MINISTRY OF SCIENTIFIC RESEARCH AND TECHNOLOGICAL INNOVATION

SCIENCES & TECHNOLOGICAL INNOVATIONS BULLETIN

NATIONAL SCIENTIFIC COUNCIL

kidnapping and trafic of human organs
a market for medical purposes?

Gilbert KABANDA
launches works of the pre-conclave

Seasonal influenza

Maize:
Research and production in the DRC

For geopolitics of artificial intelligence in DRC

Monkeypox in the DRC
DRC records over 5,200 cases between January and June 2023

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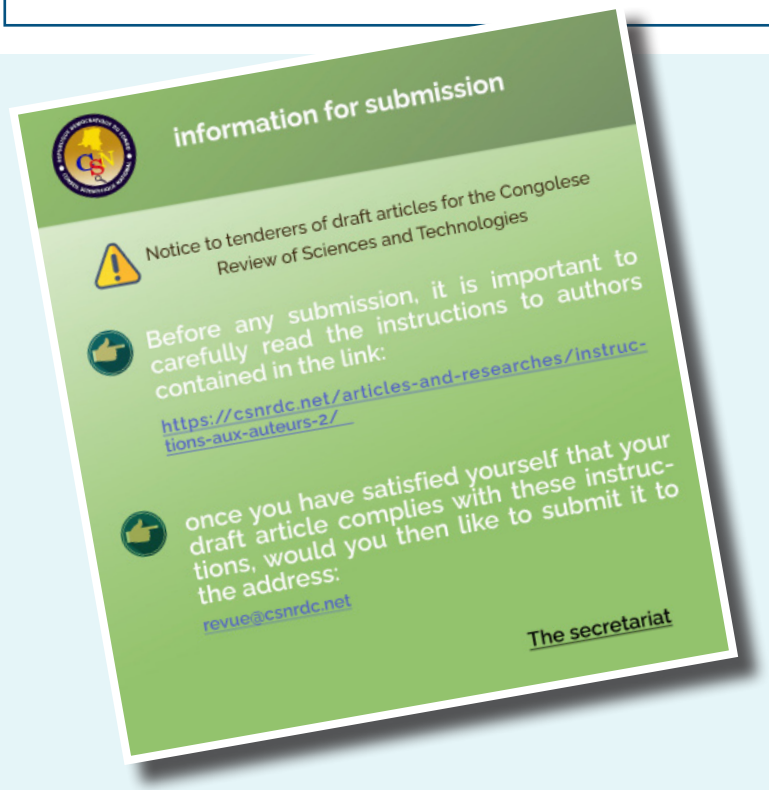
CONTENTS



Family photo of the Minister Gilbert KABANDA with the Press.

Activities of the Minister of SRTI

Gilbert KABANDA receives the press

The Minister of Scientific Research and Technological Innovation, Dr Gilbert KABANDA KURHENGA, organized a press conference on Thursday June 29, 2023 at the Kasaï building in Gombe township.

This meeting with the knights of the pen consisted in informing the press and the public at large of the "First Conclave of Congolese Scientific Genius", to be held at the end of August this year. This major event will bring together Congolese innovators and inventors around the same table, with the aim of promoting this sector, which generates revenue for the State but has been abandoned.

The purpose of this meeting with the knights of the pen was to inform the press and the public at large about the "First Conclave of Congolese Scientific Genius" to be held at the end of August this year. This major event will bring together Congolese innovators and inventors around the same table, with the aim of promoting this sector, which generates revenue for the State but has been abandoned.

In his speech, the Patron of Scientific Research began by pointing out that the Democratic Republic of the Congo is a geological and agricultural scandal, and a biodiversity scandal, but unfortunately, since 1960, the potential of this great country has remained unexploited. For him, only "kinetic" energy is operational; but not potential energy.

Gilbert KABANDA speaks in front of the Press.

And Minister KABANDA is not one for comment, but rather for action, wants to organize in his country, this very first conclave called "Conclave of Congolese Scientific Genius ". The first of its kind ever to be held in the DRC.

The countdown to D-Day is already underway.

The capital, Kinshasa, has been chosen to host this major event, the only one of its kind to date. According to Minister KABANDA, the organization of this symposium has already been approved at the highest level of the State, by the Head of State, President of the Republic Félix Antoine TSHISEKEDI TSHILOMBO, as well as by the Prime Minister, Head of Government Jean Michel SAMA LUKONDE KYENGE. There is therefore every reason to keep our fingers crossed for the holding of these forthcoming meetings in the coming weeks; a conclave that will bring together in Kinshasa the Congolese researchers, inventors and innovators listed both at home and abroad.

The No. 1 for Scientific Research and Technological Innovation took the opportunity to answer questions from media men and women following his public statement, gave all the insights on the subject.

Some inventions and innovations of Congolese scientific genius not supported by the State.

The Minister of SRTI mentioned some of the potentialities that were the strength of the Congolese economy in 1960, such as the "dwarf palm", which originated in the DR Congo, but has now become a source of wealth for Malaysia, now ranked as the world's leading palm oil producer. There's also the "Cocoa from Ivory Coast ", also a Congolese original, but unfortunately well exploited by Ivory Coast.

"In 1960, we were practically the most advanced black African country in terms of scientific research and research products, both agricultural and industrial; we had the first mining industry, Mining Union of Haut-Katanga, whose revenues made up the bulk of the national budget. For example, in 1986, at the Kinshasa International Fair (KINIF), six young people from Nd'jili presented the nation with a "helicopter" "made in Nd'jili". "This helicopter turned the engine, took off in front of us at KINIF in 1986, but these six young inventors were ignored by the Congolese state. If they had the support of the state, we would have become a helicopter exporter. They went across the Mediterranean "added Minister KABANDA.

Some of the participants at the press briefing

Other examples include Thérèse KIRONGOZI's "intelligent rolling robot", the first prototype of its kind in the world, but not adopted by the government as a Congolese industrial asset. Then there's

Doctor Jean-Jacques

MUYEMBE TANFUM, who invented an antiviral against the Ebola virus.

Unfortunately, this drug, which treats Ebola, is not produced in the DRC, and is not "the property of the Congolese economy", regrets Minister Gilbert KABANDA. He also mentioned "Meyamicin", a wonderful product for all digestive tract infections. Unfortunately," said the Minister, "this product has remained in its primary form and has not developed, after more than 40 years on the market. There's also "Doubase C", validated as an anti-viral drug by the Faculty of Medicine at the University of Kinshasa, under World Health Organization (WHO) protocol, treating AIDS, hepatitis V and C, Covid-19 and influenza, but still not industrialized. Add to this "Manacovid", which is awaiting scientific proof at UNIKIN's Faculty of Medicine.

A few journalists photographed.

To sum up, Minister Gilbert KABANDA believes that there are hundreds of Congolese inventions that are not being supported by the Congolese state to strengthen the country's economy.

by the Congolese state to strengthen the country's economy. "Economic potential must become economic wealth. The DRC is potentially rich and large, but in reality poor. All countries have become great, like China, through innovation and invention.

We won't be great thanks to the export of our coltan. It's time for Congolese scientific genius to be taken in hand by the nation through its government. Not to do so is to give up resources that could develop the country; and hand innovators and inventors over to foreign powers who will exploit them and sell their inventions", he concluded.

Communication unit of the Minister of SRTI

Gilbert KABANDA presents the results of his study on "the impact of adapted physical activity

The Minister of Scientific Research and Technological Innovation, Dr Gilbert KABANDA, presented to the press the results of the latest study in his field of expertise, health.

SEM Gilbert KABANDA presenting his study.

In the presence of eminent professors and various other researchers and scientists in the medical field, Dr Gilbert KABANDA focused his presentation on a study of blood pressure carried out among members of the Armed Forces of the Democratic Republic of Congo (AFDRC). "Impact of Adapted Physical Activity on Blood Pressure and Hypertension" ("Impact of Adapted Physical Activity on Pressure and Hypertension") is the title of this scientific work carried out in 2017 by Minister KABANDA himself.

As a military doctor, Dr. Gilbert KABANDA's aim with this research work was to create a well-developed study framework for the conditioning of Congolese military personnel.

To be more complete, and in his own words, the cardiovascular system is the 1st factor that enables

Minister KABANDA, a seasoned researcher, has conducted these studies to promote adequate physical fitness conditions for FARDC soldiers.

"It's a research project within the framework of military medicine that I began in 2017, to improve the conditioning of military personnel... The military has as its mission to face death at any moment, and to deploy intense physical efforts in operation. These two factors call on all the body's organisms. But the main system involved is the cardiovascular system.

When it comes to military conditioning, the cardiovascular system is the most important system for decision-makers and military doctors alike. It is in this system that the major causes of physical unfitness for military service are to be found. That's why I made it a major preoccupation of mine, and why I launched a study on the subject, which is now being published.

Military personnel have a career that makes them think of death on a daily basis, or puts them in conditions of permanent stress. It's this permanent stress that military personnel have to manage, and it's managed by the military doctor, mainly in the field of the cardiovascular system", says Minister Gilbert KABANDA KURHENGA.

Communication Unit of the Minister of SRTI

In unison, SEM KABANDA and his audience sing the national anthem (Congolese stand-up).

Organization of the Scientific Conclave of Congolese Genius, **Gilbert KABANDA launches the pre-Conclave.**

NSC President Prof. Pius MPIANA TSHIMANKINDA addresses Minister Gilbert KABANDA at the opening of the pre-Conclave.

The Minister of Scientific Research and Technological Innovation, Gilbert KABANDA KURHENGA, has launched the Pre-Conclave of the Scientific Conclave of Congolese Engineering, on July 24, 2023 at the Palais du peuple in Kinshasa. The marquee for the event is located in the Concession of Parliament.

During this event, the Patron of Scientific Research handed over the Digital Portal Code to the President of the National Scientific Council, Professor MPIANA TSHIMANKINDA Pius, synonymous with the start of effective registration of inventors, innovators and other researchers. For the record, this digital tool now enables them to register officially. The Minister of Scientific Research was informed that 300 inventors, innovators and other researchers had already registered with the portal.

For Dr Gilbert KABANDA, the time has come for this Conclave, a large-scale event, to demonstrate to the world the enormous scientific potential of the Congo.

In his address to the members of the committee of evaluators, the head of Scientific Research reminded them of their role in ensuring the success of the conference.

According to Dr Gilbert KABANDA, the promotion of scientific research through this conclave is essential for the development of the DRC.

At the same time, the Minister, in the simplest of manners, visited the tent that was to house the Conclave.

He closed with an exchange with numerous inventors who had also come to register with the Portal.

Minister Gilbert KABANDA greeting some of the Congolese Geniuses.

The Scientific Conclave of Congolese Genius will be held from August 14 to 24, 2023 at the Palais du Peuple in Kinshasa.

Communication Unit of the Minister of SRTI and Christian MAZONO/NSC

Minister Gilbert KABANDA inaugurates the NERC-K data center

Minister of Scientific Research and Technological Innovation GILBERT KABANDA KURHENGA visited the French Atomic Energy Commission (AEC), which also houses the Kinshasa Regional Center for Nuclear Studies (KRCNS).

The Minister visited the University of Kinshasa site. On his arrival, the Management Committee, headed by Steve MUANZA KAMUNGA, and all staff and managers and executives gave him a welcome worthy of his rank. On the spot, Minister KABANDA inaugurated the data center which is to centralize all the data from this internationally renowned center, but before that, the head of Scientific Research personally took a look at the current state of the Triga 2 nuclear reactor, which the AEC intends to put back into service very soon.

According to him, the inauguration of the computer center, set up with the aim of modernizing the site to bring it into line with other centers emerging in Africa and the world.

He also took the opportunity to visit the Biotechnology and Molecular Biology Laboratory, which specializes in plant genetic improvement, molecular identification of mutations, and characterization of biodiversity and germplasm.

It is also used for the molecular diagnosis of biological agents, notably viruses and bacteria, and for biosafety

through the detection and quantification of genetically modified organisms (GMOs) in food and seed. For his part, the General Commissioner for Atomic Energy indicated that this tool will enable managers and agents, in particular researchers and technicians, thanks to its network, storage spaces and calculation servers, to process, organize, secure and store computer data.

The ceremony was followed by the symbolic commissioning of a 60-seat bus purchased with own funds for staff transport. These initiatives by the Management Committee were welcomed by Minister Gilbert KABANDA, who paid close attention to the various concerns

expressed in terms of support and lobbying.

STEVE MUANZA'S NEW IMPETUS AT AEC

An opportunity for French Atomic Energy Commission Steve MUANZA KAMUNGA to recall the history of the AEC, which the Minister has mastered perfectly. The Luc Gillon data center, named after the first director of this strategic center, the same man who created the University of Kinshasa, then known as Lovanium, and who endowed the DRC with its first trico nuclear research reactor, is one of the projects implemented by the Management Committee, which has no intention of stopping there.

The aim is to restore the DRC's image as the first African country to acquire a nuclear reactor. Now considered to be lagging behind, the AEC's management staff believe that this situation needs to be changed. This calls for a new dynamic on the part of both the management of this scientific and technical public service and the country's highest authorities, to whom Minister Gilbert KABANDA will make it his duty to convey the wishes of his interlocutors.

Before leaving the nuclear center, Minister Gilbert KABANDA was intercepted by a representative of the agents, who insisted on their salaries. They are therefore deprived of many bonuses, which are legitimate in any case, whereas they apply in other structures and institutions. Gilbert KABANDA, while acknowledging this injustice, promised to take action as soon as possible.

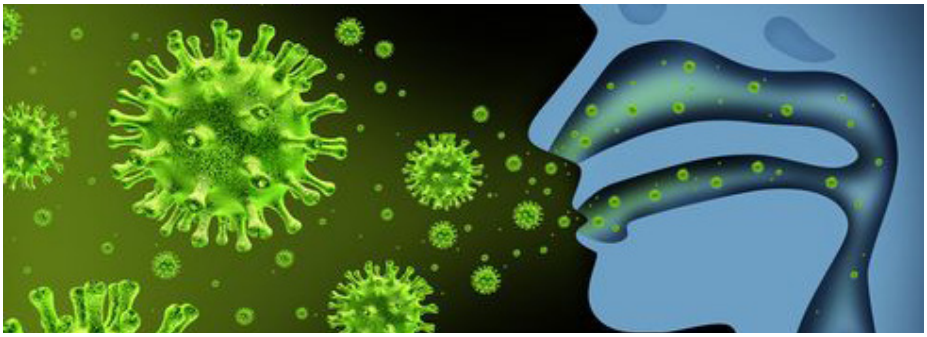
Let's note that this was the very first time since his appointment as head of the Ministry that the Patron of Scientific Research and Technological Innovation visited the AEC.

Mélanie MWAMINI ZUHULA/AEC and Forum of As

Seasonal flu

Flu is an acute, highly contagious respiratory illness caused by a virus called the influenza virus. This infection develops in the upper and lower respiratory tracts. Seasonal influenza viruses circulate every year, causing illness in humans. Epidemics of varying severity occur every year. Global pandemics occur every 2-3 years.

Three genera of influenza viruses have been identified: influenza A, B and C. A and B are major human pathogens. These viruses are distinguished from one another by the antigenic characteristics of their nucleoprotein (NP) and by the protein antigens of their matrix (M). Influenza A viruses are recognized by their surface antigens, hemagglutinin (H) and neuraminidase (N). The subtypes described are: H1N1, H2N2, H3N2,H5N1 ... (16 H subtypes and 9 N subtypes)



In our tropical regions, influenza epidemics are poorly documented. Influenza is poorly understood by the medical profession, which confuses it with common ailments such as malaria and typhoid fever. In the Democratic Republic of Congo (DRC), several influenza epidemics remain poorly understood, as they are also confused with malaria and typhoid fever, with which it shares the same symptomatology. On the one hand, this confusion leads to poor management of this disease with serious consequences, and on the other, it deprives decision-makers of data on the true burden of this disease, which should help them to implement measures to combat it, However, in 2006, following the threat of an influenza pandemic due to the emergence of the H5N1 avian influenza virus since 2003, accompanied by several human cases reported in the African region, efforts were made by country governments supported by the CDC, WHO and other international organizations to set up influenza surveillance systems in Africa. In the DRC, a sentinel and national influenza surveillance system has been set up by the Ministry of Health, with support from CDC/Atlanta and WHO.

Symptoms include fever, headache, myalgia, aches and pains, sore throat and asthenia. Human-to-human transmission of the disease occurs through sneezing, coughing or contact with contaminated surfaces. The disease can range from mild to severe, even fatal, particularly in certain high-risk individuals, making it a serious public health problem. Worldwide, there are between 3 and 5 million cases each year, of which 250,000-500,000 are fatal. These high-risk individuals include children under 4, pregnant women, people aged 65 and over, children and adults suffering from chronic pulmonary, cardiovascular and metabolic diseases.

Complications include viral pneumonia, bacterial pneumonia, Reye's syndrome in children, myositis, rhabdomyolysis, myoglobinuria, myocarditis, pericarditis, encephalitis, acute transverse myelitis and Guillain-Barré syndrome.

Virological diagnosis is based on virus isolation from throat swabs, nasopharyngeal washings or sputum by culture, and takes 48 to 72 hours. Biological diagnosis is usually made using rapid tests that detect viral antigens by immunological or enzymatic means. Serological tests may also be used.

The main public health measure for preventing influenza is vaccination. Attenuated (dead virus) and live attenuated vaccines are developed from influenza A and B viruses.

In the acute phase of the disease, symptomatic treatment can be administered (paracetamol, vitamin C, hot infusions, etc.). Antivirals are available and can be administered (oseltamivir, zanamivir, amantadine, rimantadine)..

Prof. KABENGELE OBEL Benoit
Doctor and Researcher at RIHS

Researcher Patient SHAMAVU and his colleagues publish their survey.

Researcher Patient SHAMAVU and his colleagues published, in July 2023, the preliminary results of their survey on Bio-monitoring in the Virunga Volcanic Province (R.D. Congo), East Africa. This is the area of Volcanism, which has been interacting intimately with living beings, including plants, since 2018.

In their survey, they revealed that active and passive bio-monitoring techniques are widely used at various sites around Nyiragongo and Nyamulagira, the most active volcanoes in Africa, and the Virunga volcanic chain in environmental studies to monitor anthropogenic pollutants.

The active bio-monitoring technique was carried out by exposing moss bags (Sphagnum sp.) as active accumulators of gases and particles.

At the same time, in the field of plants in general and agriculture in particular

agriculture in particular, they sampled leaves from two plant species widely distributed in the study area (Amaranthus viridis and Senecio sp.) and samples of pressed banana liquid (Musa paradisiaca and Musa nana). Amaranthus viridis is an edible plant that grows naturally and is widespread in the study area; banana trees (Musa paradisiaca and Musa nana) are a food resource in the Kivu region, producing bananas, but they are also used to obtain a liquid used as drinking water by the population in the region all along the Nyiragongo and Nyamulagira volcanoes. The collateral objective of the study is to assess the potential danger to human health.

All samples were analyzed by inductively coupled plasma optical spectrometry for 49 elements after acid digestion in a microwave oven (HNO_3 + H_2O_2).

Preliminary results showed a clear imprint of volcanic emissions in both exposed moss bags and collected plants. Several elements were strongly enriched in mosses exposed to volcanic emissions.

The highest enrichment was measured near the summit crater, but evidence of metal bioaccumulation was also found in downwind sites (e.g., the village of Kingi, several kilometers

from the volcanic source). The leaves of the plants studied also reflect the geographical dispersion of the volcanic plume, particularly for those elements (Tl, Te, Bi, Se, Cu, As, Cd,S) that are highly volatile in the high-temperature volcanic environment.

Alkali metals also showed a significant increase in concentration, probably due to their affinity for halide species transported by particles (ash, peel hair and tears, lithics) emitted with the volcanic plume.

Preliminary results have clearly highlighted a potential hazard for the population living in the vicinity of the Virunga volcanic zone, including the City of Goma, the Villages of Kibati, Rusayo, Muningi,Mudja, Mudjoga, Kingi,Sake, etc.

By the way, this survey was carried out by researchers including those from the Goma Observatory. The latter monitors the Virunga volcanoes.

Patient SHAMAVU OVG/GOMA

Epidemiological situation of Monkeypox in the DRC

DRC registers more than 5,200 cases between January and June 2023

The Democratic Republic of Congo recorded 5,236 cases, including 229 deaths, representing a case-fatality rate of 4.6%, in 17 of the 26 provinces (65%). These cases were reported in 155 of the country's 519 health zones (29%). The Ministry of Health's Monkeypox incident management system reported on the epidemiological situation of all recorded cases of this epidemic from the beginning of the year to June 25. "In terms of cumulative cases notified since the beginning of this year, the DPS Equateur has more than cases, i.e. 1,545 cases, representing 31%. It has also reported more deaths, i.e. 108, for a case-fatality rate of 6.9%.

The 5 to 15 age group (31.86%) is the most affected. There are more deaths among children aged 5 to 15 (33.58%)", the system reports. The system says it faces a number of challenges, including the spread of the disease in the country; the absence of treatment kits; poor detection of cases, both clinical and biological; low community involvement in the fight against Mpox; and low involvement of other sectors in the fight.

Monkeypox, also known as monkeypox, is a disease initially present in animals, notably rodents in Africa, and now circulating in humans, making it an emerging zoonosis. The disease is an attenuated form of human smallpox, with less severe symptoms and lower lethality (number of deaths out of the number of people affected).

The monkeypox virus is a double-stranded DNA virus (around 200 kilobases), belonging to the Pox viridae family and the Orthopoxvirus genus. Monkeypox is a zoonosis, i.e. a disease transmitted from animals to humans. Monkeypox is transmitted to humans from rodents (e.g. forest squirrels or Gambian rats in Africa).

However, the animal reservoir has not yet been formally identified. According to a study published in 2021 by the Institute Pastor, concerning monkeypox in the Central African Republic, the genomic history suggests multiple introductions from forest animal reservoirs. However, monkeypox is less contagious than human smallpox, resulting in a milder disease: monkeypox generally manifests itself as a febrile syndrome (body aches, headaches, fatigue, etc.).

AVENIR Journal

The journey of a researcher: from commitment to the dignity of emeritus status

Born on 04-04-1942 in Bonkena, in the Province of and, after studying Greco-Latin In High School at the minor seminary of Bolongo-Lisala and philosophy at the major seminary of Bwamanda/Gemena, I was In 1966, thanks to a scholarship from the French government (FAC), I went to the University of Dakar, Senegal, where I Graduated from the Faculty of Letters and Human Sciences in 1976 with a Bachelor's degree in Letters, Research degree in linguistics and Master's degree in Modern Literature.

Returning to France in 1972, I was hired by IRSAC as a Research Assistant and at the same time assigned to the Secretariat for Scientific Design in the General Manager's office.

Having realized and understood that without a doctoral thesis, one cannot make a career as a researcher in a scientific research institute, I decided to go to France in 1975, without a scholarship but following an arrangement with Professor H.L.Vis, Head of the CEMUBAC Medical Department at IRSAC/Lwiro, to prepare my doctorate under the direction of Professor Roger Mercier of the University of Lille III, who entrusted me to another Professor, (J.M. Grassin) himself a doctoral student.

to another Professor (J.M. Grassin), himself having retired.

In June 1979, I defended my doctoral thesis in National and Comparative Literature at François-Rabelais University, Faculty of Classical and Modern Languages, Literatures and Civilizations. Previously, in 1975-1976, I had prepared and obtained, at the University of Liège, three certificates of specialization in comparative literature (prof A. Gérard), sociology of literature (prof A. Dubois) and general sociology (prof P. Minon).

Back home the same year, I returned to IRSAC, my original research institute, which in the meantime had become IRS and later CRESH, where I rose through the ranks, in turn, as Research Manager, 1979-1986; Research Master, 1986-1992 and, finally, Research Director, 1992 to 2022. It was in 2022, in the month of August, that I was awarded the dignity of Emeritus Researcher by a decree of the Minister of Scientific Research and Technological Innovation,

His Excellency Master Mpanda José.

In my capacity as a researcher, the research I have undertaken (in my literature, linguistics and sociology), first as part of a team, then personally

I have published some fifty scientific articles and twenty books, both at home and abroad (including Terminology of political life in Lingala and Swahili, One hundred years of research on the Mongo people, In search of an identity, drummed literature in Black Africa, From Kinshasa to Tokyo, The man and his work, History and chronology. Cheikh Anta Diop and the development of Black Africa, The job of researcher in Congo-Kinshasa, White and black leaders in African literature, Wufela yaek'olingo, first researcher emeritus of the Department of Black African History of the Department of Philosophy, Letters and communication /WERC. The man and his work.

Bio bibliographical references followed by "Human sciences and development"

Alongside my research duties, I have also held scientific positions (Director General and Scientific Director of RCEHS) and political-scientific positions in political cabinets (Senior Adviser (Chef de Cabinet) to the Ministry of Scientific Research, Adviser in charge of Human Sciences at ESURS, etc.).

I have also taught at universities and higher institutes such as ISPL, UPC from 1987 to the present day and UTBC, where I have also held academic positions as Vice-Dean, Dean, Academic General Secretary and Rector. I was awarded the Honorary diploma of "Scientific merits" by the Congolese Scientific Society and was twice invited, for a total of three years, to the University of Foreign Studies in Tokyo, Japan, as a visiting professor.

In conclusion, I would say that it is almost a distraction for the human mind to pretend to undertake scientific research without first having either a sufficiently large body of data or a sufficiently large body of knowledge.

a sufficient number of qualified researchers working full-time in the various Research Centers; nor the logistical and financial resources to match the expected results. Young people who commit themselves to scientific research, for their part, must know from the outset that to make a career - a successful career - in scientific research, apart from the case of born geniuses, they must necessarily and by every conceivable means hold a doctoral thesis. This is the first necessary condition. On the other hand, you can't claim to be doing scientific research without publishing, at some point, the results, even provisional, of the research you've undertaken. The credibility and honor of both the researcher and the funding bodies are at stake

Prof. Wufela Yaek'Olingo André L. Abraham

Emeritus research in RCHSE

APHP-St Antoine-GARO/Phanie

Une foie prête à être transplantée

Kidnapping and trafficking in human organs, a market for medical purposes?

For some time now, news of kidnappings has been making the headlines throughout DR Congo, in general, and in the city-province of Kinshasa, in particular. On July 3, 2023, for example, 27 alleged kidnappers were presented to the press in Kinshasa. They confessed to trafficking in human organs. Several other cases were reported here and there in the capital, creating a real psychosis among the population.

We hear more and more about organ trafficking, or the trade in human beings for the purpose of harvesting organs. Unbearable images of people being cowardly murdered are regularly shown on social networks.

To the question of what justifies this trafficking, the answer commonly given is that these organs are used for medical purposes, in particular transplants. In fact, the illegal trade in human organs, from removal to transplantation, is enjoying worldwide success. Several reports show that the need for organs is growing. Numerous Asian countries, such as China, India and Pakistan, are among the most prominent in this market, which is conducted by mafia-like networks.

The World Health Organization (WHO) estimates that between 5 and 10% of transplants carried out worldwide each year use organs obtained illegally from paid donors. Offering all or part of an organ to a sick recipient under acceptable medical and legal conditions, is a fundamental act of sharing. As such, it meets the criteria of altruism and solidarity, from which any notion of financial gain should be banished.

Unfortunately, this is not the case with the current traffic. It's bad enough that organs harvested and bought for a handful of dollars from people in developing countries are sold to wealthy Western or Asian patients for a handful of dollars. It's even worse if they are obtained by murdering the donor under inhumane conditions, as is currently the case.

These practices are contrary to bioethics, to say the least, are condemned by the Group's WHO guidelines on human organ transplantation, notably resolutions WHA44.25 and WHA63.22. These resolutions also call on member states to develop legal frameworks prohibiting the sale of organs, and to allocate resources to building technical capacity in the field of transplantation.

The same applies to the Istanbul Declaration on organ trafficking and transplant tourism, which condemns unequivocal condemnation of the illegal and criminal practice of organ trafficking.

In the meantime, business is going well. Organs are selling on the black market at a premium. The kidney is the most sought-after, not least because it is currently the only organ that can be completely transplanted with relatively little risk, unlike other noble organs such as the liver, pancreas or heart.

But can these organs really be harvested in Kinshasa or in the country itself, to be used for medical purposes locally or by distant Asian or European countries? The Science and Technological Innovation Bulletin approached a number of medical specialists at Kinshasa's university clinics. to find out more. In addition to the very stringent ethical requirements in most countries where organ transplants are performed, these Congolese surgeons described the very demanding conditions under which organs are removed for transplantation. Indeed, the removal of an organ for medical purposes (transplantation) requires a well-

trained harvesting team to respect the anatomical and physiological integrity of the organ.

A harvested organ that is to be used in someone else needs to be preserved in optimal living conditions. The harvesting team takes particular care to avoid ischemia of the organ to be harvested, so that its cells remain alive and useful to the recipient. This takes place under conditions of asepsis and other technical requirements that are difficult, if not impossible, to achieve in an environment other than a very well hospital.

In Kinshasa, this is far from the reality of the kidnappers' operating conditions as presented to the media.

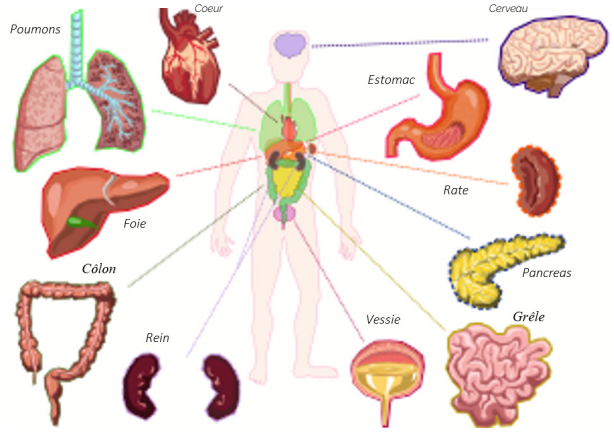
For example, how do you get a "deceased subject with a beating heart", the perfusion machine for explanted kidneys, the preserving liquid preservation fluid, perfusion with a peristaltic roller pump What logistical means could they use to transport these organs under optimum conditions to the implantation site outside the country? To get around these obstacles, most traffickers prefer to bring their victims alive, often by trickery, to the transplant town or site.

Removing an organ such as a liver, kidney or heart in non-medical conditions for presumed use elsewhere poses serious problems.

What's more, no hospital in Kinshasa currently has the technical facilities to perform a liver or kidney transplant, let alone a heart transplant, on its own.

All in all, the abhorrent kidnapping practices in vogue are justified by motives other than medical ones. Ritual crimes committed for other, as yet obscure, purposes are possible.

This seems to be borne out, for example, by the images of kidnappers removing the sexes, or by their propensity towards victims who are too young (children).It's a well-known fact that most of the world's organ users are adults, and the immature organs of children are not the best choice for them. Faced with this despicable phenomenon of kidnapping, which has been going on for a long time, the justice system and the relevant security services have their work cut out to get to the bottom of it



The main organs that can be transplanted

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BALOGIJE SELENGE Jean-Luc

Read for you

Living with an organ transplant

La greffe ou transplantation d'organe peOrgan transplantation can save lives or improve their quality. But even after several years, transplant patients can be faced with graft rejection. A sword of Damocles that obliges every transplant recipient to undergo lifelong treatment.

Organ transplantation is a therapeutic procedure designed to replace an organ that is failing severely and irreversibly, and whose function may be vital. The aim is to enable the patient to return to a normal life. The organs most frequently transplanted are the kidney, liver, heart and lungs.

In 2022, 5,494 transplants were carried out. 92% of organ and tissue donations come from deceased donors.

As several organs can be harvested from a single donor, one donor less means up to four separate transplants not carried out. The majority of these operations concern kidneys (3,376 transplants). Next come the liver (1,294), heart (411), lungs (334) and pancreas (70)1.

Organ donation saves lives

Despite this, more than 27,000 people are on the transplant waiting list, and nearly 1,000 patients die because they were unable to receive a transplant in time.

As of January 1, 2023, 10,810 new patients were on this waiting list. A January 2017 decree reaffirmed the concept of the "presumed donor", stipulated in French law since 1976, and simplified the procedures for making known, during one's lifetime, any opposition. The national refusal register, now accessible online, has 300,000 registrants.

The aim was to avoid soliciting relatives in such circumstances, by clarifying the wishes of the deceased. In practice, however, the family is systematically consulted beforehand, and the rate of opposition remains stable at around 33%. So it's important to take a stand, and to share your agreement or opposition to organ donation with those around you, with a close relative, or with a trusted person.

www.sanofi.fr/fr/nos-domaines-therapeutiques/greffedorgane

Maize: Research and production in the

Maize is the main cereal grown in the Democratic Republic of Congo (DRC). The country is home to some large farms with very high yields, such as those in Katanga. However, the national average is low (0.5 to 0.8 t/ha), due to the low use of good farming practices, and significant damage caused by various pests closely linked to the environment.

The DRC's agro-climatic conditions are favorable to maize production and could enable the country not only to be self-sufficient (eliminating imports), but also to position itself, after rehabilitation of transport infrastructures and with satisfactory access to quality seeds developed by research institutions and establishments and to inputs, as the sub-region's cereal granary.

Production statistics

Due to a lack of reliable statistics, it is difficult to put a figure on the production and consumption of maize and maize flour. According to statistics from the Haut Katanga governorate, the province produced 231,258 tons of maize in 2020, half of which came from large farms, for needs estimated at almost 1.681 million tons.

Available statistics show that in 2016, maize production was estimated at 3,373,058 tons. In 2015, gross national production was estimated at 5,333,738 tons. It was down 18% on the average for the last three years. Compared with 2015, gross national maize production was down -1017361 tons.

However, a disaggregated analysis by province shows significant declines in maize production in Kasaï (-64%) and Kasaï Central (-33%) provinces. In contrast, over the same period, agricultural production increased in Sankuru (+120%) and Lomami (+3%).

Maize is grown in all the country's provinces, where it can be found in almost every field, either as a pure crop or in combination with food crops and market garden produce. In both rural and urban areas, maize plays a key role in the daily diet of the Congolese people. It is an important source of energy, carbohydrates, proteins and vitamins. Maize provides around 30% of total calories for over 4.5 billion people in developing countries, and is the most widely consumed staple food in Africa.

Corn production is dominated by small-scale farmers. Large-scale farmers produce large quantities of corn, mainly for local breweries and mining companies. In a normal year, local production covers only 30 to 40 percent of the province's needs. The shortfall (60-70%) is made up by imports from Zambia and South Africa. Zambia is the main source of supply for maize flour.

Production of maize for consumption (Source: private farm in Upper Katanga)

Nutritional values

Varieties with high quality protein content (QPM), containing double the proportions of the amino acids lysine and tryptophan, are used in infant nutrition, breast-feeding and poultry rations. Poor-quality diets dominated by staple foods (cassava, sweet potato, yam, etc.) are often deficient in minerals and vitamins, but corn can provide sufficient quantities

of provitamin A (ProVitA), which the body converts into vitamin A. Vitamin A deficiency occurs on a continuum. Thus, severe vitamin A deficiency creates a high risk of child death from otherwise curable infections.

Constraints on maize growing in the DRC

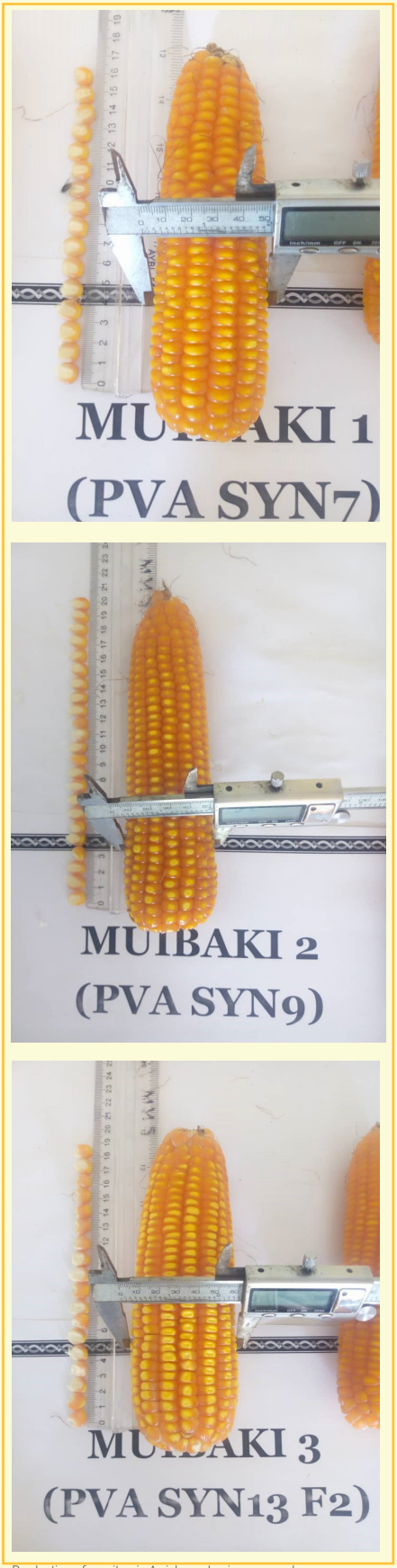
Maize cultivation faces a number of constraints due to natural and/or man-made causes. In addition to recurrent diseases such as stripe, helminthosporiosis, downy mildew, rust, smut and pests such as weevils and maize stalk borers, a new pest has made its entry, causing losses of up to 50% of the harvest (Tshiabukole et al, 2019). In 2016, the maize crop faced unprecedented attacks caused by larvae of an unusual lepidopteran in the DRC identified as Spodoptera frugiperda (FAO, 2017). Environment-related factors such as low soil fertility due to poor farming practices, climate change, are ranked among the major abiotic constraints reducing maize productivity in the areas.

Fall armyworm and leaf damage on the plant (source: Tshiabukole et al., 2017)

Signs of stem borers. Search results

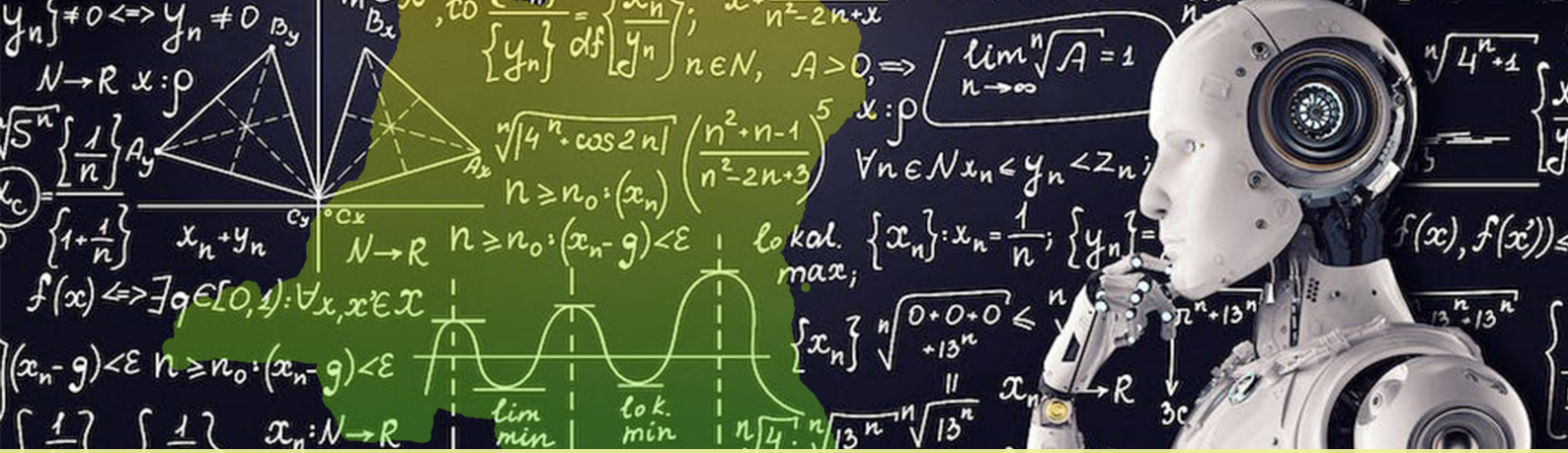
It requires capitalizing on the achievements of agronomic research to offer the population of the DRC the opportunity to be a real human capital for the country's development. To this end, several technologies and technical itineraries have been developed, as well as open-pollinated and composite maize varieties, including those rich in quality proteins known as QPM (var: Mudishi-1, Mudishi-3 and UPN-1), those rich in provitamin A known as PVA (var SAM4 VITA, Muibaki-3), those tolerant of low soil nitrogen levels known as Low N (var: LNTP-W C4 and LNTP-Y C7), and water-stress tolerant DT(var :07 SADVE, ZM 725 and ZM 625) were selected or developed by INERA researchers in collaboration with universities (UNIKIN, UPN and UNILU).

These varieties are listed in the national cereals catalog and are being distributed throughout the country, where they have proved their worth, with yields of up to 5-7 tons per hectare if the technical itinerary is followed to the letter. The high-yielding QPM and PVA varieties contribute actively to the fight against malnutrition in its various forms; their use has solved the problem of food shortages and deficiencies in the test areas in the east of the country and in the south of Lomami.



Production of provitamin A-rich pre-basic corn seed.

Prof. KABONGO TSHIABUKOLE



For a geopolitics of artificial intelligence in the DRC

Artificial Intelligence (AI) is making rapid progress, and is becoming a real power tool for governments. This applies equally to hard power (military applications) and soft power (economic impact, political and cultural influence, etc.).

At the heart of in-depth research at the Institute for Geopolitical Research and Strategic Studies (IGRSS) is the observation that, contrary to the common belief that the digital revolution necessarily triggers economic decentralization, it is actually possible for Artificial Intelligence to provoke, or reinforce, a global movement to centralize power in the hands of a handful of players. These digital empires benefit from economies of scale, and an acceleration in their concentration of power in the economic, military and political spheres thanks to AI. They are becoming major poles governing all international affairs, with a return to a "bloc logic". At this level, the USA, China and India dominate the market and impose their power.

Although the Democratic Republic of the Congo is seeking to react by issuing new regulations in the field of digital technology and Artificial Intelligence in general, it has to be admitted that it is lagging behind the advances seen in certain African countries.

The geopolitics of artificial intelligence is a vision of power at the heart of governance, rooted in the field of IT and covering a wide range of disciplines, technologies and methods.

This state vision should materialize through improved governance of the scientific research and digital sectors, investment in national broadband infrastructure, and improved access to ICTs for the population.

The emergence of the immaterial world has focused attention on innovation and the capabilities offered by information technology. This "second world", symbolized by the Internet, must be seen by the DRC as a source of opportunities and creativity.

In the "first world", the difference between players is expressed in their ability to think in terms of increasing power. The definition of maritime and land conquest objectives is the most concrete expression of this.

Is the immaterial world into which we are inviting the Democratic Republic of Congo destined to follow a comparable evolution? Several factors would seem to suggest so. The calm vision of an English-language, globalist Internet is dissipating under the impact of policies pursued by countries asserting their claim to safeguarding their sovereignty.

Advances in Artificial Intelligence are making it an essential tool in the assertion of States in international geopolitics. It seems that the state with the greatest control over these new technologies will have a say in the economic, political and military destinies of other states. Embedded in the digital revolution, AI can contribute to the determination of the Democratic Republic of Congo in the regional (Africa) and global order of the coming decades, accentuating and accelerating the dynamics of an ancient cycle where technology and power reinforce each other. It will transform certain axioms of geopolitics through new relationships between territories, spatiotemporal dimensions and immateriality

Currently, no African country features in the top 10 countries that stand to benefit most from AI and automation. But the DRC has the opportunity to catch up if the ruling class acts with due diligence.

To achieve this, it seems more than necessary to take advantage of our best and most powerful resource: our human capital, in this case our youth, to create jobs.

At the same time, policymakers should identify the groups most at risk of losing their jobs, and create strategies to reintegrate them into the economy.

For this reason, it would be advisable to proceed by :

- the development of a coordinated plan to encourage education in the field of AI;
- promoting entrepreneurship in the AI sector;
- facilitating collaboration between AI researchers and experts in healthcare, agriculture and other sciences ;
- la révision de certains les lois et règlethe revision of certain laws and regulations relating to ICT ;
- l'allocation des ressources finanthe allocation of appropriate financial resources for the injection of AI technologies into the sector;

the creation of scholarly structures (research centers and institutes, universities and schools).

Professor KABWITA KABOLO IKO
Researcher at IGRSS

Problem of Climate change in and around Goma

Goma city.

The evolution of our global climatic environment is currently of the utmost concern to all mankind. Scientists and politicians alike are looking into the problem, and considering ways and means of elucidating the causes of global warming.

At the local level, the study of microclimates by analyzing parameters (temperature, humidity, rainfall, etc.) is of vital importance.

These parameters generally reflect the state of the environment.

Any modification or variation in the climatic conditions of the environment, even in a much less sensitive way, can be detected through these parameters. The city of Goma is no exception to this reality, but rather but rather suffers the blows. In the following lines, we will attempt to present the current situation in relation to this theme.

The state of the climate change in Goma

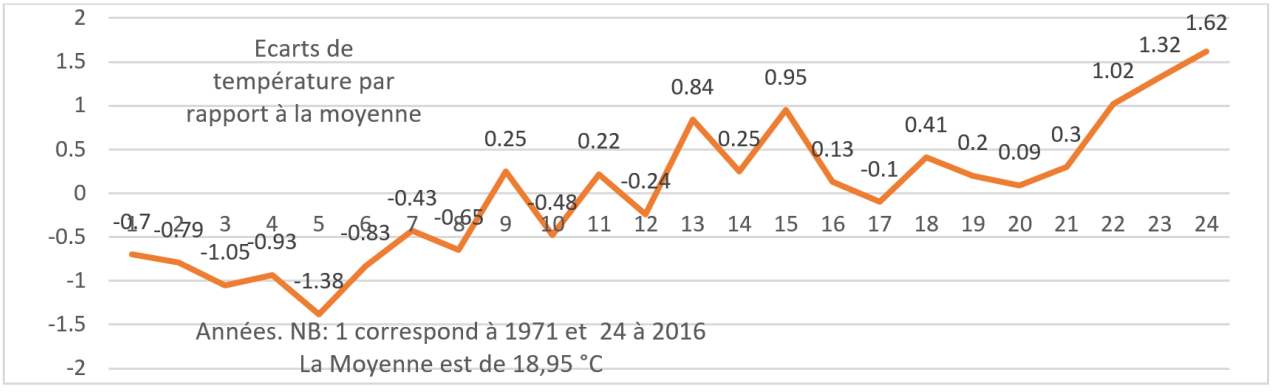
Goma is a town in the east of the Democratic Republic of Congo, at the foot of the Nyiragongo volcano and bordering the Rwandan town of Gisenyi. Its geographic coordinates are: 1°4136" S ; 29 °13'31 " and 1530m. The population of the city of Goma is currently estimated at around 2,100,000, whereas in 2002 it was around 400,000.

As a result, it is experiencing a very rapid growth rate due to a very high birth rate, but also, and above all, to a very large migratory flow due, in particular, to recurrent insecurity in the surrounding areas and the attraction it enjoys vis-à-vis neighboring towns. The consequence of all this is pressure on the environment and local resources. The meteorological data used in this study come essentially from two stations, the OVG and the RVA/Goma.

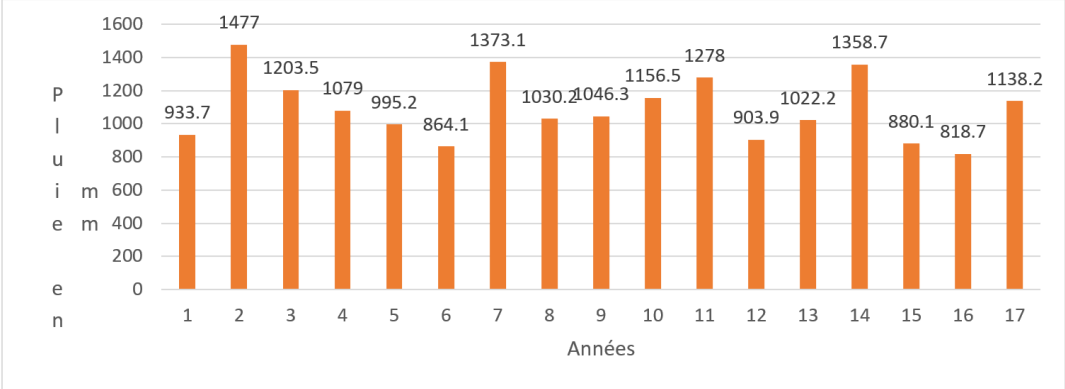
The OVG data are acquired automatically using a Vantage Pro2 weather station, but date back only to 2000, when the station was purchased. RVA data, on the other hand, date back to 1971, but are acquired analogically, i.e. manually.

Temperature

The evolution of air temperature in Goma, as recorded at the RVA station, shows that it has risen by 1.62°C compared with the average from 1971 to 2016, i.e. 18.98°C. On the other hand, if we consider the initial 1971 value of 18.28, the increase amounts to 2.32°C.



Air temperature variations in Goma compared with the average from 1971 to 2016 (Station RVA/Goma)



Annual rain in Goma from 2000 to 2016

Rainfall in the Goma region also fluctuated sharply.

from 2000 to 2016. In the figure above, we can see a significant fluctuation in rainfall from a maximum value of 1,477mm to a minimum value of 818.7mm, i.e. a variation of 658.3mm.

The case of the active VIRUNGA volcanoes

Le Nyiragongo and Nyamulagira are the two active volcanoes in the Virunga chain. In both normal and eruptive periods, these two volcanoes are characterized by large gas plumes and lava flows. All these emissions have an impact on the climatic situation of Goma and the surrounding regions. We will illustrate this with a few highlights :

The Nyiragongo

Since May 2002, this volcano has been emitting a permanent plume of gas. During its most active periods, it emits over 50,000 tons of Sulfur Dioxide (SO2) per day, and during calm periods 2 to 10,000 tons per day. This SO2 is at the root of the frequent acid rain in the surrounding environment. In addition to SO2, it also emits Carbon Dioxide (CO2) and Water Vapor, which are greenhouse gases that can influence the local climate.

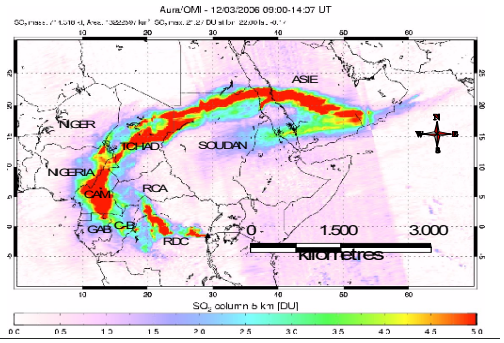
The conclusions of their survey show that the city of Goma, which is booming on all fronts, is not immune to the reality of climate change, and if appropriate mitigation measures are not taken, the situation will only get worse.

OVG researchers /Goma

The Nyamulagira

LThe impact of Nyamuragira's eruptions on the climate is obvious and well documented. We have selected three cases to illustrate this:

1. *During this eruption, the temperature fell by 0.4°C.*
2. *Spread of the plume from the 2006 eruption: this plume crossed western DRC, West Africa and the Persian Gulf.*
3. *In the past, it was observed that in March 1938, during its two-year eruption (1938-1940), the Kobe station located to the NNW of Sake recorded 835mm of rain and the Kisheke station 423mm. These values are a far cry from normal March values. This situation is certainly due to this eruption*



Spread of the plume from the 2006 eruption

NECROLOGY

The NSC informs its Community that the body of **Mr MUSENE MWA Didier** First-class administrative office attaché (ATA1), who died on 08/07/2023 in Kinshasa, was buried on 25/07/2023 at the Kinkole VIP cemetery.

Ministry of Scientific Research and Technological Innovation

Gilbert KABANDA

organizes the

Conclave of Congolese Scientific Genius

from 14 to 24 august in Kinshasa.

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1. to deliberate on the guidelines and priorities of the scientific and technological research plans and programs to be carried out in the country ;
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;
6. . proposing to the Minister for Scientific Research the appointment and promotion of scientific and administrative personnel.

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