



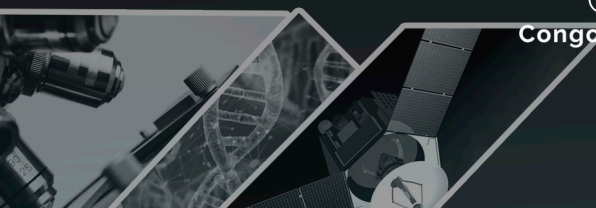
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The Minister Gilbert KABANDA
in front of the Congolese Press

SSRC gives remedies against
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The NSC organizes the training in
favor of the researchers of the **GMRC**
and the **RCTAS**

SRTI :Egypt offers **DRC** the equipment
of observation and volcanic prevention.



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CONTENTS

The choice of a collaborator : A difficult casting in DRC..... **P3**

Ministry activity

- Egypt offers DRC the equipment of observation and volcanic prevention **P4**

Echoes of Research Institutions

- RCALC/Kisangani:scientific conference around the article of enquiring Jeanne OMEGA..... **P4**
- The CEO of the NCRS David NGINDU BUABUA takes part in the training on the management of the tropical forests in Japan..... **P5**
- NCRS signs a partnership with SANSA..... **P6**

NSC Activities

- Exchange of the wishes and first session 2024: A double activity which moves the NSC..... **P7**
- Training in favor of the researchers of the GMRC and the RCTAS **P8**

Reflexions of our researchers

- The D.S Junior KABONGO reveals the cogency of a strategic plan for the Institutions of Research in DRC..... **P9**
- The Researcher Charles Jacob Mukeba speaks about the lead-acid batteries, NiCd and of the batteries to the Lithium-Ion in DRC..... **P9-10**
- The water pollution in DRC..... **P11**
- Prof NGBOLUA Koto-you-nyiwa and his team publish a study entitled: "new geographic localization of Okapi in DRC.The forest block of North-Ubangi..... **P12**
- Peat bogs:Third world carbon tank, another lever for the durable development of the DRC..... **P13**
- SSRC gives remedies against the epidemic of the conjunctivitis..... **P14**

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The choice of a collaborator: A difficult casting in DRC



Since beautiful lurette the question about the "choice of a collaborator" always was, for much, very alarming. That it is in the private structures or those of the State, this question deserves a very detailed attention and remains a headache for the leaders. This because the success of an unspecified mission in all the fields depends on the human resources employed for spot varied.

It is while being based on good collaboration with human resources that one can draw the notion of the "choice of a collaborator". What remains problems difficult to solve in our company, more especially as in much of case "the choice of a collaborator" is not easy. It is at the same time related to the notion of competences and confidence.

Any head or very leader of any company needs to make a choice of a collaborator able to accompany it in the achievement of his mission. In the bible, the Holy Scriptures inform us that Moïse made the choice of his/her collaborators to reach his mission of bringing the children of Israel to the promised ground.

Thus the choice of Josué and Aaron, as collaborators of Brace, had helped this last with the achievement of the mission entrusted to him by God. In the new will, Jesus-Christ himself also made the choice of her collaborators (the apostles) because the Messianic mission required an accompaniment of the assiduous men.

In our company today, the question of the collaborator is confused with that of the "casting". Many Heads of company or the political leaders are wedged to carry out with bravery their missions, fault of using of a good casting in the choice of a good collaborator. However, in a short way when one differentiates the choice from the collaborator in a company and the political field, the demarcation is only of one step.

In a company, there are permanent collaborators (collaborator of career) while in policy the collaborators are of dynamic nature (collaborator of mission). In Democratic Republic of Congo, much of companies did not make long fire in their entrepreneurial because the casting was not well applied. Sometimes to have used the cousins, the nephews, the uncles and the brothers-in-law, a head did not know to achieve his goals because the choice of the collaborator was made on a very bad criterion. On the other hand, one saw in our country, the companies which

emerged because the choice of the collaborator took account of the criteria or the necessary profile. Very often success in work is also the work of the choice of a good collaborator. That more especially as for many observers, a collaborator works full-time and sometimes more than the Head.

The companies congolaises need this assiduity and the collaborators who also answer the awaited profile. Because the more the service of the collaborator such as is wished by his hierarchical head, the more palpable the production is in a company or a company. In policy, the question remains crucial because the choice of the collaborator is dynamic, according to the mission and stakes' of the moment. At present it is the great question which many political analysts raise when one speaks about the collaborators of the Head of the State, the President Felix ANTOINE TSHISEKEDI, in the achievement of the objectives that it assigned for the success of its second mandate. Which choice will be necessary it operated in order to achieve its goals and according to which criterion? When of aucuns are not unaware of that the expectations of the people, during this second mandate, are more than demanding.

It is here that many analysts insist on not only competences, but also the honesty, the serious one, the love of Congo and not the selfishness which are regarded as criteria being able to guide the Head of the State to make the good choice of his/her future collaborators. One will need for him the people who must-to be with the height and which will be able to assidument serve the Nation while working for the great success to which the people congolais awaits second mandate of the Head. The casting would be a significant element so that the Head of the State can place each collaborator in the place which it is necessary. And that would be a success of the warriors. We will return there.

*Professor Pius MPIANA TSHIMANKINDA
NSC President*



Activities of the Minister of SRT

Gilbert KABANDA and the Egyptian ambassador Hesham Elmekwad

Egypt offers to the DRC the equipment volcanic observation and prevention.

"the Ministry of Scientific Research and Technological Innovation (SRTI) soon will be equipped with a significant batch of equipment of observation and of prevention volcanic", declared, the ambassador Egyptian Hesham Elmekwad with the Minister for the SRTI Gilbert KABANDA, January 22, 2024 in his office in Kinshasa.

According to the owner of the SRTI, the Minister Gilbert KABANDA this offer of the equipment of volcanic observation and prevention is a co-operation between Kinshasa City and that of Cairo in the field of science, he insisted.

Before finishing, he indicated that the said equipments will be installed in Goma and Bakavu. It should be noted that Egypt enjoyed good relations with DRC for many years.

Cell of communication of Minister of SRTI and Christian Mazono

Presentation of the inventions and innovations of the Conclave of the Congolese Scientific Geniuses

The Minister Gilbert KABANDA in front of the Congolese Press

The Minister of Scientific Research and Technological Innovation Gilbert KABANDA, held a press conference with the professionals of the Media, Wednesday February 14, 2024, on line studio Maman ANGEPI of the Radio National Congolese Television (RTNC) on the inventions and innovations of the Conclave of the Congolese Scientific Geniuses

The aforementioned inventions and innovations had been submitted to the Government and the Parliament for an urgent injection in the national economy.

Echos of our Research Institutions

RCALC/Kisangani:scientific conference around the article of enquiring Jeanne OMEGA

The Research center in African Languages and cultures (RCALC/ Kisangani) organized a scientific conference around the article of researcher Jeanne OMEGA entitled "of the food practice towards a change of the identities economic social and cultural", Thursday January 25, 2024 in Kisangani.

According to the author, the objective of this work is to discover the fate of the practices of boyomais, considering the town of Kisangani is cosmopolitan where are confronted, several cultures compared to the influence of contact intercultural.

Its problems were based on food consumption of boyomais to universalization and with the urbanization.It had as assumption that inter culturalty an impact of contact of the cultures has is at the base of the change of cultural, economic and social identity.

The researcher showed that all its cultures have a characteristic, when they cross.This crossing gives a superimposed layer.This scientific article has like interest, to place at the disposal of food knowledge which is consumed in the town of Kisangani that generally. Several researchers of the RCALC took part in this talk.



LOTIME ANDANDA (RCALC)



The CEO of the RSRC David NGINDU BUABUA takes part in the formation on the management of the tropical forests in Japan.

The General manager of the National Center of Remote Sensing (NCRS), Professor David NGINDU BUABUA, took part in the training on the management of the tropical forests using a forest monitoring system called Jj-fast, based on satellite Alos-2 and other technologies in Japan of November 27 at December 13, 2023.

According to him, the objective of this training is to make acquire with the participants necessary competences and knowledge to use satellite technologies in order to manage the tropical forests well. Satellite technology appeared effective and essential for the monitoring of the forests these last years and several countries and international organizations developed systems and tools to supervise the forests. It was selected to take part in it in the aforementioned formation thanks to the Japanese Agency of the International Co-operation (JICA)*, declared Professor NGINDU BUABUA

The training knew the participation of 7 countries including 3 African with knowing: Brazil, Cambodia, Democratic Republic of Congo, Kenya, Malesia, Nigeria and Paraguay.

Let us note that the JICA organizes trainings each year for the countries in the process of development, of the formations, in order to enable them to face the problems to be solved in several sectors. For the year 2023, the selected principal topic was the management of tropical forests by teledetection. Indeed, the forests are vital for any life on ground. The role of the forests in terms of climatic change

was underlined in the whole world since the forest sector, including deforestation, represents more than 10% of the total CO2 emissions. Everyone affirms the importance of the forests. However, an enormous clear loss of forests was noted on a worldwide scale. The loss of the tropical forests continues without slackening because of the agricultural expansion, the extraction of wood, the expansion of the infrastructures, the illegal forestry development and also of other factors and measurements aiming



Prof David NGINDU BUABUA, DG du CNT, lors de sa formation au Japon en 2023

at putting a term at these losses constitutes a world priority.

This training will help the DRC with managing well its forests as country solution with the problem of climatic change

Let us announce that the Jj-fast system in initials which mean (Jica-jaxa Forest Early Warning System in the Tropics), is the early alarm system for the deforestation of the tropical forests using the advanced satellite of observation of the grounds (Alos-2) built by the Agency of Japanese aerospace exploration (JAXA).

The Alos-2 satellite has several advantages:

1. It can observe the surface of the ground under the clouds. Even during the rain season, one can obtain necessary information.
2. JJ-FAST covers 78 countries. The satellite monitors them chaque 1,5 month with a space resolution of 50 m.
3. We can reach JJ-FAST via a PC or

the mobile apparatuses.

4. LThe whole of exported data deal with common format SIG.
5. JJ-FAST is available free

This training will help the DRC with managing well its forests as country solution with the problem of climate change.

Cell of communication of the NCRS



NCRS signs a partnership with SANSA

The National Center of Remote Sensing (NCRS) and the South African National Space Agency (SANSA) are consolidating their partnership through a scientific and technical cooperation agreement signed on Friday November 10, 2023 in Captown, by the heads of the two organizations, Professor David NGINDU BUABUA, CEO of the NCRS and Mr. HUMBULANI MUDAU, CEO of SANSA.

The official signing ceremony took place in the presence of the Congolese Minister of Scientific Research and Technologic Innovation, Gilbert KABANDA, and his South African colleague for Higher Education, Science and Innovation, Emmanuel Blade NZIMANDE. This was during the 6th day of the AFRIGEO 2023 Ministerial Summit in RSA.

According to the Congolese delegation led by Professor David NGINDU, CEO of the NCRS, this scientific and technical partnership will be highly beneficial for the Democratic Re-

public of Congo, as South Africa is internationally well positioned in the space sector.

"SANSA already has 84 satellite dishes and more than 4 sites with different reception dishes and ground segments. Its various ground stations are managed by space-qualified personnel.

The agreement also clearly states that the National Remote Sensing Centre will benefit from a number of advantages, including sharing space knowledge and developing human capital, obtaining space data for the DRC from South African satellites and their constellations, analyzing and processing them, providing training in Earth Observation (EO) science and technology and building the capacity of NCRS staff in space techniques, developing curricula for universities, developing space infrastructure, acquisition of space equipment, joint development of win-win projects with partner SANSA, joint development of space applications

in the fields of mining, agriculture, environment, land management, border security and control, and other areas of interest including climate change; activities around the equator, volcanic activities and hydrological observations.

This protocol on scientific and technologic cooperation will be implemented through an action plan drawn up jointly by the two parties.

Samuel BALMUTSHUN/NCRS



Exchange of the wishes and first session 2024: A double activity which moves the NSC.

The room Saint Valentine of the GMRC in Gombe township was used as setting, on Wednesday January 31, 2024, in the National Scientific Council (NSC) to organize two activities combined with the profit of the agents and members of this structure of the Ministry of Scientific Research and Technologic Innovations. The day was marked in the beginning by the opening of the 51st ordinary session of the NSC and then, this was followed by the exchange of vows in the afternoon.

Indeed, the 51st ordinary session started by a communication of the President of the NSC, professor Pius MPIANA TSHIMANKINDA indicated how much considerable efforts he drove the NSC. The President communicated to his guests these achievements before presenting the summaries of the decisions made at the time of the 50th ordinary session of December 14, 2023.

The Professor and the General Managers of the Centers and Research Institutes took part in this meeting of evaluation which allows the NSC to have a clear situation of research and to update the objectives.

Several points were in the center of this session namely the reading of the internal regulations or rules of procedure of the NSC, meanders of the "Research and Applications", Presentation and Adoption of the files (initially on the evaluation of the scientific activities of the Centers and Research Institutions; then, the follow-up of the weekly activities of the Departments of the Centers and Research Institutes), exchange on the specific bonuses of the Personnel of Scientific Research and Technologic Innovation (Aspect found in the law no13/038 of December 29, 2018 in its article 132). The session was closed by some points raised at the time of various. Professor MPIANA TSHIMANKINDA remained optimistic on the objectives to pursue and he did not hesitate to express his determination for a better future of the Centers and Research Institutes. Just at the end of this session, another activity took over as part of the exchange of wishes in the same room.

Exchange of wishes

After the 51st session, place of the exchange of wishes. The agents and executives as well as the happy guests of the Professor-President were in a second meeting including the remarkable presence of the members of the cabinet of MRSIT in particular the deputy cabinet director representing the Minister Gilbert KABANDA.

The ceremony started with a series of testimonies before passing to the hugs for which each participant expressed their wish of the best vows to the present authorities in the room. At the time of his testimony, the Head of division of the Permanent Secretariat of NSC ZUSHI TAKA Romain recapitulated the steps of moroses whose the NSC knew before congratulating the current leading team on the efforts made for the recovery of this structure of the Ministry for the SRTI.

He outlined the actions that praise to Committee MPIANA TSHIMANKINDA by openly praising the implementation of the organization chart for the NSC as well as the distribution of tasks which currently arouses a spirit of emulation within the institution. He highlighted the satisfaction of the agents and executives of the NSC to have profited from the food parcels for Christmas and New Year festivities. A gesture that many did not dream but which was carried out thanks to the managerial talents of Professor MPIANA and the Permanent Secretary, Master Johnny KABEYA BAJIKA.

The floor was also given to the NSC representative for Kwilu province. For the latter, the initiative of this meeting goes straight to the heart of the agents, not only because we thought of them who work in the interior of the country, but also because it's a first that enters in the annals of the NSC. For her part, Madame Patience NGE-LINKOTO, Professor and General Director of the Water and Environment Research Center (WERC) said she was flattered by the organization of this meeting.

She also underlined the efforts made in the field of water research, which today is of capital importance in the country's new technological landscape. For his part, Professor MPIANA TSHIMANKINDA encouraged Congolese researchers to appropriate the session's resolutions and maintain the research momentum. He appreciated the contribution of all his colleagues and members of the Council in raising the level of work that will contribute to the expansion of research in the Democratic Republic of Congo (DRC). Finally, to bring the ceremony full circle, a meal of bernardins was served. There was no shortage of music and drink to celebrate this exchange of good wishes. NSC agents and members turned back after an evening of Valentine's Day dancing. The organizers of this ceremony were not wrong to make an appointment to meet in this same Saint-Valentine's room. The researchers had the right address. The MPIANA TSHIMANKINDA committee intends to do even better in the coming days.



Training of researchers /Family photo

Training for GMRC and RCTAS researchers

From January 24 to 26, 2024, the National Scientific Council organized training modules for researchers at the Geographic and Mining Researches Center(GMRC) and the Researches Center in Technologic and Applied Sciences(RCTAS) in Kinshasa.

These training modules were delivered by trainers including Professor Pius MPIANA TSHIMANKINDA, Chairman of the NSC, Professor Jean-Paul NGBOLUA, Scientific Advisor to the NSC, Professor Damien TSHIBANGU, Cooperation Advisor to the NSC, Professor WUFELA YAK'OKOLINGO André, Professor Benjamin ZOAWÉ, Master Freddy IPUKA, Georges MABIALA and others.

The first speaker on the first day was Professor André WUFELA. He spoke on "Researchers and research professions", before being succeeded by PS/ NSC Research Director IPUKA BADJE, who focused on "The functioning of a research institution: the role, place and mission of researchers".

The first day was closed by Professor Jean Paul NGBOLUA, whose humorous style captured the attention of researchers on the subject of "Writing scientific articles in the natural sciences".

On the second day, the speed was doubled, due to the consistency of the subjects planned for the researchers and other participants. There were also three presentations, including a module on the responsible management of research data, and a lesson on "Scientific notoriety, visibility and the marketing of researchers based on bibliometric indicators".

The second day of training ended by a workshop of researchers capacities reinforcement on best practices for successful PowerPoint presentations, led by Professor Benjamin ZOAWÉ.

The last day, the atmosphere was more pedagogical for the participants. For these capacities reinforcement training went through all the concerns raised by the researchers with a fine-tooth comb.



The President of the NSC Prof Pius MPIANA TSHIMANKINDA Re giving the certificate of training to one of the member elects

Trainer George MABIALA unrolled the techniques of "Writing a research project by the Researcher". The day also included another highly practical notion: "From scientist to entrepreneur".

The last day did not close its doors without leaving the place to the Chairman of the NSC, Professor Pius MPIANA TSHIMANKINDA who outlined in front of the assistance the groundwork of the research projects.

Through feedback, the researchers exchanged views with the trainers to shed light on any grey areas during the three days of training. At the end of the seminar, each participant was awarded a training certificate. For the organizers, the training series continues.

The training began on January 10, 2024, in favor of from Anti-venomous Center (AVC)researchers, the National Center of Remote Sensing (NCRS) and AIPS. They had the privilege of being the first wave of researchers to attend these 2024 training modules.

The seminar provided an opportunity for the researchers to meet and exchange ideas, reinforce the links between them

Jacques Asuka and Christian MAZONO/NSC

Reflections of our researchers

S.D Junior KABONGO reveals the merits of a strategic plan for Research Institutions in the DRC

Results-based management (RBM) is a management method which consists of watching that procedures and services contribute to the achievement of clearly defined results. The results-based management cycle comprises planning, implementation, monitoring, evaluation and feedback. Therefore, It begins by a strategic plan.

The strategic plan is first and foremost a management tool for an institution, in this case a research center or institute. It contains strategic orientations and objectives, priorities and optimal actions to be undertaken, expected results, concrete human and material resources to coordinate actions and activities, and finally, proportional financial resources to the importance of planned activities.

The strategic plan is also a tool for communication and of motivation of the personnel. For this reason, it informs the personnel about the challenges that the institution is facing. It promotes the understanding, assimilation and acceptance of strategic orientations and objectives by the institution's personnel. It facilitates consultation and teamwork of the members of the institution.

Finally, it is a tool for advocacy and dialogue with other actors or partners, insofar as it provides information on the institution's strategic choices and priorities. It serves as a basis for agreement with partners on the institution's development perspectives and the priorities to be se-

lected by mutual agreement. This planning tool constitutes the demonstration of the institution's active participation in the development of its business sector. It suggests ways of establishing partnerships based on a judicious analysis of the institution's strengths and needs.

The development of a strategic plan is based on fundamental principles such as flexibility and adaptability, to facilitate the integration of internal and external changes that may occur during implementation. There is also the selectivity of actions, which must be focused on the essentials, the involvement of the main players concerned by the implementation of the plan, and finally, realism, to take into account only the resources and time available, with a view to being effective and efficient in achieving the objectives set.

This process normally takes place in five stages: preparation of the process itself, diagnosis of the institution, analysis of the institution's internal and external environment, design of the strategic framework, and definition of the monitoring and eval-

uation system. The strategic framework includes the vision, mission, values and guiding principles, objectives, strategic orientations and action plan.

In conclusion, the strategic plan is a good results-based management tool for DR Congo's research centers and institutes, which are called upon to improve their performance in the generation and dissemination of knowledge. It is therefore essential for these research institutions to draw up strategic plans not only to improve their scientific output, but also to provide a tool for motivating their staff and lobbying their supervisory authorities and national and international partners

Scientific Director of the CRSAT/Junior KABONGO

Researcher Charles Jacob Mukeba talks about lead-acid, NiCd and lithium-ion batteries in the DRC.

The implementation of a regeneration chain for lead-acid and NiCd batteries now and Lithium-Ion batteries later in the DRC: a tool for the implementation of a circular economy enabling used batteries to be reused several times before being recycled, giving them a second life and reducing environmental waste.

Electrical regeneration of used batteries (lead-acid or lithium-ion) is one of the practices and techniques that enable batteries to be used several times before being recycled. This practice delays the complex and costly chemical transformations required to manufacture and recycle batteries.

La seconde vie de la batterie régénérée. The second life of the regenerated battery reduces dependence on fossil fuels, while promoting the use of renewable energies. Regeneration postpones the environmental waste stage (caused by the used battery).

This advantage of regeneration can be exploited on a national scale through national and regional state regeneration institutions, helping to accelerate

the ecological transition through the use of renewable energies. We can help promote territorial resilience to battery imports, and contribute to the energy transition by creating local jobs and a circular economy around regenerated and reused batteries where they could have been hazardous waste.

What can we learn from this technique, which makes it possible to process used batteries and rapidly reclaim energy resources through a second life?

Electric battery regeneration is 50 to 60% cheaper than buying a new battery, and produces 50 times fewer carbon dioxide (CO₂) emissions than manufacturing a new battery. It restores more than 90% of the battery's sulphated capacity, and increases its lifespan by 100-150%.

Regeneration or desulfation is the process of breathing new life into old lead-acid batteries that are totally or partially sulfated.

Sulfation is a condition in which lead sulfate forms on the battery plates during discharge. This causes sulfate crystals to form, destroying the pores of the electrodes and reducing their effective surface area, resulting in a loss of capacity and preventing the battery from delivering high currents and charging normally.

When a sulfated battery is recharged, small conductive spots form, short-circuiting the plates and rendering the battery unusable.

According to statistics, 80% of problems affecting battery performance and life

are due to sulfation. And only around 20% to 30% of batteries reach the age of 4 years in good condition.

Sulfation causes the terminal voltage of a 12V battery to drop below 12.4V, while a fully charged battery with a voltage of 10.5V has a short circuit and is permanently out of service.

Sulfation is the battery's greatest enemy, caused mainly by :

- too long a rest period between 2 battery charges (more than 24 hours in hot weather and several days in cold weather) ;
- Too deep a discharge of the battery (below 10.5V) ;
- Self-discharge after incomplete recharging;
- electrolyte level too low...

Below is a table showing the state of charge of a 12V lead-acid battery, as a function of voltage and specific gravity of the acid:

Load status	Acid-specific gravity (Acid Weighing)	12V battery terminal voltage (Voltmeter)
100%	1,265	12,7V
75%	1,225	12,4V
50%	1,190	12,2V
25%	1,155	12V
Unloaded	1,120	11,9V

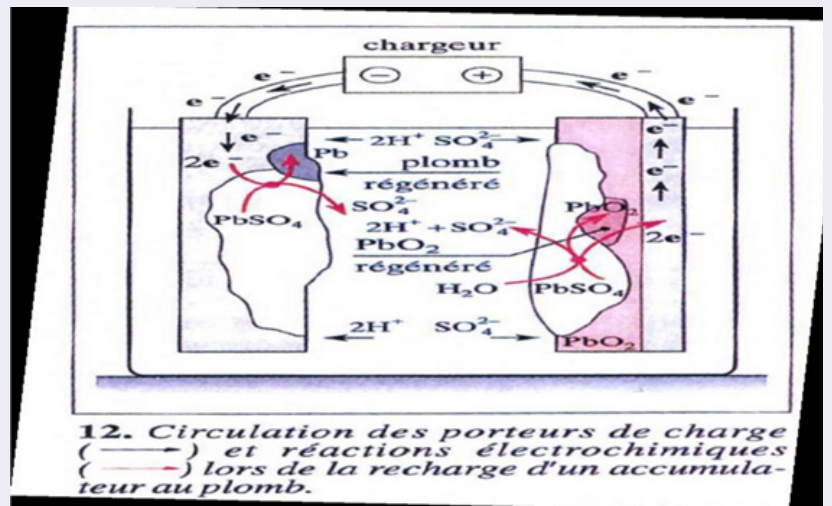
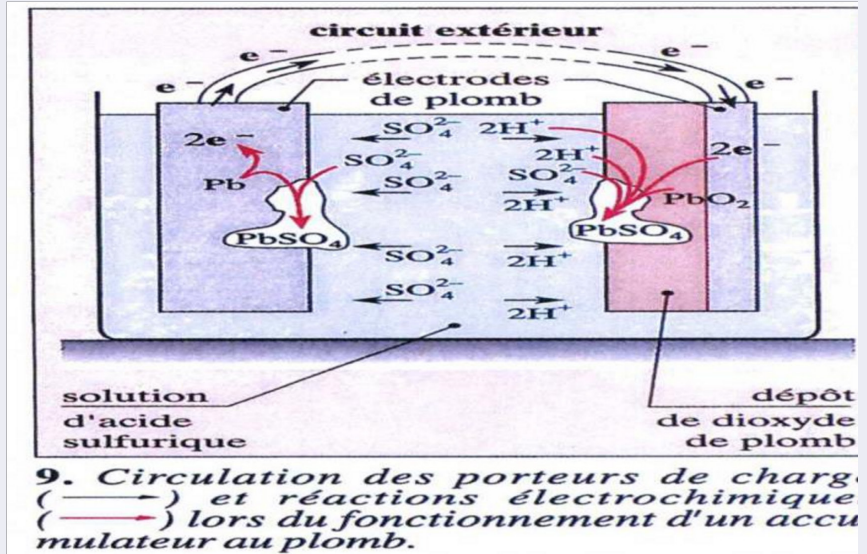
La plupart des régénérateurs (désulfatation) Most modern electrical regenerators (desulfators) to restore batteries to their original capacity and extend their service life use treatment technology based on an electrical pulse process without chemical additives to break down the crystalline layer, convert the crystals into liquid form and reconstitute the plates.

When revitalizing tired batteries using Regenerative Electrical Pulse technology, the Regenerator delivers high-intensity micro-pulses (8A to 300A) with a maximum voltage per cell of 2.6V to reduce the battery's internal resistance to its normal value. This enables the battery to be recharged normally, reaching full capacity after a few charge/discharge cycles.

To dissolve the sulfate in the acid, the electrical impulse is sent to the resonance frequency of the lead sulfate (between 1 and 6 MHz), causing it to vibrate and fall into fine particles.

Below are the chemical reactions that gov-

ern the operation of a lead-acid battery (taken from the BRT regenerator manual from Plus Battery): Charge, Recharge, Regeneration



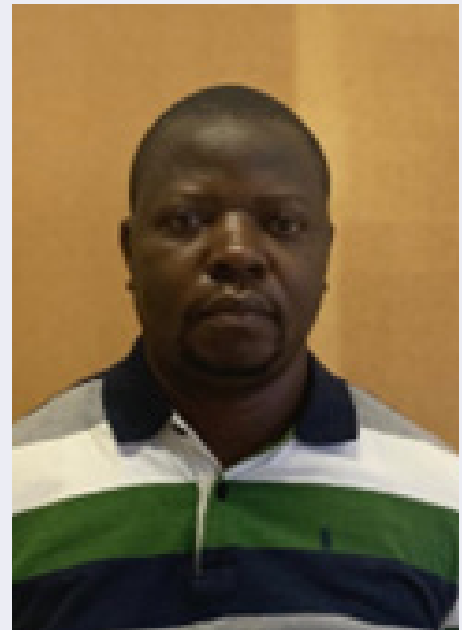
The creation of a regeneration chain for used batteries in the DRC could be a strategy for assessing and controlling the exploitation of second-life batteries, to increase control of the circular battery value chain during the transition to the manufacture and deployment of Lithium-Ion batteries. This chain will form part of the Conseil Congolais de la Batterie's (CCB) strategies for managing the battery value chain prior to the start-up of Lithium battery manufacturing.

Charles Jacob Mukeba Tshibwabwa Mukala is a retired maintenance engineer and independent researcher in energy technologies and the fight against climate change.

LUMU Théodore/INADEP

Water pollution in the DRC

The state of surface water bodies in urban centers and rural areas in the Democratic Republic of Congo (DRC) is not brilliant. Urban sprawl, modern and small-scale industries, agriculture, domestic wastewater and demographic growth have all contributed to a remarkable level of environmental pollution. As a result, manufactured products, foodstuffs and wastewater are discharged directly into water (e.g. rivers, lakes and the Congo River), which acts as a kind of outlet and final receptor for all environmental pollution. In the end, we can see that any product used in our daily lives, or for agricultural or industrial purposes, sooner or later ends up, at least partially, in the water cycle, with the risk of causing ecological imbalance and health problems for the population.



Dr. Ir. Verus LUMAMI KAPEPULA Researcher / RCH-UVIRA



The plastic invades the Congo river and the rivers of Kinshasa/France TV

Access to drinking water is a human right. The DRC possesses around 50% of the fresh water on the African continent; only 52% of the population has access to drinking water and 28% has access to improved sanitation. The rest of the population has no access to drinking water, and relies on the nearest watercourses.

Unclean water is a source of water-borne diseases, which fall into four categories: diseases related to acute or chronic deficiency of clean water, diseases related to water contamination, diseases related to contamination of water by toxic substances, and vector-borne diseases. Under these conditions, it is inevitable that the population will consume contaminated water.

To improve sanitary conditions, it is advisable to build wastewater treatment

plants in cities, to eliminate biodegradable organic pollutants.

Given that wastewater treatment plants can only eliminate around 60 to 70% of inorganic pollutants, we propose the implementation of an emerging process such as nanofiltration membrane filtration or reverse osmosis, which is part of our expertise and would be the best solution for eliminating all non-biodegradable inorganic, organic (pharmaceutical) and highly toxic micropollutants.

It would also be desirable for major monitoring to be focused on industrial pollutant producers, as heavy metals are pollutants produced in large quantities by industrial plants. Consequently, wastewater must be purified and treated, then returned to the natural circulation of water.

It is recommended that the population become urgently aware of the need to protect the environment in order to improve quality of life.

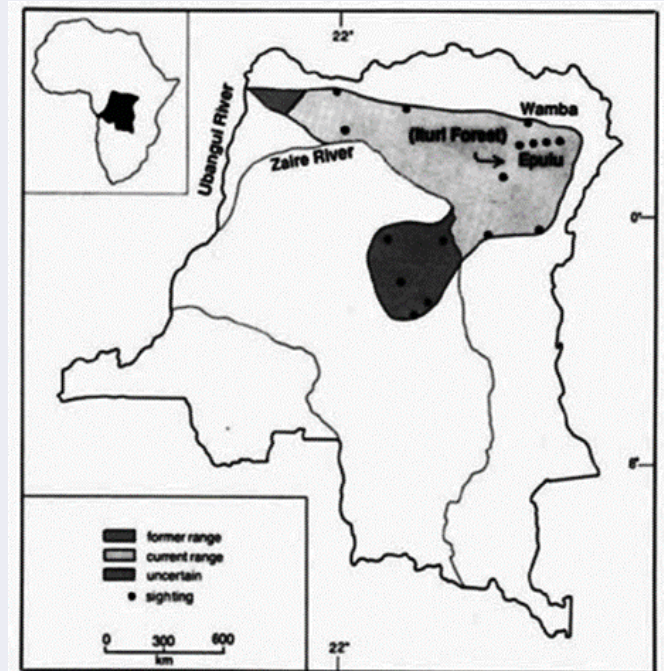
It is recommended that the relevant environmental protection department be involved in assessing existing legislation on the protection of surface waters against pollution, updating it and ensuring that it is strictly enforced.

Dr. Ir. Verus LUMAMI KAPEPULA Researcher/CRH-UVIRA

Prof. NGBOLUA KOTO-TE-NYIWA and his team publish a study entitled: "new geographic localization of Okapi in DRC. The North Ubangi forest block".

Professor NGBOLUA KOTO-TE-NYIWA Jean-Paul and his team have published a study entitled "new geographic localization of Okapi in DRC. The North Ubangi forest block".

According to them, the okapi (*Okapia johnstoni*; Girafidae) is a herbivorous mammal that lives mainly in the dense forests of northeastern Democratic Republic of Congo in Central Africa. This animal, related to the giraffe, is characterized by its zebra legs and dark brown body. As for its distribution, Ordinary Professor Ngbolua Koto-Te-Nyiwa (PhD) and his team from the University of Gbado-Lite have reported that the northern Ubangi is now considered its new biotope, thus extending the area of distribution of this emblematic animal



These experts also demonstrate that the okapi's lifestyle is generally solitary. It feeds mainly on leaves, fruit and plant bark. The discovery in northern Ubangi has enabled the International Union for Conservation of Nature (IUCN) to update the okapi's area of distribution, reinforcing conservation efforts for this species. The ethnobotanical survey revealed several plants consumed by the Okapi, both in captivity and in situ. Chemical studies carried out on these plants identified secondary metabolites with therapeutic properties, offering the possibility of developing phytomedicines to protect the Okapi against disease in captivity (ex situ conservation). It should be noted that an Okapi conservation project in the North Ubangi Province could have social impacts on biodiversity in line with the Climate, Community and Biodiversity (CCB) standard. Indeed, conservation measures can affect the climate, local communities and biodiversity in the Ubangi eco-region.

Professor Ngbolua Koto-Te-Nyiwa is scientific advisor to the National Scientific Council.

MAZONO MPIA Christian/NSC



Peatlands: the world's third largest carbon reservoir, another lever for sustainable development in the DRC

Peatlands are humid ecosystems characterized by the accumulation of decomposed organic matter, mainly peat. They play an important role in regulating the water cycle, biodiversity and carbon storage. They provide essential ecosystem services, notably by helping to regulate watercourses, filter water, preserve biodiversity and reduce greenhouse gas emissions through carbon storage.

Economically, peatlands can be a source of sustainable income through fishing, ecotourism and the sustainable exploitation of natural resources. However, unregulated exploitation can have adverse consequences, compromising long-term sustainability.

From a social point of view, peatlands play a key role in food security, providing biodiversity-rich habitats that support local communities. Furthermore, peatland preservation is essential to mitigate the impacts of climate change by ensuring greater resilience to extreme weather events.

As such, peatland preservation in the Democratic Republic of Congo (DRC) and the sub-region is essential to ensure sustainable development, guarantee ecosystem stability, promote sustainable sources of income and strengthen resilience in the face of climate change. Balanced management and the promotion of sustainable practices are crucial to maximizing the social, economic and environmental benefits associated with these unique ecosystems. Peatlands are composed mainly of decomposing organic matter, generally derived from plant residues.

Chemically, they contain carbon, hydro-

gen, oxygen, nitrogen and sometimes sulfur. Biologically, peatlands are home to a diversity of organisms, including plants adapted to acidic, humid conditions, bacteria and sometimes specialized animal species.

Microorganisms play a key role in the decomposition of organic matter of plant origin, directly influencing carbon storage and release. It is well established that in peatlands, microbial activity is hampered by generally anoxic conditions, acid pH levels and low nutrient concentrations. As a result, although they account for just 3% of the world's land surface, peatlands are the world's third-largest carbon reservoir, after oceans and forests.

The Ubangian eco-region in the DRC is a reservoir of peatlands, acting as an ecological buffer between the Sahel and the central basin (transboundary Ramsar site). Conserving these peatlands in line with the CCB (Climate, Community and Biodiversity) standard can promote the sustainable development of the North Ubangi province by preserving biodiversity, regulating the climate and supporting local communities through eco-responsible practices.

Thus, in order to achieve the Sustainable Development Goals, as well as the national objectives associated with this issue, it is imperative to take action in line with various specific objectives. This includes Objective 13, which focuses on actions to mitigate climate change by preserving soil carbon reserves.

Similarly, Goal 3, relating to health, requires efforts to prevent serious air pollution problems, as recently seen in South-East Asia with the drained swamp fires that lasted for months. In parallel, Goal 6, which concerns clean water, requires initiatives aligned with the protection of water-related ecosystems.

And Goal 15, which focuses on terrestrial life, calls for the conservation and rational use of the peatland ecosystem and its endangered species. By adopting these actions, we are making a significant contribution to achieving these essential objectives

In conclusion, as the world's third-largest carbon reservoir, peatlands are another lever for sustainable development in the Democratic Republic of Congo.

NGBOLUA KOTO-TE-NYIWA,
Prof in the UNIKIN, scientific Adviser
and Editor in chief of Congolese Review of
Sciences and Technology of the NSC



The RIHS gives remedies against the epidemic of the conjunctivitis

The General Manager of the Research Institute of Sciences and Health (IRSS), Professor NYEMBUE TSHIPUKANE Dieudonné and his team of research raised some remedies to fight against the epidemic of conjunctivitis which strikes the population of Kinshasa for these February 2024 and January.

According to these researchers, the conjunctivitis is an ignition of conjunctive, the whitish part of the eye. It is a fine transparent membrane which covers the interior one with the eyelids and then the former part of the ocular sphere. The glands which are contained there produce secretions whose role is to maintain the humidity of the eye and to fight against the infection through the secreted antibodies. The conjunctivitis can be of varied cause: Infectious (bacterial, viral), allergic or secondary to an irritation due to the contact with a toxic product (treatment traditional) or chemical.

They show that the viral conjunctivitis is extremely contagious occurs within the framework of true epidemics. The viruses implied in the ocular infections are numerous, Herpes virus, measles, rubella, SARS CoV- 2; Virus Ebola, etc

The adenovirus (90% of the conjunctivitis) are the principal cause of the viral conjunctivitis. These viruses are contracted by contact with respiratory secretions or are manu carried of the infected people or by a contaminated object.

The enterovirus and viruses Herpes, them represent: 1,4 to 4% of the conjunctivitis.

The bacterial conjunctivitis it, is caused by the following germs: Staphylococcus aureus, Streptococcus pneumoniae, Hemophilic spp, Moraxella catarrhal or more rarely Chlamydia trachomatis etc.

The allergic conjunctivitis occurs after a contact with an allergen and repeats regularly as soon as the person is, again, exposed to this allergen. The most frequent allergens are pollens of graminaceous, trees or herbaceous.

Historic

The tropical epidemic hemorrhagic conjunctivitis or Apollo conjunctivitis prevailed for the first time and was discovered in 1969.

The first hearth was observed in the area of Accra in Ghana. This period coincides with the lunar landing of Appolo11. Thus, the population had concluded that this disease was a divine punishment because the man had gone on the moon.

But the scientists proved that it is a conjunctivitis due to a virus called enterovirus 70. At the time of this first epidemic left the hearth Accra, all the Atlantic coast of Africa was contaminated.

The second hearth was observed in Indonesia, which gained the South Asia and in the Nineties, there was a puff of this epidemic with Burkina Faso

Epidemiology

The frequency of the conjunctivitis is 40% in the general population. The conjunctivitis is seasonal in 75% of case.

Symptomatology

- Incubation period: After contact with the pathogenic agent, one duration from five to twelve days run out before the appearance of the first symptoms
- The inaugural attack unilateral before is generalized: it associates ocular redness, the pain, the whimpering with the signs of irritations (rotten and feeling of sand grain)

Ophthalmologic Examination :

- The diagnosis of the viral conjunctivitis is primarily clinical, by the examination of the doctor
- One often finds conjunctival adenopathies pretragiens, follicules and even a chémosis (conjunctival oedema) associated or not with haemorrhages.
- The existence of secretions (inflammatory fibrins and cells) and or of a keratitis (reached corneal) can explain the fall of vision.
- The clear differentiation between the viral and bacterial origin is sometimes vague because certain signs overlap. From where need for a correct ophthalmologic examination to avoid the complications (corneal Ulcers, ocular dryness, will symblepharons, or uveitis).

Biological diagnosis

Biological analysis of the conjunctival secretions to affirm the viral etiology, bacterial or other.

Treatment: two shutters

Preventive treatment

Because of their strong contagiousness, measurements to limit the propagation of the viral conjunctivitis are essential :

- To regularly wash hands (soap, SHA) after having touched the eyes or of nasal secretions
- To avoid dividing towels or pillows
- To avoid swimming in the swimming pools,
- To remain at the house until the cure
- Systematic disinfection of the equipment after consultation of case confirmed for the doctors.

Curative Treatment

The viral conjunctivitis is spontaneously resolvent (in one week) a regular washing of the eyes to relieve the symptoms.

- To use solutions of ocular washing adapted to clean secretions several times per days.
- To proscribe the ocular occlusive bandage
- Use of the compress cold for the simple cases to relieve the symptoms,
- The instillation BOARD (corticoids) under strict control of the ophthalmologist because of the risk of ulcer cornea on possible herpetic keratitis)
- The use of antibiotics (Aminoside, quinolones, ciprofloxacin, Terramycin, macrolide) in the event of bacterial superinfection.
- To avoid the use of lens of contact
- In the event of fever, it is necessary to consult the general practitioner.

Researchers of RISH
NGOYI MAUWA Françoise
NSAMNAYI LUKUSA Delux
Prof. NYEMBUE TSHIPUKANE Dieudonné

CENTERS AND RESEARCH INSTITUTES OF THE PUBLIC SECTOR IN D.R. CONGO

RIHS (Research Institute in Health Science)

Objective: To improve the state of health of the population through research in the following fields: pharmaceutical, medical, anthropological, psychological or socio-cultural.

Address: 9, Av. Lukusa C/Gombe; E-mail: dnyembo@gmail.com; Tel: 0824580211

ATSRC (Applied and Technologic Sciences Research Center)

Objectif: Mettre au point des matériaux, des appareils, des méthodes ou procédés Objective: To develop materials, equipment, methods or processes with a view to finding solutions to the population's urgent problems in various fields: housing, rural development and the modernization of the society.

Address: 106, Blvd du 30 Juin, C/Gombe; E-mail: Jeannoel.mputu@gmail.com; Tel: 0821138261

RCHS (Research Center in Human Sciences)

Objective: To ensure the human development of the Congolese people through the study of its social, economic and political dimensions with a view to identifying the factors that have a positive or negative influence on its development.

Address: :33,Av.comité urbain C/ Gombe; E-mail: mingashang@yahoo.fr; Tel: 0819377821

RCMT (Research Center in Mathematics Teaching)

Objective: To carry out research in the field of mathematics teaching with a view to improving quality.

Address: 84, Av. des Ambassadeurs C/ Gombe; E-mail: mabelamatendorostin@gmail.com; Tel: 0815031877

GRC (Geophysical Research Center)

Objective: To provide the country with a national geophysical observation network, for the global study of the internal behavior of the earth in the DRC.

Address: 44, Av. de la démocratie, C/ Gombe(within GMRC); E-mail:tondozi@gmail.com; Tel: 0854426228

AIPS (African Institute of Prospective Studies)

Objective: To carry out forward-looking studies in order to propose solutions to crises and problems linked to the evolution of African societies.

Address: Av. Cardinal Malula, C/ Lemba; E-mail: mgrtarcibangu@yahoo.fr; Tel: 0996658741

MDRC (Multidisciplinary Development Research Center/Matadi)

Objective: To carry out operational research in central Congo in the field of applied linguistics of African cultures and applied sciences

Address: Hôtel de la porte Matadi; E-mail: Mwanzanicolas5@gmail.com; Tel:0815037949

NCPIR (National Committee for the Protection of ionizing Radiation)

Objective: - Regulatory authority for protection against the dangers of ionizing radiation in the DRC management of radioactive sources of radioactive materials such as uranium.

Address: 4675, Av. Colonel Ebeya, Immeuble Quitus 2ème niveau; Email: Flory1963@gmail.com; Tel: 0816684665

AEC (French Atomic Energy Commission)

Objective: To carry out, promote and coordinate scientific and technical research in various fields of science and industry, concerning the use of atomic energy and space research.

Address: UNIKIN building; E-mail: Steve.muanza.kamunga@gmail.com; Tel: 0808643248.

CGI (Congo Geographic Institute)

Objective: Production of the base map of the DRC at a scale of 1/50,000 and its derivatives.

Address: 106, Blvd du 30 Juin, C/Gombe; E-mail: Fidele.balibuno@unikin.ac.cd; Tel: 0974449240.

GMRC (Geologic and Mining Research Center)

Objective: To carry out studies and analyses to improve knowledge of the soil and sub-soil of the national territory.

Address: 44, Av. de la démocratie, C/ Gombe; E-mail: rolandkakule@gmail.com; Tel: 0851506161

NIASR (National Institute for Agronomic Study and Research)

Objective: To promote the development of agriculture in the Congo. To maintain varieties, multi-local trials, and its farmers, management and conservation of germplasm. Set up a program to monitor and evaluate research activities.

To disseminate new varieties. Give the emerging technical department its reason for being, with a view to producing basic and pre-basic seed. Resume publication of the agricultural magazine to disseminate research results.

Address: 13, Av. des Cliniques, BP :2037 KINSHASA , C/Gombe; E-mail: domikankonde@yahoo.fr; Tel: 0818248620

RCALC (Research Center into African Language and Culture)

Objective: To coordinate and carry out all research projects concerning African languages and cultures.

Address: 53 C, Av. Makiso, blvd du 30 juin, Kisangani/ Tshopo. Tel: 0851934320

AFRC (Agro-Food Research Centre/Lubumbashi)

Objective: To identify processes for processing and preserving basic local agricultural products. To improve the quality of imported or locally produced foodstuffs by applying approved standards and quality control.

Help the technological development of the existing agro-industry by providing them with technical assistance wherever possible.

Address: 1, Av. Président ILEO, Q/CRAA, C/Lubumbashi; E-mail: Julesnkulu@gmail.com; Tel: 0997131002

SSRC (Social Science Research Center / Bandunduville)

Objective: to carry out practical scientific research into major socio-economic and cultural issues.

To promote sustainable aquatic development.

Address: 29, Av. de la mission, Q/Salongo, C/Basoko. BANDUNDUVILLE, BP. 223; E-mail:akuzituka@gmail.com; Tel: 0815898971

FERC (Forest Ecology Research Center /Mabali)

Objective: Scientific research on plants, aquatic species and animal species.

Address: D.S/MBANDAKA D.S/MBANDAKA/PROVINCE OF ECUADOR; E-mail: bosomboependi2@gmail.com; Tel: 0825241704

NDRC (Nutritional Diseases Research Center/Gemena)

Objective: Research into diseases linked to malnutrition, such as related diseases by isolating certain molecules, such as SYZYSIUM GUINESIE to combat amoebic yeasts and diarrhea in South Ubangi.

Address: Mobutu n° 220/A. GEMENA/ SOUTH UBANGI PROVINCE; E-mail: cherusangi@yahoo.fr; 0992416091

NSRC (Natural Sciences Research Center /Lwiro)

Objective: To carry out, promote and coordinate research in the fields of science, technology and industry throughout the DRC.

Address: LWIRO LWIRO , TERRITORY OF KABARE/SUD KIVU; E-mail: robert.kasisi@umontreal.com; Tel: 0996806699.

MDRC (Multidisciplinary Development Research Center /Bunia)

Objective: To carry out operational research in the north-east of the DRC in the fields of applied linguistics, African cultures and applied sciences.

Study of nature, fauna, flora and protection of endangered species.

Address:BUNIA/ITURI; E-mail: Kermwathomas@gmail.com; Tel: 0997717070

HRC (Hydrobiology Research Center in Uvira)

Objective: To program, coordinate and monitor research activities in hydrobiology, limnology and hydrology.

hydrobiology, limnology and fisheries in all ecosystems.

Address: 115, AV. du Congo, Q/Kimanga, C/Kalundu, UVIRA / SUD KIVU; E-mail: bida-kamuhoza@gmail.com; Tel: 0997716307.

CoE/CBRNEC (Chemical, Biological, Radiological and Nuclear Excellence Center)

Objective: To contribute to the mitigation of chemical, biological, radiological and nuclear risks.

Address: 106, Blvd du 30 Juin, C/Gombe; E-mail: Odette.kabena@gmail.com; Tel: 0816904370.

GVO (Goma Volcanological Observatory)

Objective: Prevention of volcanic risks by monitoring volcanoes and Lake Kivu. Management of natural risks; scientific research.

Address:142, Avenue Du Rond Point ; Quartier Les Volcans ; Commune de Goma ; Ville Goma; North-Kivu; E-mail: mavotulu@gmail.com; Tel: 0998584734

WERC (Water and Environment Research Center)

Objective: To serve as a training and research center focusing on water and environmental management.

To propose solutions to problems that could arise around water. Create a national network of Congolese scientists and researchers to analyze and disseminate information on the impact of climate change in the DRC. Promote education and the right to the environment.

Address: 44, Comité Urbain C/ GOMBE; E-mail: ngelipatience@gmail.com; Tel: 0818105625.

RCSARP (Research Center for the Selection and Adaptation of Ruminants and Pigs)

Objective: To carry out studies and research in the field of ruminant and pig breeding

Address: 45, Av. Lumumba, Q/de la gare, LUPUTA/ KASAI-ORIENTAL; E-mail: tshamalagabriel@gmail.com; Tel: 0851817370

NCRS (National Center for Remote Sensing)

Objective: Research in remote sensing.

Address: PLACE ROYAL IMMEUBLE PLACE ROYAL IMMEUBLE KASAI; E-mail: davidngindub@gmail.com; Tel: 0815103502.

NCROS (National Center for Research in Oral Science)

Objective: To carry out studies and research in the field of oral health.

Address: 13, 10ème Rue, Industriel Quarter, C/Limete; E-mail: Cnrsbd.rdc@gmail.com; Tel: 0822244152; 0811835159; 0840922982

CAS (Congolèse Academy of Sciences)

Objective: Promotion and dissemination of science, technology, arts and letters. Support for inventive initiatives.

Address: Sciences Faculty/ UNIKIN local 28; E-mail: jlmuyembet@gmail.com; Tel: 0813330242

MIPRC (Matadi Interdisciplinary Pedagogical Research Center)

Objective:--Information science.

Address: The buildings of the Matadi Higher Pedagogical Institute; Tel: 0896501462

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2. to deliberate on the allocation of resources from the State budget to scientific and technological activities;
3. supervising the financial management of research centers and institutes
4. approving the budgets of the Research Institutes and Centers and submitting them to the Minister for Scientific Research for approval
5. approving the organic regulations of the Research Institutes and Centers;
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