

REPUBLIQUE DU CAMEROUN

Paix – Travail – Patrie

COOPERATION CAMEROUN – BANQUE MONDIALE

MINISTERE DES MINES, DE L'INDUSTRIE ET DU
DEVELOPPEMENT TECHNOLOGIQUE

PROJET DE RENFORCEMENT DES CAPACITES
DANS LE SECTEUR MINIER



REPUBLIC OF CAMEROON

Peace – Work - Fatherland

CAMEROON – WORLD BANK COOPERATION

MINISTRY OF MINES, INDUSTRY AND
TECHNOLOGICAL DEVELOPMENT

THE MINING SECTOR CAPACITY
BUILDING PROJECT

MINING SECTOR CAPACITY BUILDING PROJECT PRECASEM

PROJECT COORDINATION UNIT

Office, rue Charles Bindzi, Dragages

P.O. 35 491 Yaounde – Cameroon

Tel : 222 21 72 05

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Name of the Project	Mining Sector Capacity Building Project (PRECASEM)		
Project Code	P122153		
Steering Unit	Project Coordination Unit		
No. IDA Credits	50240-cm	59850-cm	59840-cm
Dates of signing of Financing Agreements	28 June 2012	20 June 2018	20 June 2018
Effective dates	26 September 2012	10 December 2018	10 December 2018
Closing dates	30 June 2017 29 March 2019 1 st December 2021	1 st December 2021	1 st December 2021
Amount of the credits (USD)	30 000 000	21 000 000	5 900 000

1. BACKGROUND AND JUSTIFICATION

Cameroon is endowed with a huge geological potential, which can contribute to the country's economic growth through the development of the mining sector. The country's subsoil contains significant mineralization of iron¹, gold, bauxite, diamond², rutile, cobalt and nickel, among other minerals discovered before the 1990s. Despite this potential, however, mining has never played a major role in the country's development; rather, it has remained on the side-lines of the economy. Current mining production results only from non-industrial mining that is widely carried out in some parts of the country and provides an important means of subsistence for communities living in these regions rich in gold and precious stones. However, its informal nature prevents this sub-sector from making a real contribution to growth.

For some time now, a number of projects have been at an advanced stage of development: the Mbalam iron ore project operated by CAMIRON/SUNDANCES, the Nkamouna nickel-cobalt project near Lomie, by GEOVIC, the Adamawa bauxite project (in Minim, Martap and Ngaoundal) taken over by the Australian junior CAMALCO, operated by CAMEROON ALUMINA. This includes the Mobilong diamond project near the border with the Central African Republic developed a few years ago by CAMEROON & KOREAN MINING. Only two of these projects have already received mining permits for nickel/cobalt in 2003 and diamond in 2011, although actual mining has not yet started in the field. Mobilong was taken over by a Chinese company whose field work concluded that there was no economic diamond deposit on the site. After a few years of hibernation, GEOVIC is back on the scene, surely motivated by the rise in cobalt prices. CAM IRON has signed a mining convention with the government and the operating permit has not yet been issued.

At a purely geological level, geological mapping and global knowledge of the country's mining potential remain very limited and are now outdated. Geophysical and geochemical data remain insufficient for large areas or need to be reinterpreted using modern technologies and approaches where available.

¹ Gold is exploited by handcraft miners

² Production prospects envisaged by C&K Mining in 2011 are yet to be confirmed

Generally speaking, despite some encouraging signs, the country does not yet have the necessary mechanisms to take advantage of its mineral potential. Management capacity and governance in the mining sector must be improved in order to create an enabling environment for long-term investment and enable the sector to be more stable in the face of economic and political cycles.

The Mining Sector Capacity Building Project (PRECASEM), a World Bank technical assistance project, which supports the Government in its programme to develop its subsoil has been assigned the task of improving efficiency, effectiveness and transparency in the management of the mining sector

At a time when prices of raw materials are bouncing back, good management of the extractive industries sector represents a huge challenge to fight poverty and contribute to sustainable development. As a matter of fact, the mining industry continues to create jobs, both directly and indirectly. It enables technology transfers to take place and generates significant revenues, revenues that can constitute the financial potential essential to governments for the development of major infrastructure, which is a driving force for development in other sectors.

1. PROJECT OBJECTIVES

The Project Development Objective (PDO) is to improve (i) efficiency and transparency in the management of the mining sector and (ii) the frameworks for the sustainable development of the sector. To this end, the project focuses on institutional strengthening and local/regional integration of mining activities. It will contribute to the strategic objective of growth and employment, which extends beyond the scope and timing of this project, to increase the contribution of mining to sustainable growth and development. It will also contribute to government's efforts aimed at developing the business climate in the sector, improving transparency, access to information and facilitating dialogue between stakeholders in the sector.

Considered from this perspective, the project is fully in line with government's ambitions set out in the document "Cameroon: Vision 2035", which focuses on the exploitation and proper management of its natural resources (mines, forests, agriculture, etc.) as well as on the rapid development of its infrastructure (roads, railways, airports, etc.).

The project also falls within the first pillar of the World Bank's Country Assistance Strategy (CAS), supporting competitiveness, based on improving efficiency, transparency and sustainability in the management of the mining sector.

2. PROJECT BENEFICIARIES

The beneficiaries will be: (i) Cameroonians in general through the positive contributions resulting from the development of economic activities around mining areas; (ii) the private sector thanks to the improvement of the investment climate and the development of infrastructure triggered by investments in the mining sector; (iii) mining companies that will benefit from a better availability of geological data to guide exploration, an improved environment for granting and securing mining rights, and a greater availability of qualified human resources at the national level; (iv) communities affected by mining activity, which will benefit from local economic opportunities, as well as measures aimed at reducing, mitigating and compensating for the risks associated with mining activity.

3. PERFORMANCE INDICATORS

Although the main benefits of mining investments are better measured in the long term (Contribution to growth and economic development), the indicators summarized below can be used to measure progress over the project life-time.

1. Effectiveness in managing the mining sector: Number of days to issue mining titles;
2. Transparency in mining sector management: Online access to historical and newly acquired geological data;
3. Frameworks for the sustainable development of mining:
 1. Publication of guidelines for the management of mining revenues at the local level
 2. Dissemination of tools for local development planning
 3. Dissemination of guidance on the development of the local supply chain

4. PROJECT DESCRIPTION

The project is structured around three (3) components:

Component A: Access to Mineral Resources and Governance of Mining Operations

The objective of this component is to improve knowledge of and access to mineral resources and the management of extractive operations. It includes a geology programme, support for the management of mining rights and operations, and actions to strengthen transparency and accountability in the mining sector.

A.1 A Geology Program

Despite the relatively well identified potential for cobalt-nickel, iron, bauxite, gold and other minerals in some areas, mainly in the south, centre north and east of the country, geological mapping and overall knowledge of the country's mining potential is very limited and outdated. Geophysical and geochemical data remain insufficient for large areas or need to be reinterpreted using modern technologies and approaches where available.

The activities of this program include (i) geological and mining surveys and the establishment of geological and thematic databases (including geochemistry, airborne geophysics and metallogeny), maps and instruction leaflets of Cameroon; this includes the compilation and interpretation of available data to produce thematic and prospective maps, all relevant documents to better manage and promote the mining sector; (ii) the design and installation of a modern geological and mining data management system, including the establishment of a web portal to access geo-scientific data from the Geological and Mining Research Institute (IRGM), the Department of Mines (DM) and the Department of Geology (DG); (iii) the provision of equipment and training support for the staff of the above-mentioned structures; and (v) the dissemination and promotion of geological data and knowledge to stakeholders (government, civil society and the private sector) through appropriate mapping and reporting, workshops, media documentation and participation in international mining industry fairs and events.

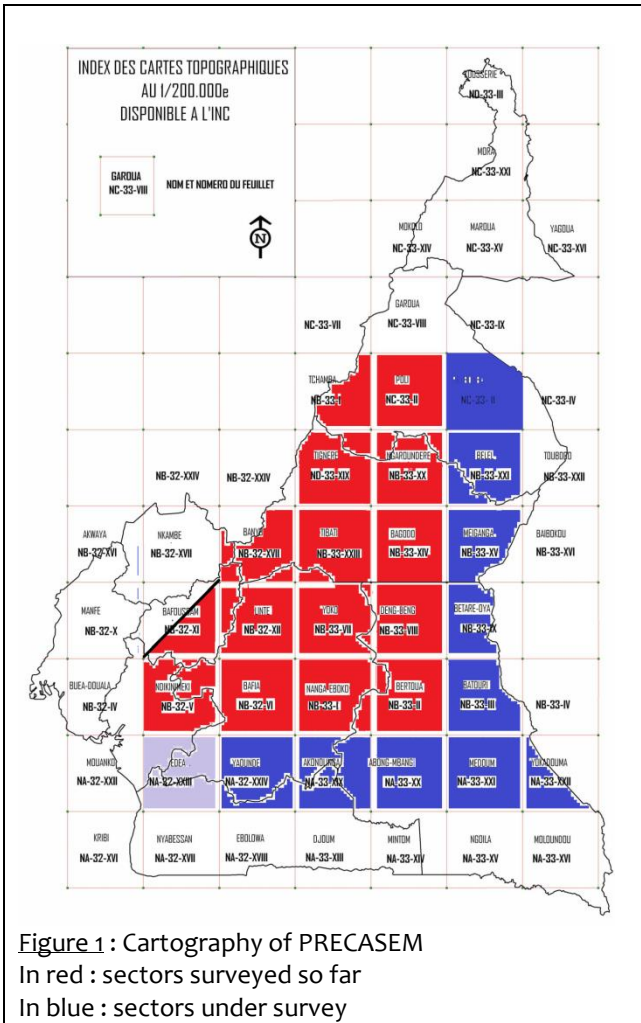


Figure 1 : Cartography of PRECASEM
 In red : sectors surveyed so far
 In blue : sectors under survey

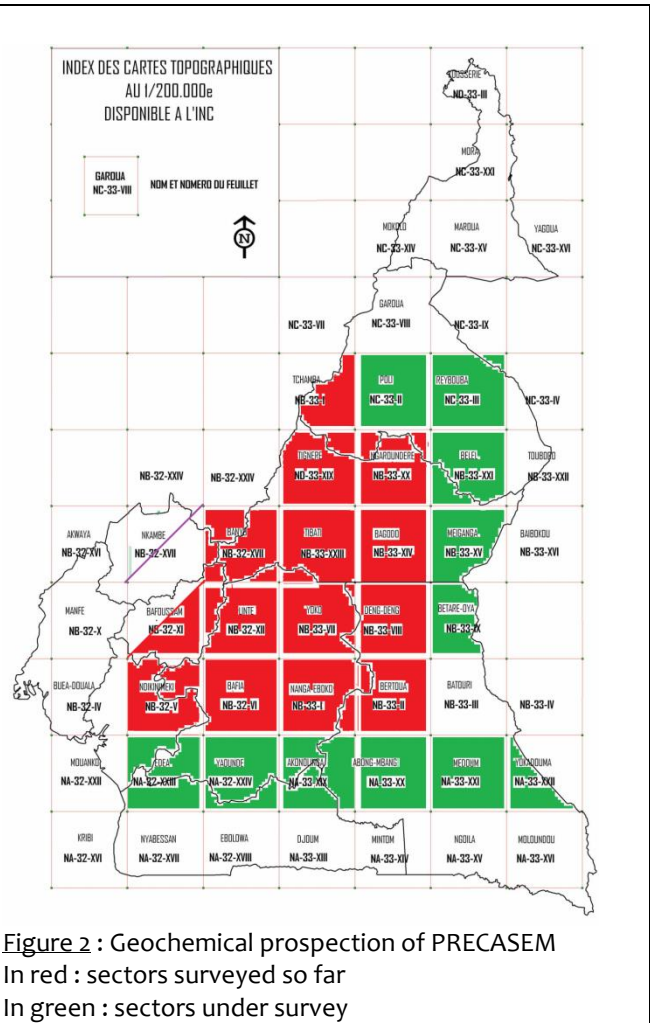


Figure 2 : Geochemical prospection of PRECASEM
 In red : sectors surveyed so far
 In green : sectors under survey

A.2 Management of mining rights and operations

The main activities carried out in this sub-component are aimed at strengthening government's supervisory capacities, particularly in sensitive areas such as the legal and regulatory framework, the administration of mining rights, the negotiation of mining agreements, the monitoring of mining operations and the environmental management of mining operations. An evaluation for capacity building (training and equipment) was also carried out as part of the above-mentioned audit. Based on the recommendations of this study, it was possible to identify institutional options for future reform of the sector, including their respective costs and benefits.

A.2.1 Legal and Regulatory Framework for Mining

A new Mining Code was enacted into law in 2016 to reflect both the government's strategic interest in mining and its desire to ensure adequate rent to the State. However, translating certain legal provisions into enforceable regulations requires support and expertise. This is the case, for example, with the granting of mining permits and withdrawal clauses, the role of public agencies in regulating and/or operating the sector, and measures to ensure that minerals are properly processed in the country before they are exported. More generally, in matters of mining, Mining Conventions may conflict with the current Mining Code. It is therefore essential to propose appropriate solutions based on international experience and benchmarking (e. g. model mining convention, among others).

A.2.2 Mining Registry

The Mining Registry is the cornerstone of the government's ability to ensure good management of the mining sector, and to promote exploration and mining by strengthening property security while avoiding excessive speculation. The ongoing modernization of the mining registry on the basis of a Mining Titles Register is intended to ensure the proper management of mining data and to ensure that allocation procedures are transparent and reliable, avoiding any overlap between operating permit holders and between permits and areas where other activities are banned (protected areas).

A.2.3 Strengthening Negotiating Skills

In ongoing transactions with mining companies, MINMIDT faces significant technical and negotiation difficulties that could undermine its credibility. The establishment and/or consolidation of a permanent unit in charge of negotiating mining agreements, the training of members of this unit as well as other staff of public structures on topics such as the financing of mining projects and the mining market, mining legislation, mining taxation, the economics of ore deposits, related infrastructure, etc. are a good starting point for more credible negotiations.

A.2.4 Monitoring of Mining Operations

Monitoring mining activities requires a permanent presence on the ground of well-trained mine inspectors with adequate materials and equipment. Support is being provided for: (i) the design of a computerized mine inspection management system; (ii) the design and implementation of a training programme to enhance skills in mining disciplines such as geology, mining engineering, mining economics, finance and other disciplines related to mines; and the conduct of scoping studies to develop mining curricula in higher education and/or vocational institutes.



Iron ore trench at Mbalam (fer) –Iron ore trench in Mbalam Area (Mbalam project)

A.2.5 Social and Environmental Management of Mining

From the historical perspective, throughout the world, mining operators and public monitoring structures have not properly managed the environmental and social dimension of mining activity. In order to take this concern into account, a Strategic Environmental and Social Assessment (ESES) was carried out with the following links: i) a diagnosis of the main social and environmental problems associated with the development of the mining sector; ii) the identification of strategic adjustments, legal, regulatory and institutional requirements for better taking into account the social and environmental concerns induced by the development of the mining sector; iii) the formulation of specific recommendations that the Government could implement in the Project; iv) the provision of governance tools necessary to manage the impacts of the sector such as a relocation policy framework, a planning framework for indigenous populations and/or an environmental and social management framework.

A.3 Transparency and Accountability in the Mining Sector

A.3.1 Transparency and certification mechanisms for the mining sector

The mechanisms that contribute to good governance in the mining sector today are the Extractive Industries Transparency Initiative (EITI) and the Kimberley Process. Governance support in the extractive sector could be provided to: (i) ensure Cameroon's compliance with the EITI; (ii) effectively operationalize the Kimberley Process Permanent National Secretariat, including through the training of expert diamond valuers, the provision of equipment or the revision of the legal framework for the mining sector in line with the requirements of the process.

A.3.2 Accountability Platform

To improve governance and minimize the possible negative effects of resource exploitation, beyond strengthening public structures and improving transparency processes, it is necessary to improve mutual trust and information sharing between stakeholders. The so-called accountability platforms will be set up with the aim of enabling people living near mining sites to become better informed and strengthen dialogue with the government and mining companies present in these areas.

Component B. Integration of Mining into Local and Regional Development

The mining industry often operates in remote areas of the world, which are very often socially and environmentally sensitive. In Cameroon, where industrial mining is only in its infancy, this has resulted in a number of local and regional development challenges. Exploration activities raise many expectations and sometimes lead to conflicts with conservation or other land use activities. At the same time, the fundamental uncertainty of prospecting and exploration for unknown mineral resources is not always well understood. Based on international experience, operating activities in Cameroon, especially when accompanied by major infrastructure developments, are likely to generate even more "shocks" than the Government expects.

The main objective of this component is to improve the integration of mining operations into local and regional development through a number of activities.

B.1 Support for the formalization of non-industrial mining - which replaced the implementation of the dynamic mineral resource management system currently being implemented by the Project

The dynamic mineral resource management system (multi-layer database) was to be launched on the basis of the results of SESA as a decision support element for spatial planning. However, the government has engaged in a series of activities to improve land use planning in accordance with the corresponding 2011 legislation. As identified during the assessment, MINEPAT receives support from various donor partners, in particular GIZ, to produce national and regional land use plans. MINEPAT is also supported by the German Geological Survey (BGR), which is leading a project to "provide harmonised and tested quality data, information and thematic maps on geo-resources as a basis for decision-making by the competent authorities responsible for regional development planning. For this reason, it was agreed to exclude this activity from PRECASEM's missions.

The box below summarizes the Project's cross-cutting contribution to the land use planning programme.

Contribution of PRECASEM to the Land Use Planning Programme.

1. Geology programme (sub-component A1): the geology programme radically improves knowledge of Cameroon's subsoil. Obtaining more complete, modern and accurate data not only stimulates mineral exploration, but also generates other applications in other sectors such as seismic monitoring, land use planning, agriculture or water management.
2. Maps of Mining Spinoffs (sub-component A2): As part of its cadastral activity, PRECASEM is supporting an effort to better visualize and make public information on possible overlaps between mining exploration permits and protected areas. It should be noted that, according to the 2016 Mining Code, these overlaps are not legally possible when the area is protected by an international treaty.
3. Mining and forestry conflicts (sub-component B2): PRECASEM will fund two studies to help resolve potential conflicts between mining and forestry. The first aims to identify good practices on the ground to enable respectful mining exploration in forest areas; the second aims to promote good approaches to compensation for deforestation for mining purposes.
4. Framework for the management of the environmental and social impacts of industrial mining (sub-component A5): under SESA, the project supports the government in setting up a ready-made framework for planning mining projects with their associated infrastructure and recommending good practices in their management. Such a tool should generally assist both the Ministry of Mines and the Ministry of Environment in reviewing environmental impact assessments and management plans in the area and making informed land use decisions.

The implementation of the dynamic mineral resource management system has been replaced by technical assistance for the formalization of non-industrial mining. Focus during the design of the original project was on industrial mining. However, the context has changed as industrial mining developments have slowed in the country mainly due to declining commodity prices. Given that non-industrial gold mining is expanding, particularly in the East and South Regions, generating both livelihoods and social and environmental challenges, it is important to design activities to support poor artisanal mining communities, including by promoting changes in mining practices on the ground and awareness in the gold and diamond supply chains.

B.2 Coordination between Mines, Forests and the Environment Stakeholders (no change)

The recent expansion of mining in Cameroon's wooded areas has highlighted some concerns about the coordination of the various public and private structures with authority or interest in the sector. It is therefore necessary to better coordinate the actors involved in the management of mines, forests and the environment. Good analysis of potential conflicts and systematic and formal methods

of resolution are needed through: (i) a study of good practices in resolving conflicts between mining and forestry; and (ii) a study of good practices in biodiversity and carbon offsets for mining and related infrastructure. This second study will build on the discussions and evaluations carried out in the specific case of the Mbalam project and seek lessons for future investments.

B.3 Local and Regional Links

Countries rich in mineral deposits have the opportunity to transform the benefits generated by mining operations into sustainable development. International experience teaches us that mining operations also present many social risks, including: the loss of traditional livelihoods, relocation and internal migration, pressure on local health and education services, negative gender-related impacts, rising food, land and local transport prices, and the distribution of employment and rents related to mining.

Some of these risks can be mitigated by enhancing the value of local communities, municipalities and other stakeholders in the mining sector, promoting new economic activities and improving the efficiency of social services in mining areas.

Activities under this sub-component were initially planned to mitigate some of the social risks associated with industrial operations through the promotion of local linkages and profit-sharing mechanisms in mining areas. Since new industrial investments have not yet been committed, the Project proposes to focus on improving the management of industrial minerals. These minerals represent an excellent opportunity for the domestic market and a range of possible links at the local and regional level. An inventory of industrial minerals will be conducted across the country, as well as the analysis of supply and demand for key industrial minerals with related capacity building and promotion efforts to optimize future linkages.

B.4 Mining Infrastructure Development Framework

This action aims to provide the public and private sectors with the tools and expertise needed to better understand the challenges and opportunities of mining infrastructure development. The aim here is to contribute to the development of appropriate Public-Private Partnerships and to increase the opportunities for sustainable exploitation of the country's mineral resources.

This sub-component was expected to support the identification and development of potential PPP activities, taking into account the possible launch of the Mbalam project. Since this investment has been postponed, the main activity here will focus on providing advice on the potential State involvement in mining and related infrastructure. In the event where the situation at Mbalam develops favourably, the project will retain the necessary flexibility to provide the government with additional technical assistance in this area.

Component C. Project Management and Monitoring and Evaluation

Component C is used to support: (a) Project coordination and procurement management, financial management and disbursements (mainly by IDA but also through counterpart funding); and (b) monitoring and evaluation of project implementation, including reporting, auditing and evaluation of safeguard policies. A Project Coordination Unit (PCU) has already been set up.

6. INSTITUTIONAL AND PROJECT IMPLEMENTATION ARRANGEMENTS

Three structures of the Project.

The Ministry of Mines, Industry and Technological Development (MINMIDT) is the implementing body of the project. It is responsible for the execution and supervision of the project with particular responsibility for: i) approval of the annual work programmes and project budgets; ii) review and approval of progress reports submitted by the Project Coordination Unit to the Bank; iii) resolution of conflicts that may arise between the various entities involved in the implementation of the project; and iv) follow-up of the guidelines and recommendations received.

The Project Steering Committee (PSC) is the body in charge of consultation, guidance and coordination of the implementation of the Project. It is chaired by the Minister of Mines (MINMIDT), and includes representatives of the ministries in charge of the Economy, Finance, Environment, Social Affairs, Land Tenure and Forests. The PSC meets once every six months with the following tasks: (i) to define the strategic/policy orientations for the implementation of the project; (ii) to ensure the supervision of the overall performance of the Project and the coordination team, and to make possible adjustments on the basis of the results of evaluation and monitoring.

The Project Coordination Unit (PCU) is responsible for the day-to-day activities of the project: procurement, disbursement, financial management, monitoring and evaluation, environmental and social issues. In addition to its reporting and fiduciary responsibilities, its main tasks are to ensure that the project work plans are properly prepared, monitored, coordinated and implemented. The PCU includes: a Coordinator, an Administration and Finance Officer, a Procurement Specialist, a Monitoring and Evaluation Expert, an Environmental and Social Expert, an Accountant.

1. PROJECT FUNDING

The project is financed by an IDA technical assistance credit of USD 56,900,000. The project budget is distributed as follows:

Project components	Project cost (million USD)	IDA funding (million USD)	% funding
A. Access to mineral resources and governance of mining operations	44.50	44.50	100
B. Integration of mining into local and regional development	6.50	6.50	100
C. Project Management and M&E	6.00	6.00	100
Project Preparation Advance	0.95	0.95	100
Provisions for price contingencies and unforeseen events	1.50 (broken down by component)	1.50 (broken down by component)	100
Total project cost	59.60	59.60	100
Total funding required	59.60	59.60	100

The duration of the project is ten (10) years, original + additional credit.

7. CURRENT MAIN ACHIEVEMENTS OF THE PROJECT

The main results of the field work carried out within the framework of PRECASEM at the regional scale of 1/200,000th are as follows:

In terms of geological mapping:

- fourteen (14) geological maps were surveyed at a scale of 1:200,000. This is a significant step forward considering that these maps are essential for any mining research. As a matter of fact, out of the 42 maps in Cameroon, only one had been surveyed so far by the Institute of Geological and Mining Research (IRGM) in the Poli region. The map has been updated by integrating airborne geophysical data and taking into account changes in cartographic concepts. Explanatory notes are attached to the said maps;
- over the entire survey area, geophysical, field and analytical data and, especially, the acquisition of more than 60 new geochronological³ ages during the project now enable to define the boundaries and names of the rocks on the one hand, and to have a better understanding of the context of how they were put in place, on the other hand. In this respect, the discovery of at least two Archean farewell rocks, the Ntal and Bindiba complexes, dated about 2.5 billion years ago, enabled to extend the boundaries of the Congo⁴ craton more further north than the boundaries known so far. Based on these discoveries, a new definition of the main lithostratigraphic⁵ units of the Cameroonian subsoil can be proposed with the introduction of previously unknown domains, notably that of Bayomen and the so-called extended Congo Craton to replace the Yaounde Domain. This discovery could boost the search for gold and iron in these formations.

In terms of geochemical prospecting⁶, the field work, which consisted in collecting stream sediments at a mesh size of 1 sample per 10 km², enabled to:

- produce 14 geochemical maps (there were none previously in Cameroon) showing the various elements of mining interest;
- the identification of more than 700 anomalies and indicators over the entire work area, including:
 - a significant number of gold occurrences⁷ on the Bagodo, Deng Deng, topographic maps⁸ and in the vicinity of the Faro Reserve (straddling the Ngaoundere, Tignere, Tchamba and Poli topographic maps) in relation to the above-mentioned Bindiba Archean complex;
 - obvious gold mineralization on the Tignere cut and assumed on the Banyo, Tibati, Tigneré, Tchamba and Ngaoundere topographic maps;
 - significant presumptions of tin, wolfram and rare earth (Sn-W-REE) deposits in the alkaline granitoids of Banyo, Tignere and Tchamba;
 - Cobalt-Nickel-Manganese mineralization in the above-mentioned topographic maps;
 - uranium oxides, particularly in the Poli topographic maps (Goutchoumi and Goble-Kitongo sectors).

It is also worth noting that many alluvial sapphire mines have been confirmed, bauxite mineralization (known) showing abnormal⁹ levels of rare earths for which bauxite could be a

³ Dating of the various formations of the earth's crust from a few billion years ago (e. g. Archean) to a few thousand

⁴ Geological formation found in southern Cameroon and also extending to the DRC, CAR, Gabon and even Zambia

⁵ Rock organization

⁶ Search for mineral substances contained in the subsoil by sampling stream sediments or washing alluvium

⁷ Occurrence

⁸ Cameroon is divided into topographic maps which differ according to the scales: topographic maps at 1/1000 000, 1/500 000, 1/200 000, 1/50 000, etc.

marker, as well as many potentials offered by plutonic rocks (rocks and industrial minerals) such as rutile, disthene and nepheline syenites.

Following these significant results, it should be recalled that this work provides the profession with interesting avenues for research into mineral substances in Cameroon, and does not yet permit us to talk about minerals; In fact, an ore is defined as a rock containing minerals in a sufficiently large proportion to justify commercial exploitation, which is not currently the case for the anomalies highlighted.

Other PRECASEM's achievements include:

- a Geological and Mining Information System (GMIS) has been established. It is accessible via: <https://sigm.minmidt.cm>. It already enables to know the content of the database and for it to be fully exploited, a data dissemination policy (data description, acquisition principles, pricing, schedule, etc.) is required. The latter is currently being developed and should be available at CIMEC 2019;
- a modern computerized mining registry is operational. Mining operators can already check online the availability of open spaces in the mining sector, access information on existing mining titles (name of title, the title holder, the substance sought, the date of grant, the area covered, etc.). The provisional address of the site is <http://portals.flexicadastre.com/Cameroon/fr/>. Arrangements underway to have a secure site similar to that of the GMIS and national standards. In terms of performance indicators, the target was reached in 2017, but deteriorated completely from 2018 onwards, with the introduction of the provision on the Presidency's prior visa for all mining permits and other approvals in the sector;
- capacities for monitoring mining operations have been improved:
 - PRECASEM provided support for the development of the Mining Code already enacted into law and its implementing regulations;
 - Close to hundred people (MINMIDT, IRGM, MINSUP, MINAS, MINEPDED) have been trained in various disciplines related to the mining sector
- a Strategic Environmental and Social Study of the Mining Sector has been finalized and its conclusions forwarded to the Ministry in charge of the Environment, Sustainable Development and Nature Protection. This study provides better tools and more capacity in the management of the environmental and social impacts of mining;
- an accountability platform has been set up and allows exchanges between the Administration, civil society and mining companies.

7 Any content higher or lower than the regional geochemical background; in a given region, the average content of various substances is known. When the value found at a point is higher or lower, it is called an anomaly

OUTLOOK

An additional credit was negotiated on 20 June 2018 with the World Bank to extend the activities of Phase 1 of PRECASEM; this financing agreement became effective on 10 December 2018 and its closing date is 1 December 2021. The following flagship activities will be carried out during this period:

Airborne geophysical survey.

In the original project, the airborne geophysical survey focused on half of the territory for budgetary reasons. Priority was given to areas where no geological and mining exploration activity had been carried out so far. Some areas had been partially covered by previous surveys,

particularly in the North and South, focusing on small gravity and radiometric surveys, and the magnetic surveys had been carried out with 1000 m line spacing instead of the more standard 500 m used by the PRECASEM survey.

As airborne geophysics remains very important in forest areas (such as southern Cameroon) where rocks do not outcrop at the surface, the acquisition of modern and more accurate country-wide data will help to attract more investors and generate other applications in other sectors such as seismic monitoring, land use planning, agriculture or water management. These surveys began in April 2019.

Geological and geochemical mapping campaign.

The additional geophysical work will be accompanied by an extension of the geological and geochemical mapping campaign. The initial financing of PRECASEM covered 13.5 sheets mainly in central Cameroon. With the additional funding, 10 more sheets will be surveyed in the areas of Edea in the Littoral, Yaounde and Akonolinga in the Centre, Abong Mbang, Medoum and Yokadouma in the East, Meiganga and Belel in Adamaoua, Rey Bouba in the North, Nkambe and Akwaya in the North- West, Mamfe in the South-West.

Training

Training remains a key element of PRECASEM's actions. Under the original credit, more than one hundred (100) staff from the structures involved in the Project participated in various training courses, particularly in the fields of geosciences, monitoring of mining operations, negotiation of mining contracts, etc. The transfer of knowledge to Cameroonian counterparts at the IRGM, the Department of Geology, the Department of Mines and university students assigned to the mapping campaign is mainly provided by geology consultants. Within the framework of the additional funding, this capacity building will continue.

Promotion

The promotion of geological data and knowledge through appropriate dissemination of maps and reports, participation in international conferences and meetings on the extractive industry (such as INDABA mining events in South Africa and PDAC in Canada) is and will be further supported with a view to improving Cameroon's competitiveness. PRECASEM will organize workshops and publish documents accessible to the general public and communities to ease the dissemination and understanding of geological and mineral information to a wider audience.

Non-industrial Mining

During the design of Phase 1 of PRECASEM, focus was on industrial mining. However, the context has changed as industrial mining developments have slowed down in the country, mainly due to lower commodity prices. At the same time, non-industrial gold mining has increased, particularly in the East and South, generating both the means of living and social and environmental challenges. Future PRECASEM activities in this sector therefore include a series of carefully designed actions to support non-industrial mining communities while promoting changes in mining practices on the ground and awareness in the gold and diamond supply chains.

ILLUSTRATIONS

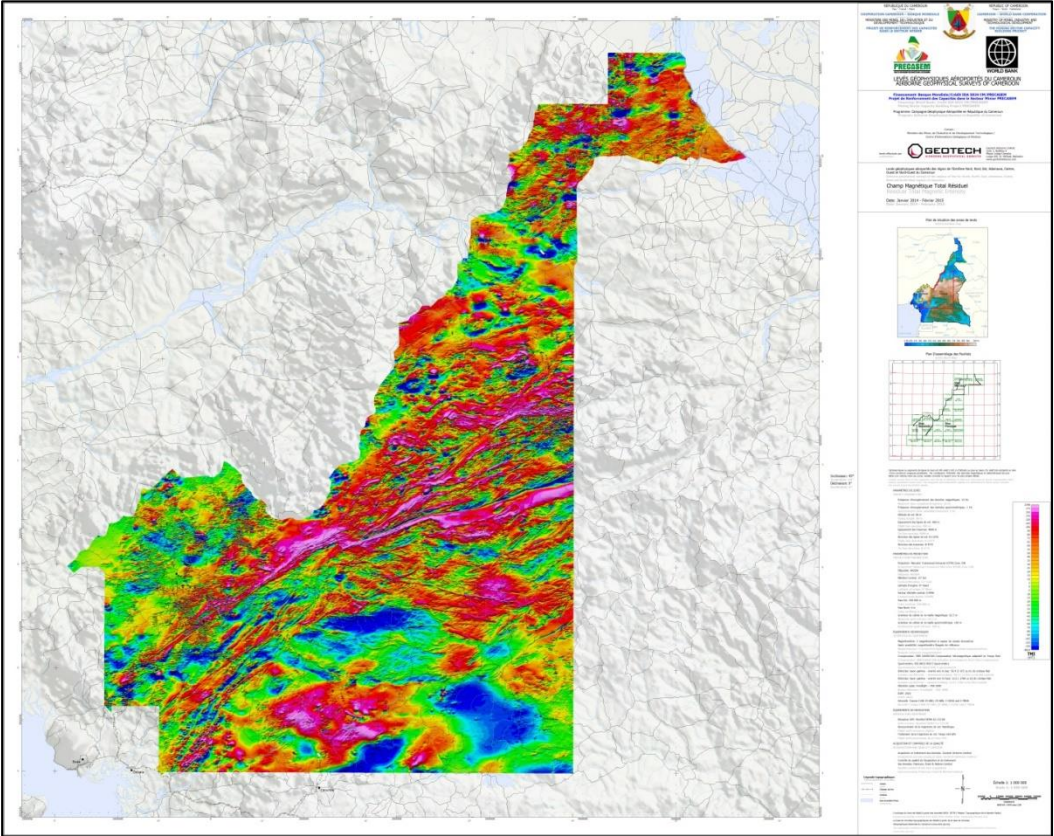


Figure 4: Géophysique aéroportée phase 1 - Champ Magnétique Total

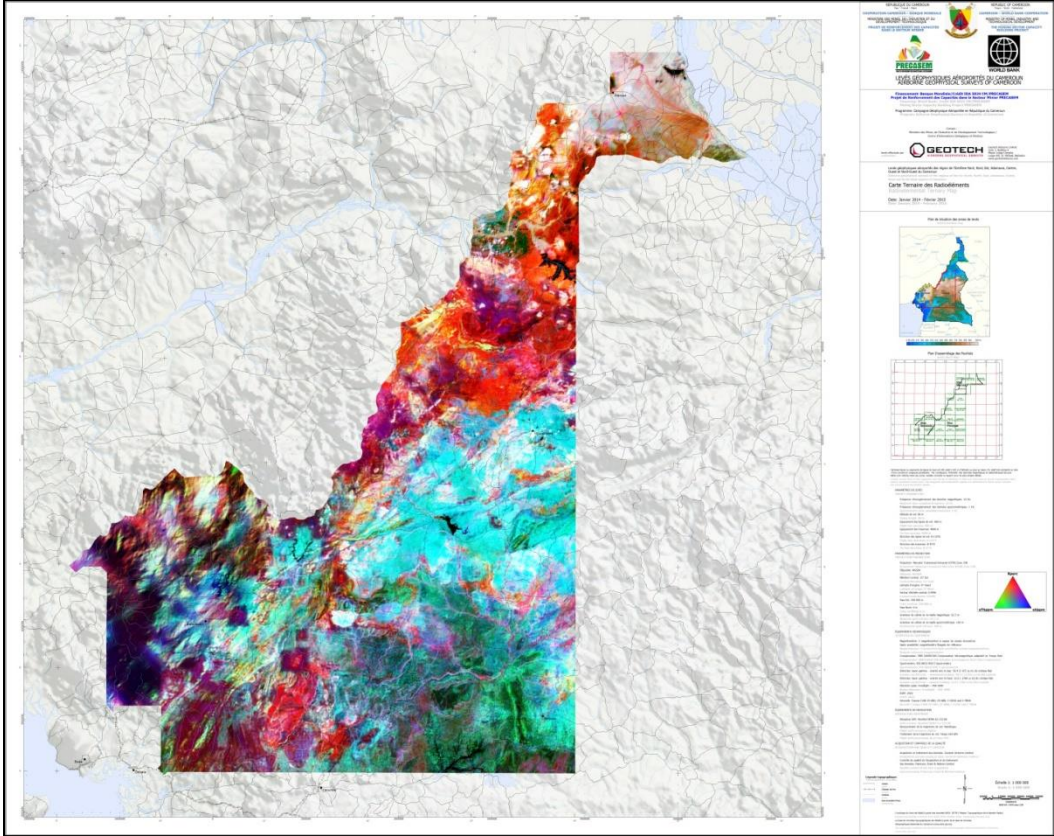


Figure 5: - Radiometric Ternary map

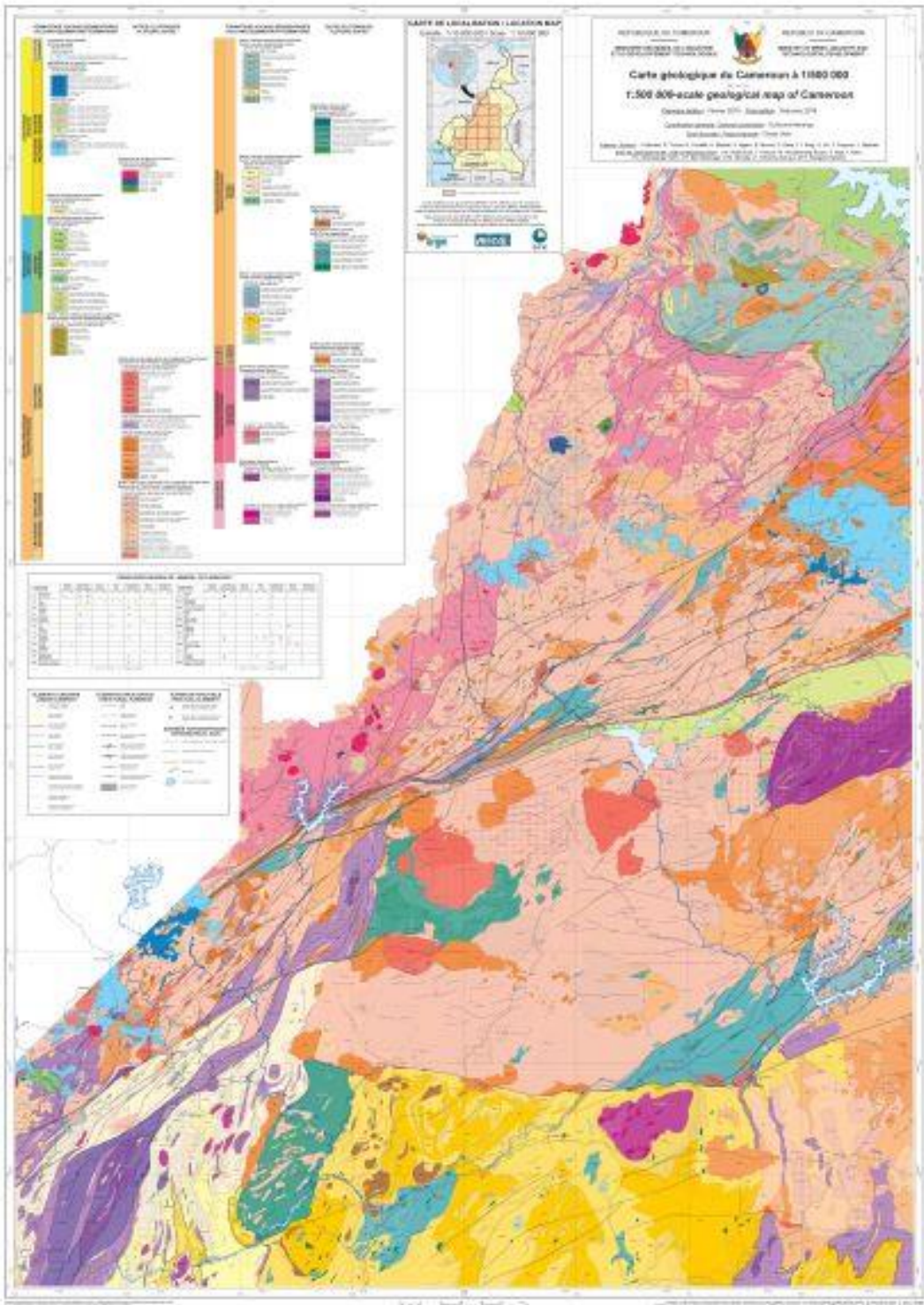


Figure 6 : Geological map scale : 1/500 000

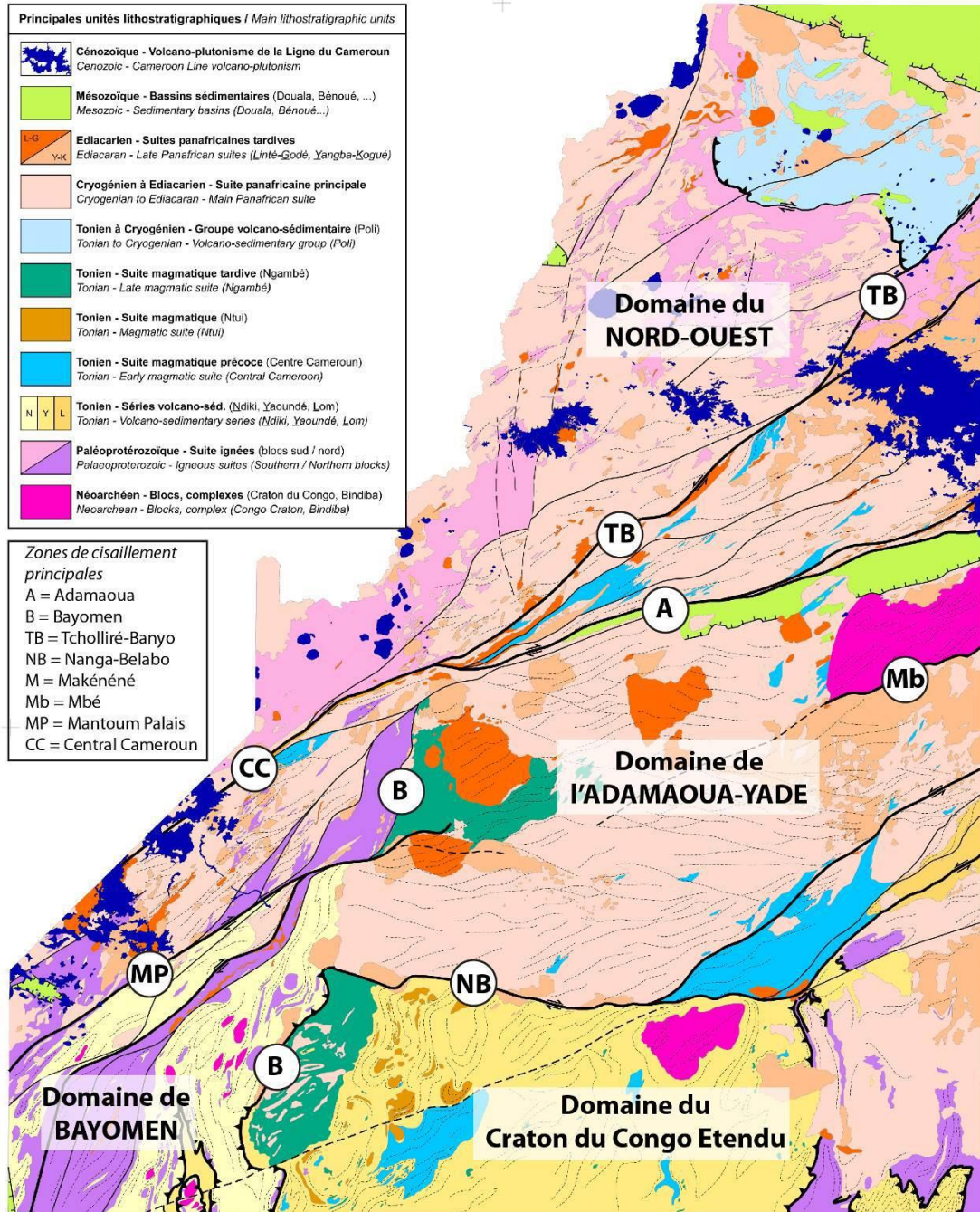
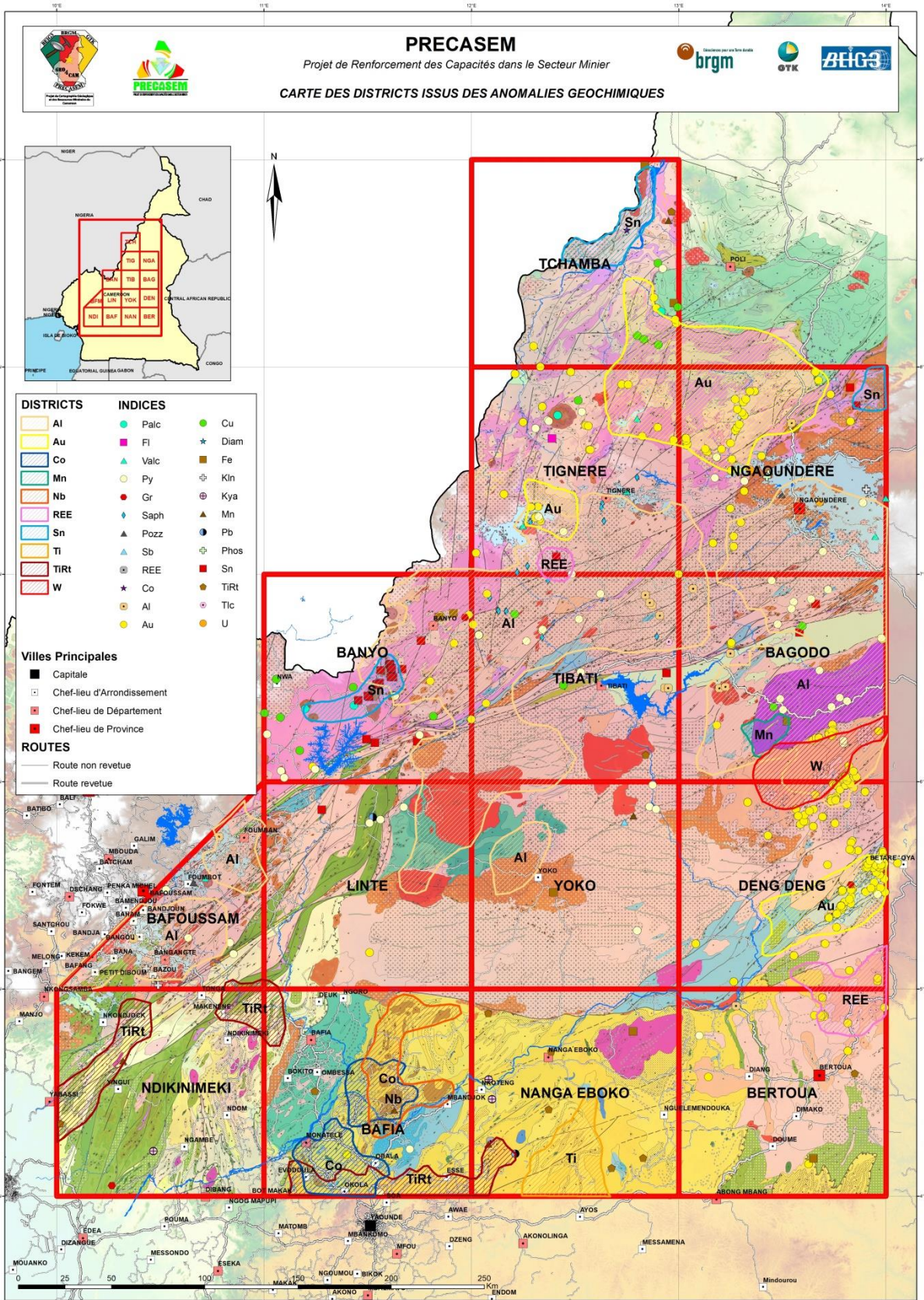


Figure 7 : Principales unités structurales telles que mises en évidence par les travaux de terrain



Système de coordonnées géographique WGS84
Modèle numérique de terrain : SRTM (Shuttle Radar Topography Mission)