

Marie Belossat
Human Resources Director

Anne Gauthier
Deputy Human Resources Director

HUMAN RESOURCES

THE WORK ORGANISATION AND RECRUITMENT SITUATION AT BRGM IN THE “POST-COVID” ERA

— 2022 marked the end of “Covid mode” work organisation at BRGM, with the gradual resumption of on-site activities. As is customary at BRGM, there was also active dialogue with the labour representatives, which led to the signing of new agreements, as well as new recruitments, despite the difficulties currently affecting all professions in the job market.

A

lthough it was highly disruptive, the Covid period enabled BRGM to successfully experiment with a new form of work organisation, which the management decided to implement on a permanent basis. Negotiations concerning the implementation of teleworking outside the crisis period

were initiated with the labour-relations partners in 2021.

These resulted in the signature of an agreement with all the trade unions in July 2022. “The agreement meets our employees’ expectations, by making teleworking more flexible and promoting a better work-life balance,” says Marie Belossat.

The agreement also increases the number of days during which people are entitled to work remotely per month, thus opening up the option of teleworking to everyone. “The managers are responsible for approving requests, which encourages dialogue and coordination within the teams,” explains the Human Resources Director. In addition, a fixed daily compensation sum for home-working expenses has been introduced. The next step is to formally establish “a right to disconnect” to protect employees’ work-life balance.

Seven other agreements were signed in 2022 with the labour-relations partners, in particular concerning profit-sharing and health-care costs. The renewal of the Social and Economic Committee (CSE) also contributed to the labour-relations dialogue. In fact, agreements were negotiated ahead of the November 2022 employee representative elections (64% participation), in order to jointly establish the conditions governing staff representation in the CSE and the committee’s operating mode. Twenty employees were elected for three years, with their mandates starting on 1 January 2023.

Reinforcing BRGM attractiveness as an employer

BRGM was the first French “public industrial and commercial establishment” (EPIC) to be certified HRS4R (Human

“We have clarified the content and purpose of our scientific positions, particularly as regards the research engineer profiles.”

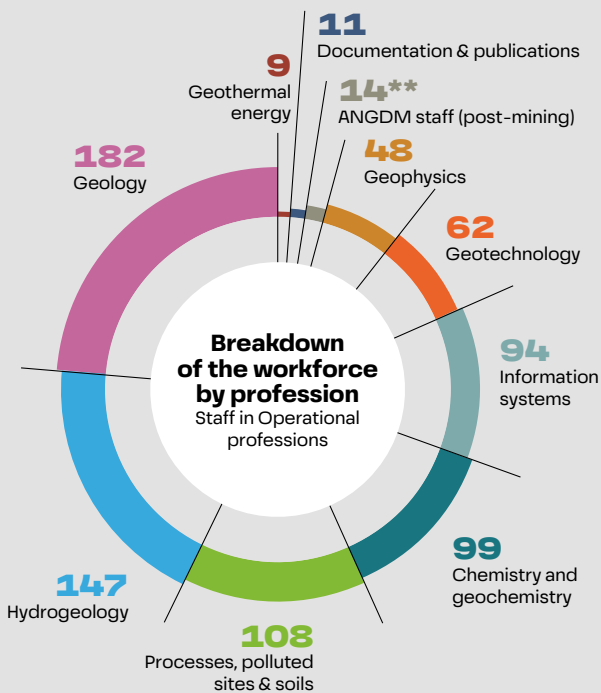
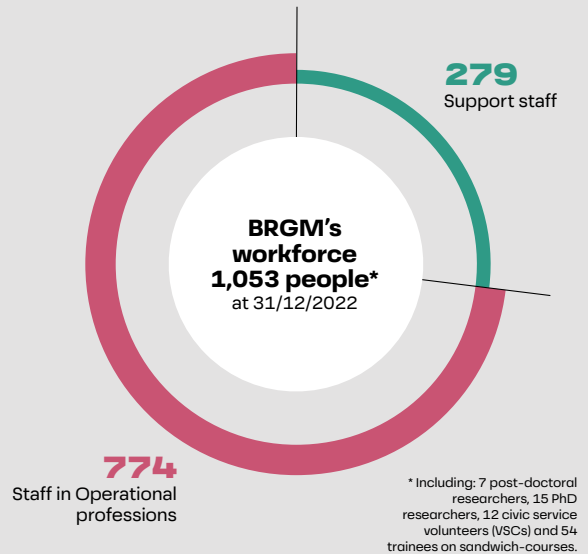
Resources Strategy for Researchers) in 2021. In relation to this, it has implemented a process of continuous improvement concerning the recruitment of researchers and their working conditions. Consequently, the job descriptions for scientific positions were reviewed in 2022 to reflect operational realities and align with European standards as closely as possible.

This project was managed by Anne Bourguignon, Human Resources Development Officer. In 2023, it resulted in the implementation of a simplified reference base, with a new “research-engineer” job profile based on just four levels of technical competency. “We have clarified the content and purpose of our scientific positions, particularly as regards the research engineer profiles,” says Marie Belossat, who also explained that the job-definitions of 600 or so employees concerned will be changed by the end of 2023. In this context, the Career Committees will be maintained up to Level 2, an internal Scientific Committee will be involved in the process for Level 3 and an external Scientific Committee will intervene for Level 4.

This overhaul of job descriptions and levels also aims to make BRGM more attractive as an employer, notably in view of the current difficulties regarding recruitment in the job market. Nonetheless, BRGM’s initiatives enabled it to recruit 84 new employees on permanent contracts in 2022. Six new project contracts were also signed. Finally, BRGM acquired an e-learning platform. This new addition already enables BRGM to provide its employees with innovative training solutions in occupational health and safety, and has created new opportunities for staff to develop their skills. ■

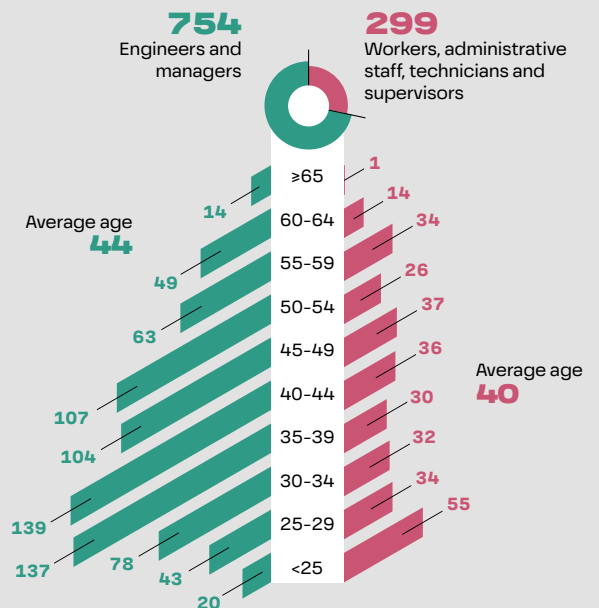


The home page of the BRGM Formation (training) website gives employees access to the company's various fields of training. ©BRGM



** Staff made available to BRGM by the National Miners' Rights Agency (ANGDM) for post-mining activities.

Age pyramid by category as at 31 December 2022



SUSTAINABLE DEVELOPMENT

CALCULATING OUR CARBON FOOTPRINT TO MANAGE IT MORE EFFECTIVELY

— Although the crisis sparked by the war between Russia and Ukraine has thrown into critical and urgent relief the collective need to reduce our energy consumption, BRGM has been working for many years now on the scientific issues associated with the energy transition and climate change, and has been studying its own impacts over the same period, as part of its corporate social responsibility (CSR) policy. This global approach has enabled BRGM to make a structured and pertinent contribution to national energy-saving efforts. Today, it is taking this approach one step further with a new carbon audit.

BRGM's long-standing and proactive CSR approach has greatly facilitated the implementation of the circulars sent out by the government to ensure the environmental exemplarity of its departments. As a stakeholder in the community of eco-responsible public services (SPE)⁽¹⁾ since 2020, BRGM was able to rapidly implement the national energy-saving plan⁽²⁾ launched at the end of September 2022, adapting it to its own organisation through a plan approved by the board of directors after consultation with the Social and Economic Committee (CSE).

Distributed to all employees in November 2022, the plan is organised around three time scales, starting with the short term. *"We reminded people of the need to adopt eco-friendly practices, particularly during the winter of 2022-2023, in terms of heating, lighting, business travel, and so on,"* explains Fabienne Boutreau. To make it easier to apply recommendations, BRGM distributed thermometers allowing employees to check the temperature of their offices, as well as power strips with a switch enabling all connected appliances to be switched off simultaneously.

Towards energy independence

For the longer term, BRGM's energy-saving plan will integrate CSR issues into the management of its buildings, in order to reduce their carbon footprint throughout their life cycle. The main action planned for the medium term is to conduct the organisation's carbon audit – although work

(1) Circular published by the Prime Minister's office on 25 February 2020.

(2) Circular published by the Ministry of Higher Education and Research on 24 September 2022.

200

employees have already completed ethics training.

304

declarations of interest have been completed.

24

employees were trained in non-discrimination in recruitment in 2022.

58

employees have received training in invisible disabilities as part of 15 immersive workshops organised during the 2022 European Disability Employment Week.



“Build a clearer picture of our greenhouse gas emissions so that we could address the main sources as a priority.”

in this area started even before the energy-saving plan! “We wanted to build a clearer picture of our greenhouse gas emissions so that we could address the main sources as a priority,” continues the CSRO. A consultancy firm is providing support for the carbon audit, which includes all the impacts of BRGM’s own activities, as well as those of its partners and suppliers. This service should also make it possible for BRGM to subsequently take over the work, so that it can update its diagnosis over time and manage its emissions independently through a proactive transition plan tailored to its activities.

The first report on laboratory-related emissions was published in late 2022. The full audit should be delivered in early 2023. “Having detailed information on our carbon footprint reflects our scientific priorities relating to mitigation of and adaptation to climate change. It will enable us to co-construct a multi-year action plan linked to our 2023-2027 contract of objectives, means and performance, as set out in our annual roadmaps. The aim is to reduce our carbon footprint by 10% in five years.” ■

Stronger processes for optimised performance



97%: this high level of customer satisfaction is the result of an efficient quality and environmental management system, backed up by dual ISO 9001 and 14001 certification and improved year after year. In 2022, for example, BRGM introduced a process for programming scientific activities using its own funds, for tighter management and coordination.

A simplified project management tool was also introduced for project managers. “It guides them in the management of their missions,” says Hervé Riolland, head of the Auditing, Risk and Quality department. Amongst other aspects, the app reminds project managers of the need to carry out a preliminary risk analysis in order to plan for any difficulties that may arise. This approach is supported in particular by feedback, provided in a new paperless form. 290 project manager assessments were collected this year alone! “We are currently analysing them in order to establish what needs to be done to further improve BRGM’s performance in project management and the control of environmental impacts.”

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1

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January 2023

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January 2023

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January 2023

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January 2023

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Annie Geay (Bpifrance), Innovation Director at OSEO (Maisons-Alfort, France)

Gérard Jacquin (GJ Consulting SAS), CEO (Vitry-sur-Seine, France)

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Philippe Portier (Lyon Business School), Open and Collaborative Innovation Expert (Écully, France)

Thierry Salmona (TGS conseil), CEO (Paris, France)

Hervé Suty (CapBurdil), CEO (Bordeaux, France)

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January 2023

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The Director-General for Infrastructures,

Transport and Mobility

The Director-General for Energy and Climate

The Director-General for Risk Prevention

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The Director-General for Research and Innovation

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The Deputy Director for Environmental Performance and Regional Development

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The Director-General for Health

REPRESENTING THE MINISTRY OF THE INTERIOR AND FRENCH OVERSEAS TERRITORIES AND DEPARTMENTS

The Director-General for Civil Security and

Crisis Management

The Director-General for French overseas territories and departments

REPRESENTING THE MINISTRY OF CULTURE

The Director-General for Heritage and Architecture

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THE CHAIR OF BRGM

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January 2023

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REGIONAL NETWORK

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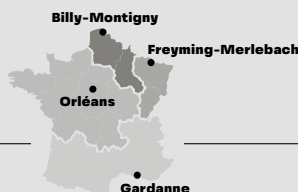
regional divisions
in mainland
France

5

delegations
in mainland
France

5

overseas regions



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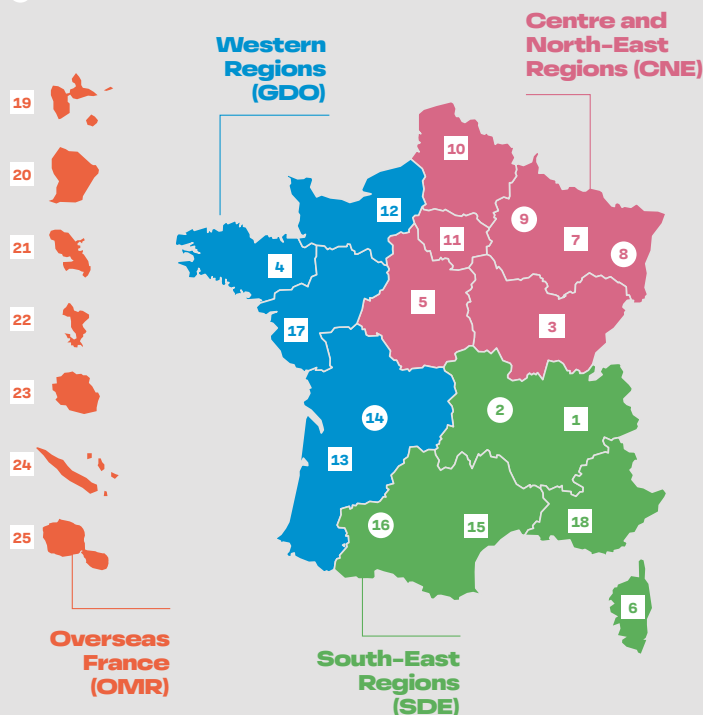
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FRENCH POLYNESIA

Activity provisionally suspended

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ANOTHER POSITIVE NET RESULT FOR BRGM GROUP IN 2022

— In 2022, BRGM managed to stay the course in a difficult geopolitical context. The net consolidated profit was achieved thanks to sustained production and carefully-controlled expenses despite high inflation.

Along with four other public research institutes (INRAE, CIRAD, IFREMER and IRD), BRGM acts on behalf of the government under programme 172 of the framework law on budget Acts (LOLF). BRGM also receives subsidies for public service expenditure (SCSP) under programme 181, for its activities in “support of public-policy development in particular” and in “post-mining”.

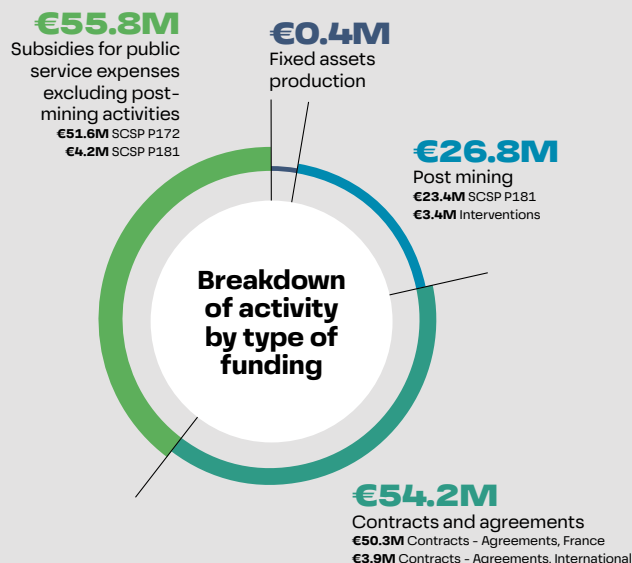
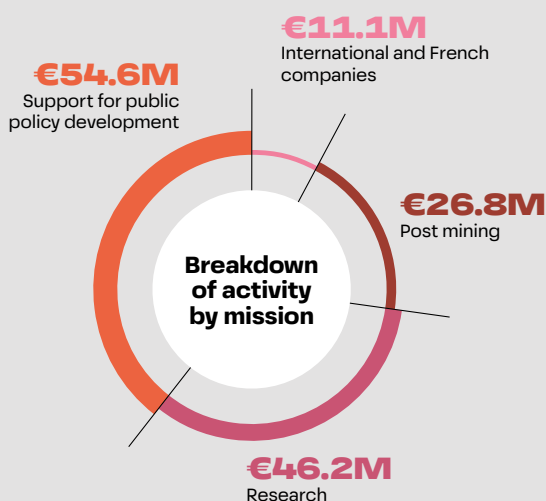
For the BRGM Group

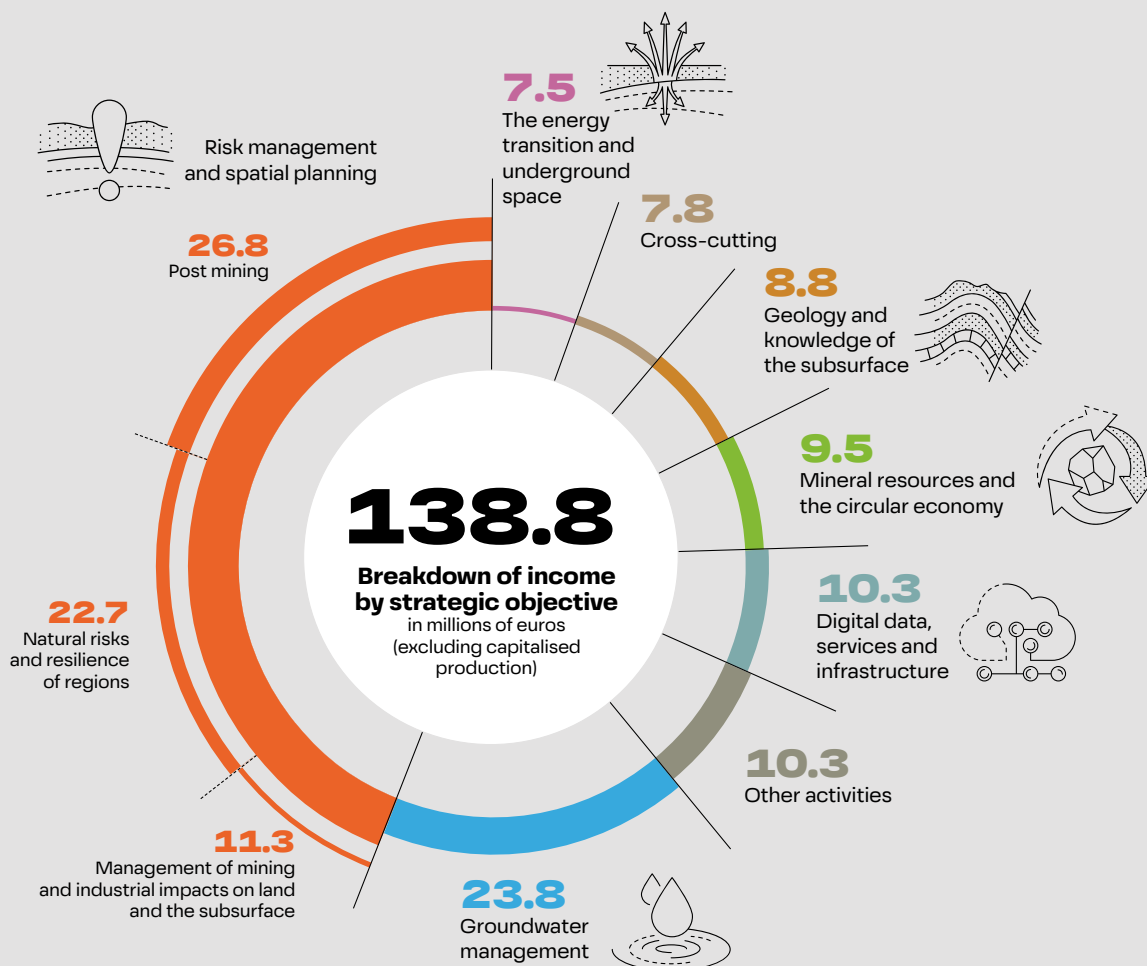
The net consolidated profit for the group stands at **€2.6M in 2022** (compared to €12M in 2021). The contribution of the different entities to this net result is as follows:

- The BRGM EPIC contributed €1.9M, which corresponds to its net corporate result of €4M adjusted to take account of entries for transactions with subsidiaries (mainly write-back for €2M in dividends received from SAGEOS);
- BRGM SA contributed €0.1M;
- SAGEOS contributed a loss of €0.2M to the group's result in 2022, which corresponds to its corporate result adjusted for dividends received from its subsidiaries and intra-group provisions;
- CFG and IRIS INSTRUMENTS contributed respectively €0.6M and €0.2M;

For BRGM EPIC

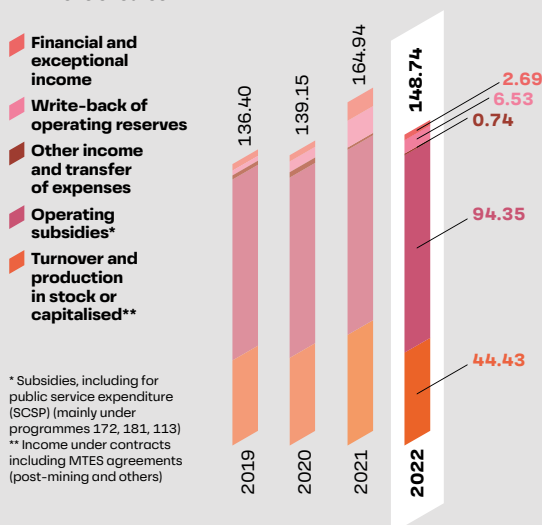
BRGM posted a net profit of **€4 M** for its 2022 financial year compared with a net profit of €12.7 M in 2021 resulting, among other things, from the sale of the portfolio of ERAMET securities. **The operating result was again positive, amounting to €1.4M**; for the record, the operating result amounted to €4M in 2021. The financial result amounted to €2.5M, down from €8.7M in 2021. All these elements led to the payment of a profit-sharing bonus (€1.9M) and will allow the Group to contribute to the company savings plan in 2023.





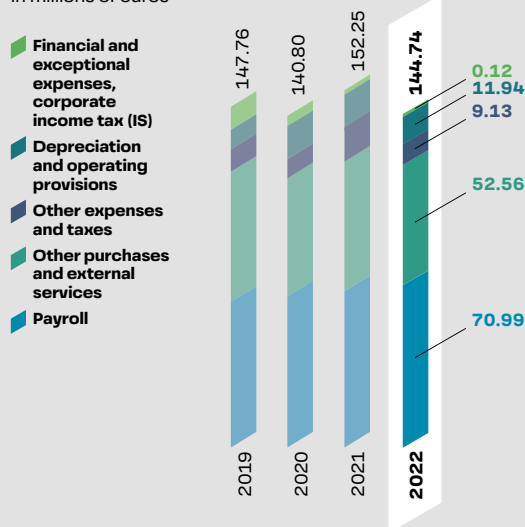
Evolution of total income 2019-2022

in millions of euros



Evolution of total expenses 2019-2022

in millions of euros



The BRGM's total operating resources for 2022 amounted to €146M. Excluding write-backs for provisions and expense transfers, resources related to current activity decreased by 2.4% compared to 2021 and amounted to €138.8M (including €1.6M in investment subsidies). The drop in resources was due to the post-mining activity: at €26.80M, they are down by €7.4M compared to 2021 (-21.7%). Non-post-mining resources amounted to €112M, an increase of €4.2M compared to 2021 (+3.9%). **Its overheads amounted to a total of €144.6M** in 2022. After restatement of provisions, expenses related to ordinary activities amounted to €139.5M, i.e. a decrease of 3.2% compared to 2021. If the effect of the €6m contribution to a pension fund recorded in 2021 is excluded, the change observed is, on the contrary, an increase in overhead of €1.34M (i.e. +0.9% compared to 2021). The increase concerns structural external expenses (+€3.4 million after restatement of all exceptional effects, mainly contributions to the pension fund and non-value intangible assets), while operating expenses fell sharply by €5M, due to the reduction in the post-mining activity. Personnel expenses also increased, by €2.8M.

Breakdown of BRGM's international operations by country in 2022

Americas

Brazil, Peru

Europe

Luxembourg,
United Kingdom,
Switzerland

Maghreb

Algeria, Morocco

Africa and Indian Ocean

Angola, Benin, Mauritius, South Africa, Malawi,
Mozambique, Namibia, Nigeria, Zimbabwe

Asia

Vietnam

Middle East

Saudi Arabia, Jordan

For the activity excluding post-mining, the level of SCSPs increased by €1.8M (+3.4%), with an inverse trend between revenues under programme 172, which increased by €2M (+4.1%), and those under programme 181, which decreased by €0.2M (-4.4%).

The level of contracts and agreements (€54.2M at the end of 2022) is clearly up compared to 2021 (€51.8M), mainly due to public policy support projects (APP, +€1.8M compared to 2021) and public research projects (+€1.3M compared to 2021), with production for the commercial sector showing a decrease due to its international component, with "France" activity showing a slight increase.

The level of contract revenue related to the APP mission reached a new all-time high at €30.7M, thus exceeding the level recorded in 2021 (€29.6M) as well as in the previous six years. This record is based on several concomitant factors, including the start of an airborne geophysics project in the Massif Central (€1.7M for 2022) and the maintaining of the annual co-financing rate (73.9% for 2022).

The increase in contract revenue in public research is mainly due to two factors: the increase in project output and the strong increase in the annual co-financing rate (47.8% in 2022 compared to 42% in 2021).

International activity in 2022 was significantly lower than in 2021, at €3.9M (compared to €6.2M in 2021). The end of the Cameroon2, Malawi and Mozambique projects, the delay in signing during the health crisis (in 2020 and 2021) and the late start of certain co-financed contracts (AfricaMaVal) have had a significant impact on the level of production.

Post-mining activity fell sharply in 2022 down by €7.43M compared to 2021, due to a significant decrease in its production for post-mining security and risk-prevention (-€7.9M).

The financial result of €2.5M in 2022 is mainly due to the integration of dividends from SAGEOS (€2M).

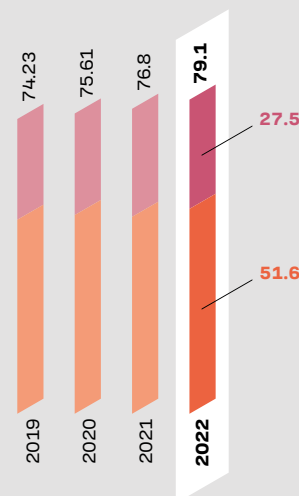
The group did not have to pay any corporate income tax in 2022. ■

Evolution of Government grants

in millions of euros

SCSP (programme 181)
SCSP (programme 172)

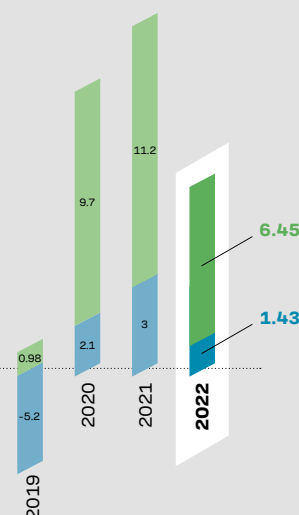
(SCSP: subsidy for public service expenses)



Change in operating results

in millions of euros

Gross operating result after profit-sharing
Operating result



Evolution of resources under contracts for scientific research and support for public policy development

in millions of euros exclusive of VAT

Contracts and agreements + invested assets	2020	2021	2022
European Union + ERDF	7.409	4.618	6.517
ANR	2.071	2.410	1.854
Agencies other than ANR	9.096	8.900	7.549
Local authorities	6.605	8.455	7.253
Ministries, State agencies	12.990	16.299	20.873
Companies	2.216	1.127	0.717
Sub-total research contracts and agreements + policy support (APP)	40.387	41.809	44.763

SUBSIDIARIES AND HOLDINGS

— The BRGM Group’s subsidiaries and equity are divided between three holding companies each corresponding to a specific sector.

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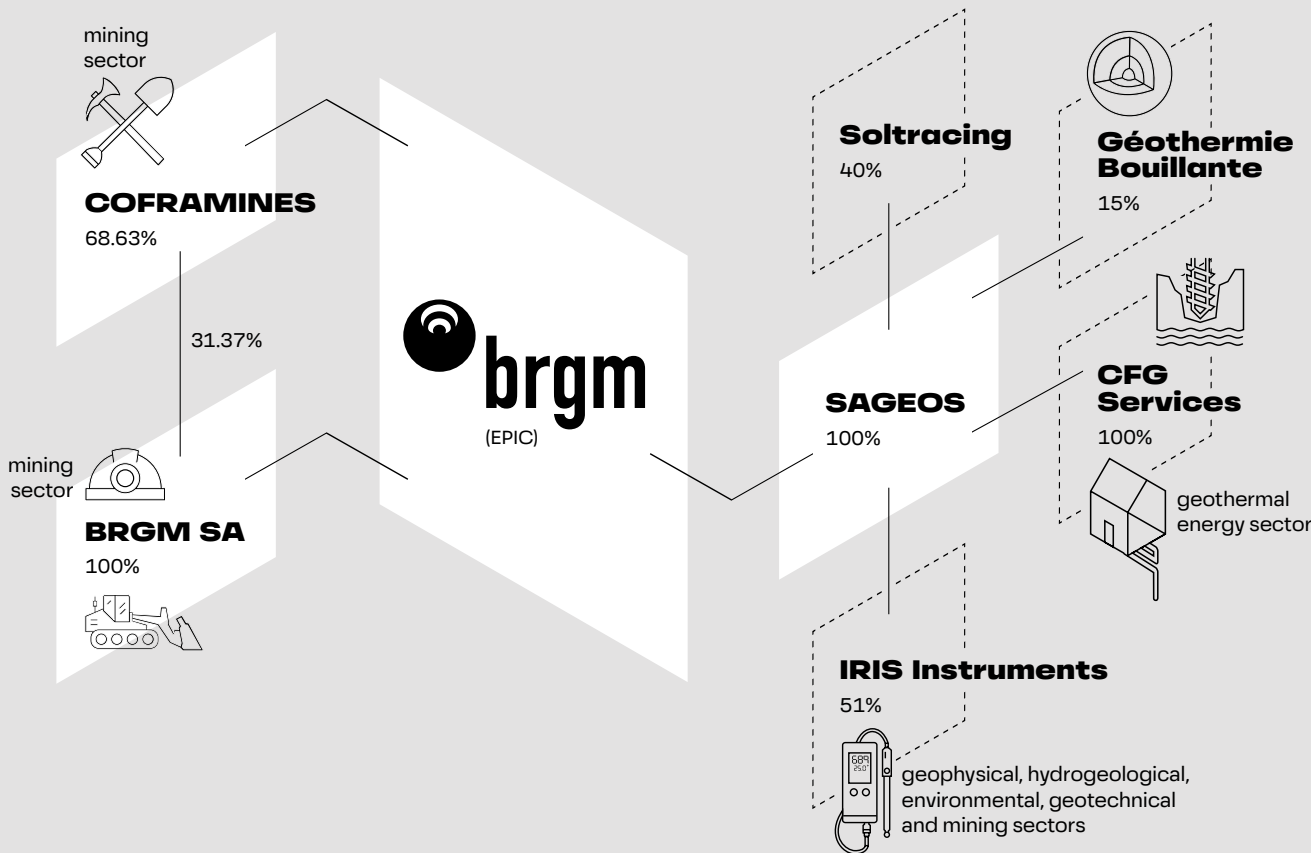
SAGEOS is the holding company for all shares held in subsidiaries operating in geothermal energy, with, on the one hand, CFG Services for which it owns 100% of the capital, and on the other, Géothermie Bouillante in which it has a 15% holding (ORMAT Systems and the *Caisse des Dépôts et Consignations* own 63.75% and 21.25% of the capital, respectively) and in measurement instruments for geophysical, hydrogeological, hydraulic, geotechnical and mining surveys, for which it has

a 51% holding in IRIS Instruments (the Japanese OYO Group holds the other 49%). For the management of excavated soil, it has a 40% holding in Soltracing (with HESUS owning 50%).

COFRAMINES and BRGM SA hold the BRGM Group’s remaining equity in the mining sector (dormant companies with no activities or development planned, or companies under liquidation).

BRGM SA has held receivables from the *Société de Participation Minière du Sud Calédonien* (SPMSC) since 2005, when the BRGM Group transferred its share in the GORO project in New Caledonia to the SPMSC. ■

BRGM Group structure on 31 December 2022





Éric Bertet
Chair of CFG



CEO: **Éric Lasne**
Turnover: **€5.529M**
SAGEOS holding: **100%**
Workforce: **20 employees**

2022-2023: A PIVOTAL PERIOD

— **2022 has been a busy and particularly intense year for CFG in terms of new projects, multiple requests and significant achievements, building on the momentum of 2021.**

The challenges of the energy transition, now considered to be paramount, combined with the brutal effects of inflated energy costs (partly due to the conflict in Ukraine), highlight the problem of dependence on fossil resources, for which solutions must be found in the short term.

Geothermal energy, after a rather limited development in specific areas, is now considered to be a reliable and sustainable alternative to fossil fuels for ushering in the energy transition.

Thanks to its position as leader in its markets, CFG has certainly benefited from a favourable economic climate, but has also been able to seize opportunities efficiently through new approaches and thus establish its reputation with its long-standing clients, as well as scouting out new clients (manufacturers seeking to integrate geothermal energy into their energy mix, for example).

CFG continued its maintenance and operating activities in 2022 with several significant maintenance operations carried out at the end of the year, notably at Riehen in Switzerland, for ADP at the Orly site and at Evry, where CFG was able to implement its well-bottom corrosion inhibitor technology (TCTFP).

The engineering and project management activity continued unabated in 2022 with numerous feasibility studies, particularly on virgin land in the Île-de-France (Versailles) or regionally (Royan), including drilling engineering assignments and project management for the creation of new heating networks (Champigny-sur-Marne, Pantin - Les Lilas, Saint-Denis for example).

In the field of high-enthalpy geothermal energy, CFG is supervising the drilling of new wells to increase the production and re-injection capacity of the Bouillante electricity production site in Guadeloupe. This work will continue in 2023. It enables CFG to consolidate its experience and skills in geothermal power plants, a major development challenge in island areas, particularly in the Caribbean.

As part of the "Geodenergies" programme, CFG continued its research and development work in 2022 on the design and pre-industrialisation of submersible electric pumps for use in high-temperature environments.

The technology of composite-lined wells (a unique CFG innovation) is steadily being adopted by our customers and partners. In 2023, additional engineering studies will enable this innovative technology to be deployed in Île-de-France.

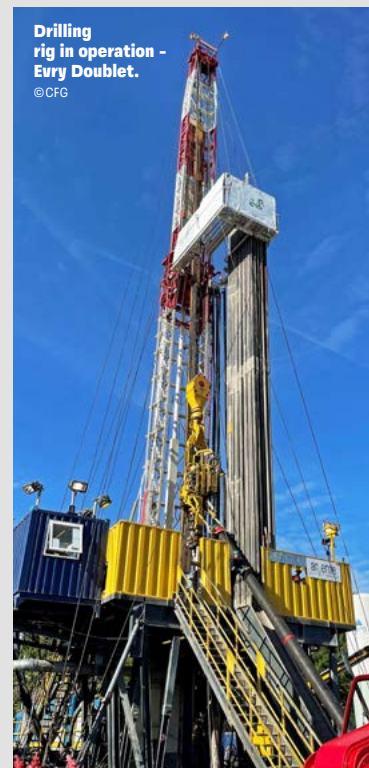
The production and marketing of Labège kits reached a new high during the year, which required additional production resources to be able to meet all the demands.

Thanks to the teams' professionalism and the quality of their preparatory work for CFG interventions, there were no losses during the financial year 2022, albeit in a sector of activity that is sensitive to risks.

CFG's very good economic results in 2022 are due both to a favourable economic climate and to its know-how, particularly in the development of innovative techniques, which has enabled it to keep its current clients and to conquer new markets.

Although the opening of its capital to a new investor in 2019 was postponed following the withdrawal of the candidate, CFG's teams were able to stay the course and successfully meet the high demand for production.

The year 2023, driven by a favourable environment and a well-filled order book to date, looks promising, in particular thanks to the opening of new sectors of activity which should be sustainable over the long term. ■





Turnover: **€6.455M**
SAGEOS holding: **51%**
OVO holding: **49%**
Workforce: **19 employees**
including **2 apprentices**

THE ARRIVAL OF NEW EQUIPMENT THANKS TO LONG-TERM R&D

— Despite the usual constraints and precautions to avoid the spread of the virus, it felt like ‘back to normal’ in 2022 with the return of face-to-face international trade fairs, training sessions held in the clients’ theatre of operations, and visits from our partners.

IRIS Instruments has received numerous requests from the mineral prospecting and environmental markets, including the specific sector of groundwater research. With constant dedication to its customers and partners, our teams were able to respond to most of them.

What will live on in the company’s history is the strong interest generated by the new equipment for deep exploration and near-surface sounding.

In a context of strong demand for and limited supply of electronic components, IRIS Instruments was forced to release only a pre-series of new products such as the TERRA line (resistivity meters and acquisition stations for deep exploration) and high power transmitters with regulated current and voltage (TIP 6 kW). This equipment is the achievement of many years of research and development within the company. Today, it is based on the combined expertise of electronics engineers and geophysics, constantly challenged by the demands of our customers, who push us to strive harder.

The inflationary economic climate and geopolitical turbulence of 2022 inevitably affected market confidence, without hampering IRIS Instruments’ economic performance. The mining exploration sector benefited from slightly lower investment growth than in 2021. The groundwater research and environmental markets continue to grow steadily.

As in previous years, sales were spread across nearly 50 countries around the world, with a clear renewed upswing in Asia, which had been severely trammelled by the Covid crisis in 2020 and 2021. IRIS Instruments relies on a network of loyal representatives, some of whom provide after-sales service and user training.

IRIS Instruments was able to considerably increase its stock of components, semi-finished products and equipment ready for sale. The company also strengthened its production team and purchasing department. By 2023, the company will be able to meet customers’ often tight delivery schedules on time.

Research and development projects in collaboration with scientific partners (CEA, BRGM, universities, young innovative

companies) are continuing with the financial support of French and European investors.

Investment in R&D, alone or with partners, depending on the subject, remains the DNA of IRIS Instruments, which is concerned with providing its customers with relevant solutions for their line of business, whether they be technicians or scientists. ■

1 — BRGM has acquired a new resistivity meter called SYSCAL TERRA, from IRIS Instruments. In this example, the equipment is used to determine the electrical properties of the subsurface near a railway line.
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2 — Training by Fabrice Vermeersch of geophysicists from the Geological and Mines Bureau of Sri Lanka in the use of the T-VLF. © IRIS INSTRUMENTS

