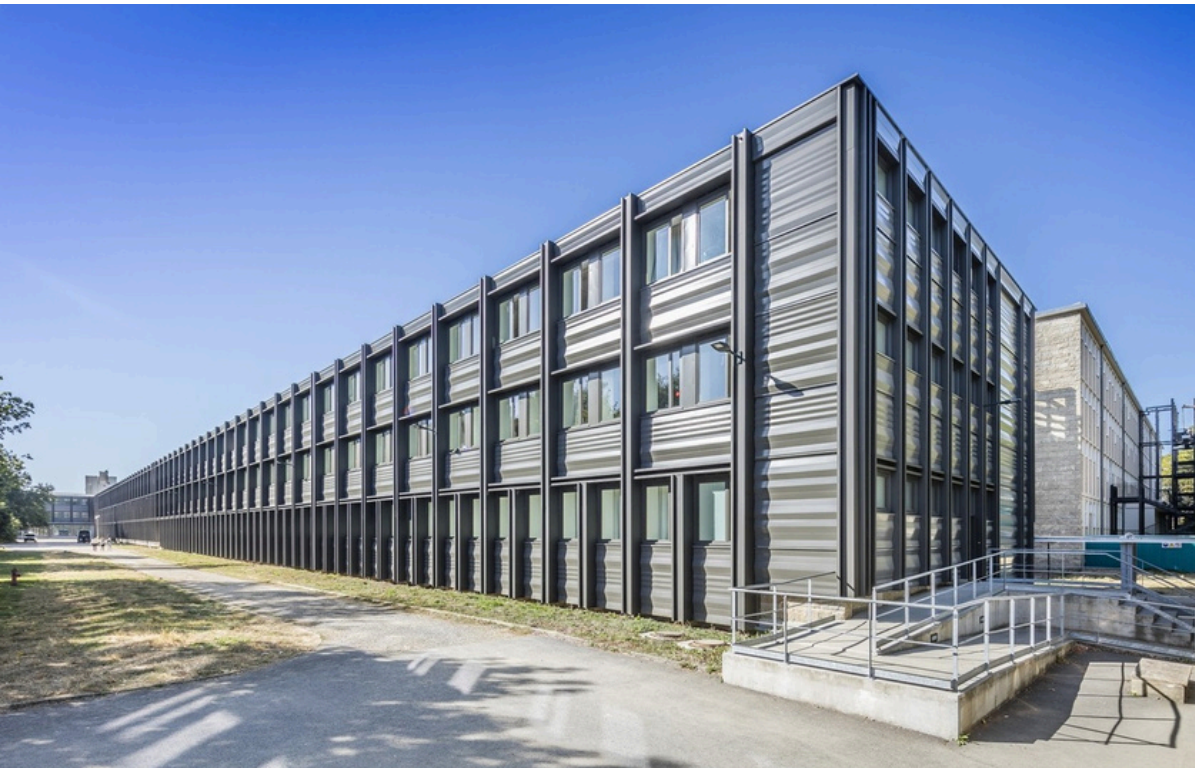
ECO-DESIGN
Level of performance achieved



BRÉQUIGNY HIGH SCHOOL — RENNES, FRANCE

Built in 1950, Brittany's biggest high school needed an upgrade to be able to continue accommodating its 3,500 day school and boarding students and holding its exams. Brittany Regional Council opted for a refurbishment under occupation rather than building a new structure. The main challenges were to improve energy efficiency and extend the building's lifespan, without disrupting the daily lives of its occupants.

Conscious of the climate emergency, the Breton authority was looking for a partner capable of carrying out a low carbon footprint refurbishment throughout the duration of the project and while teaching activities continued. The Bréquigny high school refurb, designed and project managed by Egis, follows a low impact logic, with insulated wooden structure cladding blocks, prefabricated locally to reduce the carbon footprint and manage the project with the least disruption.



OUR RESPONSES



A unique refurbishment methodology

combining low carbon renovation with minimal disruption and a cost control approach to extend the lifespan of public facilities.

Refurbishment costs amounting to 40% of a newbuild structure

Use of wood as the structural material, to store carbon dioxide for decades.



Social impact

A rejuvenated high school, and a great place to study, work and live!



Bio-sourced materials and off-site prefabrication: low-carbon solutions

Egis opted for a cooperative approach to design and development. We carried out the thermal and environmental studies, designed the prefabricated wooden cladding, maximised the solar protection of the façades, and supervised the construction phase while the building was occupied, all in liaison with the contractor. The project won the Construction and Fit-Out Award at the French National Engineering Awards (GNPI) in 2020 and the Grand Prix for Sustainable Renovation at the 2021 Green Solutions Awards.

*Act for a
sustainable future*

AN INNOVATIVE PAVILION COMBINING DESIGN AND SUSTAINABILITY —

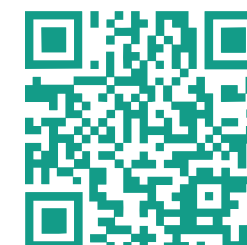
27.8 m
in height

15,064 m²
plot surface
area

20,900 m²
built up
area



FLAGSHIP PROJECTS —



[Find out
more](#)

EXPO 2020 PAVILLON — DUBAI, UAE

The UAE pavilion at Expo 2020 in Dubai in the United Arab Emirates was intended to embody excellence in the area of sustainability and innovation. Egis rose to the challenges of its construction by focussing on an approach based on design optimisation, innovative technology, collaboration and risk management.

The Expo 2020 pavilion was built to a tight construction schedule and with substantial site constraints, requiring careful management to meet deadlines. Its complex design with unique features such as falcon-inspired wings required careful planning. In addition, the extreme weather conditions posed further challenges during construction. Despite these headwinds, the pavilion was completed successfully and received widespread recognition for its innovative design and sustainability features.

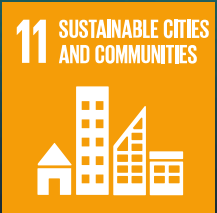


OUR RESPONSES



Use of renewable resources with the use of sustainable materials and solar power

Country's commitment to innovation and technology, since the pavilion provided a platform to businesses to present investment opportunities



Facilitating cultural exchange by bringing people from different countries, cultures and backgrounds together. The structure became a place for education and inspiration, showcasing the UAE's achievements in a wide range of fields and raising visitor awareness to environmental issues.



A building distinguished for its sustainability

The UAE pavilion, designed by the architect Santiago Calatrava, combines design and sustainability in a project focussing on environmental protection and air quality. The construction project presented many engineering and innovation challenges in the field of sustainability. This remarkable building received LEED Platinum certification from the US Green Building Council in 2021, the highest internationally recognised sustainability rating in the area of leadership in energy and environmental design.

*Act for a
sustainable future*

THE FIRST ECOSTADIUM:

COMBINING TECHNICAL
AND ENVIRONMENTAL
PERFORMANCE —

2011-2014

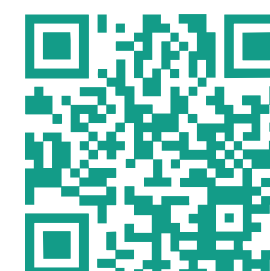
49,500 m²
of wood roof
structure

800 m²
water storage
tanks

1,500 MWh
of electricity produced
per year by the
photovoltaic roof

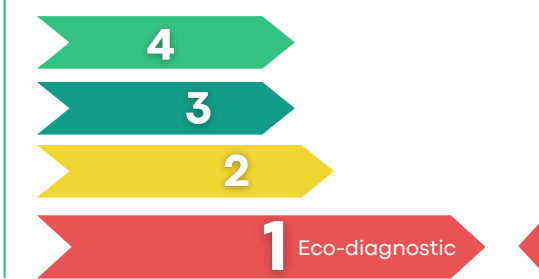


FLAGSHIP PROJECTS —



[Find out
more](#)

ECO-DESIGN
Level of performance achieved



ALLIANZ RIVIERA STADIUM — NICE, FRANCE

Inaugurated in September 2013, the Nice Allianz Riviera stadium was used for the Euro 2016 football championships. Egis and its partners rose to the technical challenges of this singularly innovative stadium in terms of its geometry, construction and environmental expectations. In October 2010, the Wilmotte & Associés / VINCI Concessions consortium won the competition to build the stadium.

With its extensive photovoltaic coverage, this solar project was part of the city of Nice's Energy Climate Plan, which targeted 25,110 MWh of renewable energy by 2020. Our remit covered the design and technical coordination of the interiors, detection systems, fire-fighting and management of the sustainability programme. We opted for a gridshell roof structure, with a mixed wood and steel framework, and an envelope with a curvature-free membrane made from a PVC-coated polyester fibre fabric to protect spectators from exposure to the sun. In terms of energy efficiency, the Allianz Riviera is the first stadium to be equipped with a natural ventilation system, an innovation that can reduce energy requirements by three.



OUR RESPONSES



Geo-sourced wood materials used for their carbon storage properties. The world's first stadium with a wood and metal mesh roof structure, which saves 3,000 tonnes of carbon in its manufacture compared with a conventional structure.



Rainwater harvesting The first stadium to be self-sufficient in terms of turf watering. The stadium roof recovers around 16,000 cu.m of rainwater thanks to four storage basins located in the foundation.



Environmental quality of the project with an LCA (Life Cycle Assessment) study carried out to limit the environmental impact. The first positive-energy UEFA Euro 2016 stadium. Leading the way in geothermal energy self-sufficiency, it is also the first stadium to have such a large area of solar panels (around 7,000 m²).



Architectural harmony and sustainability

Beyond building a sports venue, the challenge was to help it blend into the landscape of the eco-valley through its architecture and landscaping, connect-ing it with the rest of the city. This project represents the perfect alliance between technical performance and sustainable development through its principal design choices.

*Act for a
sustainable future*

HEBERT DISTRICT:

BIOCLIMATIC ENGINEERING SERVING URBAN PROJECTS.

2023-2030

100 %
active roofs

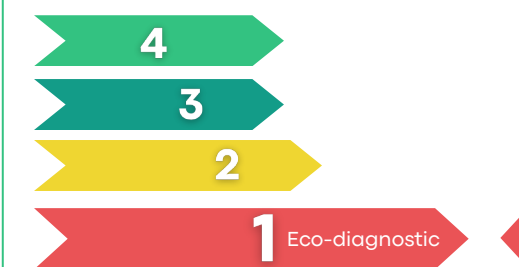
50 %
renewable energies in
the district's energetic
mix

1 ha
landscaped areas,
including a 4,000 m²
square



Find out
more

ECO-DESIGN
Level of performance achieved



FLAGSHIP PROJECTS

HEBERT DISTRICT — PARIS, FRANCE

Between Porte de la Chapelle and Porte d'Aubervilliers, a brand new district will gradually emerge over more than 5 hectares, with green spaces, housing, offices, shops and public facilities. The environmental issue was an absolute priority in creating this type of urban redevelopment project in an area that had previously been used for railway storage, and which also had to comply with the objectives of the City of Paris' Climate Plan.

SNEF is seeking the support of a qualified project manager to implement a complex operational process, in terms of both designing of the urban project and building a partnership-based participatory dialogue with the various stakeholders (public officials, departments, residents, developers, investors) to achieve buy-in for the urban project. The aim is to develop a project that is coherent, sustainable and economic, as well as socially expedient, job-creating and connected to neighbouring districts.



© Eliothe

OUR RESPONSES



Supplying the future district with renewable energy by connecting all the programmes to the Paris City Heating Company (CPCU) and installing photovoltaic panels and solar thermal panels.



Low-carbon design using bio-based/geosourced materials from sustainable sources in the Paris region, a circular economy, and flexible assembly methods that allow the building to be reused and dismantled.



Reversible design with adaptable ground floors that can accommodate a variety of uses and floors adapted to changing lifestyles



Bioclimatic engineering serving the urban project

The bioclimatic study and the assessment of the environmental quality of the district led to the drafting of the "architectural, urban, landscape and environmental recommendations booklet" (CRAUPE) and the lot sheets. Everything was designed to make the Hebert project an exemplary district: double-exposure flats, 100% active roofs, installation of solar panels, protection against noise pollution, use of local dry materials (wood, stone, soil), etc.

*Act for a
sustainable future*

AN URBAN GREENING PROJECT AMONG THE MOST AMBITIOUS IN THE WORLD —

2019-2021

3,330 parks
representing 19 km²
of greenery

7.5 million
trees and shrubs
planted

1.7 million m³ /day
treated water reused



FLAGSHIP PROJECTS



Find out
more

ECO-DESIGN
Achieved level of performance



GREEN RIYADH, REBIRTH OF THE CITY OF GARDENS — SAUDI ARABIA

The Royal Commission for Riyadh City (RCRC) is dramatically re-greening Riyadh. King Salman bin Abdulaziz of Saudi Arabia launched an extensive public works programme in 2019 in the aim of making the Saudi capital a new ecological urban model.

Green Riyadh is part of a vast programme aiming to make Riyadh one of the most pleasant cities in the world to live. Aligned with the Saudi Vision 2030 initiative and the “Quality of Life” programme, these projects promote more sustainable cities and communities while contributing to the fight against global warming by reducing carbon impact and lowering temperatures. Our teams supported the strategic planning and supervision of hundreds of replanting projects in the city region and, to do so, developed a management platform around a GIS database.



OUR RESPONSES



Water recycling
1,7 million m³ of recycled water to be used for the daily irrigation of the newly created green spaces.



Increased vegetation cover and protected biodiversity
541km² by 2030, equating to +7.6%
An exceptional green space ratio of 28m² per capita (compared with 1.7 m² per capita at present).
Planting of 7.5 million endemic trees.



Tailored vegetation to green the city
The types of trees and shrubs to be planted include several varieties of acacia including mulga, quercus deserticola, acacia ampliceps and balanites aegyptiaca, all endemic species that tolerate the high city temperatures. The strategic decision making, including the definition of tree species ranges, is facilitated by digital mapping and analysis of the quality of soil and available irrigation networks.

*Act for a
sustainable future*

FLAUBERT ECO- DISTRICT: AN URBAN REGENERATION PROJECT—

2007-2030

90 ha
reconverted industrial wasteland

150,000 seedlings
of local plant species

25 %
of the project's surface area devoted to
green and blue spaces



Find out
more

ECO-DESIGN
Achieved level of performance

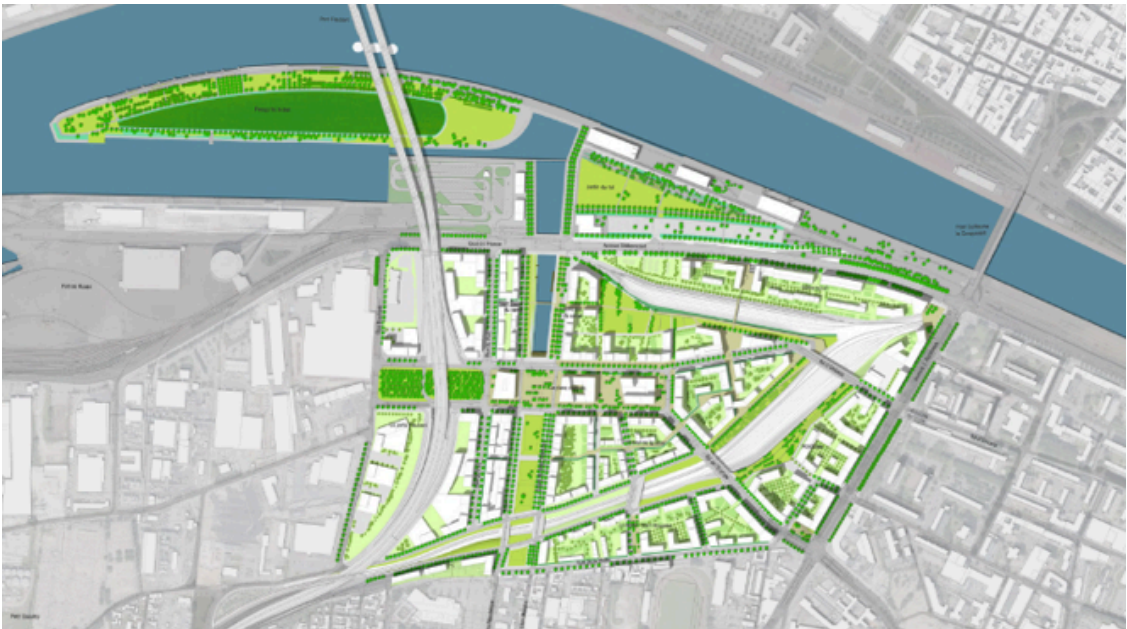


FLAGSHIP PROJECTS

FLAUBERT ECO-DISTRICT — ROUEN, FRANCE

On the left bank of the Seine, in the communes of Petit Quevilly and Rouen, the Rouen Normandy Metropolitan Council has undertaken to develop the Flaubert 'Ecoquartier' on a series of under-valued plots of land with strong urban potential in the heart of the conurbation. The site is a 90-hectare area to be reclaimed, divided between the city centre, the Seine and the port. Its transformation into a central urban district relies upon the completion of road access to the Flaubert bridge.

The reconstruction of the city itself aims to revitalise the existing urban infrastructure while preserving its historical and cultural essence. This initiative involves a restructuring of the district that goes beyond the boundaries of the current site and the south bank neighbourhoods. It will create a distinctive point of entry to the city. The aim is to define a balanced programme that integrates business, housing, facilities and public spaces to meet the diverse needs of residents and visitors. Egis was responsible for all the technical aspects, in particular the creation of the canal, rainwater management, waste management and the creation of a green site.



© Egis

OUR RESPONSES



Flood risk management through the creation of permeable, planted areas, an increase in retention basin volume and the treatment and purification of runoff water.



Reducing the energy consumption of lifts and staircases through the use of eco-efficient mechanical technologies, and of public spaces through the widespread adoption of LED lighting and the introduction of a standard low-energy measure.



Zero net loss of biodiversity through avoidance, reduction and compensation measures and 25% of the surface area devoted to green and blue spaces.



Turning constraints into sustainable opportunities

This industrial project faces a number of significant challenges, including flood zones, contaminated land and existing railway lines. These challenges call for an innovative approach, which is why our team favoured the use of bio-sourced materials, the creation of a wooded area of over 3 hectares, and measures to mitigate the heat island effect and promote energy sobriety while preserving biodiversity.

*Act for a
sustainable future*

STRENGTHENING THE RESILIENCE OF URBAN SERVICES SERVING THE POPULATION —

2018-2022

3 million
inhabitants benefiting
from improved urban
services

**13 cities in 5
countries**

5 years
of studies carried
out by Egis



FLAGSHIP PROJECTS —



[Find out
more](#)

SUSTAINABLE URBAN SERVICES FACILITY—SOUTHEAST ASIA

Southeast Asia is urbanizing rapidly, with over 50% of its population residing in urban areas. However, urban services and infrastructure development have not kept pace due to limited financing and capacity, inefficient governance and vulnerability to natural hazards and climate change. This prompted the Asian Development Bank to launch the Southeast Asia Urban Services Facility (SURF) to support projects and investment programs in the urban development and water sectors.

SURF is a multi-country contract framework between ADB and Egis aimed at: (i) building climate and disaster resilience and enhancing environmental sustainability; (ii) making cities more liveable; and (iii) strengthening governance and institutional capacity. Egis is providing Transaction Technical Assistance (TRTA) to the ADB encompassing urban development strategy, multi-sector master plans, feasibility studies, detailed design, procurement and environmental and social assessments.



OUR RESPONSES



Ensure sustainable management sanitation for all through improved infrastructure and services, and an innovative approach (i.e., citywide inclusive sanitation).
Make cities more resilient and sustainable through improved waste management and climate-resilient infrastructure.



Fight communicable diseases through improved sanitation and solid waste management.
Ensure equal rights through higher education and vocational training scholarship programmes for women in Lao PDR.
Life below water through reduced marine pollution in a protected area in the Philippines.



Making Southeast Asian cities more liveable and resilient

Egis will positively impact the life of 3 millions inhabitants across the Philippines, Cambodia, Indonesia, Lao PDR and Vietnam by improving urban services and infrastructure, including sanitation, solid waste management, drainage, and the urban realm. Additionally, SURF has provided the opportunity to leverage innovative tools developed internally (i.e., CARGO, DeepTrasher) and develop a GIS-based tool for ADB (SPADE 2.0). Overall, SURF will enhance the climate change resilience of targeted cities while promoting efficient governance and delivering long-term benefits.

*Act for a
sustainable future*



FLAGSHIP PROJECTS

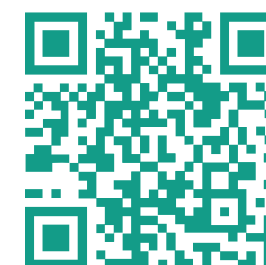
IMAGINING PARIS IN 2050:

THE PATHWAY TO NET ZERO

75 %
reduction in transport
emissions

3,000 wind turbines
deployed outside
the city walls

50 km²
of large solar farms



[Find out
more](#)

PARIS, **AN AIR OF CHANGE** — PARIS, FRANCE

Ahead of the revision of its climate plan, Paris City Hall launched a strategic study to draw up a zero-carbon vision of the capital in 2050. In their foresight study, Egis and its partners explored the ramifications of the net zero carbon target for the next 34 years, in all areas of human activity: housing, transport, energy, but also waste, food, culture and leisure, economic models, agronomic systems and biodiversity.

Paris City Hall is strongly committed to fighting climate change through its climate action plan, setting ambitious targets in terms of reducing the carbon footprint and controlling energy consumption in its area. This carbon neutrality strategy required detailed technical and scientific work to objectivise both the pathways for mitigation in each factor and the modelling of how compensation and sequestration of residual emissions might evolve.



OUR RESPONSES



Reduce emissions by preferring public transport, cycling, walking and also home working, in order to halve the current car fleet.



Reduce fossil fuels with the use of photovoltaic panels on the roofs of Paris, alongside underground heating and cooling networks, solar energy and the water of the Seine, the conversion of fossil fuel vehicles and the wide adoption of clean vehicles.



Bio-sourced building materials capable of capturing carbon and limiting emissions, short supply circuits, and material re-use chains.



On the road to net zero

“The foresight study ‘Paris, an air of change’ conducted by Egis is one of the first bricks in the establishment of the new climate plan for Paris. It has drawn up a scenario and an emission reduction trajectory towards carbon neutrality, combined with a series of measures which both are innovative and challenge our thinking outside our comfort zone. It has also enabled us to imagine new ways of living in a carbon-neutral city.”
Célia Blauel, Deputy-Mayor at Paris City Hall

*Act for a
sustainable future*



FLAGSHIP PROJECTS —

APENA 3 PROJECT: EMBEDDING SUSTAINABILITY INTO POLICY IN UKRAINE —

2020-2024

3 strategies
for regional climate
adaptation

3 plans
for regional waste
management

3 regions
most vulnerable to climate
change



[Find out
more](#)

APENA 3 PROJECT — UKRAINE

Today, climate change is affecting Ukraine more than most European countries, with increasing droughts, forest fires, rising sea levels, dwindling water resources and, above all, the invasion of Ukraine affecting agriculture and public health. The Apena 3 initiative aims to implement reforms under the Deep and Comprehensive Free Trade Area (DCFTA) agreement to align with EU environmental legislation.

The Ukrainian regions of Lviv, Ivano-Frankivsk and Mykolaiv were selected because of their climatic vulnerability. Egis' mission was to support local authorities in the implementation of new public policies by developing strategies for resilient infrastructures and improved waste management.

The project team co-organised the Smart Building Forum, where our experts in climate change adaptation and waste management presented their work and received positive feedback from beneficiaries and EU delegations.



OUR RESPONSES



Improved institutional capacity to address climate change and waste management, along with embedding sound environmental measures across all legislation.



Our initiative will develop safer waste disposal routes, creating jobs, enhancing reuse and recycling, and providing costed business plans for sustainable city development.



Decreasing waste to landfill and local burning of waste through new regional waste management plans. This will reduce uncontrolled rural fires, improve air quality and decrease emissions.



Enhancing Ukraine-EU Environmental Harmony

This project, the first of its kind in Ukraine, enhances Ukraine-EU cooperation by focusing on key priorities of the DCFTA Agreement. It also strengthens regulatory convergence in environmental assessment, waste management, and climate change, contributing to improved environmental practices and increased awareness of its importance.



*Act for a
sustainable future*

ADAPTING SENEGAL'S COASTAL TOURISM TO CLIMATE CHANGE —

2017

80

%

of Senegal's activity happens on the coast

70

km

of coast studied

1

metre/year

of shoreline retreat

CLIMATE CHANGE AND COASTAL TOURISM — SENEGAL

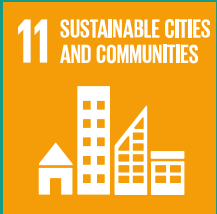
The disappearance of beaches remains one of the most serious problems for the tourism sector in Senegal. Although this phenomenon is largely due to poorly controlled urbanisation and the extraction of sand for construction, rising sea levels linked to global warming are becoming the main culprit. This study supports the Senegalese government's priority tourism development projects by providing essential knowledge on the projected impacts of climate change and carrying out a cost-benefit analysis of various adaptation options in three targeted pilot areas.

Egis was commissioned by the World Bank to assess the vulnerabilities, risks and projected impacts of climate change through spatial modelling of hazards such as coastal erosion, marine submersion, fluvial flooding and water scarcity. Our mission also included the modelling of adaptation options and their economic analysis. The results of this study enabled us to propose corrective actions to be applied to existing tourism development plans in order to incorporate climate resilience, both at local and national level, while strengthening the government's capacities in this area.



© Egis

OUR RESPONSES



Sustainable urbanisation of 70 km of coastline, taking into account the preservation of natural heritage and the prevention of climate risks by 2100.

Adaptation strategy incorporating a strategic retreat to take account of shoreline retreat by the end of the century. Removal of certain development projects that are too exposed to long-term climate risks.



Preservation of the beach and backshore, dunes and lagoons, against coastal erosion through nature-based solutions such as the installation of ganivelles and the planting of filaos.



Anticipating the risks of coastal erosion and flooding

This study is the first of its kind in sub-Saharan Africa. To carry it out, we had to develop a specific methodology, taking into account local particularities and shortcomings in basic data. We implemented innovative methodological tools and approaches, including the use of WorldDEM™ data applied to the assessment of coastal natural hazards. The results of the study enabled the Senegalese authorities to assess the sustainability of coastal tourism development projects in the context of climate change and adapt them accordingly.

*Act for a
sustainable future*



FLAGSHIP PROJECTS

DESIGNING A RESILIENT COASTAL CITY —

2017-2020

30 **M USD**
of investment

50,000 **inhabitants**
affected by climate change risks in
Saint-Louis

18 **months**
of studies and plans



[Find out
more](#)

REDESIGNING A COASTAL CITY — SAINT-LOUIS, SENEGAL

Prone to flooding, the only bulwark of Saint-Louis is the Langue de Barbarie, a sandy barrier weakened by human activity. Egis supported the Senegalese Municipal Development Agency in creating a sustainable and resilient design for this UNESCO heritage coastal city, threatened by climate change. This initiative was part of ADM's Stormwater Management and Climate Change Adaptation Programme and the Saint-Louis Emergency Recovery and Resilience Project, funded by the Nordic Development Fund and the World Bank.

Egis carried out a study for the design and implementation of an environmental monitoring and modelling system for the coastal zone of Saint-Louis, focusing on the behaviour of water bodies (coastal and river) and hydro-sedimentary dynamics. Another part of Egis' mission consisted of formulating a master plan for storm water drainage in Saint-Louis, including the implementation of a Geographic Information System (GIS) and the establishment of a vulnerability diagnosis to flooding. Finally, our team proposed a strategic environmental assessment (SEA) for the technical study of the Langue de Barbarie (sandy barrier).



OUR RESPONSES



Formulation of a storm water drainage master plan for Saint-Louis and a diagnosis on its vulnerability to floodin



Design and implementation of an environmental monitoring and modelling system for the coastal zone of Saint-Louis, focusing on the behaviour of water bodies (coastal and river) and hydro-sedimentary dynamics



Design of a sustainable development for shoreline safety in the built-up area of Saint-Louis



Safeguarding tomorrow against climatic hazards

The purpose of these studies and plans is to guarantee the safety of the inhabitants against the risks of flooding and protect the areas against climate hazards. These developments also make it possible, in the long run, to bring more stability to the region.



*Act for a
sustainable world*

ENERGY, WATER, BIODIVERSITY

*Act for a
sustainable future*

REDUCING FLOOD RISKS AND PRESERVING BIODIVERSITY

2018-2024

142,000 inhabitants
in safer conditions

6 drainage basins
with flood mitigation proposal

6 years
of studies carried
out by Egis



FLAGSHIP PROJECTS



[Find out
more](#)

ECO-DESIGN
Achieved level of performance



FLOOD RISK **MANAGEMENT PROGRAMME** — PHILIPPINES

Climate change is a major issue for the Philippines, and the risk of flooding is a constant concern, costing 2% of the country’s annual domestic budget, or US\$7.4 billion. Following multiple typhoons affecting more than 130 million people in the past 30 years, the Philippine government launched a comprehensive flood risk management programme: the Infrastructure Preparation and Innovation Facility (IPIF).

Egis combined its expertise in flood risk management with its local experience to ensure a sustainable and efficient project. We conducted six years of technical assistance providing pre analysis and expertises, data acquisition, extended field and lidar surveys , master plans and feasibility studies, cadastral and right of way studies, environmental, social and economic analysis, detailed technical studies, capacity buildings and tender documentation for consulting services and civil works.



OUR RESPONSES



Strengthening resilience and adaptive capacity of communities across the Philippines to climate-related hazards and natural disasters



Reducing risks to human life by limiting the spread of flooding and creating a safer and more stable environment for inhabitants.

Implementing biomimetic modules developed in collaboration with our subsidiary Seaboost to restore the mangroves damaged by the widening of riverbeds in coastal areas.



Protecting populations

The IPIF project, supported by the Philippine Government in association with the Asian Development Bank (ADB), aims to implement mitigation measures for the six river basins.. Supervised by the Department of Public Works and Highways (DPWH), the purpose of the initiative is to minimise the risk of flooding and protect the population and biodiversity, to ensure more social and economic stability in the region.

*Act for a
sustainable future*



FLAGSHIP PROJECTS

FOREST RESTORATION OF THE FUNDÃO DAM WITH LOCAL COMMUNITIES

2018-2021

153,789 seedlings
planted on 180
hectares

92 %
local workforce, exceeding the
contractual requirement of 70%

90 species
of native trees planted



[Find out
more](#)

RESTORATION OF THE FUNDÃO DAM — BRAZIL

The collapse of the Fundão dam in 2015 had a major socio-environmental impact. In addition to the loss of human life and material goods, this major environmental disaster resulted in the contamination of the soil and water of the Doce river by mineral residues, devastating vegetation and river life in the municipalities of Barra Longa, Santa Cruz do Escalvado, Rio Doce, Ponte Nova and Coimbra.

Renova Foundation entrusted Egis with the crucial task of conducting an environmental diagnosis and developing the executive project for the restoration efforts along the Doce River and the affected hill areas following the collapse of the Fundão dam in various Brazilian municipalities. Leveraging our extensive background in large-scale forest restoration initiatives, particularly our collaborations with Petrobras, our approach involved not only meeting contractual obligations but also prioritising social responsibility by engaging with the local community.



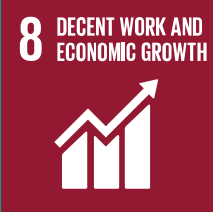
© Egis

OUR RESPONSES



The restoration of the tributaries of the Doce River and the return of wildlife are encouraged by the recomposition and aggregation of trees, recreating the original natural conditions.

Mindful of the landforms, Egis and its local tree planting equipment supplier adapted the drill to local conditions, improving productivity by 382%.



Hand in hand with the local communities, our aim in the reforestation activities was to work together with local suppliers and the affected municipalities



Sustainable rehabilitation as a way forward in the region

Egis' challenge was to intervene in a place with great social sensitivity, under the watchful eye of NGOs, the Public Prosecutor's Office and the population in order to contribute to reducing the damage caused by the Fundão Dam disaster. Our experience in forest restoration enabled us to operate in an extremely sensitive context and meet contractual demands. Finally, Egis conducted an experimental project focusing on silviculture to promote rational forest use and sustainable activities for rural landowners.

*Act for a
sustainable future*

PRESERVE BIODIVERSITY & DEPOLLUTE LAGOONS.

2015-2017

4.7 million m³
of waste water evaporated

2.7 million m³
of polluted soil decontaminated

55 avian species
including 2 vulnerable species and 4
near-threatened species



FLAGSHIP PROJECTS



Find out
more

LAGOON **REHABILITATION** — AL KARAANA, QATAR

Located in the Al Rayyan region, west of Doha, the Al Karaana lagoon covering more than 4 km² was hit by major environmental problems. Water and biodiversity reserves are very scarce in Qatar, and Al Karaana is one of the country's few protected wetlands and wildlife reserves.

The Public Works Authority of Qatar (Ashgal), after considering the option of covering the lagoons and closing the area, awarded Egis a comprehensive programme management contract to rehabilitate these lagoons. The neighbouring wastewater treatment plant released nearly 200,000 m³ a day of treated wastewater into the fragile biotope along with 100,000 m³ of domestic and industrial wastewater. Over the years, these discharges had led to the materialisation of odours and soil contamination, all indications of substantial environmental pollution.



© Egis

OUR RESPONSES



Lasting rehabilitation of the lagoons
Creation of an industrial wastewater discharge basin



Remediation of 2.7 million m³ of contaminated soil, including 0.5 million m³ of heavily polluted soil



Development of a dedicated zone for the preservation of animal and plant wildlife



A restored and preserved ecological haven

To remediate the soil, the project was organised around five major phases: ecological survey, design, clean-up and disposal of all sources of pollution, rehabilitation of the nature reserve to "non-developable" status and protection of existing habitats. Egis mobilised all its engineering skills to control the environmental impact of this site as effectively as possible, rehabilitate it and adapt it to new uses.



*Act for a
sustainable future*



FLAGSHIP PROJECTS

CORAL REEF RESTORATION INITIATIVE IN THE RED SEA —

2024 - ongoing

300,000 corals
produced per year (at peak)

438 coral farms
divided into two nurseries

1,000 fish species
on the Coral Reefscape Shushah
Island

CORAL REEF NURSERY— NEOM, SAUDI ARABIA

It has been predicted that 90% of the world’s coral reefs will die by 2050. In response to this threat, KAUST Reefscape Restoration Initiative (KRRI) is to establish a cutting-edge Coral Nursery at Haddah Beach, aiming to accelerate coral growth and develop the world's largest coral garden. This initiative plays a pivotal role in advancing solutions for conserving coral reefs amidst a changing climate. It aligns with NEOM's vision of sustainable development. KAUST aims to create a hub for coral preservation, research, and sustainable practices.

Egis, appointed by KAUST, will provide Project Management and Construction Management (PMCM) services for the Reefscape Restoration Initiative's coral nurseries. Egis will oversee the construction of the Primary Coral Nursery (PCN) and the Development Coral Nursery (DCN), essential for restoring priority sites within the 100-hectare area. The PCN, capable of growing up to 400,000 corals annually, will be a cornerstone of the initiative. The DCN, operational from early 2024, serves as a temporary facility to accelerate coral growth, train personnel, and test innovative coral farming technologies.



OUR RESPONSES



Egis is partnering with the King Abdullah University of Science and Technology (KAUST) to deliver the world’s largest coral nursery as part of the reefscape restoration initiative at Shushah Island.



The coral restoration initiative boasts a diverse ecosystem with over 300 native coral and 1,000 fish species.



The Coral Nursery will position itself as a global reference for sustainability and is expected to attract international scientists, researchers, and eco-conscious travellers.



Using digital twin technology to ensure the initiative’s success

The KAUST Reefscape Restoration Initiative (KRRI) is harnessing the power of digital twins to monitor the evolution of the Shushah Island coral reef. This digital twin will oversee and control coral growth within the nursery, gather vital data, and enable timely interventions, ensuring optimal conditions for coral development.

*Act for a
sustainable future*

BENEFITING IMPORTANT LOCAL WILDLIFE ACROSS ONTARIO —

2022

250 wetlands
across Ontario

20 %
of Ontario's at-risk species now
benefit from a habitat

68 %
of the original wetlands
have been developed from their natural
state to support alternative uses.



FLAGSHIP PROJECTS —



[Find out
more](#)

ASSESSING THE CONDITIONS OF WETLANDS— ONTARIO, CANADA

For Ducks Unlimited, Egis conducted infrastructure inspections at 250 wetlands across Ontario. The aim was to classify the condition and potential hazards of the dams at each site, and then perform large-scale analysis through the coordination of multiple departments to conduct field and desktop investigations. In 2023, the project earned Egis the Ontario Engineering Project Award (OEPA) from the Association of Consulting Engineering Companies (ACEC).

The project team encountered many challenges, among them that of site accessibility due to the remote locations of the wetlands, and in some cases, access roads and foot trails were either damaged or overgrown with vegetation. Obsolete data dating from the 1970s and 1980s, and limited information on infrastructure made it difficult to evaluate potential damage and estimate costs. Finally, uncertainty surrounding the available budget, mainly funded by private donations, meant that priorities had to be set in terms of the sites to be remediated, depending on the current condition of the dams.



OUR RESPONSES



Encourage ecosystem diversity by rehabilitating diverse habitats and implementing strategies to control invasive species that threaten local ecosystems.

Provide stable habitats for both aquatic and semi-aquatic species and protect endangered species.



Treat water naturally, which improves overall water quality within a watershed and mitigates the impact of floods by providing extra storage for rainfall runoff



Managing the risk of dam bursts

Egis' teams conducted a high-level assessment to identify wetlands with minimal downstream impact in the event of a dam breach and those needing further investigation to confirm their Hazard Potential Classification (HPC). Given the project's scale, multiple team members participated to enhance efficiency and provide quality control and assurance. Each dam was analysed using engineering judgment to evaluate overall impacts, destruction levels, and potential repair costs. Wetlands with concerning impacts were flagged for further analysis.

*Act for a
sustainable future*

ITER: CLEAN AND UNLIMITED ENERGY FOR ALL —

2010-2025

500 MW
power generation
expected

150 million
degrees
Celsius



[Find out
more](#)

ECO-DESIGN
Level of performance achieved



@egis

FLAGSHIP PROJECTS

ITER — CADARACHE, FRANCE

The International Thermonuclear Experimental Reactor (ITER) is the world's largest fusion project. It aims to demonstrate the feasibility of nuclear fusion as a large-scale, carbon-free energy source. 35 countries have joined forces to build and operate this experimental facility, including China, the European Union, India, Japan, Korea, Russia and the United States.

Egis, as part of the ENGAGE consortium (Egis / Assystem / Atkins / Empresarios Agrupados), is in charge of all aspects of the project: design, project management and site supervision. With extensive experience in the construction of nuclear facilities and scientific test centres, Egis brings specialised expertise in a unique field of infrastructure. 3D models play an essential role in the design of sophisticated facilities such as ITER. Egis controls and manages the data acquisition and configuration of the construction model.



© ITER Organization.

OUR RESPONSES



First Life Cycle Analysis (LCA) studies conducted on large nuclear buildings in design phase

A research facility that aligns with our values: a world where energy is clean and green. ITER could provide a power generation template that is clean, low carbon emissive in operation and cheap, all over the world.

Creation of unprecedented new innovative structures to make the complex safer and more resilient.



Elimination of risks relating to accidental stoppages due to earthquakes, accidents or physical attacks, thanks in particular to the possibility of switching off the process instantly.



The world's largest nuclear fusion reactor
Smooth collaboration is essential on major projects of this type, so all participants are using SGTI4®, our collaborative construction project management solution. Designed by Egis, SGTI4® manages, monitors and controls all exchanges and data for the operation. On the project's completion, ITER will be the world's largest nuclear fusion reactor.

Sustainability and Engagement Department

sustainability.group@egis-group.com