

3

OUR COMMITMENT TO THE ENVIRONMENT



3.1 ENVIRONMENTAL APPROACH AT KCE

(103-2) (103-3) (102-11) (307-1)

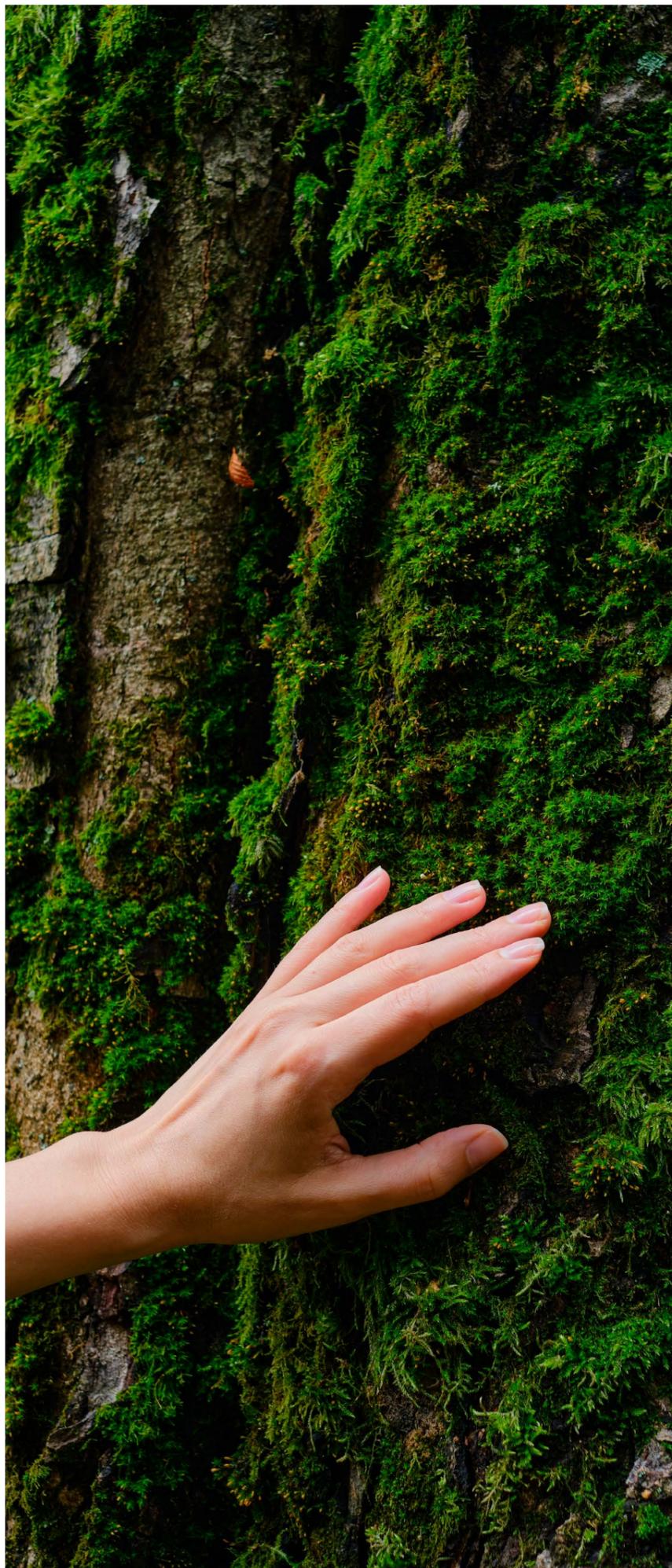
Environmental management at KCE is directly determined through the corporate philosophy and strategies. The “Kao Way” is the foundation for the group's business activities and provides consistency to any decision made. Within the framework of this philosophy, the mission, the Kirei lifestyle plan, together with the group's ESG strategy, are defined.

Other corporate programmes that influence KCE's environmental management are Responsible Care® (see section 2.6) and "Eco Together", created in 2009, through which the group establishes its commitment to responsible environmental management and carries out efforts in environmental conservation together with clients, suppliers, companies to which a part of the production is contracted, local communities, NGOs, governments and other stakeholders.

In addition, KCE integrates into its environmental management not only everything that derives from the legislation of each country but also from the pacts and programmes of each region in which it is located, such as the "European Green Deal", in the case of the European Union.

Finally, each of the KCE companies integrates the requirements derived from the internal commitments assumed with the communities in which they operate, where applicable, and those of the certifications to which they have voluntarily obtained, such as ISO 14001, EMAS or ISO 50001 depending on the company (see section 2.5).

With all this, Kao's environmental management focuses on the activity itself, society and the environment. It places emphasis on the entire life cycle, from the inputs used, the technology for their processing, the energy used, the elements generated (such as emissions or waste), the products manufactured, their commercialization and their subsequent disposal.



3.2 ENVIRONMENTAL COMMITMENTS 2030¹

The determination to implement management driven by ESG is evidenced in the definition in 2020² of the following ESG objectives for 2030:

Area	Indicator	Target value*	Base year
Decarbonization	Reduction emissions scope 1+2 CO ₂ , absolute	55%	2017
Energy	Renewable electricity purchased Energy consumption	100% 1%	- Previous year
Zero waste	Ratio to landfill and to incineration	<1%	-
Water conservation	Water consumption	45%	2005
Resources	Procurement of RSPO-certified palm oil	100% ³	-

* The target value is that to be achieved by 2030, taking as a starting point a specific year (base year) set for each indicator, except for some that do not specify one.

¹ The following sections detail the actions that KCE has implemented for each of the areas of action, the results and indicators identifying how much has been achieved,

² In 2021, the decarbonization target was modified, in a more ambitious sense than the one initially set.

³ Target to be achieved in 2025.



3.3 MAIN ENVIRONMENTAL RISKS THAT AFFECT THE ORGANIZATION

(102-11) (103-15)

Kao has identified the main risks with a negative impact on the group's sustainable and profitable development. KCE has prioritized those that have the greatest impact within the framework of its activity and environment and has established its own management and monitoring plan (see section 2.7.1). These include environmental risks associated with climate change¹.

These associated risks include the possibility of suspending operations due to extreme weather events, the increase in costs due to the strengthening of regulations, the depletion of resources, environmental contamination, the water supply and the loss of biodiversity.

In addition, KCE implements action programmes to reduce the environmental impact in the rest of the aspects identified in its evaluations: use of water and water pollution prevention, prevention of air pollution, waste management, management of chemical substances, soil preservation, preservation of biodiversity, light pollution, etc.

¹ Risks related to large-scale earthquakes, other natural disasters and accidents (Risk of obstacles arising that hinder our ability to supply our products to market due to damage to employees, facilities and the supply chain as a result of large-scale earthquakes, major typhoons associated with **climate change**, floods and other natural disasters; Risk of significant damage to employees and the surrounding area due to a fire or explosion at the plant).

The following sections detail the progress of these programmes and the associated indicators. There are basically two types of indicators:



Those that indicate the total annual absolute value – consumption, production, emission or generation – in the area considered; for example, the annual water consumption expressed in m³. They are calculated as the sum of the absolute value of each of the KCE companies.



Those that indicate the relationship between said absolute value and the object of the activity (production expressed in tonnes), that is, the ratio or rate such as the cubic metres of water consumed per unit produced (m³/t). They are calculated as the average of the ratio of each of the companies that constitute KCE.



3.4 CLIMATE CHANGE

103-2: Measures taken to adapt to the consequences of climate change

Our main environmental commitments are directly linked to the mitigation of climate change, since the activity carried out involves the emission of greenhouse gases, either from the activity itself (direct emissions) or because of the activity itself (indirect emissions).

We have committed to zero CO₂ emissions by 2040 and to become carbon negative by 2050.

3.4.1 GREENHOUSE GAS EMISSIONS (GHG)

(305-1) (305-2) (305-3) (305-5)

KCE	2020	2021	2022
Total direct (scope 1) GHG emissions (t CO _{2e})	74,492	72,620	72,330
Scope 1 emissions / production (kg CO _{2e} /t)	170.85	168.96	186.23
Total energy indirect GHG emissions (scope 2) (t CO _{2e})	4,527	5,675	5,075
Scope 2 emissions / production (kg CO _{2e} /t)	12.51	15.45	14.57
Other indirect GHG emissions (scope 3) (t CO _{2e})	22,645	22,960	16,831
Scope 3 emissions / production (kg CO _{2e} /t)	56.77	51.59	43.34
Total GHG emissions (t CO _{2e})	101,664	101,256	94,236
Total GHG emissions / production (kg CO _{2e} /t)	225.93	236.00	244.13

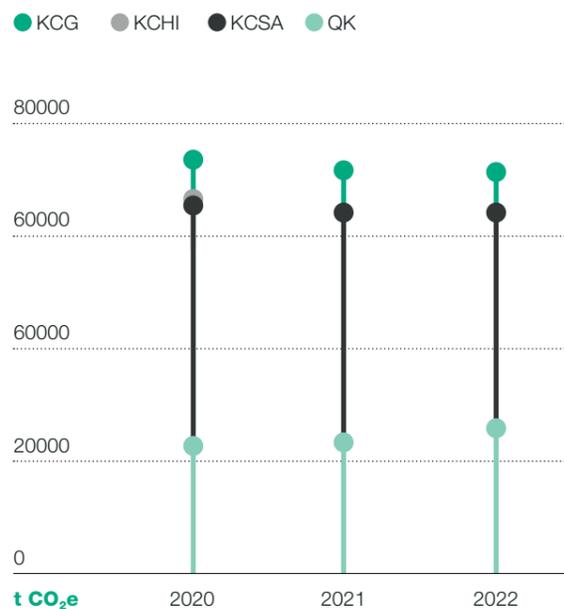
GHG emissions for Scope 1 emissions have decreased slightly in absolute value despite the fact that the ratio per tonne of final production has increased.

This is the consequence of several factors, mainly the variation in the proportion of manufactured products, with an increase in those requiring more intensive energy consumption. Meanwhile, the existence of facilities that consume energy and have no assigned production also influences the result (for example, compressors, air conditioning systems or storage tanks).

Scope 2 emissions have been reduced, as has the ratio per tonne of final production. QK is the company associated with this reduction.

Compared to 2017, the base year for this indicator, CO₂ emissions (scope 1 and 2) have been reduced by 19%.

DIRECT GHG EMISSIONS (SCOPE 1) BY KCE COMPANIES



3.4.2 ACTIONS FOR MITIGATION

(103-2: Measures taken to adapt to the consequences of climate change)

The GHG emissions identified as most significant at KCE come from the consumption of fuel and electricity in production activity and those associated with the distribution of products.

KCE implements different initiatives to guarantee the reduction of its greenhouse gas emissions:

- **In the acquisition of raw materials:** green purchasing concepts are incorporated, and specific actions are carried out in the different KCE companies.
- **In the product development process:** their compliance with the environmental standards described by the design guidelines for the environment is verified.
- **In the manufacturing process:** initiatives are included to reduce energy consumption by introducing more efficient equipment and eliminating points of energy loss, use of cleaner energy, use of more environmentally friendly refrigerants and equipment maintenance to prevent leaks of refrigerants and other greenhouse gases.
- **In the distribution process:** through the increase in the volume sent per shipment, the use of cleaner methods and the improvement of cargo ratios.

3.4.3 ACTIONS FOR ADAPTATION

(103-2: Measures taken to adapt to the consequences of climate change)

Kao is implementing a line of work aimed at adapting to climate change, firstly identifying those facilities located in areas at risk of water scarcity or with a high probability of suffering certain extreme natural phenomena.

PHOTOVOLTAIC CAPACITY



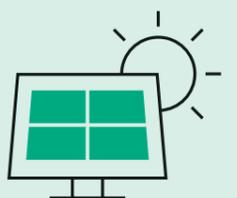
QK
499 kWp



KCHI (Rubí)
185,33 kWp



KCSA (Olesa)
97 kWp



3.5 POLLUTION PREVENTION

(103-2: Measures taken to adapt to the consequences of climate change)

KCE acts to prevent air and water pollution in areas near production plants and to reduce the pollutant load from its wastewater treatment plants.

To this end, multiple initiatives are carried out such as the reduction at source of the generation of pollutants and the use of the best available techniques to combat pollution.

3.5.1 AIR POLLUTION PREVENTION

(103-2: Measures taken to adapt to the consequences of climate change)

The main commitments assumed by KCE are aimed at strict compliance with specific laws and regulations and the implementation of the principle of pollution prevention. This entails, among other actions, the gradual introduction of best available techniques, the modification of processes to promote a reduction in emissions and their exhaustive monitoring.

KCE publishes the emissions data of KCG, QK and KCSA under the PRTR (Pollutant Release and Transfer Registers).

AIR EMISSIONS¹

(305-7)

KCE	2020	2021	2022
CO emission (kg)	22,310	22,497	23,639
CO emission / Production (kg CO/t)	0.06	0.06	0.06
NO _x emission (kg)	56,751	55,440	55,031
NO _x emission / Production (kg/t)	0.12	0.13	0.14
CH ₄ emission (kg)	1,619	1,582	1,584
CH ₄ emission / Production (kg/t)	0.00	0.00	0.00
HFCs emission (kg)	178	72	28
HFCs emission / Production (kg/t)	0.00	0.00	0.00
PFCs emission (kg)	0	0	0
PFCs emission / Production (kg/t)	0	0	0
NF ₃ emission (kg)	0	0	0
NF ₃ emission / Production (kg/t)	0	0	0
SF ₆ emission (kg)	0	0	0
SF ₆ emission / Production (kg/t)	0	0	0
SO ₂ emission (kg)	468	439	477
SO ₂ emission / Production (kg/t)	0	0	0
PM emission (kg)	1,097	1,160	1,076
PM emission / Production (kg/t)	0	0	0
VOCs emission (kg)	87,226	68,846	65,677
VOCs emission / Production (kg VOCs/t)	1.23	1.02	0.77

¹ Mass emission of HFCs, PM and VOCs does not incorporate KCG data

In relation to emissions from combustion gases (CO, NO_x and SO₂), in 2022 there has been an increase of 4.8% in CO and 8% in SO₂, while NO_x has decreased about 1%.

QK is the company that contributes the most to this increase due to technical problems in its co-generation facility.

In relation to particulate emissions, KCSA and QK are the companies that report the highest emissions. HFCs emissions correspond to KCSA and QK.

As for VOC emissions, as in previous years, all group companies report except KCG. The subsidiary with the highest VOC emissions is KCHI due to the handling of volatile solvents for its activity. The emissions of the rest of the subsidiaries are negligible in comparison.

KCHI has continued executing actions to minimize diffuse emissions. This year they have been reduced by 1.6 tonnes in relation to the previous year.

3.5.2 WATER POLLUTION PREVENTION

The amounts of pollutants that can be released into the water are regulated in each country. KCE has wastewater treatment facilities in most of its production centres, except at KCG, where it is treated externally, and at KCSA Barberà and KCHI, where wastewater is assimilable to urban waste.

The wastewater is discharged in its entirety into the municipal wastewater treatment stations once it has been treated. Meanwhile, since our activity involves the use of chemical substances, groundwater is monitored in most of the production centres.

The amount of water discharged by KCE in 2022 has been significantly reduced, by about 37 Mm³. The ratio per tonne produced has also decreased compared to the previous year.

The greatest reduction has occurred in QK, mainly due to a greater acquisition of osmosis water that prevents the generation of rejects from the type of facility that produces it.

The contamination load by TOC¹ has decreased by 79 tonnes compared to the previous year and represents a reduction of 24% per produced tonne. The greatest reduction has occurred at KCG due to the reduction in the volume of discharge and the adjustment made to the polluting load factor by the water treatment company.

The only parameter that increases is N, and it does so only in QK. This increase is attributed to certain cleaning of amine manufacturing facilities, with a high N content.

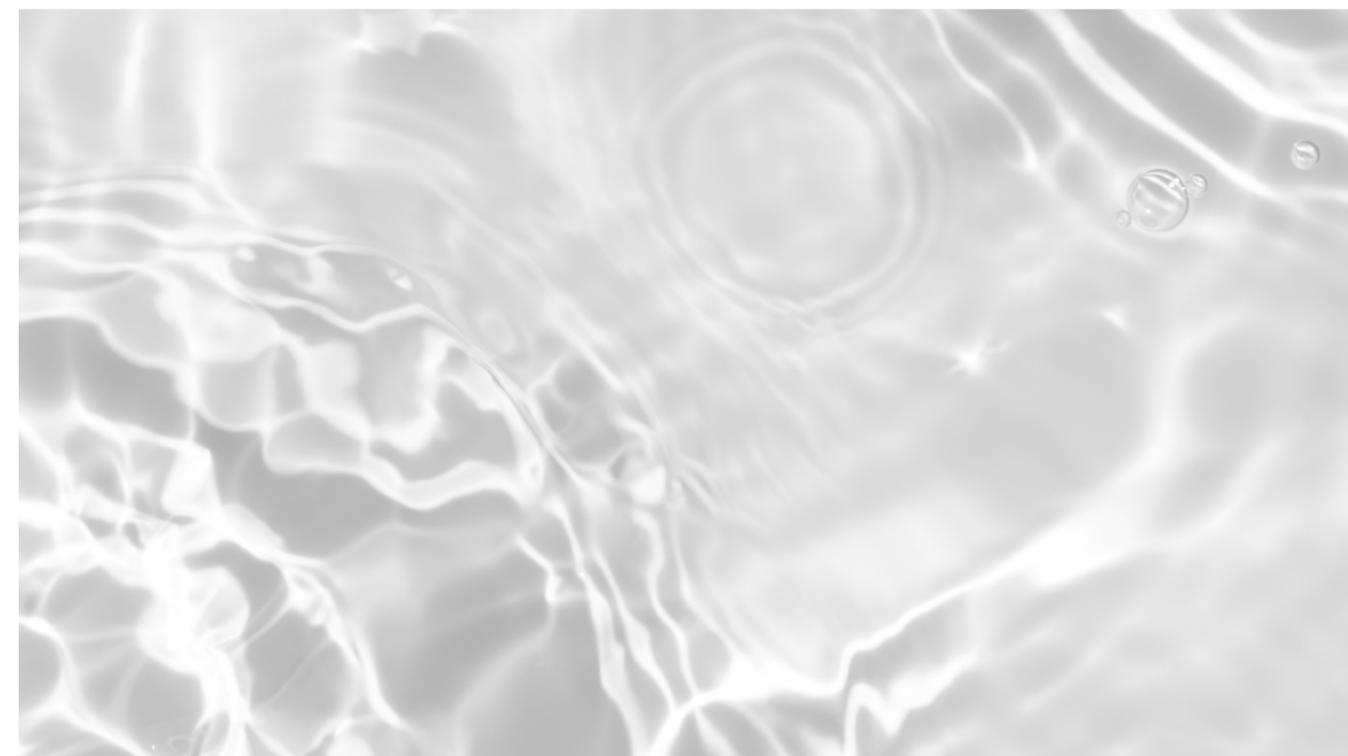
¹ In relation to the pollutant load of the wastewater, the representative parameter is total organic carbon (TOC), which is expressed as one third of the chemical oxygen demand (COD).

WATER DISCHARGE DATA²

(303-4)

KCE	2020	2021	2022
Wastewater discharge (m ³)	468,764	468,253	430,912
Wastewater discharge / Production (m ³ /t)	1.00	1.04	1.03
TOC (kg)	303,689	294,439	215,193
TOC / Production (kg/t)	0.57	0.51	0.39
TSS (kg)	22,044	21,631	16,764
TSS / Production (kg/t)	0.08	0.09	0.05
N (kg)	72,675	44,694	49,086
N / Production (kg/t)	0.26	0.16	0.14
P (kg)	1,346	1,481	1,073
P / Production (kg/t)	0.00	0.00	0.00

² The mass emission of MES, N and P does not incorporate KCG data



3.5.3 OTHER FORMS OF POLLUTION

Prevention of noise and light pollution

Noise control is carried out annually inside the production centres to verify that the sound levels are within the legal limit or, on the contrary, to detect an increase in environmental noise and, consequently, adopt preventive or corrective measures in the shortest possible time.

In general, the emission levels –noise level emitted to the outside– are low and the established limits are not exceeded.

In relation to light pollution, the regulatory requirements are met.



3.6 USE OF RESOURCES AND CIRCULAR ECONOMY



At KCE we are advancing in the development of an increasingly circular production model thanks to the improvement of processes that directly impact the reduction of waste and a lower consumption of raw materials.

Likewise, we are making progress in the design of products that are more respectful of the environment thanks to the consumption of less dangerous or recycled raw materials, the reuse of packaging and eco-design.

In order to improve our environmental performance globally, a team was created in 2021 for the implementation of the life cycle analysis and the calculation of the carbon footprint of KCE products. In 2022 we have calculated the carbon footprint of 25 products. The goal is to extend the calculation to all KCE products and to implement this calculation in the development of new products or in modifications of existing processes.

Kao is committed to supporting the reduction of forest destruction and achieving zero deforestation, through the fulfilment of two projects related to the consumption of sustainable materials (palm oil and wood derivatives, paper and pulp).

In 2020, Kao established initiatives for the procurement and supply of sustainable palm oil¹, setting a series of priority activities with the goal of sourcing 100% RSPO-certified oil by 2025.

At KCE we advance the development of technologies that use non-edible natural oil sources as alternatives to palm oil and we use sustainable palm oil in the production of our products. All KCE companies have obtained RSPO certification with the exception of KCHI, which does not use palm oil in its processes. KCE's commitment is to supply all products based on sustainable palm oil if the client so requires.

3.6.1 RESPONSIBLE CONSUMPTION AND PRODUCTION OF MATERIALS

KCE uses a wide range of raw materials in the production of its products. The acquisition of materials takes into account the quantities, format and origin of the supply.

In 2022, a total of 278,000 tonnes have been consumed and 355,000 have been produced, increasing the ratio of raw materials / final production (t/t) by 2%.

RAW MATERIAL USAGE DATA (301-1)

KCE	2020	2021	2022
Raw materials (t)	307,491	290,012	277,856
Raw materials / Final production (t/t)	0.80	0.79	0.81

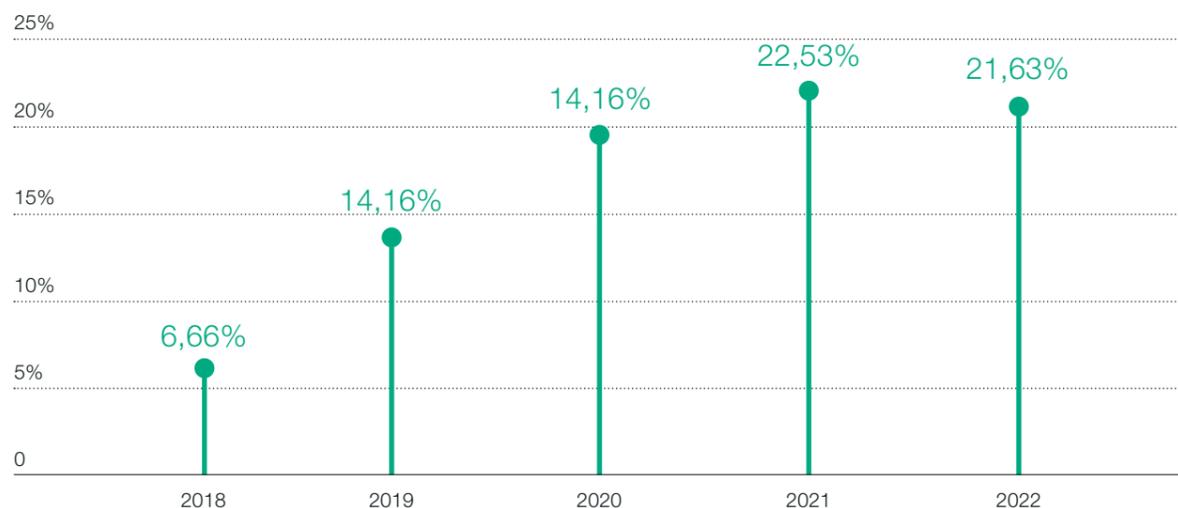
PERCENTAGE OF RSPO CERTIFIED PALM-DERIVED RAW MATERIALS IN THE PERIOD 2020-2022

	KCG	QK	KCSA	TOTAL KCE
2020	21.02%	0%	23.51%	20.04%
2021	22.58%	0.25%	26.83%	22.53%
2022	20.78%	0	30.89%	21.63%



¹ <https://www.kao.com/global/en/sustainability/topics-you-care-about/procurement/procurement-progress/progress-2021/>

EVOLUTION OF CONSUMPTION OF RSPO RAW MATERIALS



In 2022, there has been a slight decrease in the consumption of raw materials based on sustainable palm oil. In KCSA there has been an increase due to the demand from the consumer, cosmetic and household hygiene markets, while in KCG its consumption has decreased due to the reduction in demand for the products and the ratio of palm oil necessary for their production. Since KCG's business volume is made up mostly of palm derivatives, this decrease clearly affects KCE's global business. Consumption in QK is low due to the low levels of awareness that exists in the United States.

KCE carries out a continuous study of renewable raw materials to replace petroleum derivatives, within the framework of decarbonization measures and to meet the objectives set.

In relation to the use of materials from conflict zones, KCE is not a direct importer of these minerals, therefore it has no obligations under current EU Regulation 2017/821.

However, KCE may potentially be exposed to conflict minerals due to the use of catalysts in the manufacturing process of some of its products. Therefore, annually, it requests all suppliers to provide information on the use of minerals from conflict zones through the CRC document (Certificate of Regulatory Compliance) and, when appropriate, these suppliers must present the evidence of the CMRT Report in the qualification process, in accordance with established internal protocols.

In 2022, 100% of the suppliers we work with state that they do not use conflict minerals or, if they do use them in their production processes, they guarantee that they do not come from conflict zones.

Kao will not engage with any supplier whose activity does not meet the requirements of the aforementioned regulation and the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas.

3.6.2 CHEMICAL SUBSTANCE MANAGEMENT

Kao has a Comprehensive Management System for Chemical Substances in place since 2017 and it is applied in all its companies worldwide. KCE continually strengthens its functionality, in response to increasingly stringent regulatory requirements, the growing diversity in chemicals handled, and expected business expansion into new countries and business areas.

Chemicals management processes at KCE:

CHEMICAL SUBSTANCES RISK ASSESSMENT:

- Carrying out detailed studies of all new products and new raw materials, which are developed and used in KCE, in relation to the classification and compliance with applicable regulations.
- Risk reassessments of priority substances for KCE, in accordance with the regulatory requirements related to the registration, evaluation, authorization and restriction of chemical substances and preparations (REACH).

MANAGEMENT OF THE LIFE CYCLE OF CHEMICAL SUBSTANCES:

- Ensure the correct labelling of the products that are handled in our facilities based on the Global Harmonized System (GHS) from the moment they enter our facilities or are produced in them until their dispatch, either as products or as waste. Likewise, make sure that all employees are made aware of the documentation related to classification and labelling (MSDS and labels) of all our products.

COMMUNICATION OF RISKS ON CHEMICAL SUBSTANCES TO STAKEHOLDERS:

- Through public disclosure of the results of international chemical stewardship promotion activities and stakeholder communication.

GENERATION AND UPDATING OF SAFETY DATA SHEETS:

- Generate the safety data sheet (SDS) for all products produced by KCE. The function of the SDS is double: internally inform all members of the organization of the hazardous nature of the products produced in our facilities and provide the information contained in the document to the recipients of our products. The SDS must compulsorily include information on the chemical product, hazard identification, fire-fighting measures or in case of accidental release, handling and storage, toxicological and ecological information, information related to transport and regulatory information, among others.
- In addition, whenever a chemical safety report is created for a substance, the relevant exposure scenarios will be annexed to the safety data sheet for the identified uses.
- Safety data sheets are promptly updated as soon as new information is available that may affect risk management measures or new information on hazards. The new updated version will be provided to all customers, internal and external, who have been supplied with the product in the preceding 12 months. Any update will be duly recorded.



Every chemical substance that is used or manufactured at KCE follows an exhaustive verification programme of European regulations and the main regulations worldwide, in order to understand the real situation of these materials and to be able to guarantee their safety and proper use.

Verification is not carried out only on the substance itself, but also includes all traces and known impurities that it may contain. This information is used to generate all the necessary documentation that includes both mandatory and voluntary documentation which is also promoted internally to provide better information and transparency to our clients.

At KCE, we have an intensive monitoring procedure for new regulations or modifications that allows us to detect those that affect our products and activities. This procedure is carried out mainly through:



ACTIVE PARTICIPATION IN ASSOCIATIONS:

Our Product Safety team participates in 12 associations of different chemical products, both at a national and European level.



DATABASES:

In addition to the public databases to which we subscribe (such as ECHA), we have two international private databases, RegDB (from Sphera) and Ariel (from 3E), which continually collect any news on substance safety, chemicals and regulations.

During 2022, several substances have been registered in ECHA and others have been updated, while the volumes, applications and requirements for the rest of the substances that KCE has registered have been monitored.

KCE's European team is in charge of the monitoring and obligations at the level of the entire Kao group, both for our products and for the raw materials we use. Specifically, information is requested from all suppliers on the REACH registration of raw materials through the CRC document (Certificate of Regulatory Compliance).

In addition to complying with mandatory regulations, other voluntary regulations linked to market trends or imposed by non-governmental organizations are complied with.

In this regard, during 2022, the compositions of the fragrances have been reviewed to adapt them to the new 50th IFRA (International Fragrance Association) regulations. Several products have also been registered in ECOCERT and the products with the possibility of obtaining Ecolabel certifications have been updated.

Disclosure of product safety and regulatory concepts is critical to KCE. In 2022, the regulations department has participated in internal disclosure sessions with the affected departments and in monthly disclosure sessions on regulatory developments affecting our products. The company also participates in national and European events related to the registration of chemical substances (European Notification Panel), the regulation of biocides, the REACH regulation and green schemes, among others.

3.6.3 ENERGY

KCE promotes initiatives to reduce energy consumption and advance in the improvement of efficiency in all its production centres and facilities

ENERGY CONSUMPTION¹

(302-1) (302-3) (302-4)

KCE	2020	2021	2022
Total energy consumption (MWh)	401,744 ²	407,246	404,944
Total energy consumption / Production (MWh/t)	0.96	0.95	1.04
Electricity consumption (MWh)	82,802	85,239 ²	82,645
Renewable electricity consumption (%)	80.88	80.74	74.40
Electricity consumption / Production (MWh/t)	0.16	0.20	0.21
Natural gas consumption (GJ)	1,288,536	1,276,190	1,278,508
Natural gas consumption / Production (GJ/t)	3.81	3.93	4.37
Thermal consumption (MWh)	316,079 ³	317,674 ⁴	314,588
Thermal consumption / Production (MWh/t)	0.72	0.75	0.81
Other energy consumption (MWh)	3,261 ⁵	4,332	7,711

¹ In italics, modified data. For 2020, one of the values for QK has been corrected. For 2021 an error has been detected in the calculation formula.

² The value of QK has been corrected due to detected errors.

³ The value of KCHI has been corrected since it did not include the electricity generated.

⁴ The value of KCG has been corrected since it included H₂ not intended for energy use.

⁵ The value of QK has been corrected due to an error is detected in the calculation formula.

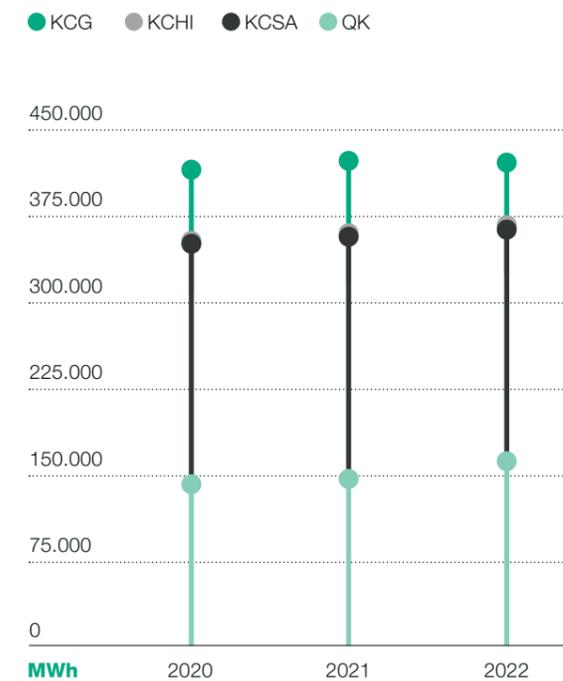
KCE's global energy consumption is similar to that of 2021, although the rate of consumption has increased by 10%. This is due to the growing demand for products that require greater energy consumption for their manufacture and the construction of new facilities without associated production and which in some cases involved commissioning.

Regarding the % of renewable electricity consumption, this has dropped by 8% because in 2022 Kao HQ has not approved the certification provided by the QK electricity supplier.

The increase in 'other energy consumption' stands out, focused on QK and mainly due to the increase in the use of vehicle fuel (e.g. greater transport).

Compared to the previous year, the base year for this indicator, energy consumption has increased by 10%. In 2022, 100% of the electrical energy consumed by KCG, KCSA and KCHI (except KCHI France) has come from renewable sources.

ENERGY CONSUMPTION BY SUBSIDIARIES



3.6.4 WATER

KCE establishes measures for a more sustainable use of water and devotes efforts to the search for new technologies. KCE focuses on reducing consumption; the reduction, reuse and recycling of wastewater; and the optimization of maintenance work and the improvement of the management of wastewater treatment facilities.

WATER WITHDRAWAL

(303-3) (303-5)

KCE gets its water from three different sources, the primary being groundwater withdrawal. KCG is the company that extracts the largest amount of groundwater to use it in an open circuit for cooling facilities, and this is finally returned to the Rhine River.

KCE has established the goal of reducing water consumption by 45% by 2030, in line with the Kao group's goal.

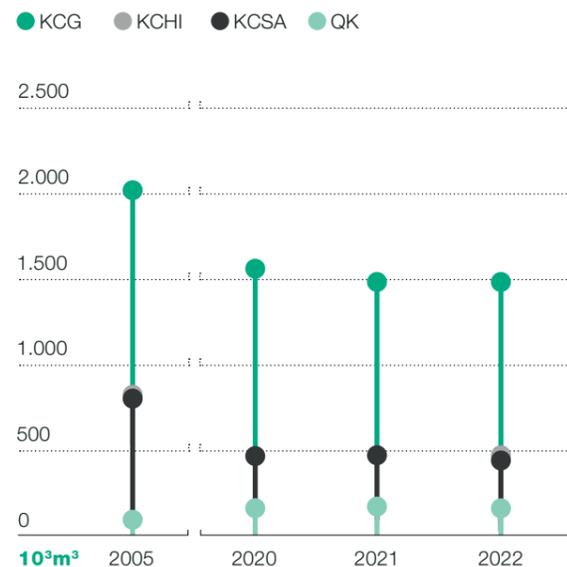
Some KCE facilities have their own duly authorized and controlled wells for the withdrawal of water.

QK uses water from a municipal treatment plant that is treated before it is used, as one of the measures established to improve circularity in water management.

KCE	2020	2021	2022
Total water withdrawal (m ³)	1,606,119	1,525,046	1,530,279
Withdrawal / Production (m ³ /t)	2.96	2.92	3.08
Groundwater	1,127,167	1,046,241	1,050,762
Third-party water	467,000	467,196	474,933
Wastewater from other organizations	11,952	10,609	4,584

The withdrawal of water has remained practically the same with respect to the previous year. However, the withdrawal rate per tonne produced has increased by 6% compared to 2021.

WATER WITHDRAWAL BY SUBSIDIARIES



WATER CONSUMPTION

Water consumption is calculated by the difference between its withdrawal and discharge.

KCE	2020	2021	2022
Water consumption (m ³)	224,528	212,971	231,596
Water consumption / Production (m ³ /t)	0.50	0.51	0.60

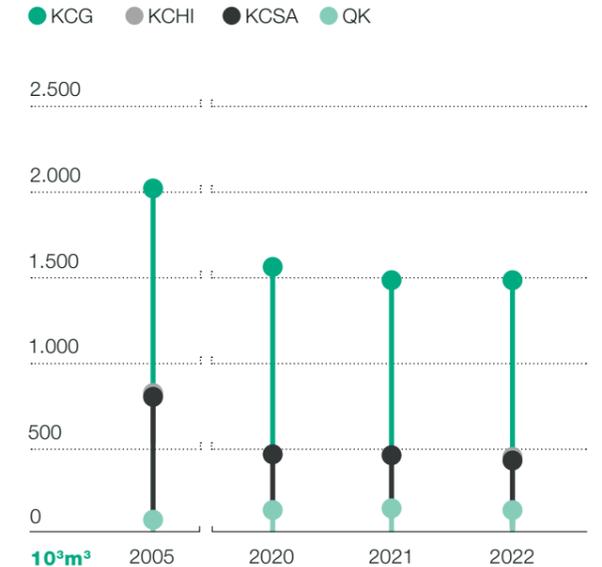
Water consumption at KCE has increased compared to last year by 18,625 m³. The production ratio has also increased by 18%.

KCG presents the largest increase due to the restoration of the level of consumption registered in years prior to 2021, in which consumption was abnormally low. QK also reports higher water consumption, associated in this case with the commissioning of non-production facilities, such as a new tank yard construction.

The rate of water consumption in relation to production (m³/t) has been affected because certain uses, such as refrigeration or steam systems, are necessary in non-production facilities, such as storage tanks.

Compared to 2005, the base year for this indicator, water consumption has decreased by 29%.

WATER CONSUMPTION BY SUBSIDIARIES



3.6.5 WASTE

KCE implements measures aimed at a more circular management.

Among other actions, progress is being made in improving the performance of production processes, in the reduction and reuse of packaging and the transformation of waste, thanks to the commercialization of these substances as products.

GENERATED WASTE

(306-3)

KCE	2020	2021	2022
Total waste (t)	15,448	14,395	12,939
Total waste / Production (kg/t)	37.62	35.65	35.55
Total hazardous waste (t)	12,533	11,877	10,717
Total hazardous waste / Production (kg/t)	27.15	26.08	25.95
Valuation of total waste generated (%)	61.22	67.07 ¹	83.8

¹ A small defect in the calculation made the previous year has been corrected.

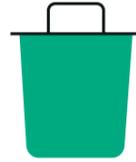
The amount of waste generated indicated in the table excludes construction waste, as it is only generated occasionally and sporadically.

The amount of waste generated decreases compared to the previous year by 1,455 tonnes, with KCSA the company with the greatest contribution to this reduction. This is explained by the lower production in 2022, together with the multiple actions implemented. The rate of waste generated per tonne of final production decreases by an almost imperceptible 0.3%.

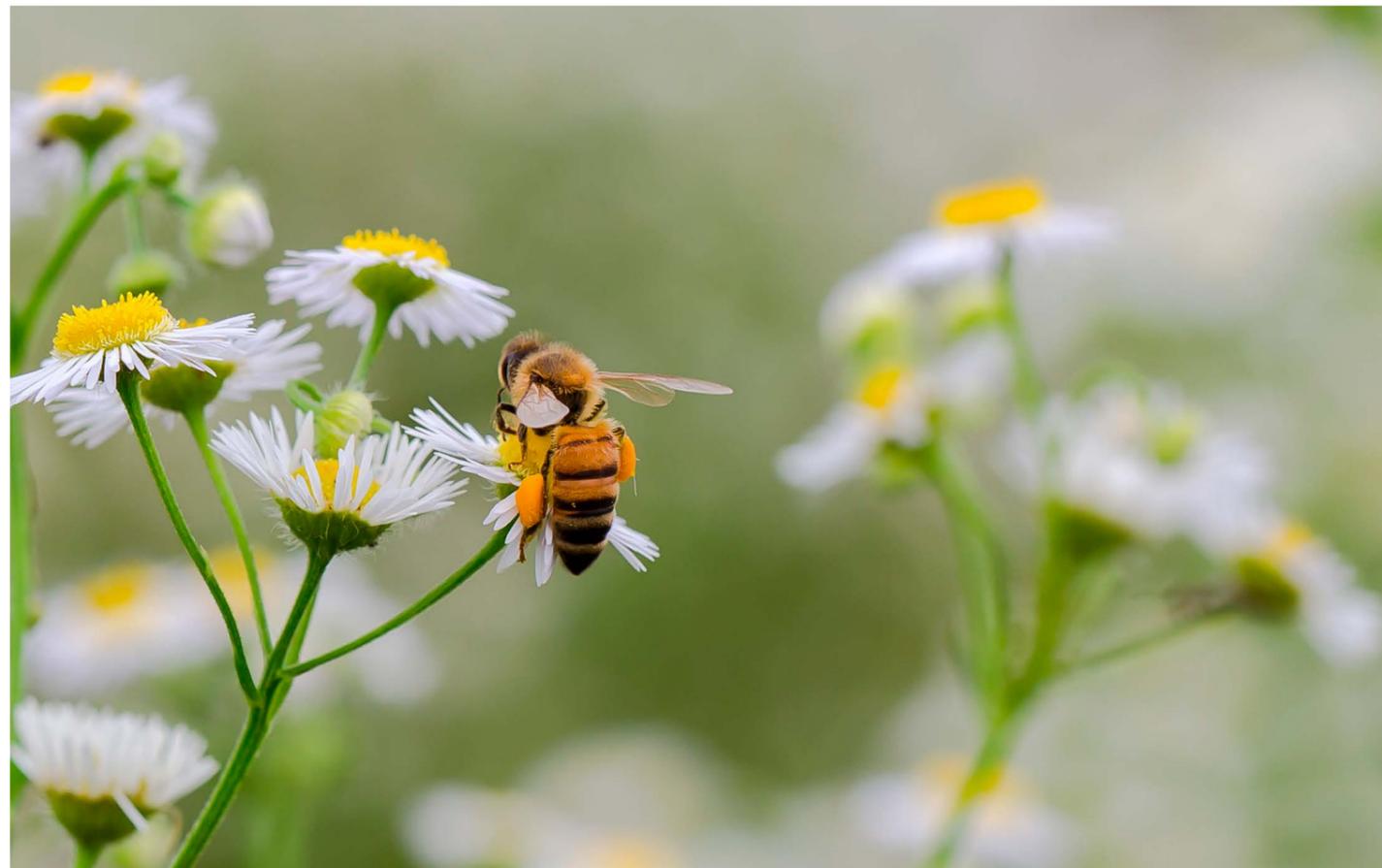
It should be noted that the degree of waste recovery amounts to 84%, including energy recovery. This increase is mainly due to the correction of an erroneous formula used to calculate this rate for KCG, together with a better classification of the waste management systems used in the same company.

ACTIONS AGAINST FOOD WASTE

KCSA in Barberà del Vallès and QK have a company canteen in their facilities in which a strict control is carried out on the use of the canteen, adjusting the quantities to avoid wasting food



In this sense, the 2030 target for waste of industrial origin destined for landfill or incineration is set as less than 1%.



3.7 BIODIVERSITY

(304-3) (304-2)

The company defines the conservation of biodiversity as an area of environmental intervention within its Responsible Care® activities

Kao has implemented a methodology based on the land use standard developed by the Japan Business Initiative for Biodiversity (JBIB), to better understand the biodiversity situation and assess conservation progress in all its centres globally.

To do this, a self-assessment questionnaire on biodiversity is formalized in the following concepts and with maximum scores for each of them: Biodiversity management: 450. Response to exotic species: 100, Circulation of matter: 75. Circulation of water: 50. Biological monitoring: 125. Employee participation: 75. Cooperation with external parties: 50. Others: 75.

The following scores have been obtained in the Corporate Self-Assessment Questionnaire on Biodiversity:

KCE	2020	2021	2022
KCG	236	236	236
QK	290	290	290
KCHI	255	365 ¹	405
KCSA			
Olesa	550	585	595
Mollet	346	376	386
Barberà	520	525	535

¹ An error has been identified and corrected (KCHI 2021)

KCE production centres are located in industrial estates. Three of them are close to areas of natural interest. Although the current activity does not affect them, a catastrophe could lead to a partial affectation.

All KCE production centres have been built in accordance with legal regulations and due monitoring and control of all identified environmental aspects and, especially, significant ones, is carried out. To respond to a possible catastrophic situation, each of the KCE centres has a self-protection plan that includes the different accident scenarios and sets the corresponding action procedures in each case based on the available means.

LOCATION OF THE CENTRES WITH INDICATIONS OF NEARBY AREAS OF NATURAL INTEREST AND PROXIMITY TO BODIES OF WATER

Company	Natural resource	Mass of water
KCG	DE4203401: Vogelschutzgebiet 'Unter niederrhein' - Protected bird sanctuary	Rhine river (approx. 300 m)
	DE4103301: Dornicksche Ward - bird sanctuary	
	DE4405301: Rhein-Fischschutzzonen zwischen Emmerich und Bad Honnef - Fishing protected area	
QK	-	Santiago river (approx. 150)
KCHI	-	-
KCSA	Olesa de Montserrat	ES5110012: Montserrat-Roques Blanques-Llobregat river (approx. 70 m)
	Mollet del Vallès	ES5110025: Congost river Besòs river (approx. 200 m)

BIODIVERSITY INDICATORS AND THEIR EVOLUTION

KCE	2020	2021	2022
Soil occupancy (%)	41.99	42.06	42.26
Total land use (m ²)	186,934	187,793	188,664
Total sealed area (m ²)	256,006	254,834	261,265
Surface permeability (sealed surface /surface establishment) (%)	57.50	57.08	58.52
Total area in the centre oriented according to nature (m ²)	94,836	97,289	90,858
Internal occupation biodiversity (internal surface oriented to nature / surface establishment) (%)	21.30	21.79	20.35
Total area outside the centre oriented according to nature (m ²)	24,874	24,874	24,874
External occupation biodiversity (surface externa oriented to nature / surface establishment) (%)	5.59	5.57	5.57



INITIATIVES FOR THE PRESERVATION OF BIODIVERSITY

In 2022 the following actions have been carried out:

- At KCSA, dissemination actions about biodiversity have been maintained, focusing on invasive species and, in particular, on the *Cortaderia de la Pampa*; Monitoring of the nest boxes and the insect hotel installed in 2020 and 2021 has also been carried out and the exclusive use of organic fertilizers has been certified.
- At KCHI, roads and forest areas around the company have been conditioned and cleaned, training actions have been carried out with the workers to publicize the bird species that live in the environment, an action that has served to complete the catalogue of biodiversity. In addition, maintenance of green areas and conditioning of nest boxes has continued.
- Different plant species have been planted in the KCE centres.